ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

150 Zachary Road
Manchester, NH 03109
Telephone 603-647-7077
Fax 603-647-5347
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October 5, 2018

Permit Coordination
U.S. Environmental Protection Agency
EPA Region 1
5 Post Office Square
Mail Code OEP06-4
Boston, MA 02109-3912

RE: Notice of Intent for Remediation General Permit
Thrifty Car Rental
40 Lee Burbank Highway, Revere, MA 02151
MassDEP RTN 3-34303

Dear Permit Coordinator:

ATC Group Services LLC (ATC) is providing this Notice of Intent (NOI) to discharge under the Remediation General Permit (RGP) for proposed construction dewatering, treatment, and discharge of groundwater to facilitate the excavation of petroleum impacted soils associated with a release of #2 fuel oil on a portion of the Thrifty Car Rental Property (the Property) located at 40 Lee Burbank Highway, in Revere, Massachusetts.

Irving Oil Terminals, Inc. (Irving), is the owner of the Property, and Global Companies LLC (Global) is the owner and operator of four bulk petroleum pipelines that run underground through the western portion of the Property. The proposed response actions are being conducted in accordance with the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000) to remove petroleum impacted soil from a release of No. 2 fuel oil. For purposes of this permit application, ATC will be the "operator" of the treatment system.

The following sections provide the project background, source water (influent) sample testing results, a description of the proposed treatment system, information on the receiving water body, and other information in support of this NOI.

Background

The Property is an existing Massachusetts Department of Environmental Protection (MassDEP) waste site identified by release tracking number RTN 3-34303. A release originated from a pinhole discovered in one of the 1-inch riser pipes connected to Global's No. 2 fuel oil distribution pipeline located underground along the western Property boundary. The release was reported to MassDEP on May 23, 2017, and MassDEP subsequently assigned RTN 3-34303 to the release and approved Immediate Response Action (IRA) activities.

The release is known to have impacted soil and resulted in the presence of light non-aqueous phase liquid (LNAPL) at the Property. Impacts to soil and/or groundwater are believed to extend onto the adjacent Massachusetts Bay Transit Authority (MBTA) property (the extent of which has not yet been determined due to access restrictions). IRA activities conducted to date to address the release have included isolation of the #2 fuel oil bulk distribution pipe and removal of the riser pipe, deployment and recovery of absorbent materials and recovery of fuel oil and water from on-site catch basins, excavation and off-site disposal of approximately 7 yds^3 of fuel oil impacted soil, advancement of soil borings and installation of groundwater monitoring wells, LNAPL groundwater gauging events and manual LNAPL recovery, and completion of inspections of the adjacent Chelsea River shoreline.

ATC is planning to conduct additional delineation of soil impacts, soil excavation and off-site disposal. Post-excavation activities will include soil boring advancement/monitoring well installation, groundwater sample collection and laboratory analysis and the completion of a risk characterization. The soil excavation and associated dewatering is tentatively planned for October-November 2018, contingent upon executing agreements and receiving final approval from the MBTA.

The depth to groundwater is approximately two feet below grade. Previous hydrogeological assessments indicate the underlying soil consists of sand with some silt and clay content; several soil borings also included small rocks/crushed stone and larger diameter aggregate material. Although the depth of the excavation is not expected to exceed 4 to 5 feet below ground surface (ft bgs), temporary dewatering activities are required to facilitate removal of petroleum impacted soil due to the shallow groundwater depth.

A groundwater sample was obtained from monitoring well ATC-3, a location considered to represent the greatest impacts to groundwater, to characterize the potential dewatering treatment system influent, and a surface water sample was obtained from the Chelsea River near the point of discharge. The samples were analyzed following the method guidance provided in the RGP issued March 9, 2017. Method detection limits were generally compliant with the requirements; however, some reporting limits did not achieve the required limits due to the presence of other non-target analytes. Please see the data summary table provided in **Attachment C**.

A Site Locus map is provided as **Figure 1**. A Site Plan showing the existing site layout is provided as **Figure 2**. **Figure 3** depicts the proposed soil excavation and treatment system layout. A schematic line drawing of the proposed treatment system is provided as **Figure 4**. A copy of the NOI application form is provided in **Attachment A**.

Influent Sample Analysis

Groundwater samples were collected from monitoring well ATC-3, which is considered the groundwater monitoring well with the highest concentrations of contaminant impact. The samples were collected in glassware provided by the laboratory with appropriate preservative as required and delivered via courier to Eurofins Spectrum Analytical Laboratory in Agawam, Massachusetts for analysis. The samples were handled under standard chain of custody protocol. Chemical analyses of the influent included all RGP Category A through F parameters. The receiving water was analyzed for inorganics and salinity. A summary table of the data is included in **Attachment C**, along with complete laboratory analytical reports and chain of custody documentation.

Although Group I and Group II polycyclic aromatic hydrocarbons were not detected above the laboratory detection limits (note that the laboratory detection limits were elevated due to the presence of other non-target analytes), naphthalene is marked “present” on the NOI application based on the source of the fuel release (No. 2 fuel oil), the presence of this polycyclic aromatic hydrocarbon (PAH) in soil samples analyzed from the release area, and the elevated detection limits. Iron and lead were detected and are marked as present and are attributed to background levels; other metals were not detected and are marked “absent”. Polychlorinated biphenyls (PCBs) have also been marked absent. There is no known source of PCBs on the property.

Other than benzene, which was detected at a concentration of 19.4 micrograms per liter (ug/l) above the TBEL of 5.0 ug/l, no other volatile organic compounds (VOCs) were detected in the groundwater sample analyzed. Likewise, other halogenated and non-halogenated VOCs, and semi-volatile organic compounds (SVOCs), were not detected and they have been marked absent. Total petroleum hydrocarbon (TPH) was reported concentration of 20.3 mg/L using EPA Method 1664, above the TBEL of 5.0 mg/l.

Treatment System Design

The design capacity of the groundwater treatment system is anticipated to be less than150 gpm. The average flow is anticipated to be less than 100 GPM. The groundwater treatment system will include one or more submersible pumps to transfer groundwater from the excavation into two aboveground temporary fractionation or "frac" tanks. Each frac tank has an approximate 21,000-gallon capacity and will allow suspended solids to settle prior to treatment. A skid-mounted transfer pump will pump the water from the frac tank(s) through two parallel sets of two-bag particulate filters connected in series (four bag filters in total) appropriately sized to remove suspended solids. Filtered groundwater will be processed through two 500-pound vessels[1] connected in series and filled with granular activated carbon (GAC) to remove petroleum contaminants prior to discharging the treated effluent to the Chelsea River. The location of Outfall 001 is depicted on **Figure 3**. The proposed outfall coordinates are 71°00'38.02" west longitude, 42°23'50.15" north latitude, as determined by Google Earth.

The soil excavation is projected to be completed within one week, and once the petroleum impacted soil has been excavated, further dewatering will be unnecessary. Due to the short duration of this project, the discharge will likely terminate within two weeks.

Receiving Waters Information

The proposed discharge location for the treated groundwater is the Chelsea River. ATC has provided the MassDEP Phase I Primary Resources Map as **Attachment B**, which identifies nearby sensitive environmental receptors.

According to the online DRAFT MassDEP 2016 Integrated List of Waters, the Chelsea River is located in the Mystic River watershed. The Draft 2016 Assessment Unit ID was MA71-06. In the Property area, the Chelsea River is a Category 5, impaired water. The Chelsea River has Total Maximum Daily Loads (TMDLs) for ammonia, fecal coliform, contaminants in shellfish, oxygen (dissolved), PCB in fish tissue, petroleum hydrocarbons, sediment, taste and odor, and turbidity. Background documentation on the receiving waters is provided in **Attachment B**. Because the Chelsea River is a saltwater body, a one-to-one dilution factor applies.

Using an MS Excel spreadsheet obtained through the USEPA, ATC calculated water quality based effluent limits (WQBELs) for the discharge, to assess whether the RGP technology based effluent limits (TBEL) or WQBEL apply. Based upon ATC's calculation the only WQBEL that applies is total residual chlorine of 7.5 ug/L. ATC's spreadsheets are presented in **Attachment C**.

Evaluation of Threatened or Endangered Species or Critical Habitats

ATC reviewed United States Department of the Interior, Fish and Wildlife Service, New England Field Office data via internet and telephone regarding the endangered species consultation required for the RGP application. ATC conducted an electronic consultation through the Fish and Wildlife website. The electronic consultation directed ATC to contact the local FWS office. No endangered or threatened species were identified in the project area. Based on a phone conversation with Ms. Tur of the New England field office, she indicated our short duration project would not affect any endangered or threatened species, and directed ATC to download a letter affirming this determination. A copy of the determination is provided in **Attachment D**.

Review of National Register of Historic Places

This project does not involve the demolition or rehabilitation of historic properties. ATC has reviewed Massachusetts Historical Commission databases and found there are no nearby historical assets that will be negatively impacted by the project. Suffolk Downs, a registered historical property located in the vicinity of

[1] Depending upon actual flowrate. Vessels will be sized for up to 1000-pounds of GAC as contingency.

Winthrop Parkway and Tomesello Way, is the nearest relevant property. It is ATC's opinion the scope, location, and short duration of this project will not have any long-term negative effects on the historical attributes of the nearest historical properties. The Suffolk Downs information is provided in **Attachment D**.

Notification of Local Officials

ATC has provided a copy of this RGP Notice of Intent to the City of Revere Conservation Department.

Regulation by the Massachusetts Contingency Plan

As the work being completed is also governed by the Massachusetts Contingency Plan (310 CMR 40.0000) under MassDEP RTN 3-34303, an IRA Plan and Plan Modification have been provided to the MassDEP under separate cover. Discharges subject to the MCP do not require the completion of state application form BRPWM 12 or to pay state fees. However, a copy of this RGP application is also being provided to MassDEP.

Should you have any questions regarding the contents of this letter or the NOI for the RGP, please do not hesitate to contact the undersigned at (603) 647-7077.

Sincerely,
ATC Group Services LLC

Steven Low, PG
Branch Manager

cc: City of Revere Conservation Commission
Catherine Vakalopoulos (MassDEP)
Steven Charron (Global)

Attachments:

Figures

Figure 1- Site Locus
Figure 2- Site Plan
Figure 3- Proposed Soil Excavation and Treatment System
Figure 4- System Flow P&ID

Attachments

Attachment A- RGP NOI Application
Attachment B- Background Documentation on the Chelsea River and Sensitive Receptors
Attachment C- Data Summary Table, WQBEL Calculations and Laboratory Report
Attachment D- Review of Threatened or Endangered Species and National Historic Preservation Act Review

Figures

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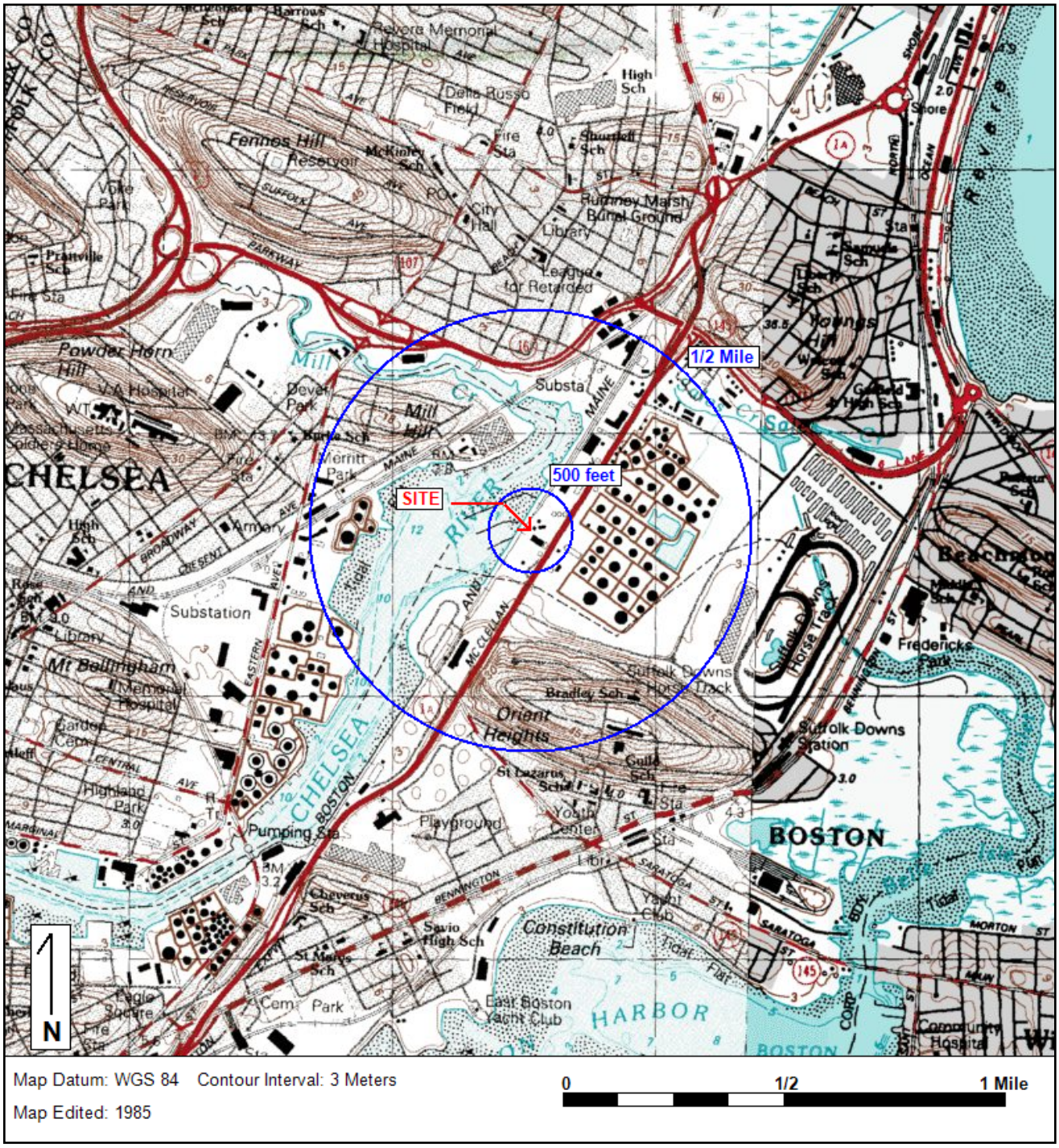
500 West Cummings Park Suite 3750
Woburn, MA 01801
Phone 781-932-9400
www.atcgroupservices.com

Thrifty Car Rental
40 Lee Burbank Highway
Revere, MA 02151

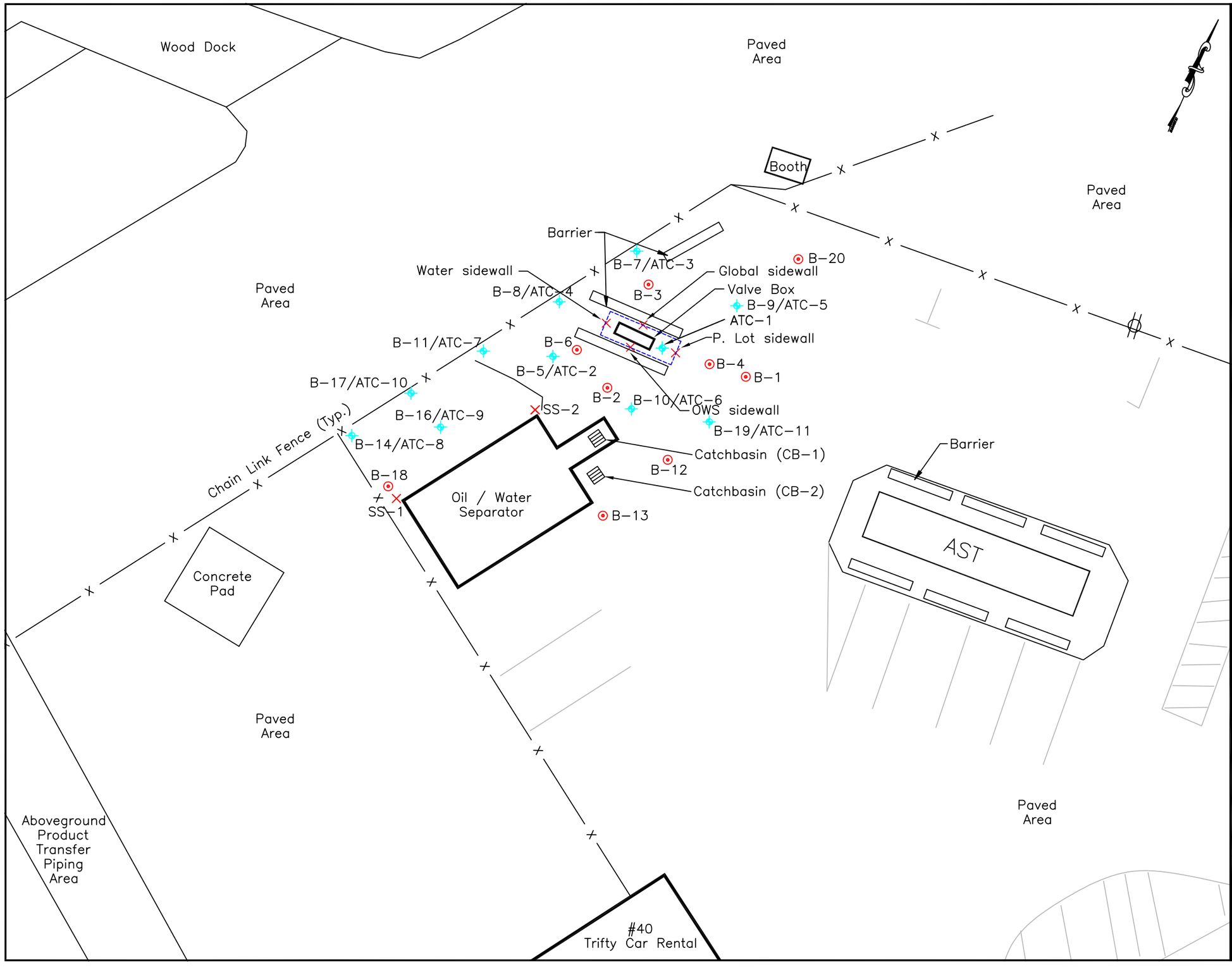
Figure 1: SITE LOCUS



Base Map: U.S. Geological Survey; Quadrangle Location: Boston North, MA

Lat/Lon: 42 23' 50.7" NORTH, 71 0' 36.2" WEST - UTM Coordinates: 19 34569.1 EAST / 4695859.4 NORTH

Generated By: Rick Starodoj



LEGEND

- Fence
- Approximate Excavation Extent
- Soil Boring Location
- Monitoring Well
- Grab Soil Sample Location

General Notes:

All locations, dimensions, and property lines depicted on this plan are approximate. This plan should not be used for construction or land conveyance purposes.

1. THIS TERMINAL PLOT PLAN WAS MODIFIED FROM "FIGURE 2 TERMINAL PLOT PLAN DATED 4/27/00" PREPARED BY TRITON ENVIRONMENTAL, BASED ON "AS BUILT SURVEY-LAND OWNED BY ATLANTIC RICHFIELD COMPANY IN REVERE, MASSACHUSETTS.", PREPARED BY WHITMAN & HOWARD, INC., DATED 1/12/83 AND REVISED 1/17/83. AND "DRAINAGE CONTROL PLOT PLAN" PREPARED FOR ATLANTIC RICHFIELD COMPANY BY MORRIS AND WEST, DATED 9/14/73. ADDITIONAL INFORMATION WAS PROVIDED BY GLOBAL PETROLEUM CORPORATION AND ATC.

ATC
588 Silver Street * Agawam, MA 01001
Phone: 800-789-3530 Fax: 413-789-3530

PROJECT:
Thirfty Car Rental
40 Lee Burbank Highway
Revere, Massachusetts

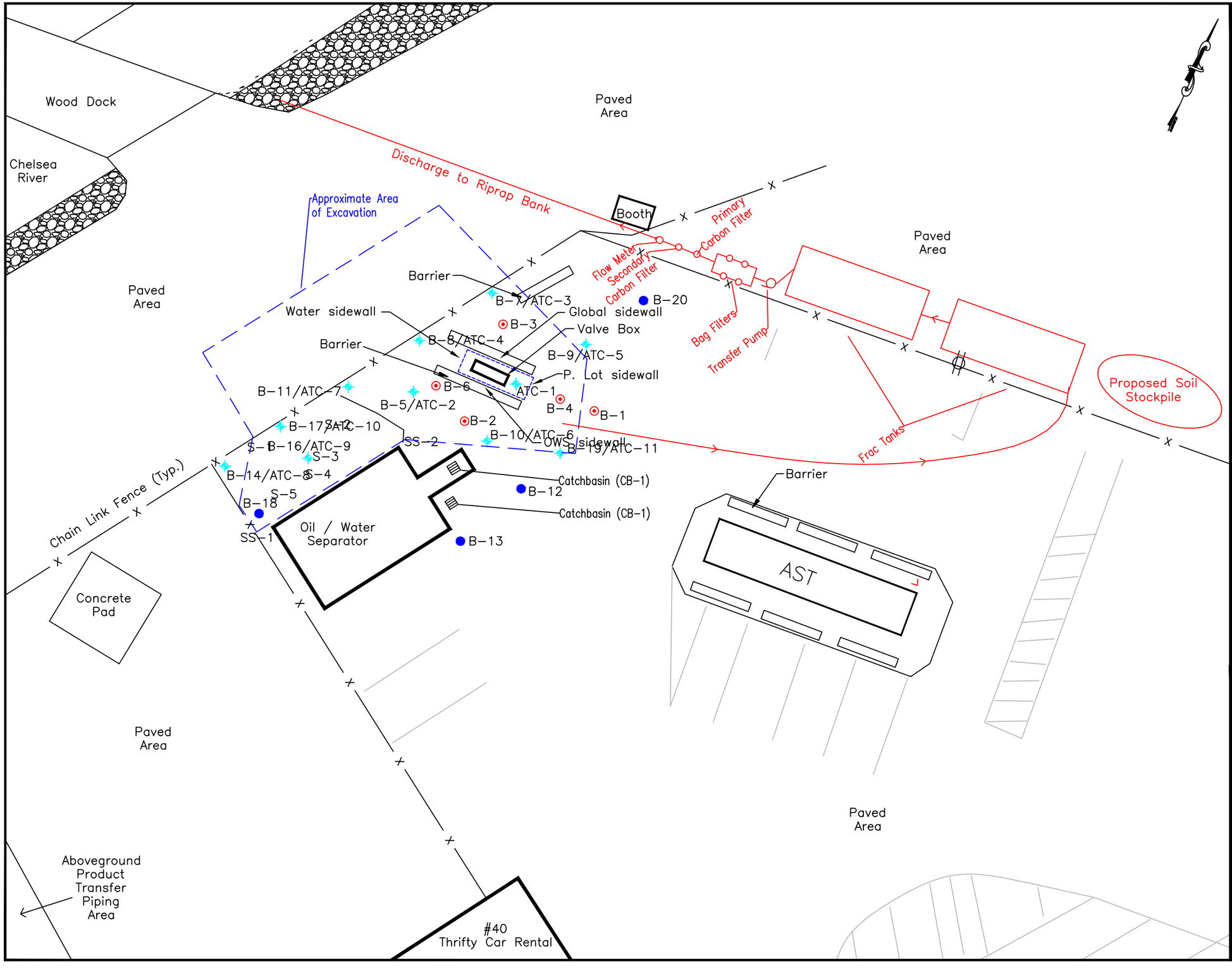
TITLE:
SITE PLAN

CLIENT:
Global Companies LLC

GRAPHIC SCALE: 15 7.5 0 7.5 15

COMPUTER CADFILE : Revere Master Terminal Plan.dwg

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
RAS	MC/DF	MC/DF	DF
SCALE:	**DATE:**	**JOB NO.:**	**FIGURE NO.:**
1" = 15'	9/1/2017	05-201895	2



LEGEND

- Fence
- Approximate Excavation Extent
- Soil Boring – June 2017
- Monitopring Well
- Soil Sample Location
- Soil Boring – August 2017

General Notes:

All locations, dimensions, and property lines depicted on this plan are approximate. This plan should not be used for construction or land conveyance purposes.

