

PHASE III

SUBSURFACE INVESTIGATION



**Suffolk Downs Racecourse
525 William F. McClellan Highway
Boston, Massachusetts**

Prepared For:

Locke Lord LLP
2200 Ross Avenue, Suite 2800
Dallas, Texas 75201
Attn: Ms. Elizabeth E. Mack, Esq.

Prepared By:

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Vertex Project No: 43068

August 22, 2017



August 22, 2017

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Locke Lord LLP
2200 Ross Avenue, Suite 2800
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Attn: Ms. Elizabeth E. Mack, Esq.

RE: Phase III Subsurface Investigation
Suffolk Downs Racecourse
525 William F. McClellan Highway
Boston, Massachusetts 02128
VERTEX Project No. 43068

Dear Ms. Mack:

The Vertex Companies, Inc. (VERTEX) is pleased to submit this Phase III Subsurface Investigation report for the above referenced property (the Site). The purpose of this Phase III Subsurface Investigation was to assess and delineate constituents of concern identified in soil during VERTEX's Phase II Limited Subsurface Investigation (LSI) at the Site dated March 2, 2017.

The following report details the procedures of the Phase III and summarizes the sampling results. The investigation was performed in general accordance with VERTEX proposal P.1041.17, dated April 18, 2017 and executed by Ms. Elizabeth E. Mack on June 9, 2017.

Please do not hesitate to contact us at your convenience should you have any questions or comments regarding this report or our recommendations. It has been a pleasure working with you on this project.

Sincerely,

The Vertex Companies, Inc.

Kristen L.N. Sarson
Assistant Project Manager

William J. Gibbons, PG, LSP
Senior Project Manager

Jessica L. Fox, PE
Vice President of Operations – Environmental



TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	General Site Information	1
1.2	Site Geology and Hydrogeology	1
1.3	Purpose	2
2.0	UTILITY CLEARANCE/GEOPHYSICAL SURVEY	4
2.1	Utility Locate/Geophysical Survey	4
3.0	PCB DELINEATION	5
3.1	Advancement of Delineation Borings	5
3.2	PCB Analytical Results	6
4.0	ARSENIC ASSESSMENT AND DELINEATION	7
4.1	Advancement of Initial Delineation Borings	7
4.2	Initial Arsenic Analytical Results	8
4.3	Arsenic Analytical Data Evaluation	8
4.4	Advancement of Additional Soil Borings	8
4.5	Secondary Arsenic Analytical Results	9
5.0	CHROMIUM ASSESSMENT	10
5.1	Advancement of Soil Borings	10
5.2	Chromium Analytical Results and Secondary Sample Collection.....	10
6.0	CONCLUSIONS AND RECOMMENDATIONS.....	12
7.0	QUALIFICATIONS	15
7.1	Limitations and Exceptions	15
7.2	Special Terms and Conditions.....	15
7.3	User Reliance	15

FIGURES

- | | |
|----------|--------------------------|
| Figure 1 | Site Locus Map |
| Figure 2 | Site Schematic |
| Figure 3 | PCB Sample Locations |
| Figure 4 | Arsenic Sample Locations |

TABLES

- | | |
|---------|--|
| Table 1 | Summary of PCB Analytical Results |
| Table 2 | Summary of Arsenic Analytical Results |
| Table 3 | Summary of Chromium Analytical Results |

APPENDICES

- | | |
|------------|---|
| Appendix A | Soil Boring/Monitoring Well Construction Logs |
| Appendix B | Laboratory Analytical Reports |

PHASE III SUBSURFACE INVESTIGATION
Suffolk Downs Racetrack
525 William F. McClellan Highway
Boston, Massachusetts 02128
VERTEX Project No. 43068

1.0 INTRODUCTION

1.1 General Site Information

The Site consists of two adjoining parcels of land occupying a total of approximately 160 acres in Massachusetts. One parcel of land is in the City of Revere, and the other is in the City of Boston. Both parcels are currently owned by McClellan Highway Development LLC. The Site is improved with a horse racing track and associated buildings including a clubhouse/grandstand building, maintenance building, 33 horse barns, and various other miscellaneous buildings used for operating and maintaining the race track. The general Site location is shown on Figure 1, and a general layout of the Site is shown on Figure 2.

1.2 Site Geology and Hydrogeology

Based on visual classification of soils collected during this subsurface investigation and previous environmental reports, subsurface soil at the Site generally consisted of an urban fill, underlain by silty organic native soils. The observed thickness of the urban fill layer ranged from 2 to 16 feet. The fill generally consisted of fine to coarse sand with varying amounts of silt, gravel, and debris including brick, ceramic, glass, coal, ash, wood, and concrete. Native soil underlying the fill generally consisted of organic silt with varying amounts of fine sand and shells.

During previous subsurface investigations, groundwater at the Site was encountered at depths between 2 and 10 feet below ground surface (bgs). Sales Creek acts as a groundwater divide at the Site based on a groundwater elevation map created by GEI Consultants, Inc. (GEI) during a previous subsurface investigation in 2007. South of Sales Creek, groundwater appears to flow northeast toward the creek, and north of Sales Creek, groundwater appears to flow southwest toward the creek. A groundwater elevation map included in a Massachusetts Department of Environmental Protection (MassDEP) file for the southwest abutting off-site property located at 275 Lee Burbank Highway in Revere, indicated that groundwater flow at that location was

northward toward Chelsea Creek. Actual local groundwater flow direction can be influenced by factors such as underground structures, seasonal fluctuations, soil and bedrock geology, and production wells, none of which were considered during this study. A groundwater elevation survey to calculate groundwater flow direction was not performed as part of this investigation.

1.3 Purpose

The purpose of this Phase III Subsurface Investigation was to assess and delineate the following three issues that were identified during a due diligence Phase II Limited Subsurface Investigation conducted at the Site by VERTEX in March 2017:

- Total polychlorinated biphenyls (PCBs) were detected in one soil sample (VES-128 (1-2)) at a concentration (23.1 milligrams per kilogram (mg/kg)) exceeding the Massachusetts Contingency Plan (MCP) RCS-1 reportable concentration (1 mg/kg). The sample was collected from a depth of 1-2 feet bgs in the unpaved access road adjacent to the track in the southeastern corner of the Site in East Boston;
- Arsenic was detected in soil sample VES-107 (2-4) at a concentration (83 mg/kg) exceeding the MCP RCS-1 reportable concentration (20 mg/kg) and which was significantly higher than the highest detected concentration of arsenic in soil (37 mg/kg) that was previously detected in historical Site investigations. The sample was collected from a depth of 2-4 feet bgs near the horse test-barn located near the northwest corner of the track. Arsenic is a common constituent of concern in coal ash; however, research by VERTEX has also identified that arsenic was also a constituent of some horse medicines but it is unknown if these medicines were used at the Suffolk Downs site; and
- Total chromium was detected in soil sample VES-133 (5-7) at a concentration (120 mg/kg) exceeding the MCP RCS-1 reportable concentration (100 mg/kg). The sample was collected from a depth of 5-7 feet bgs near the southwestern corner of the Site, north of Tomesello Way in East Boston. The MCP reportable concentration for total chromium assumes the chromium is hexavalent chromium. If the total chromium can be shown to be the more common, less mobile, and less toxic trivalent form of chromium, a higher reportable concentration applies. The detected concentration of total chromium does not

exceed the reportable concentration for trivalent chromium.

The Phase III Subsurface Investigation scope of work included the following:

- Investigation to identify the extent of PCBs in soil near boring VES-128 and the potential efficacy of a Limited Removal Action (LRA) to remove the reportable condition;
- Investigation to identify the extent of arsenic in soil near boring VES-107 and the potential efficacy of a LRA to remove the reportable condition or the possibility that the arsenic can be shown to be statistically consistent with background concentrations; and
- Investigation to identify whether the total chromium detected in soil sample VES-133 (5-7) is trivalent or hexavalent chromium.