1. THIS TERMINAL PLOT PLAN WAS MODIFIED FROM "FIGURE 2 TERMINAL PLOT PLAN DATED 4/27/00" PREPARED BY TRITON ENVIRONMENTAL, BASED ON "AS BUILT SURVEY-LAND OWNED BY ATLANTIC RICHFIELD COMPANY IN REVERE, MASSACHUSETTS.", PREPARED BY WHITMAN & HOWARD, INC., DATED 1/12/83 AND REVISED 1/17/83. AND "DRAINAGE CONTROL PLOT PLAN" PREPARED FOR ATLANTIC RICHFIELD COMPANY BY MORRIS AND WEST, DATED 9/14/73. ADDITIONAL INFORMATION WAS PROVIDED BY GLOBAL PETROLEUM CORPORATION AND ATC.

ATC
500 West Cummings Park * Woburn, MA 01801
Phone: 781-932-6211 Fax: 781-932-6211

PROJECT:
Thrifty Car Rental
40 Lee Burbank Highway
Revere, Massachusetts

TITLE:
Proposed Soil Excavation and Treatment System

CLIENT:
Global Petroleum

GRAPHIC SCALE: 15 7.5 0 7.5 15

COMPUTER CADFILE : Revere Master Terminal Plan.dwg

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
GP	CO/SL	CO/SL	SL
SCALE:	**DATE:**	**JOB NO.:**	**FIGURE NO.:**
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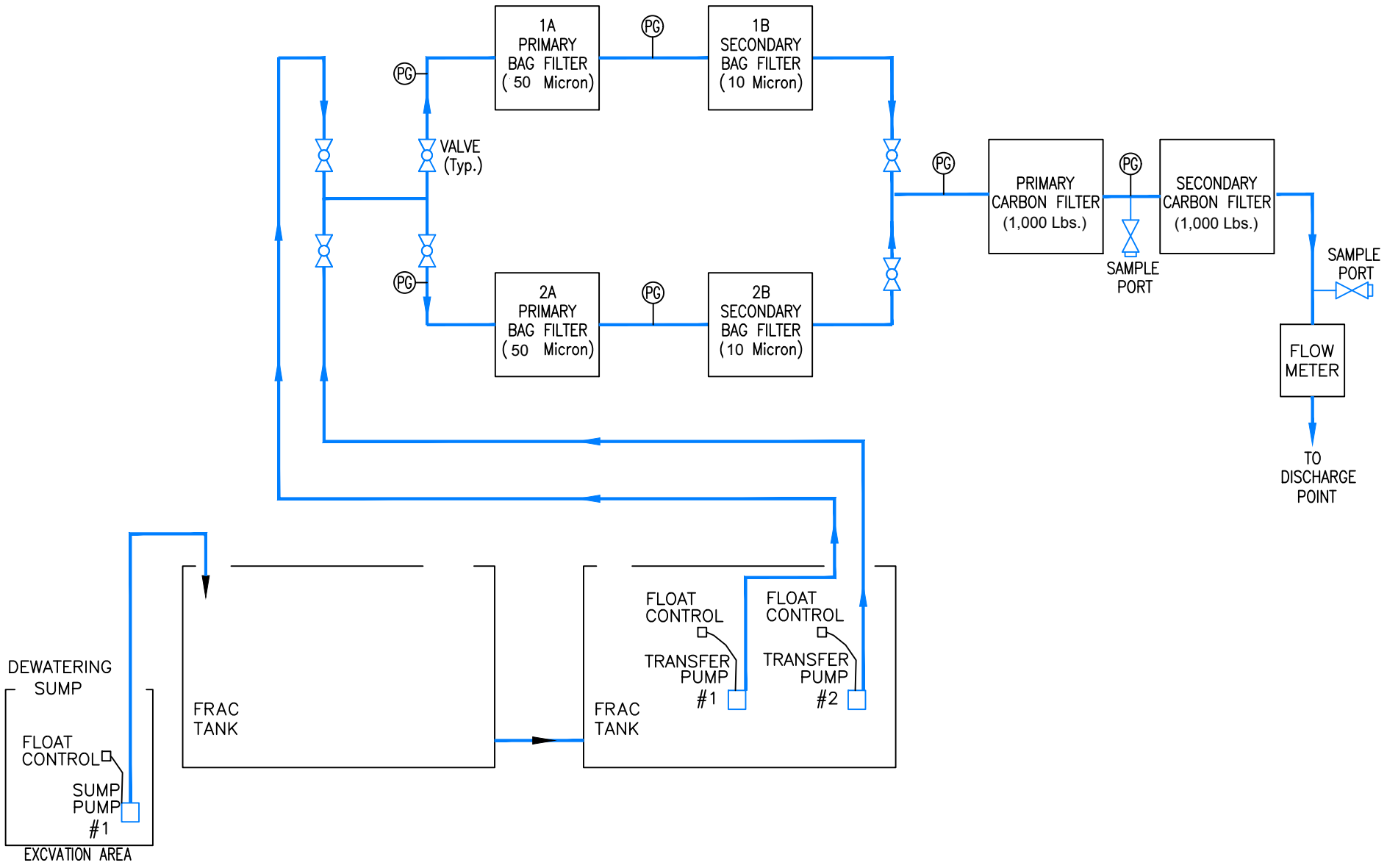


ATC
500 West Cummings Park * Suite 3750 * Woburn, MA 01801
Phone: 781-932-9400 Fax: 781-932-6211

REVISIONS

No.	Date	Description

PROJECT:

Global Petroleum
40 Lee Burbank Highway
Revere, Massachusetts

TITLE:

System Flow P & I D

COMPUTER CADFILE : Dewatering–Typical.dwg

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
RAS	WAS	SPL	DWF
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
NTS	9/26/18	05–201895	4

Attachment A
RGP NOI Application

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

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
Thrifty Car Rental</td><td colspan="3">Site address: 40 Lee Burbank Highway
Street:</td></tr>
<tr><td>City: Revere</td><td>State: MA</td><td>Zip: 02151</td></tr>
<tr><td rowspan="4">2. Site owner
Irving Oil Terminals, Inc.

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: David Fradette</td></tr>
<tr><td colspan="2">Telephone: 603.498.4940</td><td>Email: david.fradette@irvingoil.com</td></tr>
<tr><td colspan="3">Mailing address: 190 Commerce Way
Street:</td></tr>
<tr><td>City: Portsmouth</td><td>State: NH</td><td>Zip: 03801</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
ATC Group Services LLC</td><td colspan="3">Contact Person: Steven Low</td></tr>
<tr><td colspan="2">Telephone: 603-391-0064</td><td>Email: steven.low@atcgs.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 150 Zachary Road</td></tr>
<tr><td>City: Manchester</td><td>State: NH</td><td>Zip: 03109</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-34303
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Chelsea River	MA71-06	Class SB

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ■ Yes ☐ No
If yes, specify: Chelsea River approximately 50 feet west

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Yes, on 303 list. TMDL for ammonia, fecal coliform, contaminants in shellfish, oxygen (dissolved), PCB in fish tissue, petroleum hydrocarbons,

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1:1

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ☐ Yes ■ No
If yes, indicate date confirmation received:

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

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

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

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): Outfall 001 - Discharge to riprap bank along the Chelsea River	Outfall location(s): (Latitude, Longitude) 41˚23’ 50.15” N 71˚00’ 38.02” W
Discharges enter the receiving water(s) via (check any that apply): ■ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ☐ A private storm sewer system ☐ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Not applicable Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ☐ No	
Provide the expected start and end dates of discharge(s) (month/year): October 22, 2018 to November 30, 2018 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">■ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
☐ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

■ A. Inorganics
■ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
■ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
■ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>☐ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia	✔		1	E350.1	1,000	<1,000	<1,000	Report mg/L	---
Chloride		✔	1	EPA 300.0	6,000	149,000	149,000	Report µg/l	---
Total Residual Chlorine		✔	1	SM4500	20	35	35	0.2 mg/L	7.5 ug/L
Total Suspended Solids		✔	1	SM2540D	1000	20,000	20,000	30 mg/L	---
Antimony	✔		1	SW6020B	3	<3	<3	206 µg/L	640 ug/L
Arsenic	✔		1	SW6020B	4	<4	<4	104 µg/L	36 ug/L
Cadmium	✔		1	SW6020B	1	<1	<1	10.2 µg/L	8.9 ug/L
Chromium III	✔		1			0.00	0.00	323 µg/L	100.0 ug/L
Chromium VI	✔		1	SM3500	5	<5	<5	323 µg/L	50 ug/L
Copper	✔		1	SW6020B	2.5	<2.5	<2.5	242 µg/L	3.7 ug/L
Iron		✔	1	EPA200.7	250	1570	1570	5,000 µg/L	
Lead		✔	1	SW6020B	0.5	0.9	0.9	160 µg/L	8.5 ug/L
Mercury	✔		1	EPA245.1/	0.2	<0.2	<0.2	0.739 µg/L	1.11 ug/L
Nickel	✔		1	SW6020B	2.5	<2.5	<2.5	1,450 µg/L	8.3 ug/L
Selenium	✔		1	SW6020B	10	<10	<10	235.8 µg/L	71 ug/L
Silver	✔		1	SW6020B	1	<1	<1	35.1 µg/L	2.2 ug/L
Zinc	✔		1	SW6020B	10	<10	<10	420 µg/L	86 ug/L
Cyanide	✔		1	EPA335.4/	5	<5	<5	178 mg/L	1.0 ug/L
B. Non-Halogenated VOCs									
Total BTEX		✔	1	EPA 624.1	5.0	19.4	19.4	100 µg/L	---
Benzene		✔	1	EPA 624.1	1.0	19.4	19.4	5.0 µg/L	---
1,4 Dioxane	✔		1	EPA 624.1	20.0	<20.0	<20.0	200 µg/L	---
Acetone	✔		1	EPA 524.2	10.0	<10.0	<10.0	7.97 mg/L	---
Phenol	✔		1	EPA 625.1	25.0	<25.0	<25.0	1,080 µg/L	300 ug/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	EPA 624.1	1.0	<1.0	<1.0	4.4 µg/L	1.6 ug/L
1,2 Dichlorobenzene	✔		1	EPA 624.1	1.0	<1.0	<1.0	600 µg/L	---
1,3 Dichlorobenzene	✔		1	EPA 624.1	1.0	<1.0	<1.0	320 µg/L	---
1,4 Dichlorobenzene	✔		1	EPA 624.1	1.0	<1.0	<1.0	5.0 µg/L	---
Total dichlorobenzene	✔		1	EPA 624.1	1.0	<1.0	<1.0	763 µg/L in NH	---
1,1 Dichloroethane	✔		1	EPA 624.1	1.0	<1.0	<1.0	70 µg/L	---
1,2 Dichloroethane	✔		1	EPA 624.1	1.0	<1.0	<1.0	5.0 µg/L	---
1,1 Dichloroethylene	✔		1	EPA 624.1	1.0	<1.0	<1.0	3.2 µg/L	---
Ethylene Dibromide	✔		1	EPA 624.1	1.0	<1.0	<1.0	0.05 µg/L	---
Methylene Chloride	✔		1	EPA 624.1	10.0	<10.0	<10.0	4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	EPA 624.1	1.0	<1.0	<1.0	200 µg/L	---
1,1,2 Trichloroethane	✔		1	EPA 624.1	1.0	<1.0	<1.0	5.0 µg/L	---
Trichloroethylene	✔		1	EPA 624.1	1.0	<1.0	<1.0	5.0 µg/L	---
Tetrachloroethylene	✔		1	EPA 624.1	1.0	<1.0	<1.0	5.0 µg/L	3.3 ug/L
cis-1,2 Dichloroethylene	✔		1	EPA 624.1	1.0	<1.0	<1.0	70 µg/L	---
Vinyl Chloride	✔		1	EPA 624.1	1.0	<1.0	<1.0	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		1	EPA 625	150	<150	<150	190 µg/L	
Diethylhexyl phthalate	✔		1	EPA 625.1	25	<25.0	<25.0	101 µg/L	2.2 ug/L
Total Group I PAHs	✔		1	EPA 625.1	175	<175	<175	1.0 µg/L	---
Benzo(a)anthracene	✔		1	EPA 625.1	25.0	<25.0	<25.0	As Total PAHs	0.0038 ug/L
Benzo(a)pyrene	✔		1	EPA 625.1	25.0	<25.0	<25.0		0.0038 ug/L
Benzo(b)fluoranthene	✔		1	EPA 625.1	25.0	<25.0	<25.0		0.0038 ug/L
Benzo(k)fluoranthene	✔		1	EPA 625.1	25.0	<25.0	<25.0		0.0038 ug/L
Chrysene	✔		1	EPA 625.1	25.0	<25.0	<25.0		0.0038 ug/L
Dibenzo(a,h)anthracene	✔		1	EPA 625.1	25.0	<25.0	<25.0		0.0038 ug/L
Indeno(1,2,3-cd)pyrene	✔		1	EPA 625.1	25.0	<25.0	<25.0		0.0038 ug/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs	✔		1	EPA 625.1	25.0	<25.0	<25.0	100 µg/L	---
Naphthalene		✔	1	EPA 625.1	25.0	<25.0	<25.0	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	EPA 608	0.198	<0.198	<0.198	0.000064 µg/L	---
Pentachlorophenol	✔		1	EPA 625.1	25.0	<<25.0	25.0	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✔	1	EPA 1664	1000	20,300	20,300	5.0 mg/L	---
Ethanol	✔		1	SW8015D	1000	<1,000	<1,000	Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	EPA 524.2	0.50	<0.50	<0.50	70 µg/L	20 ug/L
tert-Butyl Alcohol	✔		1	EPA 524.2	10.0	<10.0	<10.0	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	EPA 524.2	0.50	<0.50	<0.50	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Calcium		✔		EPA 200.7	200	43,400	43,400		
Magnesium		✔		EPA 200.7	40	8,140	8,140		

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

■ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ☐ Other; if so, specify:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

The treatment system includes: a submersible pump to lift groundwater from the excavation into one or more 21,000-gallon frac tanks. The first tank may include aeration to aid with iron ocidation. Suspended solids will settle out in both tanks. A transfer pump aill push effluent from the second tank through two skid-mounted particulate bag filters. Final carbon filtration will be completed using two 500 to 1,000 pound liquid phase granular activated carbon (GAC) units. A line diagram of the groundwater treatment system is provided as Figure 4.

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ■ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Bag filters Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	150
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	<100
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive? (check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

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

■ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

☐ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ■ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

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

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

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

H. National Historic Preservation Act eligibility determination

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

☐ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

■ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

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

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

I. Supplemental information

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

Refer to the cover letter and attachments, which include: Site maps; schematic drawing of treatment system: SHPO and FWS information; lab results of source water obtained from one (1) groundwater monitoring well and receiving waters sample obtained from the nearest possible sampling point. At the present time, the use of chemical additives is not proposed.

Species listed under the jurisdiction of the NMFS include the atlantic sturgeon, shortnose sturgeon, two species of whales and four species of sea turtles. The site is located in the upper reaches of the Boston Harbor, it is unlikely that the discharge activities will adversely affect the adult and subadult listed species under the jurisdiction of the NMFS based on the December 28, 2016 letter issued by the EPA regarding the Re-Issuance of the NNPDES General Permit for Remediation Activity Discharges - TheRGP; NPDES Permit MAG910000 and

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

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

J. Certification requirement

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

BMPP certification statement:	As part of the NOI, as required by Section 2.5.1.c, a BMPP meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ☐ No ☐ NA ■
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ☐ NA ■
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: 	Date: 10/10/2018
Print Name and Title: Steven P. Low, Branch Manager	

Attachment B
Background Documentation on the Chelsea River
and
Sensitive Receptors

MassDEP - Bureau of Waste Site Cleanup

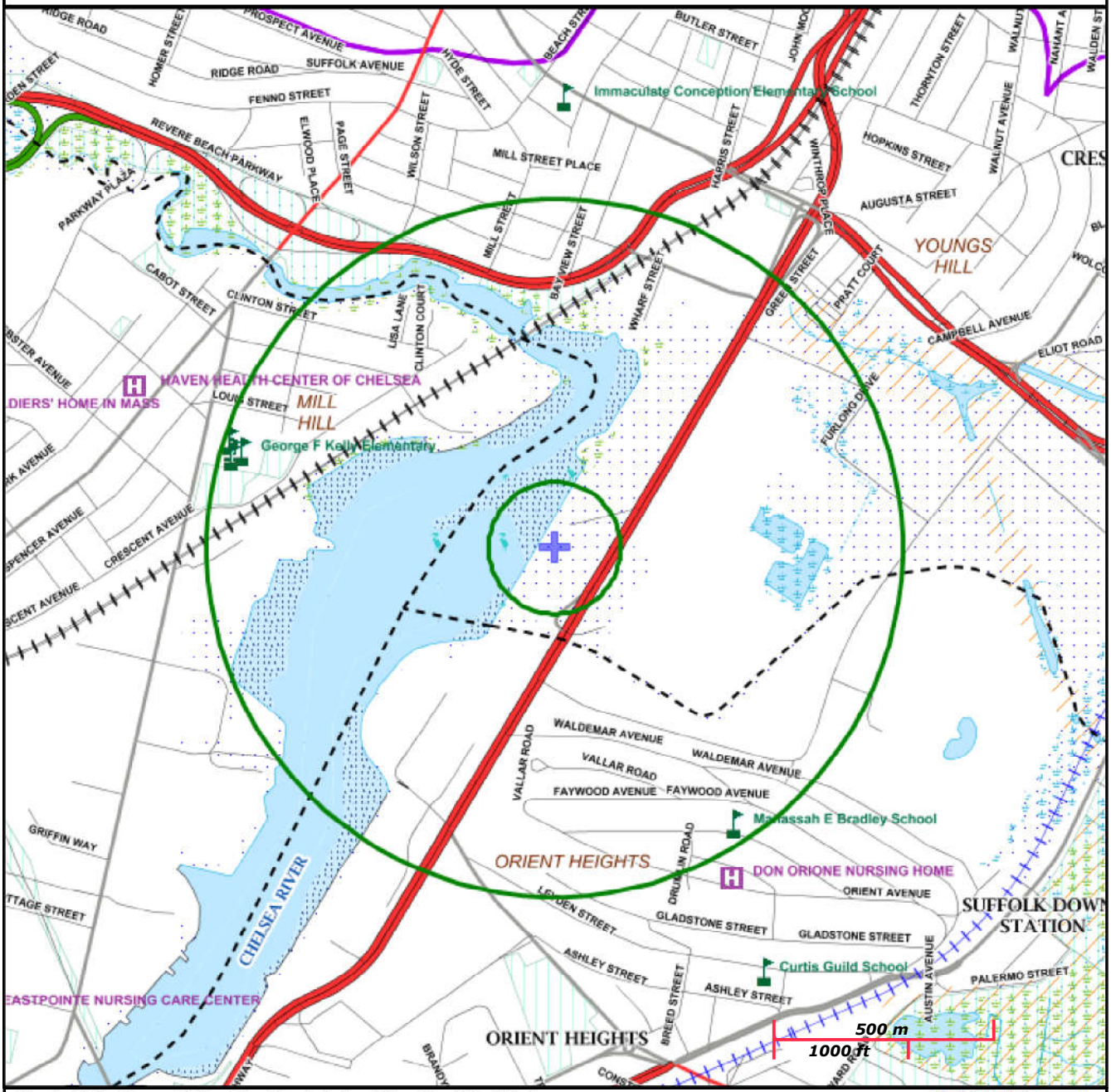
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
IRVING OIL PROPERTY
40 LEE BURBANK HIGHWAY REVERE, MA
3-000034303

NAD83 UTM Meters:
5220693mN , -7904809mE (Zone: 18)
September 18, 2018

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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

CHELSEA RIVER (SEGMENT MA71-06)

Segment Description: From confluence with Mill Creek, Chelsea/Revere to confluence with Boston Inner Harbor, Chelsea/East Boston/Charlestown.
Segment Length: 0.39 square miles
Segment Classification: SB
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Priority organics, Unionized Ammonia, Organic enrichment/Low DO, Pathogens, Oil and grease, Taste, odor and color, Turbidity, (Objectionable deposits*)) * denotes a non-pollutant.
NPDES Permits: Tosco East Boston Terminal (MA0004006), Coastal Oil Of New England (MA0004375), Chelsea,City Of (CSO) (MA0101877), Gulf Oil - Chelsea (MA0001091), Irving Oil Terminals, Inc. (MA0001929), Global South Terminal, LLC (MA0000825), Global Petroleum Corp - Revere (MA0003425), Global Revco Terminal, LLC (MA0003298), Boston Water And Sewer Commission, (CSO) (MA0101192)
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**
A USGS study found that some chemicals are present in sufficiently high concentrations in Chelsea River sediment to pose a threat to benthic organisms. Since 1974 there have been over 40 recorded spills of petroleum into Chelsea Creek; moreover, it has been estimated that ground water in the area may have been contaminated with over one million gallons of oil. MyRWA monitored one station in 2008 and found acceptable levels of total phosphorus (0.032 to 0.051 mg/L), one dissolved oxygen violation, and temperatures within standards. Given the contaminated sediments and frequent oil spills in the Chelsea River, the Aquatic Life Use is assessed as impaired. **Cause(s) of Impairment:** Sediment Screening Value, Petroleum **Source(s) of Impairment:** Contaminated Sediments, Above Ground Storage Tank Leaks (Tank Farms), Accidental release/spill, Cargo loading/unloading, Municipal (Urbanized High Density Area) *Data Sources: 1,5,24,25*		
Fish Consumption	**Impaired**	**--**
MA DPH has issued the following advisory for Boston Harbor recommending: "Pregnant women, women who may become pregnant, nursing mothers and children under 12 years of age and people with lowered immunity should not eat lobster, flounder, soft shell clams or bivalves from Boston Harbor." MA DPH also has issued the following advisory for lobster tomalley: "No one should consume lobster tomalley from any source." Since Chelsea River is a coastal water draining into the Boston Harbor area, the Fish Consumption Use is assessed as impaired due to PCBs and other contaminants. **Cause(s) of Impairment:** PCB in Fish Tissue, Other (contaminants in fish and shellfish) **Source(s) of Impairment:** Source Unknown *Data Sources: 23*		
Shellfish	**Impaired**	**--**
The Shellfishing Use is assessed as impaired for the entire 0.39 mi2 area due to a DMF prohibition. **Cause(s) of Impairment:** Fecal Coliform **Source(s) of Impairment:** Unknown *Data Sources: 2*		

CHELSEA RIVER (SEGMENT MA71-06)

Segment Description: From confluence with Mill Creek, Chelsea/Revere to confluence with Boston Inner Harbor, Chelsea/East Boston/Charlestown
Segment Length: 0.39 square miles
Segment Classification: SB
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Priority organics, Unionized Ammonia, Organic enrichment/Low DO, Pathogens, Oil and grease, Taste, odor and color, Turbidity, (Objectionable deposits*)) * denotes a non-pollutant.
NPDES Permits: Tosco East Boston Terminal (MA0004006), Coastal Oil Of New England (MA0004375), Chelsea,City Of (CSO) (MA0101877), Gulf Oil - Chelsea (MA0001091), Irving Oil Terminals, Inc. (MA0001929), Global South Terminal, LLC (MA0000825), Global Petroleum Corp - Revere (MA0003425), Global Revco Terminal, LLC (MA0003298), Boston Water And Sewer Commission, (CSO) (MA0101192)
WMA: None

Primary Contact	**Impaired**	**--**
A yearly Enteroccocus geometric mean calculated for Primary Contact from 1 MyRWA baseline monitoring station sampled monthly during 2008 in this segment did not exceed 35 cfu/100mL. Given chronic problems with oil spills in Chelsea River, the Primary Contact Recreation Use is assessed as impaired. **Cause(s) of Impairment:** Petroleum **Source(s) of Impairment:** Above Ground Storage Tank Leaks (Tank Farms), Accidental release/spill, Cargo loading/unloading, Municipal (Urbanized High Density Area) *Data Sources: 1,5,24,25*		
Secondary Contact	**Impaired**	**--**
A yearly Enteroccocus geometric mean from 1 MyRWA baseline monitoring station sampled monthly during 2008 in this segment did not exceed 175 cfu/100mL. 0 out of 1 geomeans exceeded in 2008. Given chronic problems with oil spills in Chelsea River, the Secondary Contact Recreation Use is assessed as impaired. **Cause(s) of Impairment:** Petroleum **Source(s) of Impairment:** Above Ground Storage Tank Leaks (Tank Farms), Accidental release/spill, Cargo loading/unloading, Municipal (Urbanized High Density Area) *Data Sources: 1, 5,24,25*		
Aesthetics	**Impaired**	**--**
Since 1974 there have been over 40 recorded spills of petroleum into Chelsea Creek; moreover, it has been estimated that ground water in the area may have been contaminated with over one million gallons of oil. During 2008 MyRWA volunteers noted odors as rotten eggs, seaweed, and none. Given the frequent oil spills in the Chelsea River, the Aesthetics Use is assessed as impaired. **Cause(s) of Impairment:** Petroleum **Source(s) of Impairment:** Above Ground Storage Tank Leaks (Tank Farms), Accidental release/spill, Cargo loading/unloading, Municipal (Urbanized High Density Area) *Data Sources: 1,5,24,25*		