2.0 UTILITY CLEARANCE/GEOPHYSICAL SURVEY

2.1 Utility Locate/Geophysical Survey

Prior to drilling at the Site, Massachusetts DigSafe was contacted for public utility location services at the Site. In addition, Ground Penetrating Radar Systems, Inc. (GPRS) of Toledo, Ohio was contracted to provide private utility location services for the Site.

On June 16, 2017, VERTEX oversaw a ground-penetrating radar (GPR) survey conducted by GPRS, which utilized GPR and electromagnetic (EM) equipment to identify and delineate subsurface utilities at the Site and to clear proposed boring locations of underground utilities at each of the three investigation areas. During the survey, VERTEX did not identify any substantial subsurface anomalies.

3.0 PCB DELINEATION

3.1 Advancement of Delineation Borings

On June 26, 2017, VERTEX oversaw the advancement of 11 soil borings by Carr-Dee Corporation (Carr-Dee) of Medford Massachusetts in the access road located along the eastern boundary of the Site. The soil borings were completed in the area around prior boring VES-128. Soil borings were advanced by direct-push drilling techniques (i.e. Geoprobe) to 4 feet below ground surface (bgs). Soil samples were collected in continuous four-foot intervals, beginning at surface grade, from the soil borings using a tube-sampler fitted with disposable acetate sleeves. Soil samples were screened in the field for the presence of total ionizable volatile organic compounds (TVOCs) utilizing a photoionization detector (PID) equipped with a 10.6 electron volt (eV) lamp. The PID was calibrated with a 100 part per million by volume (ppmv) isobutylene gas standard to provide readings of TVOCs as isobutylene equivalents. PID readings are not considered actual TVOC concentrations in the soil samples but are useful indicators of relative TVOC concentrations between locations. The physical characteristics of the soil samples and the PID field screening results are reported on the boring logs included in Appendix A.

Soil borings were advanced to determine the horizontal and vertical extent of PCBs previously detected in a sample collected from 0 to 2 feet bgs from soil boring VES-128 during the March 2017 VERTEX Phase II LSI. To evaluate the horizontal extent, soil borings were advanced 5 feet north, northeast, east, southeast, south, southwest, west, and northwest of soil boring VES-128. The soil borings were designated VES-128 (N), (NE), (E), (SE), (S), (SW), (W), and (NW). An additional three soil borings were advanced 10 feet north, west, and south of VES-128 and were designated VES-128 (N2), (W2), and (S2). Soil samples were collected at these locations from 0 to 2 feet bgs. To evaluate the vertical extent, one soil boring was advanced at the location of prior boring VES-128 to a depth of 8 feet bgs, with sample collected from 2 to 4 feet bgs and 4 to 6 feet bgs (designated VES-128 (2-4) and VES-128 (4-6), respectively). Soil boring locations are shown on Figure 3. Soil samples were collected in laboratory-supplied pre-cleaned containers, stored on ice, and transferred under chain-of custody to Alpha Analytical Laboratory, Inc. (Alpha) of Westborough, Massachusetts for the laboratory analysis of PCBs by USEPA Method 8082 with Soxhlet extraction. Samples collected from VES-128 (4-6) and the three borings advanced 10 feet

from boring VES-128 were placed on hold pending the results of VES-128 (2-4) and the samples collected 5 feet from boring VES-128.

3.2 PCB Analytical Results

Based on the laboratory analytical results of the eight soil samples collected from 0 to 2 feet bgs in the soil borings advanced 5 feet from VES-128, PCBs were not identified above the laboratory detection limit. Also, PCBs were not detected in the sample collected from 2 to 4 feet bgs at the location of boring VES-128. The analytical results are tabulated in Table 1, and chains of custody and laboratory analytical results are included in Appendix B.

Based on these results, the PCB impacted soil appears to be limited to the immediate vicinity of VES-128, and to a depth of 2 feet bgs. The volume of soil impacted at concentrations exceeding the MassDEP RCS-1 reportable concentrations is approximately 200 cubic feet, or 7.4 cubic yards. According to 310 CMR 40.0318, because the volume of impacted material is less than 20 cubic yards, a LRA may be undertaken to eliminate the reportable condition prior to the MassDEP notification deadline of September 23, 2017 and MassDEP notification will not be required.

4.0 ARSENIC ASSESSMENT AND DELINEATION

4.1 Advancement of Initial Delineation Borings

On June 26, 2017, VERTEX oversaw the advancement of nine soil borings by Carr-Dee in the area north of the Administration Office and adjacent to the Test Barn, located along the northeast corner of the racetrack. Soil borings were advanced by direct-push drilling techniques to 8 feet bgs. Soil samples were collected in the soil borings in continuous four-foot intervals beginning at surface grade using a tube-sampler fitted with disposable acetate sleeves. Soil samples were screened in the field for the presence of TVOCs utilizing a PID equipped with a 10.6 eV lamp and calibrated with an isobutylene gas standard to provide readings as isobutylene equivalents. The physical characteristics of the soil samples and the PID field screening results are reported on the boring logs included in Appendix A.

The soil borings were advanced to assess the horizontal and vertical extent of an elevated arsenic concentration. The elevated arsenic concentration was previously detected in a sample collected from 2 to 4 feet bgs in soil boring VES-107 during the March 2017 VERTEX Phase II LSI. To evaluate the horizontal extent, soil borings were advanced 10 feet north, northeast, southwest, and northwest of soil boring VES-107, and two borings were advanced south of the Test Barn. These borings were designated VES-107 (N), (NW), (NE), (SW), and (NW), and Test Barn 1 and Test Barn 2. An additional three soil borings were advanced 20 feet north, northwest, and northeast of VES-107. These borings were designated VES-107 (N2), (NE2), and (NW2). The soil borings were advanced to depths of 8 feet bgs, with samples collected from 2 to 4 feet bgs. To evaluate the vertical extent, a soil boring was also advanced at the location of boring VES-107 to a depth of 8 feet bgs, with a sample collected from 4 to 6 feet bgs (designated VES-107 (4-6)). Soil boring locations are shown on Figure 4. Soil samples were collected in laboratory-supplied pre-cleaned containers, stored on ice, and transferred under chain-of custody to Alpha for the laboratory analysis of total arsenic by USEPA Method 6010. Analysis of samples collected from the three borings advanced 20 feet from VES-107 were placed on hold pending the results of the samples collected 10 feet from VES-107.

4.2 Initial Arsenic Analytical Results

Arsenic was detected above the laboratory detection limit but below MCP RCS-1 reportable concentration of 20 mg/kg in each of the four soil samples collected from 2 to 4 feet bgs in the soil borings advanced 10 feet from VES-107, the two soil samples collected from 2 to 4 feet bgs in the borings advanced south of the Test Barn, and the one sample collected at the location of VES-107 from a depth of 4-6 feet bgs. The detected concentrations are similar to historically detected arsenic concentrations in samples collected between 1991 and 2014, including the concentrations considered in the 1998 Response Action Outcome (RAO) and which were deemed to be background concentrations.

4.3 Arsenic Analytical Data Evaluation

To determine whether the 83 mg/kg of arsenic detected in soil sample VES-107 during the 2017 Phase II LSI could be considered a background condition (based on the presence of coal ash and historical urban fill observed in soil borings), VERTEX performed various statistical tests using both recent and historical data. The results of these tests indicate that 83 mg/kg is an outlier and does not fall within the 95th upper percentile limit of predicted arsenic concentrations. Based on these results, the 83 mg/kg cannot be considered a background concentration consistent with the findings of the historical RAO. Therefore, the elevated arsenic concentration is a condition which the MCP requires to be reported to the MassDEP within 120 days of the May 26, 2017 property transfer (September 23, 2017), unless the reportable condition can be removed by the excavation of 20 cubic yards or less as a LRA.