Attachment C
Data Summary Table, WQBEL Calculations
And
Laboratory Report

Summary of Analytical Test Results

Analytical Parameter		RGP TBEL (in mg/L)	RGP WQBEL (in mg/L)	Method Dectection Limit (mg/L)	ATC-3 Groundwater 9/17/2018	CREEK Surface Water 9/17/2018
INORGANICS						
E350.1 (mg/L)						
7664-41-7	Ammonia as Nitrogen	Report mg/L	Report mg/L	1.00	<1.00	<0.05
EPA 300.0 (mg/l)						
16887-00-6	Chloride	Report ug/L	Report ug/L	6.00	149	
SM4500-Cl-G (11) (mg/l)						
7782-50-5	Total Residual Chlorine	0.2	0.0075	0.020	0.035	
SM2540D (11) (mg/l)						
TSS	Total Suspended Solids	30		1.0	20.0	
SM2520 (01) (ppt)						
	Salinity			1.00	<1.00	26.9
EPA 200.8 (mg/l)						
7440-36-0	Antimony	0.206	0.640	0.0030	<0.0030	<0.0060
7440-38-2	Arsenic	0.104	0.036	0.0040	<0.0040	0.0360
7440-43-9	Cadmium	0.0102	0.0089	0.0010	<0.0010	<0.0020
7440-47-3	Chromium	0.323	0.1	0.0100	<0.0100	<0.0100
7440-50-8	Copper	0.242	0.0037	0.0025	<0.0025	0.0084
7439-89-6	Iron	5.0		0.250	1.57	<0.250
7439-92-1	Lead	0.16	0.0085	0.0005	0.0009	<0.0005
7440-02-0	Nickel	1.45	0.0083	0.0025	<0.0025	0.0124
7782-49-2	Selenium	0.235	0.071	0.010	<0.010	<0.020
7440-22-4	Silver	0.351	0.0022	0.0010	<0.0010	<0.0020
7440-66-6	Zinc	0.42	0.086	0.005	0.010	0.013
EPA 245.1/7470A (mg/l)						
7439-97-6	Mercury	0.00739	0.00111	0.00020	<0.00020	<0.00020
SM3500-Cr-B (11)/7196A (mg/l)						
18540-29-9	Hexavalent Chromium	0.323	0.1	0.005	<0.005	<0.005
Trivalent Chromium (by calculation)						
16065-83-1	Trivalent Chromium	0.323	0.05	0.0100	<0.0100	<0.0100
EPA 335.4 / SW846 9012B (mg/l)						
57-12-5	Cyanide (total)	0.178	0.001	0.00500	<0.00500	

Summary of Analytical Test Results

Analytical Parameter		RGP TBEL (in ug/L)	RGP WQBEL (in ug/L)	Method Dectection Limit (ug/L)	ATC-3 Groundwater 9/17/2018	CREEK Surface Water 9/17/2018
NON-HALOGENATED VOCS						
EPA 624 (µg/l)						
	Total BTEX	100		6.0	19.4	
71-43-2	Benzene	5.0		1.0	**19.4**	
108-88-3	Toluene			1.0	<1.0	
100-41-4	Ethylbenzene			1.0	<1.0	
179601-23-1	m,p-Xylene			2.0	<2.0	
95-47-6	o-Xylene			1.0	<1.0	
123-91-1	1,4-Dioxane	200		20.0	<20.0	
67-64-1	Acetone	7.97		10.0	<10.0	
EPA 625 (µg/l)						
108-95-2	Phenol	1,080	300	25.0	<25.0	
HALOGENATED VOCS						
EPA 624 (µg/l) Halogenated VOCs						
56-23-5	Carbon tetrachloride	4.4	1.6	1.0	<1.0	
95-50-1	1,2-Dichlorobenzene	600		1.0	<1.0	
541-73-1	1,3-Dichlorobenzene	320		1.0	<1.0	
106-46-7	1,4-Dichlorobenzene	5		1.0	<1.0	
75-34-3	1,1-Dichloroethane	70		1.0	<1.0	
107-06-2	1,2-Dichloroethane	5		1.0	<1.0	
75-35-4	1,1-Dichloroethene	3.2		1.0	<1.0	
156-59-2	cis-1,2-Dichloroethene	70		1.0	<1.0	
75-09-2	Methylene chloride	4.6		10.0	<10.0	
127-18-4	Tetrachloroethene	5.0	3.3	1.0	<1.0	
71-55-6	1,1,1-Trichloroethane	200		1.0	<1.0	
79-00-5	1,1,2-Trichloroethane	5.0		1.0	<1.0	
79-01-6	Trichloroethene	5.0		1.0	<1.0	
75-01-4	Vinyl chloride	2.0		1.0	<1.0	
SW846 8011 (µg/l)						
106-93-4	1,2-Dibromoethane (EDB)	0.05		0.01	<0.01	
NON-HALOGENATED SVOCS						
EPA 625 (µg/l) Non-Halogenated VOCs						
	Total Phthalate	190		125	<125	
85-68-7	Butyl benzyl phthalate			25.0	<25.0	
84-66-2	Diethyl phthalate			25.0	<25.0	
131-11-3	Dimethyl phthalate			25.0	<25.0	
84-74-2	Di-n-butyl phthalate			25.0	<25.0	
117-84-0	Di-n-octyl phthalate			25.0	<25.0	
117-81-7	Bis(2-ethylhexyl)phthalate	101	2.2	25.0	<25.0	
	Total Group I PAHs	1.0		175	<175	
56-55-3	Benzo (a) anthracene	As Total Group I PAH	0.0038	25.0	<25.0	
50-32-8	Benzo (a) pyrene		0.0038	25.0	<25.0	
205-99-2	Benzo (b) fluoranthene		0.0038	25.0	<25.0	
207-08-9	Benzo (k) fluoranthene		0.0038	25.0	<25.0	
218-01-9	Chrysene		0.0038	25.0	<25.0	
53-70-3	Dibenzo (a,h) anthracene		0.0038	25.0	<25.0	
193-39-5	Indeno (1,2,3-cd) pyrene		0.0038	25.0	<25.0	

Summary of Analytical Test Results

Analytical Parameter		RGP TBEL (in ug/L)	RGP WQBEL (in ug/L)	Method Dectection Limit (ug/L)	ATC-3 Groundwater 9/17/2018	CREEK Surface Water 9/17/2018
NON-HALOGENATED SVOCS						
EPA 625 (µg/l) Non-Halogenated VOCs						
	Total Group II PAHs	100		200	<200	
91-20-3	Naphthalene	20		25.0	<25.0	
83-32-9	Acenaphthene			25.0	<25.0	
208-96-8	Acenaphthylene			25.0	<25.0	
120-12-7	Anthracene			25.0	<25.0	
206-44-0	Fluoranthene			25.0	<25.0	
86-73-7	Fluorene			25.0	<25.0	
85-01-8	Phenanthrene			25.0	<25.0	
129-00-0	Pyrene			25.0	<25.0	
HALOGENATED SVOCS						
EPA 608 (µg/l) Polychlorinated Biphenyls						
	Total PCB	0.000064		0.198	<0.198	
12674-11-2	Aroclor-1016			0.198	<0.198	
11104-28-2	Aroclor-1221			0.198	<0.198	
11141-16-5	Aroclor-1232			0.198	<0.198	
53469-21-9	Aroclor-1242			0.198	<0.198	
12672-29-6	Aroclor-1248			0.198	<0.198	
11097-69-1	Aroclor-1254			0.198	<0.198	
11096-82-5	Aroclor-1260			0.198	<0.198	
37324-23-5	Aroclor-1262			0.198	<0.198	
11100-14-4	Aroclor-1268			0.198	<0.198	
EPA 625 (µg/l)						
87-86-5	Pentachlorophenol	1		25.0	<25.0	
FUELS PARAMETERS						
EPA 1664B (mg/l)						
TPHSGTHEM	Non-polar material (SGT-HEM)	5.0 (mg/L)		1.0 (mg/L)	**20.3**	
EPA 624 (µg/l)						
1634-04-4	Methyl tert-butyl ether	70 (ug/L)	20 (ug/L)	0.50 (ug/L)	<0.50	
SW846 8015 Mod (mg/l)						
64-17-5	Ethanol	Report mg/L		1.0 (mg/L)	<1.0	
75-65-0	Tert-Butanol / butyl alcohol	0.12 (mg/L)		0.01 (mg/L)	<0.01	
EPA 524.2 (µg/l)						
994-05-8	Tert-amyl methyl ether	90 (ug/L)		0.50 (ug/L)	<0.50	
OTHER PARAMETERS						
EPA 200.7 (mg/l)						
7440-70-2	Calcium			0.200	43.4	248
7439-95-4	Magnesium			0.0400	8.14	765
pH by YSI (Standard Units)		6.5 - 8.3	6.5 - 8.3		6.7	8.07
Temp by YSI				0.1 F	18.6	16.2

= Orange highlight: Method Dection Limit Exceeds RGP Effluent Limit

Enter number values in green boxes below

Enter values in the units specified

↓

0	Q_R = Enter upstream flow in **MGD**
0.144	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

0

Enter values in the units specified

↓

	C_d = Enter influent hardness in **mg/L** $CaCO_3$
	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Enter **receiving water** concentrations in the units specified

↓

8.07	pH in **Standard Units**
16	Temperature in **°C**
0	Ammonia in **mg/L**
0	Hardness in **mg/L** $CaCO_3$
26.9	Salinity in **ppt**
0	Antimony in **µg/L**
36	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
8.4	Copper in **µg/L**
0	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
12.4	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
13	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
0	Ammonia in **mg/L**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0	Copper in **µg/L**
1570	Iron in **µg/L**
0.9	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
10	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Notes:

Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved

Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry

Discharge flow is equal to the design flow or 1 MGD, whichever is less

Only if approved by State as the entry for Q_R; leave 0 if no entry

Saltwater (estuarine and marine): only if approved by the State

Leave 0 if no entry

Freshwater only

pH, temperature, and ammonia required for all discharges

Hardness required for freshwater

Salinity required for saltwater (estuarine and marine)

Metals required for all discharges if present and if dilution factor is > 1

Enter 0 if non-detect or testing not required

if >1 sample, enter maximum

if >10 samples, may enter 95th percentile

Enter 0 if non-detect or testing not required

Dilution Factor	0.0					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**7.5**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	**104**	µg/L	36	µg/L		
Cadmium	**10.2**	µg/L	8.9	µg/L		
Chromium III	**323**	µg/L	100.0	µg/L		
Chromium VI	**323**	µg/L	50	µg/L		
Copper	**242**	µg/L	3.7	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	**160**	µg/L	8.5	µg/L		
Mercury	**0.739**	µg/L	1.11	µg/L		
Nickel	**1450**	µg/L	8.3	µg/L		
Selenium	**235.8**	µg/L	71	µg/L		
Silver	**35.1**	µg/L	2.2	µg/L		
Zinc	**420**	µg/L	86	µg/L		
Cyanide	**178**	mg/L	1.0	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7.97**	mg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		1.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	3.3	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	2.2	µg/L		

Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	20	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

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☐ Final Report
☑ Revised Report

Report Date:
27-Sep-18 13:00

Laboratory Report
SC50317

ATC Group Services, LLC
500 West Cummings Park, Suite 3750
Woburn, MA 01801-6350
Attn: Steve Low

Project: Thrifty Lot - 40 Lee Burbank Highway, MA
Project #: 05-201895

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:

Dawn Wojcik
Laboratory Director

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 28 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

Eurofins Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Eurofins Spectrum Analytical, Inc. is currently accredited for the specific method or analyte indicated. Please refer to our Quality web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Eurofins Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC50317

Project: Thrifty Lot - 40 Lee Burbank Highway, MA

Project Number: 05-201895

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC50317-01	ATC-3	Ground Water	17-Sep-18 10:00	17-Sep-18 16:15
SC50317-02	Creek	Surface Water	17-Sep-18 09:00	17-Sep-18 16:15
SC50317-03	Blank (HCL)	Trip Blank	17-Sep-18 00:00	17-Sep-18 16:15
SC50317-04	Blank (Sodium ThioSulfate)	Reagent Blank	17-Sep-18 00:00	17-Sep-18 16:15

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 3.5 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group. If method or program required MS/MSD/Dup were not performed, sufficient sample was not provided to the laboratory.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

September 26, 2018 Report Revision Case Narrative:

Revised report to include missing analytes for 625 Method.

Septmeber 27, Report Revision Case Narrative:

This report has been revised to remove BRL results that were showing in the Summary of Hits page in error.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

Samples:

SC50317-01 *ATC-3*

The pH of this sample has been adjusted in the laboratory for the tests listed below in accordance with the preservation requirements of the applicable methods.

Non-polar material (SGT-HEM)

EPA 200.7

Spikes:

1812601-MS1 *Source: SC50317-01*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Calcium

Samples:

SC50317-02 *Creek*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Magnesium

EPA 300.0

Samples:

SC50317-01 *ATC-3*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Chloride

EPA 624.1

Calibration:

1807003

Analyte quantified by quadratic equation type calibration.

Carbon tetrachloride
Vinyl chloride

This affected the following samples:

1812783-BLK1
1812783-BS1
1812783-BSD1
ATC-3
Blank (HCL)
S820548-ICV1
S822211-CCV1

Laboratory Control Samples:

1812783 BSD

1,1-Dichloroethene RPD 37% (30%) is outside individual acceptance criteria.

1812783-BS1

LCS/LCSD were analyzed in place of MS/MSD.

1812783-BSD1

LCS/LCSD were analyzed in place of MS/MSD.

Samples:

S822211-CCV1

Analyte percent difference is outside individual acceptance criteria (30), but within overall method allowances.

1,1-Dichloroethene (46.0%)

Analyte percent drift is outside individual acceptance criteria (30), but within overall method allowances.

Vinyl chloride (65.2%)

This affected the following samples:

1812783-BLK1
1812783-BS1
1812783-BSD1
ATC-3
Blank (HCL)

EPA 625.1

Laboratory Control Samples:

1812656 BS/BSD

Acenaphthene percent recoveries (63/59) are outside individual acceptance criteria (60-132), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

ATC-3

EPA 625.1

Laboratory Control Samples:

1812656 BS/BSD

Fluorene percent recoveries (61/58) are outside individual acceptance criteria (70-120), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

ATC-3

Phenanthrene percent recoveries (58/56) are outside individual acceptance criteria (65-120), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

ATC-3

1812656-BS1

Analyte is out of acceptance range in the QC spike but the total number of out of range analytes is within overall method criteria.

Fluorene
Phenanthrene

1812656-BSD1

Analyte is out of acceptance range in the QC spike but the total number of out of range analytes is within overall method criteria.

Acenaphthene
Fluorene
Phenanthrene

Samples:

SC50317-01 *ATC-3*

Elevated Reporting Limits due to the presence of high levels of non-target analytes; sample may not meet client requested reporting limit for this reason.

SM4500-Cl-G (11)

Spikes:

1812664-MS1 *Source: SC50317-01*

The spike recovery was outside acceptance limits for the MS, MSD and/or PS due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

Total Residual Chlorine

1812664-MSD1 *Source: SC50317-01*

The spike recovery was outside acceptance limits for the MS, MSD and/or PS due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

Total Residual Chlorine

Duplicates:

1812664-DUP1 *Source: SC50317-01*

The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.

Total Residual Chlorine

SW8015D

Laboratory Control Samples:

CB32993-LCS

SW8015D

Laboratory Control Samples:

CB32993-LCS

This parameter is outside laboratory rpd specified recovery limits.

Ethanol

CB32993-LCSD

This parameter is outside laboratory rpd specified recovery limits.

Ethanol

Sample Acceptance Check Form

Client:	ATC Group Services, LLC - Woburn, MA
Project:	Thrifty Lot - 40 Lee Burbank Highway, MA / 05-201895
Work Order:	SC50317
Sample(s) received on:	9/17/2018

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC50317-01 **Client ID:** ATC-3

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Non-polar material (SGT-HEM)	20.3		1.0	mg/l	EPA 1664B
Calcium	43.4		0.200	mg/l	EPA 200.7
Iron	1.57		0.250	mg/l	EPA 200.7
Magnesium	8.14		0.0400	mg/l	EPA 200.7
Chloride	149	GS1, D	6.00	mg/l	EPA 300.0
Benzene	19.4		1.0	µg/l	EPA 624.1
Total Suspended Solids	20.0		1.0	mg/l	SM2540D (11)
Total Residual Chlorine	0.035		0.020	mg/l	SM4500-Cl-G (11)
Lead	0.0009		0.0005	mg/L	SW6020B
Zinc	0.010		0.005	mg/L	SW6020B

Lab ID: SC50317-02 **Client ID:** Creek

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Calcium	248		0.200	mg/l	EPA 200.7
Magnesium	765	GS1, D	0.400	mg/l	EPA 200.7
Salinity	26.9		1.00	ppt (1000)	SM 2520 (01)
Arsenic	0.0360		0.0040	mg/L	SW6020B
Copper	0.0084		0.0050	mg/L	SW6020B
Nickel	0.0124		0.0025	mg/L	SW6020B
Zinc	0.013		0.005	mg/L	SW6020B

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
ATC-3	05-201895	Ground Water	17-Sep-18 10:00	17-Sep-18
SC50317-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Purgeable Organic Compounds													
67-64-1	Acetone	< 10.0		µg/l	10.0	0.80	1	EPA 524.2	20-Sep-18	20-Sep-18	MP	1812745	
1634-04-4	Methyl tert-butyl ether	< 0.50		µg/l	0.50	0.15	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 0.50		µg/l	0.50	0.49	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0	3.55	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*93*			*80-120 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*95*			*80-120 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*99*			*80-120 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*101*			*80-120 %*			"	"	"	"	"	
Volatile Organic Compounds by GCMS													
71-43-2	Benzene	**19.4**		µg/l	1.0	0.3	1	EPA 624.1	21-Sep-18	21-Sep-18	MP	1812783	X
56-23-5	Carbon tetrachloride	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	< 1.0		µg/l	1.0	0.2	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.2	1	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
75-09-2	Methylene chloride	< 10.0		µg/l	10.0	0.4	1	"	"	"	"	"	X
127-18-4	Tetrachloroethene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
71-55-6	1,1,1-Trichloroethane	< 1.0		µg/l	1.0	0.2	1	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
79-01-6	Trichloroethene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
75-01-4	Vinyl chloride	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.5	1	"	"	"	"	"	X
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
123-91-1	1,4-Dioxane	< 20.0		µg/l	20.0	5.8	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*90*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*98*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*99*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*97*			*70-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds			R05										
83-32-9	Acenaphthene	< 25.0	D	µg/l	25.0	3.46	5	EPA 625.1	19-Sep-18	20-Sep-18	MSL	1812656	X
208-96-8	Acenaphthylene	< 25.0	D	µg/l	25.0	3.42	5	"	"	"	"	"	X
120-12-7	Anthracene	< 25.0	D	µg/l	25.0	3.04	5	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 25.0	D	µg/l	25.0	2.68	5	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	< 25.0	D	µg/l	25.0	2.81	5	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	< 25.0	D	µg/l	25.0	2.18	5	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	< 25.0	D	µg/l	25.0	2.65	5	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	< 25.0	D	µg/l	25.0	2.40	5	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
ATC-3	05-201895	Ground Water	17-Sep-18 10:00	17-Sep-18
SC50317-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds			R05										
117-81-7	Bis(2-ethylhexyl)phthalate	< 25.0	D	µg/l	25.0	3.19	5	EPA 625.1	19-Sep-18	20-Sep-18	MSL	1812656	X
85-68-7	Butyl benzyl phthalate	< 25.0	D	µg/l	25.0	2.19	5	"	"	"	"	"	X
218-01-9	Chrysene	< 25.0	D	µg/l	25.0	2.66	5	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 25.0	D	µg/l	25.0	2.25	5	"	"	"	"	"	X
84-66-2	Diethyl phthalate	< 25.0	D	µg/l	25.0	3.12	5	"	"	"	"	"	X
131-11-3	Dimethyl phthalate	< 25.0	D	µg/l	25.0	3.79	5	"	"	"	"	"	X
84-74-2	Di-n-butyl phthalate	< 25.0	D	µg/l	25.0	2.28	5	"	"	"	"	"	X
117-84-0	Di-n-octyl phthalate	< 25.0	D	µg/l	25.0	2.03	5	"	"	"	"	"	X
206-44-0	Fluoranthene	< 25.0	D	µg/l	25.0	3.19	5	"	"	"	"	"	X
86-73-7	Fluorene	< 25.0	D	µg/l	25.0	3.06	5	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	< 25.0	D	µg/l	25.0	2.90	5	"	"	"	"	"	X
91-20-3	Naphthalene	< 25.0	D	µg/l	25.0	3.42	5	"	"	"	"	"	X
87-86-5	Pentachlorophenol	< 25.0	D	µg/l	25.0	1.86	5	"	"	"	"	"	X
85-01-8	Phenanthrene	< 25.0	D	µg/l	25.0	2.93	5	"	"	"	"	"	X
108-95-2	Phenol	< 25.0	D	µg/l	25.0	3.22	5	"	"	"	"	"	X
129-00-0	Pyrene	< 25.0	D	µg/l	25.0	3.05	5	"	"	"	"	"	X
110-86-1	Pyridine	< 25.0	D	µg/l	25.0	4.10	5	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*38*			*30-130 %*			"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*26*			*15-110 %*			"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*44*			*30-130 %*			"	"	"	"	"	
4165-62-2	*Phenol-d5*	*15*			*15-110 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*58*			*30-130 %*			"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*43*			*15-110 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
12674-11-2	Aroclor-1016	< 0.198		µg/l	0.198	0.103	1	EPA 608.3	19-Sep-18	19-Sep-18	TA	1812655	X
11104-28-2	Aroclor-1221	< 0.198		µg/l	0.198	0.114	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 0.198		µg/l	0.198	0.110	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 0.198		µg/l	0.198	0.106	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 0.198		µg/l	0.198	0.135	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 0.198		µg/l	0.198	0.115	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 0.198		µg/l	0.198	0.0843	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 0.198		µg/l	0.198	0.0887	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	< 0.198		µg/l	0.198	0.0906	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*80*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*75*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*75*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*65*			*30-150 %*			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
Prepared by method General Preparation SVOC													

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
ATC-3 SC50317-01	05-201895	Ground Water	17-Sep-18 10:00	17-Sep-18