The initial delineation of arsenic concentrations in soil did not support a conclusion that the volume of soil containing elevated arsenic concentrations was 20 cubic yards or less; therefore, VERTEX collected additional samples described below.

4.4 Advancement of Additional Soil Borings

On July 13, 2017, VERTEX advanced an additional three soil borings utilizing hand held auger techniques to further delineate the horizontal extent of elevated arsenic concentrations. Soil borings were advanced 5 feet east and south of the original boring VES-107 and were designated VES-107 (E) and (S). An additional boring was advanced 10 feet east of VES-107 and

was designated VES-107 (E2). Each the boring was advanced to a depth of 4 feet bgs, and soil samples were collected from 2 to 4 feet bgs. Soil samples were collected in laboratory-supplied pre-cleaned containers, stored on ice, and transferred under chain-of custody to Alpha for the laboratory analysis of total arsenic by USEPA Method 6010.

4.5 Secondary Arsenic Analytical Results

Arsenic was detected at concentrations exceeding MCP RCS-1 concentration of 20 mg/kg in all three samples collected on July 13, 2017. Additionally, in the sample collected at a location 5 feet east of VES-107 (Sample ID VES-107(E)), total arsenic was detected at a concentration of 133 mg/kg which is the highest concentration of arsenic known to have been detected in soil at the Site. Sample locations and analytical results are shown on Figure 4 and results are tabulated in Table 2. Based on these results, the area of elevated arsenic concentrations extends towards the Test Barn and Administration Office, and the volume of soil containing elevated arsenic concentrations exceeds 20 cubic yards.

5.0 CHROMIUM ASSESSMENT

5.1 Advancement of Soil Borings

On June 26, 2017, VERTEX oversaw the advancement of one soil boring by Carr-Dee within the southwestern parking area. Soil borings were advanced by direct-push drilling techniques to 8 feet bgs for the collection of samples to assess the type of chromium previously detected during the March 2017 VERTEX Phase II LSI. Soil samples were collected from the soil borings in continuous four-foot intervals beginning at surface grade using a tube-sampler fitted with disposable acetate sleeves. Soil samples were screened in the field by the same method used to screen the other samples collected at the Site. The physical characteristics of the soil samples and the PID field screening results are reported on the boring logs included in Appendix A.

The soil boring was advanced directly north of boring VES-133 to a depth of 8 feet bgs. A sample was collected from 5 to 7 feet bgs. The soil sample was collected in laboratory-supplied pre-cleaned containers, stored on ice, and transferred under chain-of custody to Alpha for the laboratory analysis of total chromium and hexavalent chromium by USEPA Method 7196.

5.2 Chromium Analytical Results and Secondary Sample Collection

Total chromium was detected in the soil sample collected from 5 to 7 feet bgs in soil boring VES-133 at 74.7 mg/kg, and hexavalent chromium was not detected above the laboratory detection limit. However, the hexavalent chromium sample was analyzed out of the USEPA Method 7196 hold time, and therefore the result could have been biased low. On July 13, 2017, VERTEX advanced an additional boring at the location of boring VES-133 using a hand auger. Based on the limits of the technology, VERTEX was unable to advance the boring beyond 5 feet bgs. VERTEX collected a sample from 4 to 5 feet bgs in laboratory-supplied pre-cleaned containers, stored on ice, and transferred under chain-of custody to Alpha for the laboratory analysis of total chromium and hexavalent chromium by USEPA Method 7196.

Analysis of the sample collected on July 13, 2017 detected total chromium at 32.6 mg/kg, but hexavalent chromium was not detected above the laboratory detection limit of 1.0 mg/kg. Based on the laboratory analytical results, the chromium concentration previously detected during the March 2017 Phase II LSI and this Phase III Subsurface Investigation is trivalent chromium, and

not hexavalent chromium and therefore the MCP reportable concentration applicable to the chromium detected in soil in boring VES-133 is 1,000 mg/kg and the detected concentration of chromium is not reportable to the MassDEP.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Between June 26 and July 13, 2017 VERTEX performed a Phase III Subsurface Investigation at the Site that included a geophysical survey using GPR, the advancement of 27 soil borings to delineate three separate areas of concern identified during a Phase II LSI performed by VERTEX in March 2017. Soil samples were screened and collected from each boring and submitted to a laboratory for analysis.