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Extractable Petroleum Hydrocarbons													
Prepared by method General Preparation SVOC													
	Non-polar material (SGT-HEM)	**20.3**		mg/l	1.0	0.9	1	EPA 1664B	17-Sep-18	19-Sep-18	JB	1812579	
Total Metals by EPA 200/6000 Series Methods													
Prepared by method General Prep-Metal													
	Preservation	**Field Preserved; pH<2 confirmed**		N/A			1	EPA 200/6000 methods	17-Sep-18		KT	1812583	
Total Metals by EPA 200 Series Methods													
7440-70-2	Calcium	**43.4**		mg/l	0.200	0.0679	1	EPA 200.7	18-Sep-18	25-Sep-18	SC/EDT	1812601	X
7440-47-3	Chromium	< 0.0100		mg/l	0.0100	0.0038	1	"	"	20-Sep-18	"	"	X
7439-89-6	Iron	**1.57**		mg/l	0.250	0.0201	1	"	"	25-Sep-18	"	"	X
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00014	1	EPA 245.1/7470A	"	19-Sep-18	ABW	1812617	X
7439-95-4	Magnesium	**8.14**		mg/l	0.0400	0.0147	1	EPA 200.7	"	25-Sep-18	SC/EDT	1812601	X
General Chemistry Parameters													
16065-83-1	Trivalent Chromium	**0.00**		mg/l			1	Calculation	18-Sep-18	25-Sep-18	SC	1812601	
7782-50-5	Total Residual Chlorine	**0.035**	CIHT	mg/l	0.020	0.006	1	SM4500-Cl-G (11)	19-Sep-18 09:00	19-Sep-18 17:11	RLT	1812664	X
16887-00-6	Chloride	**149**	GS1, D	mg/l	6.00	0.596	6	EPA 300.0	18-Sep-18	18-Sep-18	TN	1812637	X
18540-29-9	Hexavalent Chromium	< 0.005		mg/l	0.005	0.002	1	SM3500-Cr-B (11)/7196A	18-Sep-18 08:11	18-Sep-18 08:49	RLT	1812587	
57-12-5	Cyanide (total)	< 0.00500		mg/l	0.00500	0.00470	1	EPA 335.4 / SW846 9012B	19-Sep-18	19-Sep-18	RLT	1812662	X
	Salinity	< 1.00		ppt (1000)	1.00	0.144	1	SM 2520 (01)	18-Sep-18	18-Sep-18	BD	1812604	
	Total Suspended Solids	**20.0**		mg/l	1.0	0.4	1	SM2540D (11)	18-Sep-18	19-Sep-18	CMB	1812596	X
Subcontracted Analyses													
Prepared by method E350.1													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7664-41-7	Ammonia as Nitrogen	< 1.00		mg/L	1.00	1.00	20	E350.1	17-Sep-18 10:00	20-Sep-18 08:51	M-CT007	447984A	
Prepared by method E504.1													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
106-93-4	1,2-Dibromoethane (EDB)	< 0.01		ug/L	0.01	0.01	1	E504.1	18-Sep-18	19-Sep-18 11:53	M-CT007	447926A	
Subcontracted Analyses													
Prepared by method SW6020B													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-36-0	Antimony	< 0.0030		mg/L	0.0030	0.0030	5	SW6020B	"	20-Sep-18 12:55	M-CT007	447925A	
7440-38-2	Arsenic	< 0.0040		mg/L	0.0040	0.0040	5	"	"	"	"	"	
7440-43-9	Cadmium	< 0.0010		mg/L	0.0010	0.0010	5	"	"	"	"	"	
7440-50-8	Copper	< 0.0025		mg/L	0.0025	0.0025	5	"	"	"	"	"	
7439-92-1	Lead	**0.0009**		mg/L	0.0005	0.0005	5	"	"	"	"	"	
7440-02-0	Nickel	< 0.0025		mg/L	0.0025	0.0025	5	"	"	"	"	"	
7782-49-2	Selenium	< 0.010		mg/L	0.010	0.010	5	"	"	"	"	"	
7440-22-4	Silver	< 0.0010		mg/L	0.0010	0.0010	5	"	"	"	"	"	
7440-66-6	Zinc	**0.010**		mg/L	0.005	0.005	5	"	"	"	"	"	
Prepared by method SW8015D													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
ATC-3 SC50317-01	05-201895	Ground Water	17-Sep-18 10:00	17-Sep-18

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Prepared by method SW8015D													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
64-17-5	Ethanol	< 1.0		mg/L	1.0	1.0	1	SW8015D	19-Sep-18	19-Sep-18 21:53	M-CT007	448017A	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Creek SC50317-02	05-201895	Surface Water	17-Sep-18 09:00	17-Sep-18

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 200/6000 Series Methods													
Prepared by method General Prep-Metal													
	Preservation	**Field Preserved; pH<2 confirmed**		N/A			1	EPA 200/6000 methods	17-Sep-18		KT	1812583	
Total Metals by EPA 200 Series Methods													
7440-70-2	Calcium	**248**		mg/l	0.200	0.0679	1	EPA 200.7	18-Sep-18	25-Sep-18	SC/EDT	1812601	X
7440-47-3	Chromium	< 0.0100		mg/l	0.0100	0.0038	1	"	"	20-Sep-18	"	"	X
7439-89-6	Iron	< 0.250		mg/l	0.250	0.0201	1	"	"	25-Sep-18	"	"	X
7439-97-6	Mercury	< 0.00020		mg/l	0.00020	0.00014	1	EPA 245.1/7470A	"	19-Sep-18	ABW	1812617	X
7439-95-4	Magnesium	**765**	GS1, D	mg/l	0.400	0.147	10	EPA 200.7	"	25-Sep-18	EDT	1812601	X
General Chemistry Parameters													
16065-83-1	Trivalent Chromium	**0.00**		mg/l			1	Calculation	18-Sep-18	25-Sep-18	SC	1812601	
18540-29-9	Hexavalent Chromium	< 0.005		mg/l	0.005	0.002	1	SM3500-Cr-B (11)/7196A	18-Sep-18 08:11	18-Sep-18 08:51	RLT	1812587	
	pH	**8.07**	pH	pH Units			1	ASTM D 1293-99B	18-Sep-18 17:00	18-Sep-18 17:30	BD	1812610	X
	Salinity	**26.9**		ppt (1000)	1.00	0.144	1	SM 2520 (01)	18-Sep-18	18-Sep-18	BD	1812604	
Subcontracted Analyses													
Prepared by method E350.1													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7664-41-7	Ammonia as Nitrogen	< 0.05		mg/L	0.05	0.05	1	E350.1	17-Sep-18 09:00	20-Sep-18 08:52	M-CT007	447984A	
Subcontracted Analyses													
Prepared by method SW6020B													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-36-0	Antimony	< 0.0060		mg/L	0.0060	0.0060	10	SW6020B	18-Sep-18	20-Sep-18 14:46	M-CT007	447925A	
7440-38-2	Arsenic	**0.0360**		mg/L	0.0040	0.0040	5	"	"	"	"	"	
7440-43-9	Cadmium	< 0.0020		mg/L	0.0020	0.0020	10	"	"	"	"	"	
7440-50-8	Copper	**0.0084**		mg/L	0.0050	0.0050	10	"	"	"	"	"	
7439-92-1	Lead	< 0.0005		mg/L	0.0005	0.0005	5	"	"	"	"	"	
7440-02-0	Nickel	**0.0124**		mg/L	0.0025	0.0025	5	"	"	"	"	"	
7782-49-2	Selenium	< 0.020		mg/L	0.020	0.020	10	"	"	"	"	"	
7440-22-4	Silver	< 0.0020		mg/L	0.0020	0.0020	10	"	"	"	"	"	
7440-66-6	Zinc	**0.013**		mg/L	0.005	0.005	5	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Blank (HCL)	05-201895	Trip Blank	17-Sep-18 00:00	17-Sep-18
SC50317-03				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Purgeable Organic Compounds													
67-64-1	Acetone	< 10.0		µg/l	10.0	0.80	1	EPA 524.2	20-Sep-18	20-Sep-18	MP	1812745	
1634-04-4	Methyl tert-butyl ether	< 0.50		µg/l	0.50	0.15	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 0.50		µg/l	0.50	0.49	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0	3.55	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*101*			*80-120 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*80-120 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*97*			*80-120 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*99*			*80-120 %*			"	"	"	"	"	
Volatile Organic Compounds by GCMS													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	EPA 624.1	21-Sep-18	21-Sep-18	MP	1812783	X
56-23-5	Carbon tetrachloride	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	< 1.0		µg/l	1.0	0.2	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	< 1.0		µg/l	1.0	0.2	1	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
75-09-2	Methylene chloride	< 10.0		µg/l	10.0	0.4	1	"	"	"	"	"	X
127-18-4	Tetrachloroethene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
108-88-3	Toluene	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
71-55-6	1,1,1-Trichloroethane	< 1.0		µg/l	1.0	0.2	1	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	< 1.0		µg/l	1.0	0.3	1	"	"	"	"	"	X
79-01-6	Trichloroethene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
75-01-4	Vinyl chloride	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
179601-23-1	m,p-Xylene	< 2.0		µg/l	2.0	0.5	1	"	"	"	"	"	X
95-47-6	o-Xylene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	X
123-91-1	1,4-Dioxane	< 20.0		µg/l	20.0	5.8	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*95*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*99*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*104*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*102*			*70-130 %*			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Blank (Sodium ThioSulfate)	05-201895	Reagent Blank	17-Sep-18 00:00	17-Sep-18
SC50317-04				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Subcontracted Analyses													
Prepared by method E504.1													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
106-93-4	1,2-Dibromoethane (EDB)	< 0.01		ug/L	0.01	0.01	1	E504.1	18-Sep-18	19-Sep-18 12:21	M-CT007	447926A	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 524.2										
Batch 1812745 - SW846 5030 Water MS										
Blank (1812745-BLK1)						Prepared & Analyzed: 20-Sep-18				
Acetone	< 10.0		µg/l	10.0						
Methyl tert-butyl ether	< 0.50		µg/l	0.50						
Tert-amyl methyl ether	< 0.50		µg/l	0.50						
Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0						
Surrogate: 4-Bromofluorobenzene	*50.7*		µg/l		*50.0*		*101*	*80-120*		
Surrogate: Toluene-d8	*49.2*		µg/l		*50.0*		*98*	*80-120*		
Surrogate: 1,2-Dichloroethane-d4	*48.3*		µg/l		*50.0*		*97*	*80-120*		
Surrogate: Dibromofluoromethane	*50.5*		µg/l		*50.0*		*101*	*80-120*		
LCS (1812745-BS1)						Prepared & Analyzed: 20-Sep-18				
Acetone	**20.0**		µg/l		20.0		100	70-130		
Methyl tert-butyl ether	**20.3**		µg/l		20.0		101	80-120		
Tert-amyl methyl ether	**20.4**		µg/l		20.0		102	70-130		
Tert-Butanol / butyl alcohol	**231**		µg/l		200		115	70-130		
Surrogate: 4-Bromofluorobenzene	*49.6*		µg/l		*50.0*		*99*	*80-120*		
Surrogate: Toluene-d8	*50.5*		µg/l		*50.0*		*101*	*80-120*		
Surrogate: 1,2-Dichloroethane-d4	*50.3*		µg/l		*50.0*		*101*	*80-120*		
Surrogate: Dibromofluoromethane	*50.6*		µg/l		*50.0*		*101*	*80-120*		
EPA 624.1										
Batch 1812783 - SW846 5030 Water MS										
Blank (1812783-BLK1)						Prepared & Analyzed: 21-Sep-18				
Benzene	< 1.0		µg/l	1.0						
Carbon tetrachloride	< 1.0		µg/l	1.0						
1,2-Dichlorobenzene	< 1.0		µg/l	1.0						
1,3-Dichlorobenzene	< 1.0		µg/l	1.0						
1,4-Dichlorobenzene	< 1.0		µg/l	1.0						
1,1-Dichloroethane	< 1.0		µg/l	1.0						
1,2-Dichloroethane	< 1.0		µg/l	1.0						
1,1-Dichloroethene	< 1.0		µg/l	1.0						
cis-1,2-Dichloroethene	< 1.0		µg/l	1.0						
Ethylbenzene	< 1.0		µg/l	1.0						
Methylene chloride	< 10.0		µg/l	10.0						
Tetrachloroethene	< 1.0		µg/l	1.0						
Toluene	< 1.0		µg/l	1.0						
1,1,1-Trichloroethane	< 1.0		µg/l	1.0						
1,1,2-Trichloroethane	< 1.0		µg/l	1.0						
Trichloroethene	< 1.0		µg/l	1.0						
Vinyl chloride	< 1.0		µg/l	1.0						
m,p-Xylene	< 2.0		µg/l	2.0						
o-Xylene	< 1.0		µg/l	1.0						
1,4-Dioxane	< 20.0		µg/l	20.0						
Surrogate: 4-Bromofluorobenzene	*46.5*		µg/l		*50.0*		*93*	*70-130*		
Surrogate: Toluene-d8	*49.6*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*50.0*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Dibromofluoromethane	*48.6*		µg/l		*50.0*		*97*	*70-130*		
LCS (1812783-BS1)		QM10				Prepared & Analyzed: 21-Sep-18				
Benzene	**22.1**		µg/l		20.0		111	65-135		
Carbon tetrachloride	**18.5**		µg/l		20.0		93	70-130		
1,2-Dichlorobenzene	**20.7**		µg/l		20.0		103	65-135		
1,3-Dichlorobenzene	**21.0**		µg/l		20.0		105	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 624.1										
Batch 1812783 - SW846 5030 Water MS										
LCS (1812783-BS1)		QM10			Prepared & Analyzed: 21-Sep-18					
1,4-Dichlorobenzene	**19.6**		µg/l		20.0		98	65-135		
1,1-Dichloroethane	**21.4**		µg/l		20.0		107	70-130		
1,2-Dichloroethane	**18.8**		µg/l		20.0		94	70-130		
1,1-Dichloroethene	**20.2**		µg/l		20.0		101	50-150		
cis-1,2-Dichloroethene	**20.3**		µg/l		20.0		102	70-130		
Ethylbenzene	**21.0**		µg/l		20.0		105	60-140		
Methylene chloride	**20.4**		µg/l		20.0		102	60-140		
Tetrachloroethene	**19.0**		µg/l		20.0		95	70-130		
Toluene	**21.3**		µg/l		20.0		106	70-130		
1,1,1-Trichloroethane	**19.9**		µg/l		20.0		100	70-130		
1,1,2-Trichloroethane	**20.7**		µg/l		20.0		103	70-130		
Trichloroethene	**20.0**		µg/l		20.0		100	65-135		
Vinyl chloride	**31.8**		µg/l		20.0		159	5-195		
m,p-Xylene	**21.1**		µg/l		20.0		105	70-130		
o-Xylene	**21.6**		µg/l		20.0		108	70-130		
1,4-Dioxane	**173**		µg/l		200		86	70-130		
Surrogate: 4-Bromofluorobenzene	*47.0*		µg/l		*50.0*		*94*	*70-130*		
Surrogate: Toluene-d8	*49.0*		µg/l		*50.0*		*98*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*47.2*		µg/l		*50.0*		*94*	*70-130*		
Surrogate: Dibromofluoromethane	*48.9*		µg/l		*50.0*		*98*	*70-130*		
LCS Dup (1812783-BSD1)		QM10			Prepared & Analyzed: 21-Sep-18					
Benzene	**23.4**		µg/l		20.0		117	65-135	6	30
Carbon tetrachloride	**18.8**		µg/l		20.0		94	70-130	2	30
1,2-Dichlorobenzene	**20.4**		µg/l		20.0		102	65-135	1	30
1,3-Dichlorobenzene	**21.2**		µg/l		20.0		106	70-130	0.8	30
1,4-Dichlorobenzene	**20.5**		µg/l		20.0		103	65-135	5	30
1,1-Dichloroethane	**22.4**		µg/l		20.0		112	70-130	5	30
1,2-Dichloroethane	**20.1**		µg/l		20.0		100	70-130	7	30
1,1-Dichloroethene	**29.2**	QR2	µg/l		20.0		146	50-150	37	30
cis-1,2-Dichloroethene	**21.5**		µg/l		20.0		108	70-130	6	30
Ethylbenzene	**21.5**		µg/l		20.0		108	60-140	2	30
Methylene chloride	**21.2**		µg/l		20.0		106	60-140	4	30
Tetrachloroethene	**19.7**		µg/l		20.0		99	70-130	4	30
Toluene	**22.3**		µg/l		20.0		112	70-130	5	30
1,1,1-Trichloroethane	**21.4**		µg/l		20.0		107	70-130	7	30
1,1,2-Trichloroethane	**20.9**		µg/l		20.0		104	70-130	1	30
Trichloroethene	**20.7**		µg/l		20.0		103	65-135	3	30
Vinyl chloride	**33.0**		µg/l		20.0		165	5-195	4	30
m,p-Xylene	**22.0**		µg/l		20.0		110	70-130	4	30
o-Xylene	**22.4**		µg/l		20.0		112	70-130	4	30
1,4-Dioxane	**165**		µg/l		200		82	70-130	5	30
Surrogate: 4-Bromofluorobenzene	*47.5*		µg/l		*50.0*		*95*	*70-130*		
Surrogate: Toluene-d8	*49.5*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*47.8*		µg/l		*50.0*		*96*	*70-130*		
Surrogate: Dibromofluoromethane	*49.1*		µg/l		*50.0*		*98*	*70-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 625.1										
Batch 1812656 - SW846 3510C										
Blank (1812656-BLK1)					Prepared: 19-Sep-18 Analyzed: 20-Sep-18					
Acenaphthene	< 5.10		µg/l	5.10						
Acenaphthylene	< 5.10		µg/l	5.10						
Anthracene	< 5.10		µg/l	5.10						
Benzo (a) anthracene	< 5.10		µg/l	5.10						
Benzo (a) pyrene	< 5.10		µg/l	5.10						
Benzo (b) fluoranthene	< 5.10		µg/l	5.10						
Benzo (g,h,i) perylene	< 5.10		µg/l	5.10						
Benzo (k) fluoranthene	< 5.10		µg/l	5.10						
Bis(2-ethylhexyl)phthalate	< 5.10		µg/l	5.10						
Butyl benzyl phthalate	< 5.10		µg/l	5.10						
Chrysene	< 5.10		µg/l	5.10						
Dibenzo (a,h) anthracene	< 5.10		µg/l	5.10						
Diethyl phthalate	< 5.10		µg/l	5.10						
Dimethyl phthalate	< 5.10		µg/l	5.10						
Di-n-butyl phthalate	< 5.10		µg/l	5.10						
Di-n-octyl phthalate	< 5.10		µg/l	5.10						
Fluoranthene	< 5.10		µg/l	5.10						
Fluorene	< 5.10		µg/l	5.10						
Indeno (1,2,3-cd) pyrene	< 5.10		µg/l	5.10						
Naphthalene	< 5.10		µg/l	5.10						
Pentachlorophenol	< 5.10		µg/l	5.10						
Phenanthrene	< 5.10		µg/l	5.10						
Phenol	< 5.10		µg/l	5.10						
Pyrene	< 5.10		µg/l	5.10						
Surrogate: 2-Fluorobiphenyl	*23.6*		µg/l		*51.0*		*46*	*30-130*		
Surrogate: 2-Fluorophenol	*19.6*		µg/l		*51.0*		*38*	*15-110*		
Surrogate: Nitrobenzene-d5	*26.0*		µg/l		*51.0*		*51*	*30-130*		
Surrogate: Phenol-d5	*12.8*		µg/l		*51.0*		*25*	*15-110*		
Surrogate: Terphenyl-dl4	*37.9*		µg/l		*51.0*		*74*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*25.9*		µg/l		*51.0*		*51*	*15-110*		
LCS (1812656-BS1)					Prepared: 19-Sep-18 Analyzed: 20-Sep-18					
Acenaphthene	**32.1**		µg/l	5.10	51.0		63	60-132		
Acenaphthylene	**32.7**		µg/l	5.10	51.0		64	54-126		
Anthracene	**30.5**		µg/l	5.10	51.0		60	43-120		
Benzo (a) anthracene	**36.6**		µg/l	5.10	51.0		72	42-133		
Benzo (a) pyrene	**40.7**		µg/l	5.10	51.0		80	32-148		
Benzo (b) fluoranthene	**40.0**		µg/l	5.10	51.0		78	42-140		
Benzo (g,h,i) perylene	**40.5**		µg/l	5.10	51.0		79	1-195		
Benzo (k) fluoranthene	**42.0**		µg/l	5.10	51.0		82	25-145		
Bis(2-ethylhexyl)phthalate	**36.5**		µg/l	5.10	51.0		72	29-137		
Butyl benzyl phthalate	**38.2**		µg/l	5.10	51.0		75	1-140		
Chrysene	**39.0**		µg/l	5.10	51.0		76	44-140		
Dibenzo (a,h) anthracene	**41.2**		µg/l	5.10	51.0		81	1-200		
Diethyl phthalate	**31.4**		µg/l	5.10	51.0		62	1-120		
Dimethyl phthalate	**31.8**		µg/l	5.10	51.0		62	1-120		
Di-n-butyl phthalate	**31.0**		µg/l	5.10	51.0		61	8-120		
Di-n-octyl phthalate	**40.7**		µg/l	5.10	51.0		80	19-132		
Fluoranthene	**30.2**		µg/l	5.10	51.0		59	43-121		
Fluorene	**30.9**	QC6	µg/l	5.10	51.0		61	70-120		
Indeno (1,2,3-cd) pyrene	**38.6**		µg/l	5.10	51.0		76	1-151		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 625.1										
Batch 1812656 - SW846 3510C										
LCS (1812656-BS1)					Prepared: 19-Sep-18 Analyzed: 20-Sep-18					
Naphthalene	**30.7**		µg/l	5.10	51.0		60	36-120		
Pentachlorophenol	**21.8**		µg/l	5.10	51.0		43	38-152		
Phenanthrene	**29.7**	QC6	µg/l	5.10	51.0		58	65-120		
Phenol	**16.0**		µg/l	5.10	51.0		31	17-120		
Pyrene	**38.0**		µg/l	5.10	51.0		75	70-120		
Surrogate: 2-Fluorobiphenyl	*33.3*		µg/l		*51.0*		*65*	*30-130*		
Surrogate: 2-Fluorophenol	*24.0*		µg/l		*51.0*		*47*	*15-110*		
Surrogate: Nitrobenzene-d5	*35.6*		µg/l		*51.0*		*70*	*30-130*		
Surrogate: Phenol-d5	*17.3*		µg/l		*51.0*		*34*	*15-110*		
Surrogate: Terphenyl-dl4	*44.3*		µg/l		*51.0*		*87*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*35.4*		µg/l		*51.0*		*69*	*15-110*		
LCS Dup (1812656-BSD1)					Prepared: 19-Sep-18 Analyzed: 20-Sep-18					
Acenaphthene	**30.3**	QC6	µg/l	5.10	51.0		59	60-132	6	20
Acenaphthylene	**31.1**		µg/l	5.10	51.0		61	54-126	5	20
Anthracene	**29.4**		µg/l	5.10	51.0		58	43-120	4	20
Benzo (a) anthracene	**34.8**		µg/l	5.10	51.0		68	42-133	5	20
Benzo (a) pyrene	**39.0**		µg/l	5.10	51.0		76	32-148	4	20
Benzo (b) fluoranthene	**39.4**		µg/l	5.10	51.0		77	42-140	1	20
Benzo (g,h,i) perylene	**38.9**		µg/l	5.10	51.0		76	1-195	4	20
Benzo (k) fluoranthene	**39.5**		µg/l	5.10	51.0		77	25-145	6	20
Bis(2-ethylhexyl)phthalate	**33.7**		µg/l	5.10	51.0		66	29-137	8	20
Butyl benzyl phthalate	**36.8**		µg/l	5.10	51.0		72	1-140	4	20
Chrysene	**36.9**		µg/l	5.10	51.0		72	44-140	5	20
Dibenzo (a,h) anthracene	**39.6**		µg/l	5.10	51.0		78	1-200	4	20
Diethyl phthalate	**29.4**		µg/l	5.10	51.0		58	1-120	7	20
Dimethyl phthalate	**30.0**		µg/l	5.10	51.0		59	1-120	6	20
Di-n-butyl phthalate	**29.0**		µg/l	5.10	51.0		57	8-120	7	20
Di-n-octyl phthalate	**40.3**		µg/l	5.10	51.0		79	19-132	1	20
Fluoranthene	**28.7**		µg/l	5.10	51.0		56	43-121	5	20
Fluorene	**29.4**	QC6	µg/l	5.10	51.0		58	70-120	5	20
Indeno (1,2,3-cd) pyrene	**37.2**		µg/l	5.10	51.0		73	1-151	4	20
Naphthalene	**30.5**		µg/l	5.10	51.0		60	36-120	0.5	20
Pentachlorophenol	**21.4**		µg/l	5.10	51.0		42	38-152	2	20
Phenanthrene	**28.6**	QC6	µg/l	5.10	51.0		56	65-120	4	20
Phenol	**15.9**		µg/l	5.10	51.0		31	17-120	0.8	20
Pyrene	**36.9**		µg/l	5.10	51.0		72	70-120	3	20
Surrogate: 2-Fluorobiphenyl	*31.4*		µg/l		*51.0*		*62*	*30-130*		
Surrogate: 2-Fluorophenol	*24.2*		µg/l		*51.0*		*47*	*15-110*		
Surrogate: Nitrobenzene-d5	*35.7*		µg/l		*51.0*		*70*	*30-130*		
Surrogate: Phenol-d5	*17.8*		µg/l		*51.0*		*35*	*15-110*		
Surrogate: Terphenyl-dl4	*42.1*		µg/l		*51.0*		*83*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*34.9*		µg/l		*51.0*		*68*	*15-110*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 608.3										
Batch 1812655 - SW846 3510C										
Blank (1812655-BLK1)					Prepared & Analyzed: 19-Sep-18					
Aroclor-1016	< 0.204		µg/l	0.204						
Aroclor-1016 [2C]	< 0.204		µg/l	0.204						
Aroclor-1221	< 0.204		µg/l	0.204						
Aroclor-1221 [2C]	< 0.204		µg/l	0.204						
Aroclor-1232	< 0.204		µg/l	0.204						
Aroclor-1232 [2C]	< 0.204		µg/l	0.204						
Aroclor-1242	< 0.204		µg/l	0.204						
Aroclor-1242 [2C]	< 0.204		µg/l	0.204						
Aroclor-1248	< 0.204		µg/l	0.204						
Aroclor-1248 [2C]	< 0.204		µg/l	0.204						
Aroclor-1254	< 0.204		µg/l	0.204						
Aroclor-1254 [2C]	< 0.204		µg/l	0.204						
Aroclor-1260	< 0.204		µg/l	0.204						
Aroclor-1260 [2C]	< 0.204		µg/l	0.204						
Aroclor-1262	< 0.204		µg/l	0.204						
Aroclor-1262 [2C]	< 0.204		µg/l	0.204						
Aroclor-1268	< 0.204		µg/l	0.204						
Aroclor-1268 [2C]	< 0.204		µg/l	0.204						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.184*		µg/l		*0.204*		*90*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.184*		µg/l		*0.204*		*90*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.163*		µg/l		*0.204*		*80*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.173*		µg/l		*0.204*		*85*	*30-150*		
LCS (1812655-BS1)					Prepared & Analyzed: 19-Sep-18					
Aroclor-1016	**1.39**		µg/l	0.204	2.55		54	40-140		
Aroclor-1016 [2C]	**1.32**		µg/l	0.204	2.55		52	40-140		
Aroclor-1260	**1.45**		µg/l	0.204	2.55		57	40-140		
Aroclor-1260 [2C]	**1.35**		µg/l	0.204	2.55		53	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.194*		µg/l		*0.204*		*95*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.194*		µg/l		*0.204*		*95*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.224*		µg/l		*0.204*		*110*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.214*		µg/l		*0.204*		*105*	*30-150*		
LCS Dup (1812655-BSD1)					Prepared & Analyzed: 19-Sep-18					
Aroclor-1016	**1.26**		µg/l	0.204	2.55		49	40-140	10	20
Aroclor-1016 [2C]	**1.22**		µg/l	0.204	2.55		48	40-140	7	20
Aroclor-1260	**1.31**		µg/l	0.204	2.55		51	40-140	10	20
Aroclor-1260 [2C]	**1.21**		µg/l	0.204	2.55		48	40-140	10	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.184*		µg/l		*0.204*		*90*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.173*		µg/l		*0.204*		*85*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.224*		µg/l		*0.204*		*110*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.204*		µg/l		*0.204*		*100*	*30-150*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 1664B										
Batch 1812579 - General Preparation SVOC										
Blank (1812579-BLK1)						Prepared: 17-Sep-18 Analyzed: 19-Sep-18				
Non-polar material (SGT-HEM)	< 1.0		mg/l	1.0						
LCS (1812579-BS1)						Prepared: 17-Sep-18 Analyzed: 19-Sep-18				
Non-polar material (SGT-HEM)	**31.5**		mg/l	1.0	41.5		76	64-132		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 200.7										
Batch 1812601 - EPA 200 Series										
Blank (1812601-BLK1)						Prepared: 18-Sep-18 Analyzed: 25-Sep-18				
Iron	< 0.250		mg/l	0.250						
Magnesium	< 0.0400		mg/l	0.0400						
Chromium	< 0.0100		mg/l	0.0100						
Calcium	< 0.200		mg/l	0.200						
LCS (1812601-BS1)						Prepared: 18-Sep-18 Analyzed: 25-Sep-18				
Iron	**2.76**		mg/l	0.250	2.50		110	85-115		
Magnesium	**2.71**		mg/l	0.0400	2.50		108	85-115		
Chromium	**2.70**		mg/l	0.0100	2.50		108	85-115		
Calcium	**12.6**		mg/l	0.200	12.5		101	85-115		
Duplicate (1812601-DUP1)			**Source: SC50317-01**			Prepared: 18-Sep-18 Analyzed: 25-Sep-18				
Iron	**1.52**		mg/l	0.250		1.57			3	20
Magnesium	**7.96**		mg/l	0.0400		8.14			2	20
Calcium	**42.9**		mg/l	0.200		43.4			1	20
Chromium	< 0.0100		mg/l	0.0100		BRL				20
Matrix Spike (1812601-MS1)			**Source: SC50317-01**			Prepared: 18-Sep-18 Analyzed: 25-Sep-18				
Iron	**4.08**		mg/l	0.250	2.50	1.57	101	70-130		
Magnesium	**10.4**		mg/l	0.0400	2.50	8.14	89	70-130		
Chromium	**2.67**		mg/l	0.0100	2.50	BRL	107	70-130		
Calcium	**52.0**	QM7	mg/l	0.200	12.5	43.4	69	70-130		
Post Spike (1812601-PS1)			**Source: SC50317-01**			Prepared: 18-Sep-18 Analyzed: 25-Sep-18				
Iron	**4.04**		mg/l	0.250	2.50	1.57	99	85-115		
Magnesium	**10.2**	QM9	mg/l	0.0400	2.50	8.14	84	85-115		
Chromium	**2.69**		mg/l	0.0100	2.50	BRL	108	85-115		
EPA 245.1/7470A										
Batch 1812617 - EPA200/SW7000 Series										
Blank (1812617-BLK1)						Prepared: 18-Sep-18 Analyzed: 19-Sep-18				
Mercury	< 0.00020		mg/l	0.00020						
LCS (1812617-BS1)						Prepared: 18-Sep-18 Analyzed: 19-Sep-18				
Mercury	**0.00483**		mg/l	0.00020	0.00500		97	85-115		
Duplicate (1812617-DUP1)			**Source: SC50317-02**			Prepared: 18-Sep-18 Analyzed: 19-Sep-18				
Mercury	< 0.00020		mg/l	0.00020		BRL				20
Matrix Spike (1812617-MS1)			**Source: SC50317-02**			Prepared: 18-Sep-18 Analyzed: 19-Sep-18				
Mercury	**0.00559**		mg/l	0.00020	0.00500	BRL	112	80-120		
Post Spike (1812617-PS1)			**Source: SC50317-02**			Prepared: 18-Sep-18 Analyzed: 19-Sep-18				
Mercury	**0.00543**		mg/l	0.00020	0.00500	BRL	109	85-115		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
ASTM D 1293-99B										
Batch 1812610 - General Preparation										
Reference (1812610-SRM1)					Prepared & Analyzed: 18-Sep-18					
pH	**6.01**		pH Units		6.00		100	97.5-102.5		
Reference (1812610-SRM2)					Prepared & Analyzed: 18-Sep-18					
pH	**6.01**		pH Units		6.00		100	97.5-102.5		
EPA 300.0										
Batch 1812637 - General Preparation										
Blank (1812637-BLK1)					Prepared: 18-Sep-18 Analyzed: 19-Sep-18					
Chloride	< 1.00		mg/l	1.00						
LCS (1812637-BS1)					Prepared: 18-Sep-18 Analyzed: 19-Sep-18					
Chloride	**19.8**		mg/l	1.00	20.0		99	90-110		
Reference (1812637-SRM1)					Prepared: 18-Sep-18 Analyzed: 19-Sep-18					
Chloride	**25.6**		mg/l	1.00	25.0		102	90-110		
EPA 335.4 / SW846 9012B										
Batch 1812662 - General Preparation										
Blank (1812662-BLK1)					Prepared & Analyzed: 19-Sep-18					
Cyanide (total)	< 0.00500		mg/l	0.00500						
LCS (1812662-BS1)					Prepared & Analyzed: 19-Sep-18					
Cyanide (total)	**0.260**		mg/l	0.00500	0.250		104	90-110		
Duplicate (1812662-DUP1)			**Source: SC50317-01**		Prepared & Analyzed: 19-Sep-18					
Cyanide (total)	< 0.00500		mg/l	0.00500		0.00494				20
Matrix Spike (1812662-MS1)			**Source: SC50317-01**		Prepared & Analyzed: 19-Sep-18					
Cyanide (total)	**0.257**		mg/l	0.00500	0.250	0.00494	101	90-110		
Matrix Spike Dup (1812662-MSD1)			**Source: SC50317-01**		Prepared & Analyzed: 19-Sep-18					
Cyanide (total)	**0.241**		mg/l	0.00500	0.250	0.00494	94	90-110	6	20
Reference (1812662-SRM1)					Prepared & Analyzed: 19-Sep-18					
Cyanide (total)	**0.252**		mg/l	0.00500	0.289		87	76-122		
SM 2520 (01)										
Batch 1812604 - General Preparation										
Blank (1812604-BLK1)					Prepared & Analyzed: 18-Sep-18					
Salinity	< 1.00		ppt (1000)	1.00						
Duplicate (1812604-DUP1)			**Source: SC50317-01**		Prepared & Analyzed: 18-Sep-18					
Salinity	**0.540**	J	ppt (1000)	1.00		0.550			2	10
MRL Check (1812604-MRL1)					Prepared & Analyzed: 18-Sep-18					
Salinity	**0.490**		ppt (1000)	1.00	0.500		98	70-130		
Reference (1812604-SRM1)					Prepared & Analyzed: 18-Sep-18					
Salinity	**10.2**		ppt (1000)	1.00	10.0		102	90-110		
Reference (1812604-SRM2)					Prepared & Analyzed: 18-Sep-18					
Salinity	**10.1**		ppt (1000)	1.00	10.0		101	90-110		
SM2540D (11)										
Batch 1812596 - General Preparation										
Blank (1812596-BLK1)					Prepared: 18-Sep-18 Analyzed: 19-Sep-18					
Total Suspended Solids	< 0.5		mg/l	0.5						
LCS (1812596-BS1)					Prepared: 18-Sep-18 Analyzed: 19-Sep-18					
Total Suspended Solids	**98.0**		mg/l	10.0	100		98	90-110		
SM3500-Cr-B (11)/7196A										
Batch 1812587 - General Preparation										