Soil analytical results were compared to the MassDEP MCP RCS-1 reportable concentrations because portions of the Site are located within 500 feet of a residential dwellings and future Site development may include residences. To determine if current results are consistent with background concentrations, VERTEX also compared results to concentrations previously detected at the Site as presented in the 1998 RAO, and in data collected in the 2007 GEI evaluation.

Conclusions and Recommendations

Based on the findings of this Phase III Subsurface Investigation, VERTEX concludes and recommends the following:

PCB Delineation:

- Based on the analytical results of soil samples collected from soil borings advanced in the area around boring VES-128, the area of PCB-impacted soil is limited to approximately 8 cubic yards in the immediate vicinity of boring VES-128. VERTEX recommends the removal and off-site disposal of the PCB-impacted soil by conducting a LRA prior to September 23, 2017. Completion of an LRA is expected to eliminate the reportable condition. The MCP does not require the results of the LRA to be reported to the MassDEP; however, the MCP requires the results to be kept on file by the party undertaking the LRA for at least five years.

Arsenic Delineation

- Based on a statistical evaluation of the arsenic analytical results collected from soil borings advanced around VES-107, the previously detected concentration of 83 mg/kg was

determined to be an outlier and is not consistent with the background concentrations at the Site that were previously identified in the 1998 RAO and risk characterizations. Analysis of samples collected by VERTEX identified approximately 70 cubic yards of soil containing arsenic concentrations exceeding the approximate concentration (40 mg/kg) for arsenic consistent with Site background concentrations. The estimated volume of arsenic-impacted soil exceeds the 20 cubic-yard limit for an LRA; therefore, VERTEX recommends the arsenic concentrations be reported to the MassDEP by September 23, 2017. Notification to the MassDEP is made electronically via the submittal of a MassDEP form BWSC-103 Release Notification Form. Subsequent to MassDEP notification, VERTEX recommends remediation of the arsenic impacted soil by excavation and off-site disposal of the impacted soil as a Release Abatement Measure (RAM) conducted in accordance with the MCP. Performance of a RAM requires preparation and submittal of a RAM Plan, and upon completion of the RAM, a RAM Completion Statement. Upon demonstration that the arsenic release in soil poses a condition of No Significant Risk, the submittal to the MassDEP of a Permanent Solution Statement would fulfill the regulatory obligations for the arsenic in soil.

- Given the proximity of the arsenic-impacted soil to the Administration Office and Test Barn, VERTEX recommends that a structural engineer evaluate whether the impacted soil can be safely removed without endangering the structural integrity of the buildings. If the impacted soil cannot be safely removed without endangering the buildings, VERTEX recommends that the RAM be completed after demolition of those structures. If remediation of the arsenic is deferred until after building demolition, the MCP requires submittal of a Phase I Initial Site Investigation Report and Tier Classification to the MassDEP if a Permanent Solution Statement cannot be submitted to the MassDEP by the one-year anniversary of the MassDEP release notification.

Chromium Delineation

- The MCP reportable concentration applicable to trivalent chromium is applicable to the chromium detected during the Phase II LSI. The detected concentration of chromium did not exceed the MCP reportable concentration; therefore, the detected chromium is not

reportable to the MassDEP. No further investigation is recommended regarding the chromium detected at the Site.

7.0 QUALIFICATIONS

7.1 Limitations and Exceptions

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This warranty is in lieu of all other warranties either expressed or implied. VERTEX is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

It must be recognized that environmental investigations are inherently limited in the sense that conclusions are drawn and recommendations developed from information obtained from limited research and Site investigation. All Site subsurface conditions were not field investigated as part of this study and may differ from the conditions implied by the limited subsurface investigation. Additionally, the passage of time may result in a change in the environmental characteristics at this Site and surrounding properties. This report does not warrant against future operations or conditions, nor does this report warrant against operations or conditions present of a type or at a location not investigated.

7.2 Special Terms and Conditions

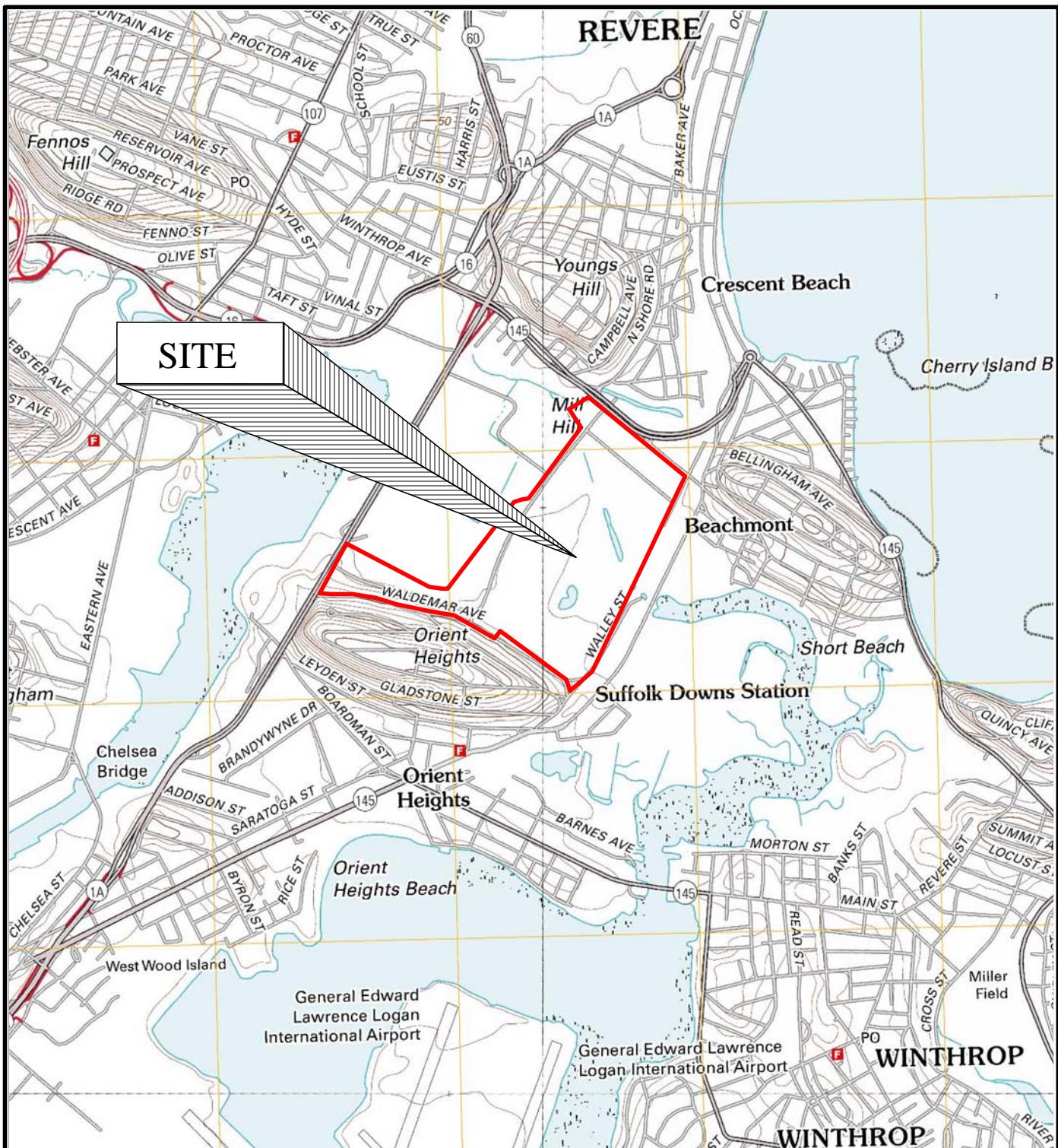
Our work was conducted in general conformance with VERTEX proposal P.2585.16, dated January 11, 2017, and the terms and conditions established within. This Phase II LSI report explains the procedures of the Phase II LSI and summarizes the sampling results.