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SM3500-Cr-B (11)/7196A										
Batch 1812587 - General Preparation										
Blank (1812587-BLK1)						Prepared & Analyzed: 18-Sep-18				
Hexavalent Chromium	< 0.005		mg/l	0.005						
LCS (1812587-BS1)						Prepared & Analyzed: 18-Sep-18				
Hexavalent Chromium	**0.046**		mg/l	0.005	0.0500		92	90-111		
MRL Check (1812587-MRL1)						Prepared & Analyzed: 18-Sep-18				
Hexavalent Chromium	**0.044**		mg/l	0.005	0.0500		89	70-130		
Reference (1812587-SRM1)						Prepared & Analyzed: 18-Sep-18				
Hexavalent Chromium	**0.021**		mg/l	0.005	0.0188		110	85-115		
SM4500-Cl-G (11)										
Batch 1812664 - General Preparation										
Blank (1812664-BLK1)						Prepared & Analyzed: 19-Sep-18				
Total Residual Chlorine	< 0.020		mg/l	0.020						
LCS (1812664-BS1)						Prepared & Analyzed: 19-Sep-18				
Total Residual Chlorine	**0.046**		mg/l	0.020	0.0500		92	90-110		
Duplicate (1812664-DUP1)			**Source: SC50317-01**			Prepared & Analyzed: 19-Sep-18				
Total Residual Chlorine	**0.046**	QR6	mg/l	0.020		0.035			27	20
Matrix Spike (1812664-MS1)			**Source: SC50317-01**			Prepared & Analyzed: 19-Sep-18				
Total Residual Chlorine	**0.063**	QM5	mg/l	0.020	0.0500	0.035	56	80-120		
Matrix Spike Dup (1812664-MSD1)			**Source: SC50317-01**			Prepared & Analyzed: 19-Sep-18				
Total Residual Chlorine	**0.059**	QM5	mg/l	0.020	0.0500	0.035	49	80-120	5	200
Reference (1812664-SRM1)						Prepared & Analyzed: 19-Sep-18				
Total Residual Chlorine	**0.115**		mg/l	0.020	0.117		98	98-101		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
E350.1										
Batch 447984A - E350.1										
BLK (CB30726-BLK)						Prepared: 19-Sep-18 Analyzed: 20-Sep-18				
Ammonia as Nitrogen	< 0.05		mg/L	0.05			BRL	-		
DUP (CB30726-DUP)			**Source: CB30726**			Prepared: 19-Sep-18 Analyzed: 20-Sep-18				
Ammonia as Nitrogen	**8.52**		mg/L	0.10				-	7.8	20
LCS (CB30726-LCS)						Prepared: 19-Sep-18 Analyzed: 20-Sep-18				
Ammonia as Nitrogen	**3.490**		mg/L	0.05	3.74		93.3	90-110		20
MS (CB30726-MS)			**Source: CB30726**			Prepared: 19-Sep-18 Analyzed: 20-Sep-18				
Ammonia as Nitrogen	**12.06**		mg/L	0.05	4		105	90-110		20
SW6020B										
Batch 447925A - SW6020B										
BLK (CB33476-BLK)						Prepared: 18-Sep-18 Analyzed: 20-Sep-18				
Lead	< 0.0005		mg/L	0.0005			BRL	-		
Arsenic	< 0.0040		mg/L	0.0040			BRL	-		
Antimony	< 0.0030		mg/L	0.0030			BRL	-		
Cadmium	< 0.0010		mg/L	0.0010			BRL	-		
Copper	< 0.0025		mg/L	0.0025			BRL	-		
Nickel	< 0.0025		mg/L	0.0025			BRL	-		
Selenium	< 0.010		mg/L	0.010			BRL	-		
Silver	< 0.0010		mg/L	0.0010			BRL	-		
Zinc	< 0.005		mg/L	0.005			BRL	-		
DUP (CB33476-DUP)			**Source: SC50317-01**			Prepared: 18-Sep-18 Analyzed: 20-Sep-18				
Cadmium	< 0.0010		mg/L	0.0010		BRL		-	NC	20
Zinc	**0.010**		mg/L	0.005				-	0.0	20
Silver	< 0.0010		mg/L	0.0010		BRL		-	NC	20
Selenium	< 0.010		mg/L	0.010		BRL		-	NC	20
Nickel	< 0.0025		mg/L	0.0025		BRL		-	NC	20
Copper	< 0.0025		mg/L	0.0025		BRL		-	NC	20
Arsenic	< 0.0040		mg/L	0.0040		BRL		-	NC	20
Antimony	< 0.0030		mg/L	0.0030		BRL		-	NC	20
Lead	**0.0009**		mg/L	0.0005				-	0.0	20
LCS (CB33476-LCS)						Prepared: 18-Sep-18 Analyzed: 20-Sep-18				
Nickel	**0.05240**		mg/L	0.0025	0.05		105	75-125		20
Antimony	**0.05130**		mg/L	0.0030	0.05		103	75-125		20
Silver	**0.05900**		mg/L	0.0010	0.05		118	75-125		20
Selenium	**0.05570**		mg/L	0.010	0.05		111	75-125		20
Zinc	**0.05990**		mg/L	0.005	0.05		120	75-125		20
Lead	**0.05320**		mg/L	0.0005	0.05		106	75-125		20
Copper	**0.06060**		mg/L	0.0025	0.05		121	75-125		20
Arsenic	**0.05250**		mg/L	0.0040	0.05		105	75-125		20
Cadmium	**0.05570**		mg/L	0.0010	0.05		111	75-125		20
MS (CB33476-MS)			**Source: SC50317-01**			Prepared: 18-Sep-18 Analyzed: 20-Sep-18				
Antimony	**0.04740**		mg/L	0.0030	0.05	BRL	92.8	75-125		20
Arsenic	**0.04720**		mg/L	0.0040	0.05	BRL	88.6	75-125		20
Cadmium	**0.05050**		mg/L	0.0010	0.05	BRL	101	75-125		20
Copper	**0.05170**		mg/L	0.0025	0.05	BRL	98.4	75-125		20
Lead	**0.04820**		mg/L	0.0005	0.05		94.6	75-125		20
Nickel	**0.04770**		mg/L	0.0025	0.05	BRL	91.2	75-125		20
Selenium	**0.05160**		mg/L	0.010	0.05	BRL	103	75-125		20
Silver	**0.05310**		mg/L	0.0010	0.05	BRL	106	75-125		20
Zinc	**0.05480**		mg/L	0.005	0.05		89.2	75-125		20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW8015D										
Batch 448017A - SW8015D										
BLK (CB32993-BLK)						Prepared & Analyzed: 19-Sep-18				
Ethanol	< 1.0		mg/L	1.0			ND	-		
LCS (CB32993-LCS)						Prepared & Analyzed: 19-Sep-18				
Ethanol	**10.43**	r	mg/L	1.0	10		104	70-130		30
LCSD (CB32993-LCSD)						Prepared & Analyzed: 19-Sep-18				
Ethanol	**7.177**	r	mg/L	1.0	10		72	70-130	36.4	30
MS (CB32993-MS)			**Source: CB32993**			Prepared & Analyzed: 19-Sep-18				
Ethanol	**8.623**		mg/L	1.0	10		86	70-130		30
MSD (CB32993-MSD)			**Source: CB32993**			Prepared & Analyzed: 19-Sep-18				
Ethanol	**9.370**		mg/L	1.0	10		94	70-130	8.9	30

Notes and Definitions

D	Data reported from a dilution
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
QC6	Analyte is out of acceptance range in the QC spike but the total number of out of range analytes is within overall method criteria.
QM10	LCS/LCSD were analyzed in place of MS/MSD.
QM5	The spike recovery was outside acceptance limits for the MS, MSD and/or PS due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR6	The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.
r	This parameter is outside laboratory rpd specified recovery limits.
R05	Elevated Reporting Limits due to the presence of high levels of non-target analytes; sample may not meet client requested reporting limit for this reason.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
[2C]	Indicates concentration was reported from the secondary, confirmation column.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
ClHT	The method for residual chlorine indicates that samples should be analyzed immediately. 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous residual chlorine samples not analyzed in the field are considered out of hold time at the time of sample receipt.
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

Gasoline - includes regular, unleaded, premium, etc.
Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
Fuel Oil #4 - includes #4 fuel oil
Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
Motor Oil - includes virgin and waste automobile oil
Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
Aviation Fuel - includes kerosene, Jet A and JP-4
Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as Calculated as.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

SC50317 8M

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

☐ Standard TAT - 7 to 10 business days

☒ Rush TAT - Date Needed: 3 day

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: ATC Group Services
500 West Cummings Park Suite 3750
Woburn MA 01801

Telephone #:

Project Mgr: Steve Law

Invoice To: ATC Group Services

P.O No.: _____ Quote #: 9480

Project No: 05 - 201895

Site Name: Global Thrifty

Location: 40 Leebarbank Hwy State: MA

Sampler(s): CB

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11=_____ 12=_____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1=_____ X2=_____ X3=_____

G= Grab C=Compsite

List Preservative Code below:

NA	NA	3	4	5	2	1	NA

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: G25 Polychlorinated Biphenyls EPA608	Chloride EPA 300 1 Ltr	Ammonia as N	Total Metals	Cyanide total	524.2/624	504.1	8015 Modified	Check if chlorinated
SC50317-01	ATC-3	9/17/18	10:00	G	GW	4	3		4	3 x	1 x	1 x	1 x	1 x	5 x	2 x	2 x	☐
02	Creek	9/17/18	9:00	G	SW	9	3		4	3 x	1 x	1 x	1 x	1 x	5 x	2 x	2 x	☐
03	Blank (HCl)					2												☐
04	Blank (Sodium Thios.)					2												☐
																		☐
																		☐
																		☐
																		☐
																		☐
																		☐

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? ☒ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☒ No
☒ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
Carmen Bristol		9/17	13:00
		9/17	16:15

Temp °C: Observed 3.5 Correction Factor 0 Corrected 3.5 IR ID # 1

☒ EDD format:
☒ E-mail to: StevenLaw@ATCGS.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

SC50317 BM

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

☐ Standard TAT - 7 to 10 business days

☒ Rush TAT - Date Needed: 3 bd

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: ATC Group Services
500 West Cummings Park Suite 3750
Woburn MA 01801

Telephone #:
Project Mgr: Steve Law

Invoice To: ATC Group Services

P.O No.: _____ Quote #: 9480

Project No: 05-201895
Site Name: Global Thrifty
Location: 40 Leeburbank Hwy State: MA
Sampler(s): CB

F=Field Filtered 1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11=_____ 12=_____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1=_____ X2=_____ X3=_____

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Bottles	List Preservative Code below: NA	NA	3	4	5	2	1	NA	Check if chlorinated
											Analysis: 625 Polychlorinated Biphenols EPA609	Chloride EPA 300	Ammonia as N	Total Metals	Cyanide total	524.2/624	504.1	8015 Alcohols	
SC50317-01	ATC-3	9/17/18	10:00	G	SW	4	3		4		3x	1x	1x	1x	1x	5x	2x	2x	☐
02	Creek	9/17/18	9:00	G	SW	9	3		4		3x	1x	1x	1x	1x	5	x2	2	2x ☐
03	Blank (HCl)					2													☐
04	Blank (Sodium Thios.)					2													☐
																			☐
																			☐
																			☐
																			☐
																			☐
																			☐

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? ☒ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☒ No
☒ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

Please see attached for the full list of analyses.

BM 9/18

Relinquished by:	Received by:	Date:	Time:
Conan Bristol		9/17	13:00
BM		9/17	16:15

Temp °C: Observed 3.3 Correction Factor 0 Corrected 3.3 IR ID # 1

☒ EDD format:
☒ E-mail to: StevenLaw@ATCGS.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Additional Resource for Selecting Sufficiently Sensitive Test Methods for RGP Notice of Intent (NOI) Sampling Requirements[1]

Table 1: Parameters, Required Minimum Levels (MLs), and Common Test Methods[2]

Parameter	Requirements	
	ML Must Be ≤	**Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted**
A. Inorganics		
Ammonia	0.1 mg/L	SM 4500 B and D; 350.1
Chloride	230 mg/L	SM 4110 B; 300.0
Total Residual Chlorine	50 µg/L	SM 4500-Cl G and E
Total Suspended Solids	30 mg/L	SM 2540 D
Antimony	206 µg/L	200.8 and 200.9
Arsenic	FW= 10 µg/L SW= 36 µg/L	200.8 and 200.9 in FW 200.7, 200.8 and 200.9 in SW
Cadmium	FW= 0.25 µg/L SW= 8.8 µg/L in MA SW= 9.3 µg/L in NH	200.8 in FW 200.8 and 200.9 in SW
Chromium III	FW= 74 µg/L SW= 100 µg/L	200.7, 200.8 and 200.9
Chromium VI	FW= 11 µg/L SW= 50 µg/L	218.6
Copper	FW= 9 µg/L SW= 3.1 µg/L	200.8 and 200.9
Iron	FW = 1,000 µg/L	200.7 and 200.8
Lead	FW= 2.5 µg/L SW= 8.1 µg/L	200.8 and 200.9
Mercury	FW= 0.77 µg/L SW= 0.739 µg/L	245.1, 245.7 and 1631E
Nickel	FW= 52 µg/L SW= 8.2 µg/L	200.8 and 200.9
Selenium	FW= 5.0 µg/L SW= 71 µg/L	200.8 and 200.9 in FW 200.7, 200.8 and 200.9 in SW
Silver	FW= 3.2 µg/L SW= 1.9 µg/L	200.8
Zinc	FW= 120 µg/L SW= 81 µg/L	200.7 and 200.8
Cyanide	FW = 5.2 µg/L SW = 5.0 µg/L	SM 4500-CN
B. Non-Halogenated Volatile Organic Compounds		
Total BTEX[3]	100 µg/L (sum of individual MLs)	624 and 1624B
Benzene	5.0 µg/L	624 and 1624B
1,4 Dioxane	50 µg/L	SIM
Acetone	7.97 mg/L	524.2
Phenol	300 µg/L	420.1 and 420.4

Parameter	Requirements	
	ML Must Be ≤	Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted
C. Halogenated Volatile Organic Compounds		
Carbon Tetrachloride	1.6 µg/L in MA 4.4 µg/L in NH	624
1,2 Dichlorobenzene	600 µg/L	624
1,3 Dichlorobenzene	320 µg/L	624
1,4 Dichlorobenzene	5.0 µg/L	624
Total Dichlorobenzene[4]	Not required in MA 763 µg/L in NH (sum of individual MLs)	624
1,1 Dichloroethane	70 µg/L	624
1,2 Dichloroethane	5.0 µg/L	624
1,1 Dichloroethylene	3.2 µg/L	624
Ethylene Dibromide	0.05 µg/L	SIM
Methylene Chloride	4.6 µg/L	624
1,1,1 Trichloroethane	200 µg/L	624
1,1,2 Trichloroethane	5.0 µg/L	624
Trichloroethylene	5.0 µg/L	624
Tetrachloroethylene	3.3 µg/L in MA 5.0 µg/L in NH	624
cis-1,2 Dichloroethylene	70 µg/L	624
Vinyl Chloride	2.0 µg/L	624
D. Non-Halogenated Semi-Volatile Organic Compounds		
Total Phthalates[5]	190 µg/L in MA FW = 3.0 µg/L in NH SW = 3.4 µg/L in NH	625 and 1625B in MA 625 in NH
Diethylhexyl Phthalate	2.2 µg/L in MA 5.9 µg/L in NH	625 in MA 625 and 1625B in NH
Total Group I Polycyclic Aromatic Hydrocarbons[6]	1.0 µg/L (sum of individual MLs)	SIM
Benzo(a)anthracene	0.1 µg/L	SIM
Benzo(a)pyrene	0.1 µg/L	SIM
Benzo(b)fluoranthene	0.1 µg/L	SIM
Benzo(k)fluoranthene	0.1 µg/L	SIM
Chrysene	0.1 µg/L	SIM
Dibenzo(a,h)anthracene	0.1 µg/L	SIM
Indeno(1,2,3-cd)pyrene	0.1 µg/L	SIM
Total Group II Polycyclic Aromatic Hydrocarbons[7]	100 µg/L (sum of individual MLs)	625
Naphthalene	20 µg/L	625

Parameter	Requirements	
	ML Must Be ≤	Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted
E. Halogenated Semi-Volatile Organic Compounds		
Total Polychlorinated Biphenyls[8]	0.5 µg/L	608
Pentachlorophenol[9]	1.0 µg/L	625
F. Fuels Parameters		
Total Petroleum Hydrocarbons	5.0 mg/L	1664A and B
Ethanol	0.4 mg/L	1666/1671/D3695
Methyl-tert-Butyl Ether	20 µg/L in MA 70 µg/L in NH	SIM
tert-Butyl Alcohol	120 µg/L in MA 40 µg/L in NH	1666
tert-Amyl Methyl Ether	90 µg/L in MA 140 µg/L in NH	624

Table 1 Footnotes:

[1] The minimum levels specified in this table will satisfy the sufficiently sensitive test method requirements for the purposes of sample analysis used to prepare a Notice of Intent (NOI) for coverage under the Remediation General Permit. Where less sensitive minimum levels (MLs) may be used upon authorization to discharge, these MLs will be noted in the written authorization to discharge for an individual site.

[2] The following abbreviations are used in Table 1, above:
- [a] mg/L = milligrams per liter
- [b] µg/L = micrograms per liter
- [c] FW = freshwater
- [d] SW = saltwater
- [e] SM = standard method
- [d] SIM = selected ion monitoring

[3] Total BTEX is the sum of: benzene (CAS No. 71432); toluene (CAS No. 108883); ethylbenzene (CAS No. 100-41-4); and (m,p,o) xylenes (CAS Nos. 108-88-3, 106-42-3, 95-47-6, and 1330-20-7).

[4] Total dichlorobenzene is the sum of: 1,2 dichlorobenzene (CAS No. 95-50-1); 1,3 dichlorobenzene (CAS No. 541-73-1); and 1,4 dichlorobenzene (CAS No. 106-46-7).

[5] Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). For the diethylhexyl phthalate in NH, EPA anticipates that the applicable ML will be revised to 2.2 µg/L, once incorporated into the RGP for sites in New Hampshire.

[6] Total Group I PAHs is the sum of: benzo(a)anthracene (CAS No. 56-55-3); benzo(a)pyrene (CAS No. 50-32-8); benzo(b)fluoranthene (CAS No. 205-99-2); benzo(k)fluoranthene (CAS No. 207-08-9; chrysene (CAS No. 218-01); dibenzo(a,h)anthracene (CAS No. 53-70-3); indeno(1,2,3-cd)pyrene (CAS No. 193-39-5).

[7] Total Group II PAHs is the sum of: acenaphthene (CAS No. 83-32-9); acenaphthylene (CAS No. 208-96-8); anthracene (CAS No. 120-12-7); benzo(g,h,i)perylene (CAS No. 191-24-2); fluoranthene (CAS No. 206-44-0); fluorene (CAS No. 86-73-7); naphthalene (CAS No. 91-20-3); phenanthrene (CAS No. 85-01-8); pyrene (CAS No. 129-00-0).

[8] Total PCBs is the sum of the following aroclors: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260.

[8] The ML for analysis of pentachlorophenol must be as close to 1.0 µg/L as possible, not to exceed $\leq$ 5.0 µg/L.

eurofins | Spectrum Analytical

11 Almgren Drive
Agawam, MA 01001
(413) 789-9018

This preceding chain of custody has been amended to include the client requested additional analyses as noted below:

Laboratory ID	*Client ID*	*Analysis*	*Added*
SC50317-01	ATC-3	Total Chromium by ICP	9/18/2018
SC50317-02	Creek	pH	9/18/2018
SC50317-02	Creek	Total Chromium by ICP	9/18/2018

Batch Summary

1812579

Extractable Petroleum Hydrocarbons

1812579-BLK1
1812579-BS1
SC50317-01 (ATC-3)

1812583

Total Metals by EPA 200/6000 Series Methods

SC50317-01 (ATC-3)
SC50317-02 (Creek)

1812587

General Chemistry Parameters

1812587-BLK1
1812587-BS1
1812587-MRL1
1812587-SRM1
SC50317-01 (ATC-3)
SC50317-02 (Creek)

1812596

General Chemistry Parameters

1812596-BLK1
1812596-BS1
SC50317-01 (ATC-3)

1812601

Total Metals by EPA 200 Series Methods

1812601-BLK1
1812601-BS1
1812601-DUP1
1812601-MS1
1812601-PS1
SC50317-01 (ATC-3)
SC50317-01 (ATC-3)
SC50317-02 (Creek)
SC50317-02 (Creek)

1812604

General Chemistry Parameters

1812604-BLK1
1812604-DUP1
1812604-MRL1
1812604-SRM1
1812604-SRM2
SC50317-01 (ATC-3)
SC50317-02 (Creek)

1812610

General Chemistry Parameters

1812610-SRM1
1812610-SRM2
SC50317-02 (Creek)

1812617

Total Metals by EPA 200 Series Methods

1812617-BLK1
1812617-BS1
1812617-DUP1
1812617-MS1
1812617-PS1
SC50317-01 (ATC-3)
SC50317-02 (Creek)

1812637

General Chemistry Parameters

1812637-BLK1
1812637-BS1
1812637-SRM1
SC50317-01 (ATC-3)

1812655

Semivolatile Organic Compounds by GC

1812655-BLK1
1812655-BS1
1812655-BSD1
SC50317-01 (ATC-3)

1812656

Semivolatile Organic Compounds by GCMS

1812656-BLK1
1812656-BS1
1812656-BSD1
SC50317-01 (ATC-3)

1812662

General Chemistry Parameters

1812662-BLK1
1812662-BS1
1812662-DUP1
1812662-MS1
1812662-MSD1
1812662-SRM1
SC50317-01 (ATC-3)

1812664

General Chemistry Parameters

1812664-BLK1
1812664-BS1
1812664-DUP1
1812664-MS1
1812664-MSD1
1812664-SRM1
SC50317-01 (ATC-3)

1812745

Volatile Organic Compounds

1812745-BLK1
1812745-BS1
SC50317-01 (ATC-3)
SC50317-03 (Blank (HCL))

1812783

Volatile Organic Compounds

1812783-BLK1
1812783-BS1
1812783-BSD1
SC50317-01 (ATC-3)
SC50317-03 (Blank (HCL))

447925A

Subcontracted Analyses

CB33476-BLK
CB33476-DUP
CB33476-LCS
CB33476-MS
SC50317-01 (ATC-3)
SC50317-02 (Creek)

447926A

Subcontracted Analyses

CB31390-BLK
CB31390-LCS
CB31390-LCSD
CB31390-MS
CB31390-MSD
SC50317-01 (ATC-3)
SC50317-04 (Blank (Sodium ThioSulfate))

447984A

Subcontracted Analyses

CB30726-BLK
CB30726-DUP
CB30726-LCS
CB30726-MS
SC50317-01 (ATC-3)
SC50317-02 (Creek)

448017A

Subcontracted Analyses

CB32993-BLK
CB32993-LCS
CB32993-LCSD
CB32993-MS
CB32993-MSD
SC50317-01 (ATC-3)

S820548

Volatile Organic Compounds

S820548-CAL1
S820548-CAL2
S820548-CAL3
S820548-CAL4
S820548-CAL5
S820548-CAL6
S820548-CAL7
S820548-CAL8
S820548-CAL9
S820548-ICV1
S820548-LCV1
S820548-LCV2
S820548-TUN1

S821565

Semivolatile Organic Compounds by GCMS

S821565-CAL1
S821565-CAL2
S821565-CAL3
S821565-CAL4
S821565-CAL5
S821565-CAL6
S821565-CAL7
S821565-CAL8
S821565-CAL9
S821565-CALA
S821565-ICV1
S821565-LCV1
S821565-LCV2
S821565-TUN1

S822029

Semivolatile Organic Compounds by GC

S822029-CAL1
S822029-CAL2
S822029-CAL3
S822029-CAL4
S822029-CAL5
S822029-CAL6
S822029-CAL7
S822029-CAL8
S822029-CAL9
S822029-CALA
S822029-CALB
S822029-CALC
S822029-CALD
S822029-CALE
S822029-CALF
S822029-CALG
S822029-CALH
S822029-CALI
S822029-CALJ
S822029-CALK
S822029-CALL
S822029-CALM
S822029-CALN
S822029-CALO
S822029-CALP
S822029-CALQ
S822029-CALR
S822029-CALS
S822029-CALT
S822029-CALU
S822029-ICV1
S822029-ICV2
S822029-ICV3
S822029-ICV4
S822029-ICV5
S822029-ICV6
S822029-LCV1
S822029-LCV2
S822029-LCV3
S822029-LCV4
S822029-LCV5
S822029-LCV6

S822180

Semivolatile Organic Compounds by GC

S822180-CCV1
S822180-CCV2
S822180-IBL1
S822180-IBL2

S822187

Volatile Organic Compounds

S822187-CCV1
S822187-TUN1

S822195

Semivolatile Organic Compounds by GCMS

S822195-CCV1
S822195-TUN1

S822198

Volatile Organic Compounds

S822198-CAL1
S822198-CAL2
S822198-CAL3
S822198-CAL4
S822198-CAL5
S822198-CAL6
S822198-CAL7
S822198-CAL8
S822198-CAL9
S822198-ICV1
S822198-LCV1
S822198-LCV2
S822198-LCV3
S822198-TUN1

S822211

Volatile Organic Compounds

S822211-CCV1
S822211-TUN1

S822216

Semivolatile Organic Compounds by GCMS

S822216-CCV1
S822216-TUN1

Attachment D
Review of Threatened or Endangered Species
And
National Historic Preservation Act Review

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 8, 2018

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm (accessed January 2018)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	REV.J
Historic Name:	Suffolk Downs
Common Name:	
Address:	
City/Town:	Revere
Village/Neighborhood:	
Local No:	4-80-14B
Year Constructed:	
Architect(s):	Barnes, A. R.; Lewis, Olsen; Linenthal and Becker; Linenthal, Mark; Tomasello, Antonio G. and Son
Architectural Style(s):	
Use(s):	Other Recreational; Racetrack
Significance:	Architecture; Music; Performing Arts; Recreation
Area(s):	
Designation(s):	
Building Materials(s):	

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

FORM A - AREA

Assessor's Sheets	USGS Quad	Area Letter	Form Numbers in Area
BOS - 102524000 REV – 4-80-14B	Boston North and Lynn	BOS.ABQ / REV.J	see data sheet

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Photograph

Town/City: Boston and Revere

Place *(neighborhood or village):* East Boston

Name of Area: Suffolk Downs

Present Use: Horse Racing

Construction Dates or Period: 1935, 1953, 1962-65, 1991

Overall Condition: Fair to Good

Major Intrusions and Alterations: Major window modifications, 1962-1965 and 1991 major additions and renovations

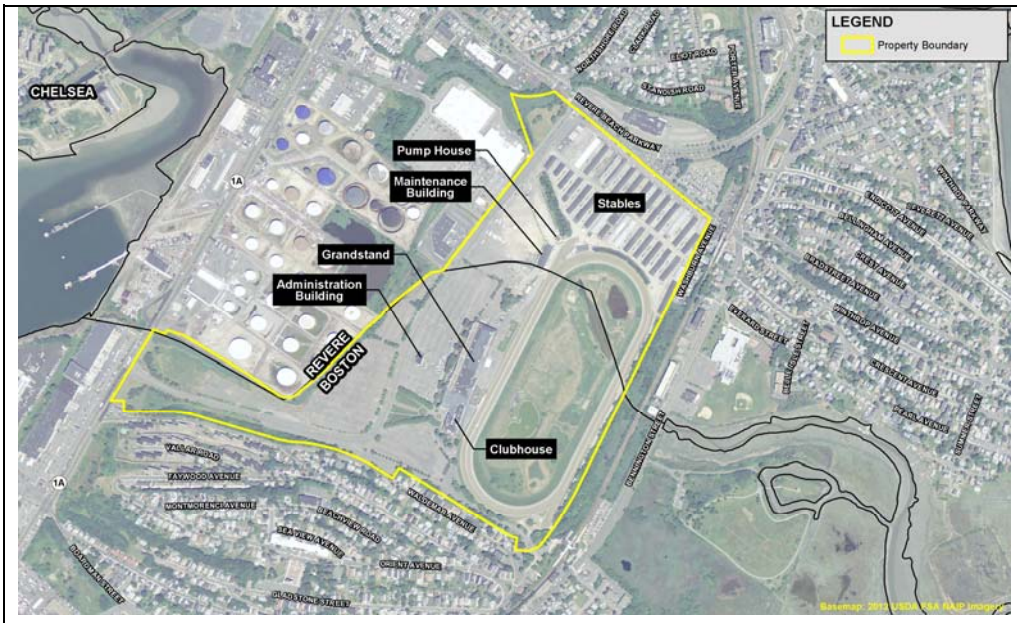
Acreage: 161 acres

Recorded by: Taya Dixon

Organization: Epsilon Associates, Inc.

Date *(month/year):* July 2013

Locus Map



☒ *see continuation sheet*

☐ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION

Describe architectural, structural and landscape features and evaluate in terms of other areas within the community.

Suffolk Downs is situated on 161 acres of land in the East Boston neighborhood of Boston and within the City of Revere. The race track facility is bounded on the east by the MBTA subway line which includes the Suffolk Downs train station at the property's southeast corner. Tomasello Way and an oil tank facility form the western boundary of the site. The property is bounded to the north by Revere Beach Parkway and Winthrop Avenue and to the south by Waldemar Avenue and residential properties. The Suffolk Downs property encompasses the racetrack, connected clubhouse and grandstand, administration building, barns, and ancillary support buildings.

Surface parking is situated on the western side of the site on both sides of Tomasello Way. Now referred to as the office building, the two-story steel frame concrete clad former administration building is situated on the east side of Tomasello Way. Surrounded by surface parking, the administration building is nine-bays long (east and west elevations) and five-bays wide (north and south elevations). The first floor of the east elevation projects out one bay off the façade, and a central projecting rectangular bay extends out of the center of the second floor of the west elevation. All window openings within the building have been completely or partially infilled with concrete block and largely contain one-over-one double hung sash. The building exhibits significant areas of spalled concrete and deteriorated paint. The flat roof of the building collapsed during a heavy rainstorm in late 2012 and is now vacant, with considerable water damage.

The north side of the site contains approximately 30 wood frame barns, several sheds and ancillary buildings, and jockey quarters. The barns are aligned in two rows of parallel buildings separated by a central lane running east west. The barn area is separated from the surface parking by a drainage ditch to the southeast carrying Sales Creek from Chelsea Creek to the Belle Isle Marsh. The barn area is separated from the racetrack by a curved barn structure (date unknown). Most of the barns are long, one-story wood frame structures clad in wide horizontal clapboard siding with single leaf board and batten doors at each stall. The roofs of the barns extend past the walls creating covered walkway along each side of the building. A one-story wood frame maintenance building (date unknown) is situated between the barns and the grandstand just west of the race track. A small, one-story concrete sewer pump station is located just north of the grandstand.

The one-mile long oval race track is located on the east side of the site. The dirt track is bounded by a wood rail fence and the infield is primarily covered in grass. A grass track is situated immediately inside the dirt track and is defined on both sides by a wood rail fence. A portion of the former half-mile harness racing track (1962) is still visible in the infield. Also located in the infield is a portion of Sales Creek, a pond, and the tote board which faces the grandstand. Several trees and shrubs are also located throughout the infield.

Near the center of the property is the connected clubhouse and grandstand. Originally two separate structures, the buildings were connected in 1962 through an expansion of the grandstand. The smaller clubhouse is at the south end of the complex while the grandstand and its later addition is situated at the north end. Although somewhat altered from its original design, the landscaped entrance court on the west side of the clubhouse remains. The area is now laid out with pedestrian walkways and grassy areas bounded with trees and shrubs.

Constructed in 1935, the clubhouse was designed in the Art Deco style. The present day west elevation is a reconstruction of the original elevation following removal of the 1962 International Style addition. The east side of the building reflects its original design from 1935, its 1953 modifications, and the 1962 International Style renovation. The east elevation is accessed from a wide, elevated landing set atop several concrete steps. The original clubhouse section (south end) contains a southern bay with punched window openings at the second and third stories, and a tower with a single bay of punched window openings adjacent to a three-bay wide façade to the north. Wide expanses of doors at the first floor and windows at the second and third levels are separated by wide concrete clad piers. To the north is a slightly recessed, three-story bay with wide rectangular window openings. The elevation then steps forward one bay with the south elevation being a solid concrete wall and the east elevation defined by a ground level entrance and two levels of windows above. All windows are aluminum sash designed to appear as steel sash similar in character to what was present in 1935. The south elevation of the clubhouse is utilitarian in design containing a return bay of punched window openings on the west side. The elevation is then set forward one return bay (solid concrete wall), and contains three levels of completely or partially infilled window openings. At the elevation's eastern end, the glass enclosed viewing platforms at the second and third floor stories are visible. The east elevation contains three stories of tall windows separated by vertical steel mullions. The windows are set atop long ribbons of concrete wall at the second and third stories. The flat roof is accentuated by a narrow ribbon of concrete. The interior is predominately finished with modern furred out walls, drop ceilings, and carpeting.

The existing grandstand building was constructed in two building campaigns: 1935 and 1962. The building retains architectural elements of both building periods. The ca.1962 walking ring remains on the east side of the building situated between the grandstand and the race track. The west is a long solid concrete elevation with three elevated entrances accessed by Art Deco-style rounded staircases. A former first-story entrance has been infilled with vertical board siding at each staircase, and each second story entrance door is situated atop a monumental staircase and beneath a canvas awning. A one-story concrete entrance pavilion projects off the west elevation between two sets of stairs at the north end of the elevation. The one-story, flat roofed addition contains large storefront windows and doors on all elevations. At the southern end of the elevation is a slightly pitched concrete and steel enclosed walkway that begins at the corner tower and extends to just south of the southernmost entrance stairs. Due to the sloping floor of the grandstands, the solid concrete rear (west) wall of the grandstands projects above the roof of the main block. The south elevation of the grandstand has been faced with a three-story Art Deco façade similar in character and proportion to the west elevation of the adjoining clubhouse. The north elevation features the return bay of glazing set atop a solid concrete base. The east elevation of the grandstand exhibits the structural steel I-beams at regular intervals along the elevation. The first floor contains aluminum and glass storefront systems at the north and central sections and recessed wood and glass walls at the southern end. The entire upper seating area has large windows that operate via a vertical lift system. A rooftop addition is situated on the roof overlooking the finish line. The one-story section has a continuous row of ribbon windows and two upper level penthouses. The first floor of the grandstand features

exposed concrete columns and the underside the grandstand seating. The grandstand seating area has modern finishes with exposed roof and exterior steel framing overlooking the track.

HISTORICAL NARRATIVE

Explain historical development of the area. Discuss how this relates to the historical development of the community.

Historical Development of Suffolk Downs

Situated in the cities of Boston and Revere, Suffolk Downs is constructed upon former marshland. Located immediately northeast of the former Breeds Island (also referred to as Breeds Hill and Orient Heights), the filled land was bounded on the northwest by the Boston and Maine Railroad and to the southeast by the Boston, Revere Beach and Lynn Railroad, both of which connected the then island of East Boston with Revere and Chelsea in the late nineteenth century. The Belle Isle Inlet and other small channels crossed the site in a generally east-west direction. The inlet connected Chelsea Creek to the west and Sales Creek to the north with Boston Harbor to the east. In ca. 1890, the Boston Land Company filled the former marsh to prepare the area for development, which had already begun on Breeds Island. When the land was filled, culverts and a drainage ditch were constructed within the site to carry water from Sales Creek through the site in a southeast direction to Belle Isle Inlet. Although streets were planned for the filled land, no development took place, and in 1911 the land was sold to the East Boston Company. Residential development commenced around the filled land, and in 1935 construction of the Suffolk Downs Race Track was undertaken by the Eastern Racing Commission.

Horse racing was a popular sport and pastime in America at the turn of the twentieth century. In the Boston area, horse racing, including harness racing, was taking place in neighborhoods around the City on race tracks from Franklin Field in Roxbury to the banks of the Charles River in Allston. Thoroughbred racing began in America in the 1868 with the creation of the American Stud Book that profiled all thoroughbreds born in America. By 1890 there were 314 tracks operating in the United States. In 1894, the American Jockey Club was formed. Most states banned gambling on horses due to illegal bookmaking practices until 1908 when pari-mutuel betting was introduced. The betting system pooled all wagers, removed the taxes and house take, and paid off winnings based on odds calculated among all winning bets. The newly sanctioned system allowed for the creation of Suffolk Downs.

In 1934, the Commonwealth of Massachusetts created the State Racing Commission which legalized pari-mutuel wagering. That same year, Charles F. Adams commissioned engineer Mark Linenthal to design a race track for the East Boston site. The contracting firm of A.G. Tomasello & Son won the $2 million construction contract and completed the job in about three months. Mark Linenthal (1886-1976) was born in Boston, MA. He completed his studies in civil engineering at the Graduate School of Applied Science at Harvard University. Linenthal was a member of the Boston Society of Civil Engineers, and by 1917, he was married to his wife Anna, had two children, and was working as an engineer with the firm of Monks and Johnson in Boston. In 1919, Linenthal was in a partnership of Gascoigne & Linenthal on Tremont Street in Boston. Eventually, he entered into his own practice and was responsible for not only the design of Suffolk Downs but also Narragansett Park, a horseracing track in Pawtucket, Rhode Island, the Roosevelt Raceway in Westbury, Long Island, New York, the renovation of Salem, New Hampshire's horseracing track known as Rockingham Park, the greyhound racing track Raynham Park in Raynham, MA, and the baseball park McCoy Stadium in

Pawtucket, RI designed with Thomas Harding. The Constitution Wharf – Quincy Mark Cold Storage Building in Boston's North End and the Garment Center Building on Kneeland Street in Boston are also attributed to Linenthal.

The original Suffolk Downs included the one-mile long race track, two-story judges' stand, grandstand, clubhouse, administration building, horse paddock, an equipment shed, sewer pump house, approximately 30 horse barns, and a jockey building. The judges' stand, clubhouse, grandstand and administration buildings were all steel frame and concrete structures designed in the Art Deco style while the paddock and barns were utilitarian, wood frame structures. The equipment shed and sewer pump house were both concrete and wood frame buildings. The grounds included a ceremonial circular driveway in front of the clubhouse, a parade ring between the paddock and the grandstand, three rows of trees planted in the grassed forecourt of the grandstand, and extensive parking areas to the north and south of the grandstand and clubhouse.

In 1939, the small free-standing steel frame photo-finish booth situated on the roof of the grandstand was fully enclosed in a new concrete penthouse. In that same year, the judges' stand, located at the edge of the track near the south end of the grandstand, received a new roof, but by 1942, the stand was demolished. In 1945, a new 14x14-foot reviewing stand was added to the roof. These modifications were all designed by Mark Linenthal. The next major renovation to the facility was in 1953. Following plans prepared by A.R. Barnes, the former open air third level of the clubhouse overlooking the track was enclosed. The roof of the main block of the building was extended over the outside deck to create a new indoor kitchen, dining room, and betting area.

Between 1962 and 1965, a major transformation of the facility was undertaken following plans developed by Linenthal & Becker, a later Linenthal partnership. A substantial addition was constructed between the clubhouse and grandstand. The International Style addition added two-stories to the front façade of the clubhouse, enclosed the former walkway between the clubhouse and the grandstand, and connected the new clubhouse addition to the grandstand via a long sloping enclosed walkway. A clubhouse addition featured a four-bay monumental entrance defined by a four-vaulted canopy. The entrances were defined by large expanses of glass. The first story, which appeared as two stories from the exterior due its double height, contained punched window openings within the brick façade while the second floor was accentuated by a continuous row of ribbon windows. The concrete sloping walkway to the grandstand extended from the new entryway addition across the former open walkway to the grandstand. Enclosed in glazed panels, the walkway connected the first floor of the new clubhouse addition with the second floor of the grandstand.

On the east side of the clubhouse, the first and second floor concrete decks were enclosed with ribbon windows and doors during the 1962-1965 renovation. The grandstand was expanded to enclose the former walkway between the two buildings, and the entire grandstand enclosed in movable glass walls. The steel and glass walls operated vertically and could be opened and closed with a mechanical lift system. The original paddock building was removed at this time. A 14-stall paddock was constructed below the grandstand and a walking ring was created on the track side of the grandstand. A new half-mile harness racing oval was constructed inside the original track. The forecourt at west elevation was paved for parking.

A number of interior renovations occurred in the ensuing years including the installation of an escalator between the first and second floors of the grandstand in 1965, and the demolition of the box seats in the

grandstand to provide more open seats in 1969. In 1972, the administration building underwent an interior renovation. In 1982, a fire destroyed one of the barns, and several were re-sided and renovated. In 1991, the 1962 clubhouse addition was removed and the original west elevation was restored following plans by architect Olsen Lewis. The infill between the clubhouse and the grandstand was retained, and a new south elevation and corner tower were constructed in the same Art Deco architectural character as the original clubhouse building. A portion of the sloped walkway was retained and connected the new corner tower to the second floor of the grandstand. While the west elevation of the clubhouse was restored, the grandstand seating area was renovated, new bathrooms and flooring installed and the interior and exterior of the building was repainted. In 1993, a new broadcast signal center was also added on the interior of the grandstand. Since the 1990s, little alteration to Suffolk Downs has been undertaken. In late 2012, the roof of the administration building collapsed. As a result, the building has suffered severe structural and water damage and is vacant. The building has been condemned and is scheduled to be demolished.

Ownership and Operations of Suffolk Downs

The original owner and developer of Suffolk Downs was Charles F. Adams who was also the founder and president of the Boston Bruins, the city's professional ice hockey team. The track opened on July 10, 1935 to a crowd of 35,000. In its first day of wagering, Suffolk Downs took in $425,546. The first Massachusetts Handicap was run at Suffolk Downs on October 16, 1935. Known as the "MassCap," the race is limited to thoroughbred horses, ages three years and up. In 1936, Suffolk Downs installed photography equipment to capture images of the finish line. In that same year, Seabiscuit wins a race at Suffolk Downs and is seen for the first time by future trainer Tom Smith. Seabiscuit returns a year later, trained by Smith and ridden by jockey Johnny "Red" Pollard, to win the 1937 MassCap and a purse of $50,000, propelling him to national stardom.

Racing at Suffolk Downs continued during World War II. Due to gas rationing, the track was groomed by draft horses pulling the plows during the War. In 1945, the operation of the track was entrusted to Aldred Investment Trust under its president Allen Wilson. Despite bringing in its highest average attendance between 1945 and 1947, Suffolk Downs was sold at public auction in May of 1946, and was purchased by importer and judge John C. Pappas for $3,600,000.

During the 1950s, other events in addition to horse racing were programmed for the track including several boxing matches set up on the east side of the grandstands. In 1959, harness racing was introduced on the one-mile track. In 1962, a smaller half-mile track was created inside the original track for this purpose. The 1960s renovation added 100,000 square feet to the clubhouse and grandstand at a cost of $1,500,000. In 1964, New York businessman David Harber purchased John Pappas' 300,000 shares of stock for $2.9 million. Although Harber was now the owner of Suffolk Downs, Pappas remained the track's director. In 1966, the Beatles made their final appearance in Boston to a crowd of over 25,000 at Suffolk Downs.

In 1968, Realty Equities Corporation, a firm that purchased mainly hotel and theater chains, acquired Suffolk Downs for $12 million and made Bill Veeck, a former owner of several major league baseball teams, as the president and chief operating officer. Under Veeck's leadership, chariot races and livestock giveaways were added to the yearly roster. Unfortunately, during the 1970s, horse racing fell out of fashion. Many tracks around the country were closing. In an attempt to improve attendance, tracks, including Suffolk Downs,

introduced a new wagering system of perfectas and trifectas, which allowed betting on first, second, and third place finishes. Just three years after taking ownership, Realty Equities Corporation sold Suffolk Downs to James F. Edwards, the president of National Raceways, Inc.

The track quickly changed hands again and in 1972 was owned by Ogden Recreation, Inc., a subsidiary of the New York-based Ogden Corporation. Placed under the direction of William F. Connell, Suffolk Downs expanded its racing to 150 days and eventually to 200 days per year. In 1986, Belle Isle Limited purchased the track for $21 million. The managing partner was Edward "Buddy" LeRoux, a former owner of the Boston Red Sox, but the track closed after declining revenues in 1989. It reopened in 1992 after Sterling Suffolk Racecourse LLC, led by Chairman James B. Moseley and President John L. Hall II, leased the property from Belle Isle Limited for $3.5 million per year. During this period, the $5 million demolition and renovation of the clubhouse was undertaken. In 1995, the MassCap was reinstituted, resulting in successive appearances by two of the greatest horses in racing history, Cigar in 1995 and '96 and Skip Away in 1997 and '98.

In 1997, Sterling Suffolk Racecourse LLC purchased the track from Belle Isle Limited. Although the track was advertised for development for other uses, it remained in operation and hosted a variety of non-horse racing events. During the late 1990s and 2000s, Suffolk Downs hosted a number of music concerts, the Phantom Gourmet's Hot Dog Safari, and Cirque du Soleil. In 2007, after a two-year hiatus, the MassCap returned to Suffolk Downs to its largest crowd, 19,191, since 1996. Today, Suffolk Downs continues its horse racing activities.

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Suffolk Downs Data Sheet

Name	Town	MACRIS #	Date	Style / Form	Notes
Grandstand	Boston	BOS.16592	1935; 1962	Art Deco	Connected to clubhouse 1962
Clubhouse	Boston	BOS.209	1935, 1953; 1962	Art Deco; International style	
Administration Building	Boston	BOS.16593	1935	Art Deco	2-story steel frame
Racetrack	Boston / Revere	BOS.9754 / REV.968	1935	1-mile long oval	
Harness-racing track	Boston	BOS.9755	1962-1972	½-mile oval within larger track	Traces only remaining
Stables	Revere	REV.86	1935	30 wood-frame barns	
Pony Barn	Revere	REV.87	1935	Curved wooden stable	
Maintenance Bldg	Revere	REV.88	1950s ?	Wood-frame structure	
Pump House	Revere	REV.969	1950s ?	Concrete 1-story structure	

PHOTOGRAPHS

East Elevation of Administration Building (Spring 2013)

West Elevation of Administration Building (Summer 2012)

West Elevation of Clubhouse

East Elevation of Clubhouse (left) and Grandstand (right)

West Elevation of Grandstand

East Elevation of Grandstand


Interior of Grandstand (1962 infill in foreground)


Typical Stable

View Northeast of Racetrack

Suffolk Downs Pony Barn (curved barn structure)

The property includes a curved barn structure at the north end of the race track known as the Pony Barn. The wood frame barn was constructed in 1935 at the same time as the remainder of the complex. The one-story building has multiple horse stalls. The Pony Barn contains smaller horse stalls designed to house the smaller horses that supported the thoroughbred racing. The building is clad in horizontal clapboards and plywood with single leaf board and batten doors at each stall. The roof of the barn extends past the walls creating a covered walkway along the north side of the building. The building is in poor condition today and is no longer utilized.

Thoroughbred Horse Racing in Massachusetts

Suffolk Downs was the first, and is now the last, thoroughbred horse racing track in Massachusetts. It opened in July 1935, just a few months before the race track at Agawam Park (see below). While other thoroughbred horse racing tracks came and went, Suffolk Downs is the only track remaining in operation utilized exclusively for thoroughbred horse racing. When racing was legalized for wagering in Massachusetts, a number of horse racing tracks and fairgrounds began offering thoroughbred horse racing. Several failed quickly, while others remained in operation for decades. Like Suffolk Downs, many tracks suffered as horse racing became less popular. Declining wagering resulted in the failure of all remaining thoroughbred horse racing tracks in Massachusetts with the exception of Suffolk Downs. While many tracks and their associated facilities are completely gone, vestiges of the operations still remain in some locations.

Agawam Park, 1935 - 1938

The site of the former Bowles Airport and later Agawam Park race track is located five miles southwest of Springfield and about 1.25 miles southwest of Agawam center. In 1927 Congressman Henry L. Bowles acquired 346 acres of land on Shoemaker Lane and construction of the first Bowles Airport commenced in 1928. The airport opened in 1930, and was considered to be one of the finest in the country, though it did not survive through the Great Depression and was forced to close in 1935. That same year, the Massachusetts State Racing Commission granted a horse racing license to the Agawam Racing and Breeders' Association. The Association purchased the Airport property in foreclosure, where they incorporated the "unusual runway configuration" of four 1,000-foot runways circled by a 2,500-foot perimeter into the thoroughbred race track. A grandstand was built adjacent to the track, and 17 horse barns erected along the eastern edge of the property; the Airport hanger was used for hay storage. On opening day more than 15,000 people were in attendance for the first race, won by the long shot Playaway. Later that season 30,000 people – more than four times the town's population – broke all attendance records by attending the Columbus Day holiday program. It was also at the Agawam Park that Seabiscuit won the Springfield Handicap on October 16, 1935.

The Park was forced to close in 1938 when Massachusetts outlawed pari-mutuel betting. After the Agawam Racing and Breeders' Association failed to pay the 1938 property taxes, the town acquired the land. Between 1943 and 1944 the airport reopened as the United States Army and Navy Directory of Airfields. It was sold in 1954 to the Republican Company, which reopened the property as an airport. The grandstand stood for decades until it was destroyed by fire. As many as 65 planes operated from the new Bowles-Agawam Airport until the Agawam Regional Industrial Park was built on the site in 1990. No components of the race track remain.

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Berkshire Downs (Hancock Raceway), 1960 - 1976

Berkshire Downs, a half-mile thoroughbred track located in Hancock, Massachusetts, opened its partially-completed facility in 1960. Of the 90 permitted thoroughbred racing days allocated by the state each year, Berkshire Downs typically ran 24 programs. Due to its remote location, disappointing attendance records, nearby competition from Green Mountain Park in Vermont, and poor weather, the track operations ended shortly after its opening. In 1964 the Downs filed for bankruptcy, but continued to operate its allotted 24 days of racing until 1968. In 1969 Suffolk Downs bought out Berkshire though quickly sold it to Martin DeMatteo, owner of Green Mountain, with an agreement that restricted the property from operating as a race track, except for its participation in the Massachusetts Fair Racing Circuit for six days each year from 1968 to 1976. The site is now the location of a horse breeding farm. The race track is still extant.

Brockton Fair, 1941 - 2001

Brockton Fair opened its half-mile thoroughbred pari-mutuel race track in 1941 as a stop on the thoroughbred fair circuit. The original grandstand was destroyed by a fire in 1936. The Brockton Fair closed in 1972, though attempted a comeback in 2001 when George Carney, owner of the Raynham Dog Track, contributed $3 million for renovations to upgrade the facility. Following a severe accident that lead to the death of four horses on opening day, as well as a bill passed by Massachusetts Legislators in 2001 that granted Suffolk Downs three percent of the handle for any fair meet run in the state, no racing occurred in the 2002 season. A final attempt to revive Brockton was made in 2009, but Carney failed to reach a resolution with Suffolk Downs. The half-mile track still exists and continues to host occasional motorcycle races.

Foxboro Raceway (Bay State Raceway), 1947 - 1997

The Foxboro Raceway was built in 1947 as a harness racing facility (horses race at a specific pace and usually pulling a two-wheeled cart or sulky) by E.M. Loew, famed Boston movie theater entrepreneur, and horseman Paul Bowser. The track struggled in its early years, slowly gaining momentum through the 1950s. Following Bowser's death in 1960, Loew continued to operate the track and by the 1970s crowds of over 10,000 became commonplace. In 1970 Loew donated a piece of land adjacent to the Raceway to the Boston Patriots for a new stadium that would keep the franchise in New England. In exchange, Loew received parking revenue on game days before selling the track to Ed Andleman and Ed Keelan in 1976. Disappointing race attendance and constant disputes between the new owners and Billy Sullivan, owner of the Patriots, led to the track's bankruptcy in 1986. The track temporarily reopened from 1992 to 1994 by Charles Sarkis, owner of the Wonderland Dog Track in Revere. Sarkis was bought out by Robert Kraft in 1994, owner of the New England Patriots. Kraft appropriated the property in preparation for the construction of Gillette Stadium, which opened in 2002. No elements of this track remain.

Great Barrington Fair, 1940 – 1998

The Great Barrington Fair was a one-mile oval thoroughbred track opened in 1940. Known for its scenic setting, the popular track featured a 3,500-person grandstand. Unfortunately, Great Barrington was also widely associated with illegal race fixing. Horse racing continued at the fairgrounds until 1983. In 1995 a tornado severely damaged the fairgrounds and postponed racing in Great Barrington until 1997. Both the Fair and race track failed to regain a following after the hiatus of operation and horse racing ceased at the track in 1998. The Fair closed operations in 2000. Today, the race track and grandstand remain, but are overgrown and in poor condition.

Marshfield Fair, 1936 – 1991

The Marshfield Fair race track featured a half-mile track originally used for automobile racing. Designed in 1900 by Thomas Lawson, Fair president from 1905 to 1910, the track and 1,000-person grandstand began to feature horse races in 1935 when pari-mutuel gambling was legalized in Massachusetts. The Fair's first thoroughbred race was run on August 23, 1936. Racing remained active at the fairgrounds until 1991 when it closed permanently. Today, only the grandstand remains.

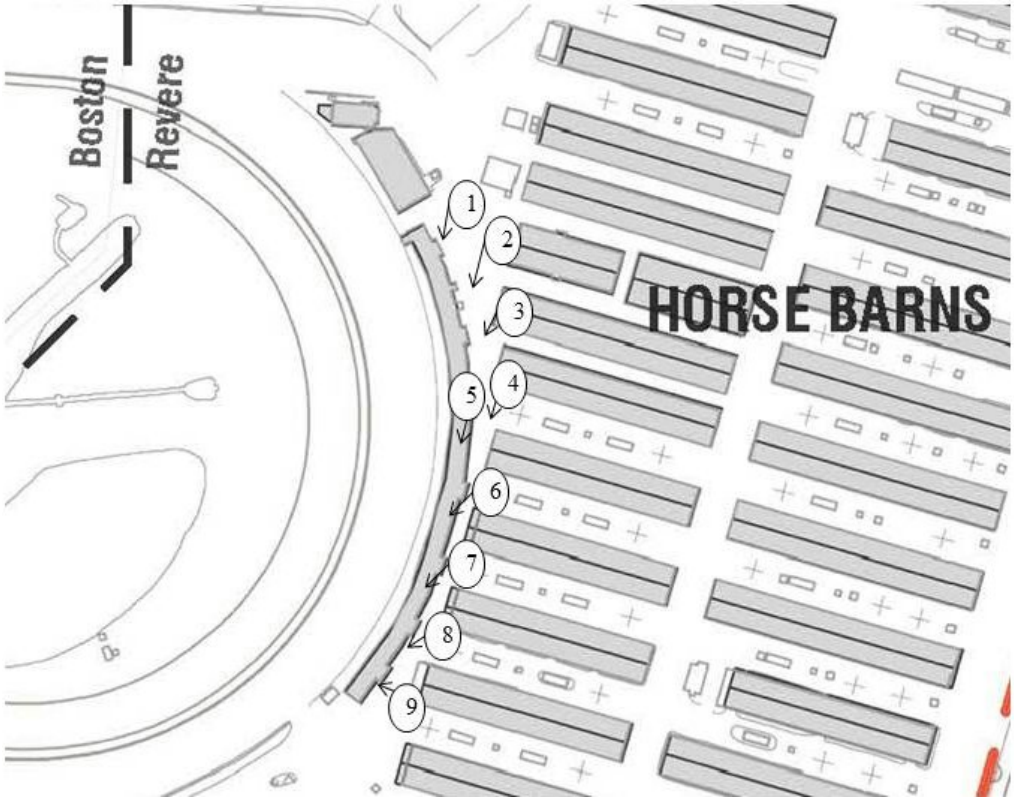
Northampton Fair, 1943 – 2005

The half-mile oval Northampton Fair race track, located at the Three County Fairgrounds in Northampton, began thoroughbred racing in 1943. The track, 1,800-person grandstand, and judges' stand date to 1891 and were originally used by the Northampton Driving Park Association for automobile races. Horse racing ceased at Northampton in 2005.

In 2011 Phase One of a $42 million master plan to replace the old horse barns was approved by the city. In 2012, 18 'accessory buildings' on the fairgrounds were demolished, including 550 horse stalls. Three new 100-stall barns were built on the property. A portion of the race track is still present.

Weymouth Fair, ca. 1936-1941 – 1972

The half-mile oval track was built between 1936 and 1941, incorporated into the historic Weymouth Fairgrounds that were purchased by the Weymouth Agricultural and Industrial Society in 1864. On August 12, 1963, the renowned Shannon's Hope began his run here with a fifth place finish. The track operated for roughly 30 years before closing in 1972. As of 2008, the property had been redeveloped and featured 50 homes and a fire station.



Pony Barn Photo Key

Pony Barn (View 1)

Pony Barn (View 2)

Pony Barn (View 3)

Pony Barn (View 4)

Pony Barn (View 5)

Pony Barn (View 6)

Pony Barn (View 7)

Pony Barn (View 8)

Pony Barn (View 9)

2013

1942 (BPL)

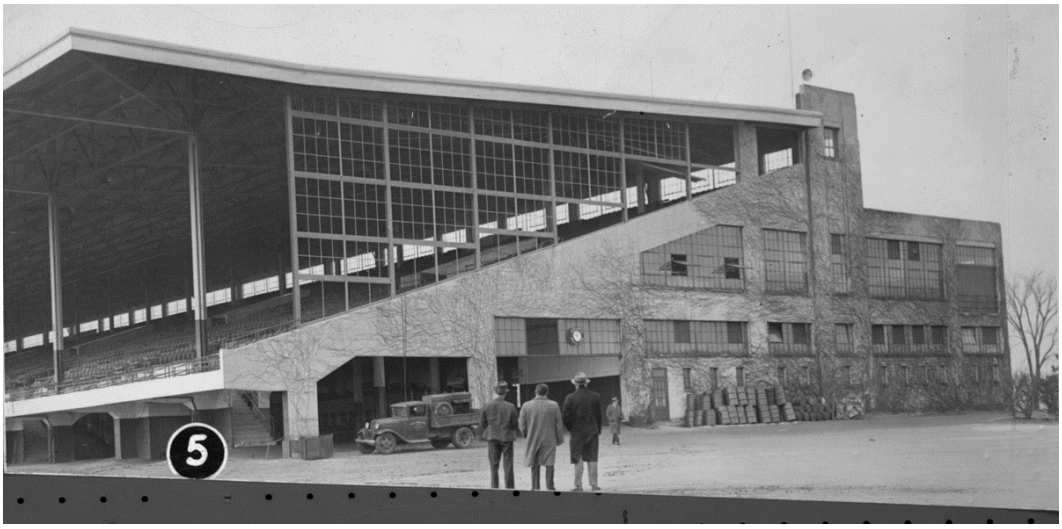
1955

ca. 1962 (BPL)

2013

1962 (BPL)

2013



1947 (BPL)

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ca.1945 (BPL)

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1965

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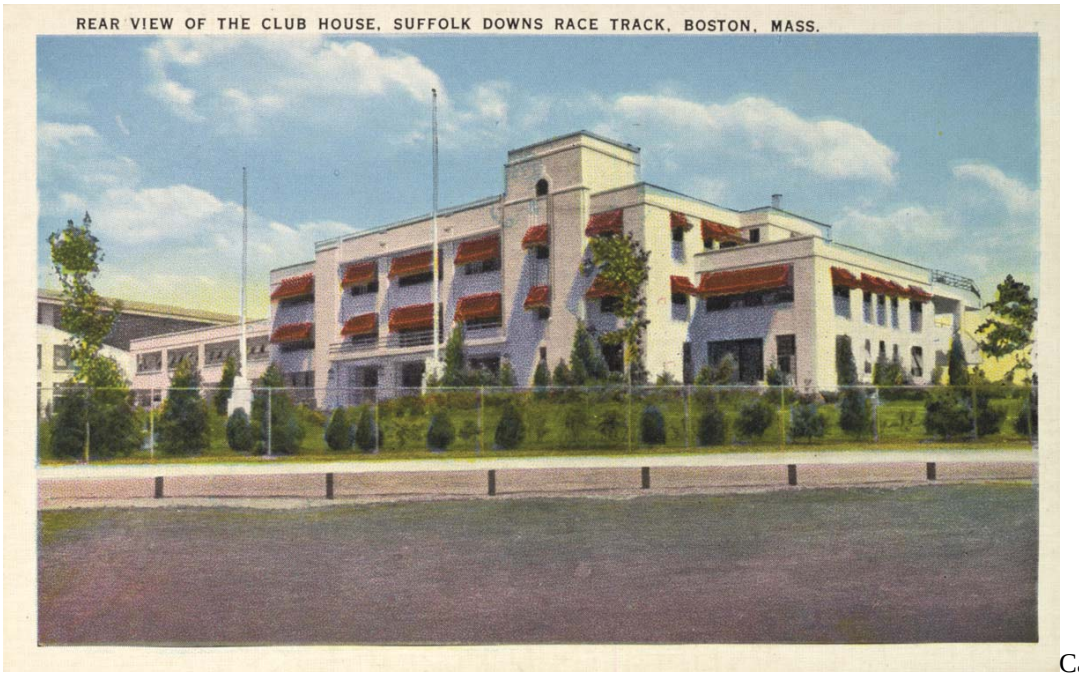

Ca. 1935-1950 (BPL)

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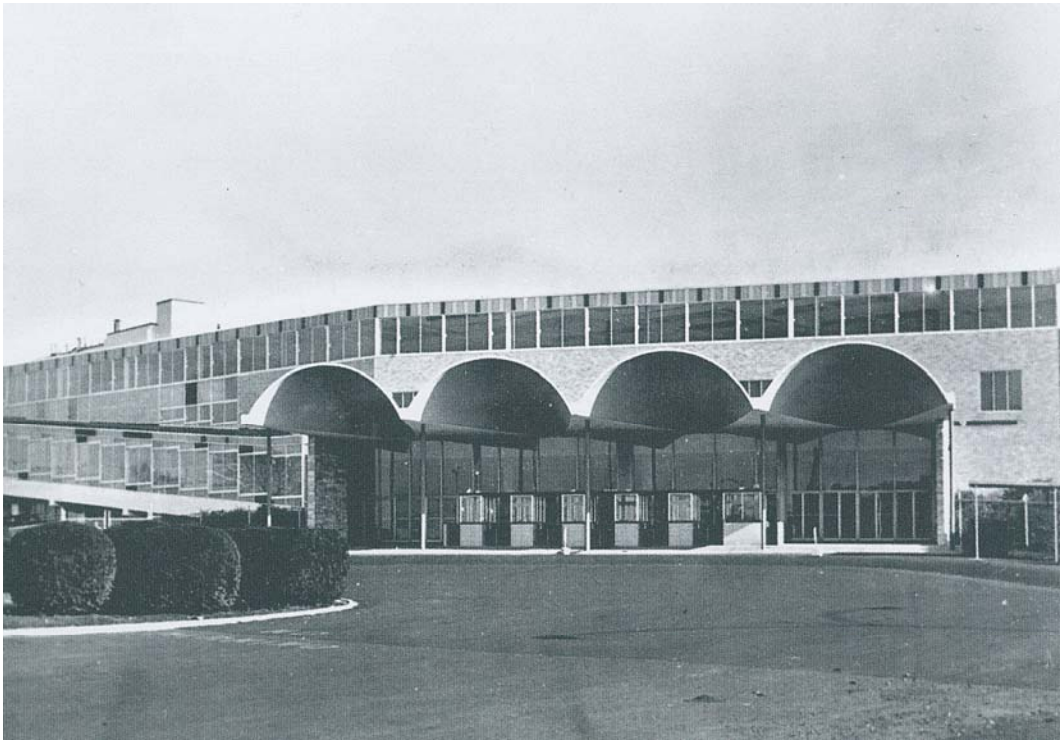
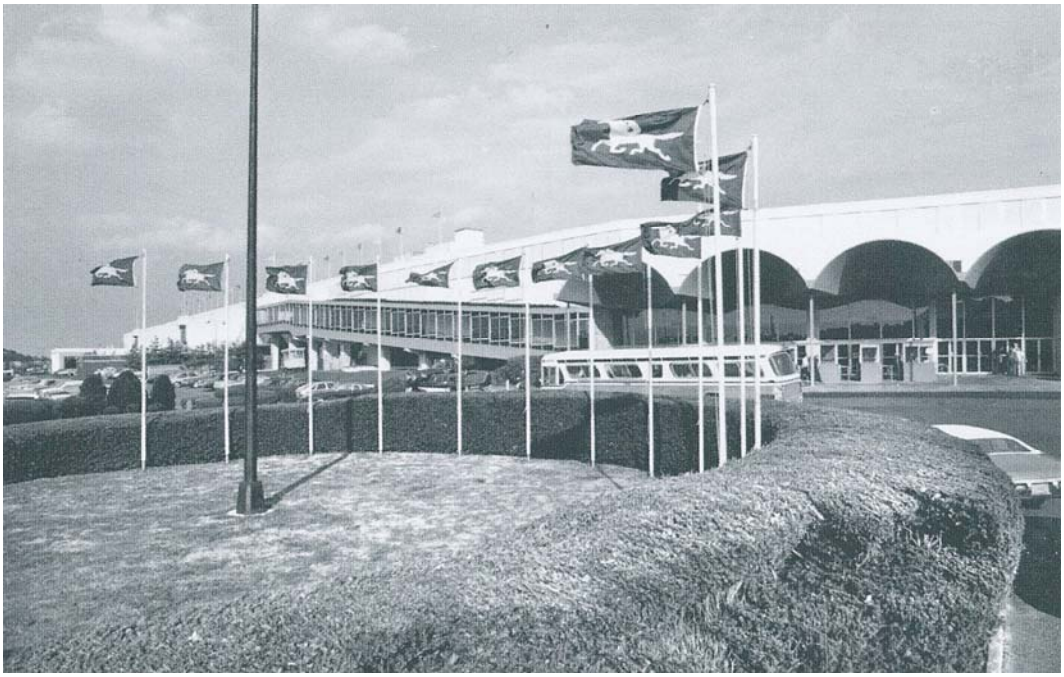


1962 (Suffolk Downs)

2013



1992 (Suffolk Downs)

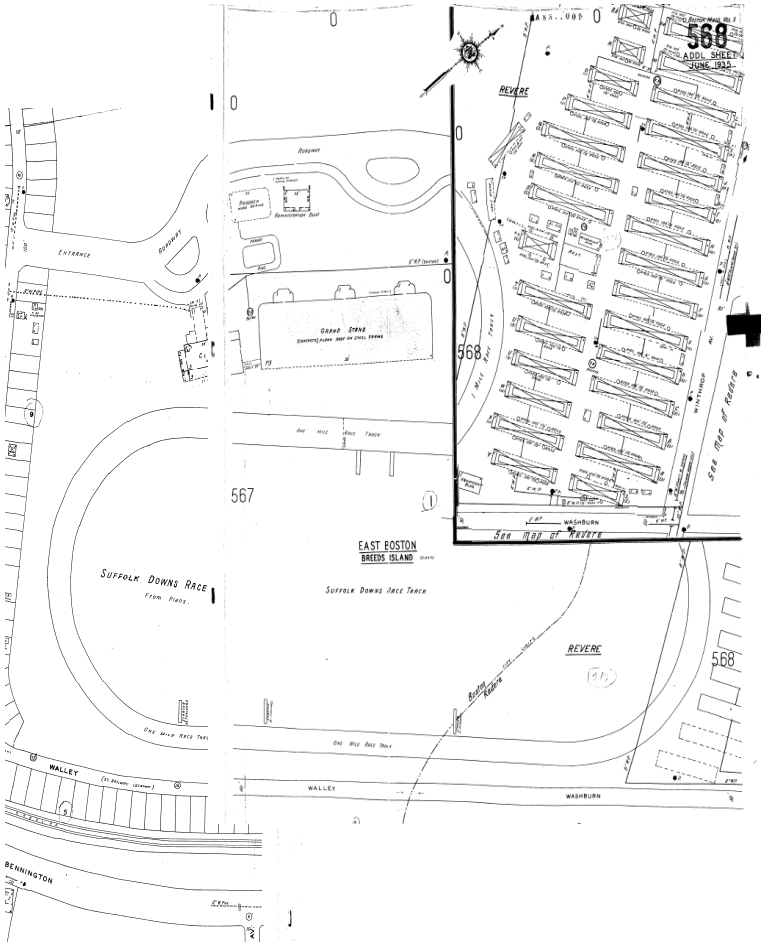

WALKING RING AND CLUB HOUSE AT SUFFOLK DOWNS, EAST BOSTON, MASS.

ca. 1935

2013

date unknown

1935


568
ADDL SHEET
JUNE 1935
REVERE
Revere
Entrance
GRAND STAND
568
567
EAST BOSTON
BREEDS ISLAND
SUFFOLK DOWNS RACE
From Plans.
SUFFOLK DOWNS RACE TRACK
See Map of Revere
WASHBURN
WALLEY
BENNINGTON

ca. 1950

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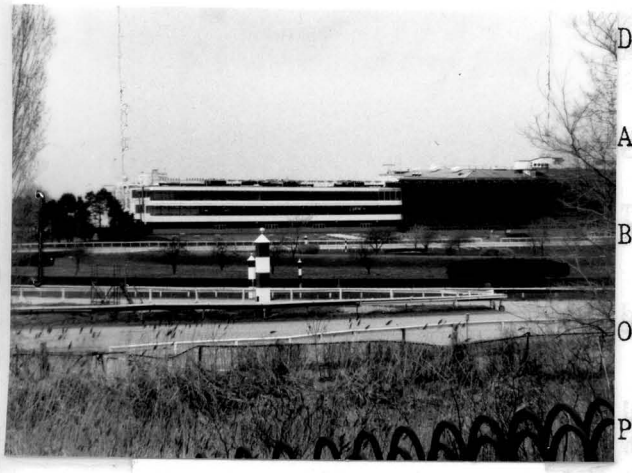
BOSTON LANDMARKS COMMISSION Building Information Form Form No. EB 416 Area E. Boston → PL
LOCAL # EB 416 USGS BOSTON NORTH SHEET A ORIENT

ADDRESS 101-249 Waldemar Av and COR. 501 McClellan Highway

NAME Suffolk Downs Clubhouse, Grandstand & Race Track
present original #209

MAP No. 31N 18E SUB AREA Orient Heights



DATE 1935 Building permit
source

ARCHITECT / Engineer Mark Linenthal Building Permit
source

BUILDER / Contractor Joseph A. Tomasello
source

OWNER
original present

PHOTOGRAPHS 7-3/1*, 3/2, 3/3*-90

TYPE (residential) single double row 2-fam. 3-deck ten apt.
(non-residential) Commercial-Horseracing

NO. OF STORIES (1st to cornice) 3 plus

ROOF flat cupola dormers

MATERIALS (Frame) clapboards shingles (stucco) asphalt asbestos alum/vinyl
(Other) brick stone (concrete) iron/steel/alum.

BRIEF DESCRIPTION #111 Waldemar, the Suffolk Downs Clubhouse is 3 st. w/ continuous ribbon window bands sep. by white stucco bands, the whole supported by the slender "stilts" assoc. w/International Style buildings. Cantilevered corners (originally). Adjacent is #117 to #119 Waldemar, the Grandstand which was reported in 1935 to have a capacity of 8,000 fans w/ 35,000 on the concourse. In 1947 the ends of the Grandstand were enclosed. The clubhse. permit lists steel, concrete, wood, masonry and wood and concrete piles as the materials **

EXTERIOR ALTERATION minor (moderate) drastic additions and alterations to McClellan Highway and SE elev., window replc., infill

CONDITION (good) fair poor LOT AREA 4,628,000 sq. feet

NOTEWORTHY SITE CHARACTERISTICS

SIGNIFICANCE (see cont'd on reverse)

** and that the bldg. would feature a concrete block front w/ flat tar & gravel roof. Bldg. jacket also contains the report on concrete filled columns--11 columns varying in thickness.

III
KAS 7/90

Moved; date if known_____

Themes (check as many as applicable)

Aboriginal	____	Conservation	____	Recreation	x
Agricultural	____	Education	____	Religion	____
Architectural	x	Exploration/ settlement	____	Science/ invention	____
The Arts	____	Industry	____	Social/ humanitarian	____
Commerce	x	Military	____	Transportation	____
Communication	____	Political	____		
Community/ development	____				

Significance (include explanation of themes checked above)

Suffolk Downs Clubhouse and Grandstand is a major International Style monument within East Boston and within the city. Architecturally distinctive, it is also the first major horse race track in Massachusetts. Completed in less than three months time, Suffolk Downs opened with 35,000 fans in attendance, July 1935. Eddie Wrack won the first race run on the track on July 10th, 1935. The track closed on 30 December 1989.

It is felt that a wider contextual framework is needed in order to make a recommendation for individual National Register listing. For example, by comparing the design of other race track complexes built during this period in other parts of the country to Suffolk Downs, rather than examining it in isolation, one might gain new insights regarding architectural significance. In addition, little is currently known about the architect/engineer, Mark Linenthal and further study of this designer is recommended.

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

Further study is needed before recommending Suffolk Downs for individual National Register listing. (See Further Study category of East Boston Recommendations)

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

Boston Sunday Globe, 12/31/1989, p. 41. "Curtain Closes on Suffolk Downs" & "No Other Track Quite Like It"

BPL Fine Arts Photo file
Boston City Directories
BPL Fine Arts Ref. Dept. Architect file
MHC Reconnaissance Survey, Dec. 1980
Boston Globe 7/6/35 a[illegible]7/10/1935

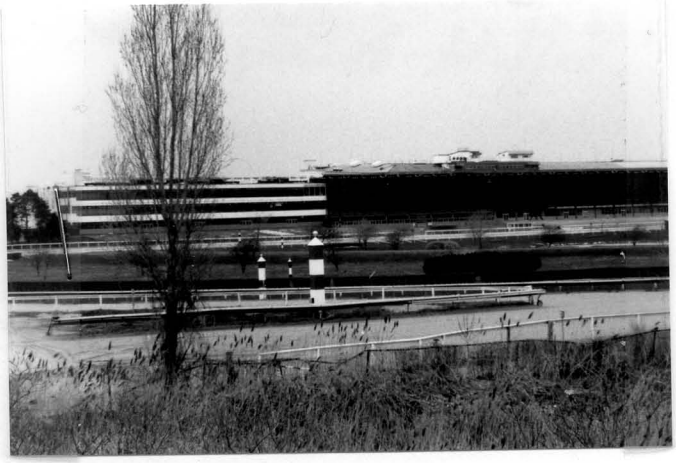
BOSTON LANDMARKS COMMISSION Continuation Sheet Building Information Form Form No. EB 416 Area East Boston

ADDRESS 101-249 Waldemar Avenue

NAME Suffolk Downs

A Boston Globe article " Modern Magic Has Transformed Dumping Ground Into Suffolk Downs, One of Country's Finest Race Tracks" (July 6, 1935) states that:"To Mark Linenthal, engineer, goes the credit for laying out the project with all its maze of perplexing and difficult problems. He was fortified by his experience at the Narragansett track and his job... laid the foundation for what is now conceded to be one of the most beautiful race tracks in the country. He conceived the setting, made the sounding for the pilings and constructed the general layout. But this wasn't all. He prepared the plans for the buildings, furnished the specifications for the work and made the way clear for the operations, a task of sizable proportion." The fact that Linenthal was an engineer fits well into International Style doctrine as espoused by LeCorbusier in Towards a New Architecture (1931).

The article goes on to discuss the major role played by the "contractor extraordinary", Joseph A. Tomasello. An army of equipment, machinery and contractors transformed the area in a remarkably short time and not only created the race track and its buildings but also the roads leading to the track. Newspaper photographs show not only the clubhouse and grandstand but a cantilevered cement, steel and glass judge's stand. Building permits indicate a succession of changes over the years and visible additions and alterations have obscured the entrance facade (facing the McClellan Highway), although the SE elevation (facing the Suffolk Downs MBTA Station) of the clubhouse retains its stream-lined strength.



BOSTON LANDMARKS COMMISSION Continuation Sheet
Building Information Form

Form No. EB 416 Area E. Boston

ADDRESS Waldemar Avenue

NAME Suffolk Downs

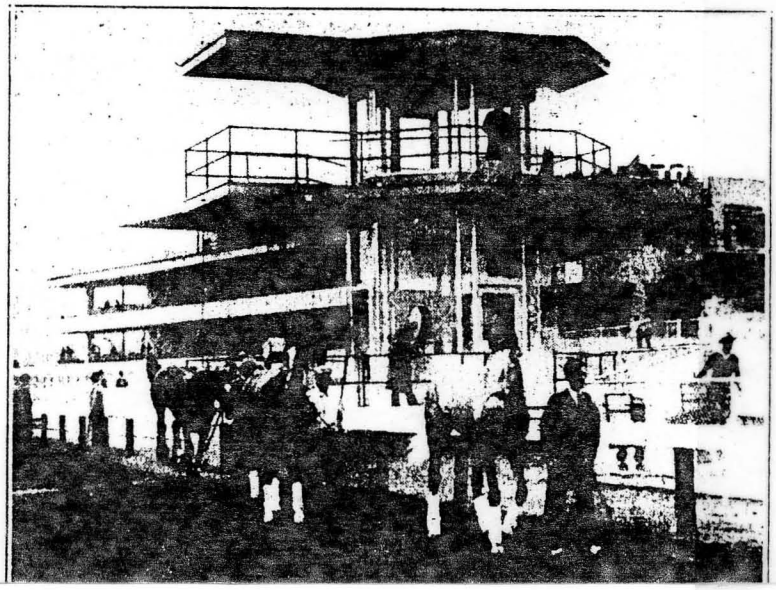
SUFFOLK DOWNS TRACK OPENS TODAY

Throng to See Inaugural

Five Governors on Invited List; Track Heavy

Suffolk Downs, the seaside dump which the Eastern Racing Association transformed into one of the finest racing plants in the country at an expenditure of $2,000,000, officially opens its gates this afternoon at 2.

The East Boston-Revere horse racing strip, the first erected for pari-mutuel betting in Massa-



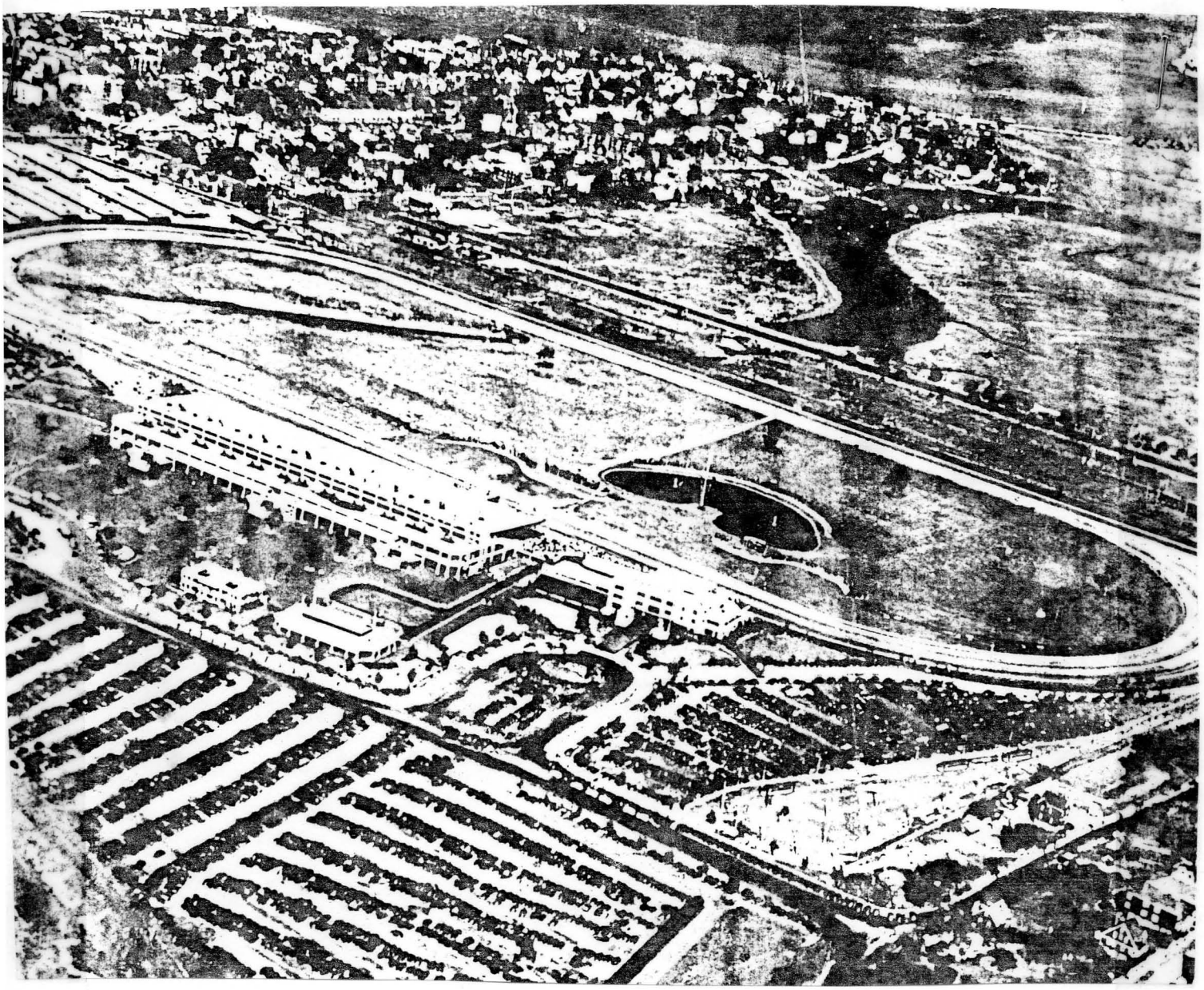
Source: Boston Daily Globe, 7/10/35, p.1

BOSTON LANDMARKS COMMISSION Continuation Sheet
Building Information Form

Form No. EB 416 Area E. Boston

ADDRESS Waldemar Avenue

NAME Suffolk Downs

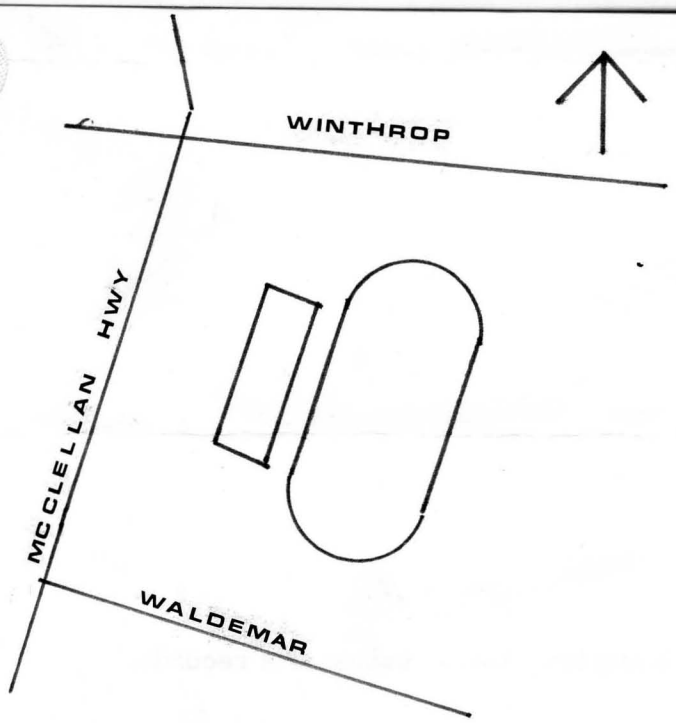


Source: BPL Photo File

FORM B - BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
Office of the Secretary, State House, Boston

In Area no.	Form no.
A	5



Town East Boston & Revere, Mass.

Address Winthrop & Washburn Avs., Revere
Waldemar & Lee Burbank Hwy, E. B.

Name Suffolk Downs Race Track

Present use Thoroughbred horse racing

Present owner Ogden Suffolk Downs, Inc.

Description:

Date 1935

Source Suffolk Downs Records

Style

Architect Mark Linenthal

Exterior wall fabric Stucco

Outbuildings (describe) Club House and Grandstand

Other features Stable area: Approx. 30 barns, track kitchen, misc. bldgs.
One mile, oval race track & about seven-furlongs truf course inside main course.

Altered Date

Moved Date

5. Lot size:

One acre or less ____ Over one acre x

Approximate frontage

Approximate distance of building from street

6. Recorded by Mike Sena

Organization Revere Historical Comm.

Date March 30, 1978

(over)

7. Original owner (if known) Eastern Racing Association. (Charles F. Adams, Chairman of Brd (Bayard Tuckerman, Jr., President

Original use Race Track

Subsequent uses (if any) and dates _____

8. Themes (check as many as applicable)

Aboriginal	____	Conservation	____	Recreation	x
Agricultural	____	Education	____	Religion	____
Architectural	____	Exploration/ settlement	____	Science/ invention	____
The Arts	____	Industry	____	Social/ humanitarian	____
Commerce	____	Military	____	Transportation	____
Communication	____	Political	____		
Community development	____				

9. Historical significance (include explanation of themes checked above)

Suffolk Downs was the first pari-mutual racing track in Massachusetts

See attached history.

10. Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

HISTORY OF SUFFOLK DOWNS

On July 10, 1935, pari-mutuel thoroughbred racing came to Massachusetts with Eddie Wrack enjoying the honor of being the first horse to win a race at Suffolk Downs.

A crowd estimated at 35,000 poured an "amazing" $425,546 through the windows, according to newspaper accounts.

The original officers of Suffolk Downs were Bayard Tuckerman, Jr., president; Allen J. Wilson and Richard E. Danielson, vice presidents; V.C. Bruce Wetmore, treasurer; and W.H. Stevens, assistant treasurer.

Heading the board was Charles F. Adams, "whose executive and organizing ability, more than anything else, was responsible for the emergence of the modern and beautiful racing strip from the debris of East Boston wastelands." The description comes from a 1935 issue of the American Horse Breeder.

Other board members were Tuckerman, Wilson, Danielson, Wetmore, John R. Macomber, Weston W. Adams, Joseph A. Tomasello, Charles F. Cotter and W.J. McDonald.

Actual construction of the massive layout, costing $2 million, was in the hands of Joseph A. Tomasello, who with 3,000 men completed the job in 10 weeks "while the tide was ebbing and flowing."

In 1944 the original group sold its stock to Gordon Hanlon, a Boston broker, and his interest as a second owner lasted a year.

In 1945 the operation of the track was taken over by the Aldred Investment Trust, with Allen Wilson as president.

A year later, in 1946, the track was put up at public auction and the late Judge John C. Pappas led a group of successful bidders. Pappas directed the track until March, 1964 when David Haber, energetic New York businessman, purchased the Pappas stock.

In 1968 the track changed ownership again when Realty Equities Corporation of New York purchased it from David Haber. REC installed Bill Veeck, of major league baseball fame, as president.

After two years under the guidance of Veeck the track changed ownership for the seventh time in February, 1971 when it was purchased by James F. Edwards, President of National Raceways, Inc.

A year had hardly elapsed when Edwards sold the track to Ogden Corporation, a New York based conglomerate, in February of 1972. Ogden Corporation assigned the operation of the track to its subsidiary, Ogden Recreation, Inc., which also embraces Waterford Park, Scarborough Downs, Wheeling Downs and Fairmount Park, and named William F. Connell, a 33 year old native of Lynn, Mass. as president of Ogden Recreation and Suffolk Downs. Within the year Connell was elevated to the post of president of Ogden Leisure, Inc. and Joseph E. Cresci became the new president of Ogden Recreation and Suffolk Downs. Cresci, 31 years old, ranked as the youngest president in the 38 year history of the track. In September 1975, John K. MacAniff was named President (in addition to being Treasurer and Clerk). Richard T. Donovan remained as Executive Vice President.

INVENTORY FORM CONTINUATION SHEET Community Property Address

Massachusetts Historical Commission
80 Boylston Street
Boston, Massachusetts 02116

Area(s)	FormNo.