7.3 User Reliance

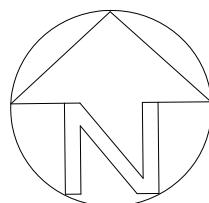
This report is for the exclusive use of Locke Lord LLP, The McClellan Highway Development Company, LLC, McClellan Highway Holdings, LLC, Cathexis – SD, LLC, Cathexis RE Holdings, LP, The Three Box Development Company, LLC, HYM Three Box Holdings, LLC, and The HYM Investment Group, LLC and their respective subsidiaries, affiliated and parent companies, and any lenders who assist these entities in the acquisition, development, or operation of the Site. No other party shall have the right to rely on any service provided by VERTEX without prior written consent. Use of this report by any other party shall be at such party's sole risk.

FIGURES

VERTEX[®]



USGS Topographic Map, 2012
Lynn, MA Quadrangle
Contour Interval: 10 Feet



SITE LOCUS MAP

Suffolk Downs Racecourse
525 William F. McCellan Highway
Boston, Massachusetts

SCALE: 1:24,000

February, 2017

VERTEX Proj. No. 43068

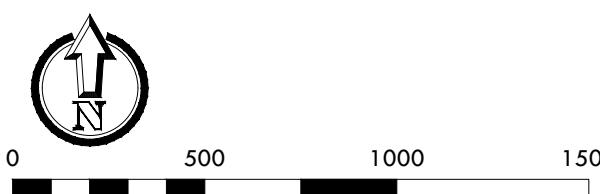
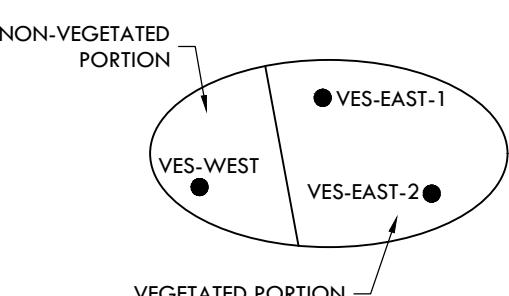
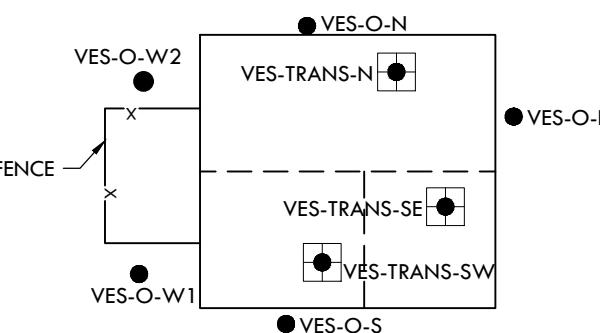
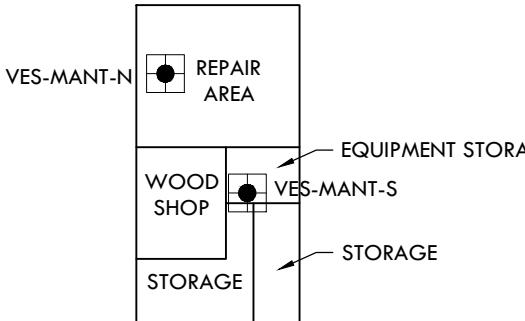
FIGURE NO. 1

SAMPLE LOCATIONS

SUFFOLK DOWNS
525 WILLIAM F MCCLELLAN HIGHWAY
EAST BOSTON AND REVERE, MASSACHUSETTS

LEGEND:

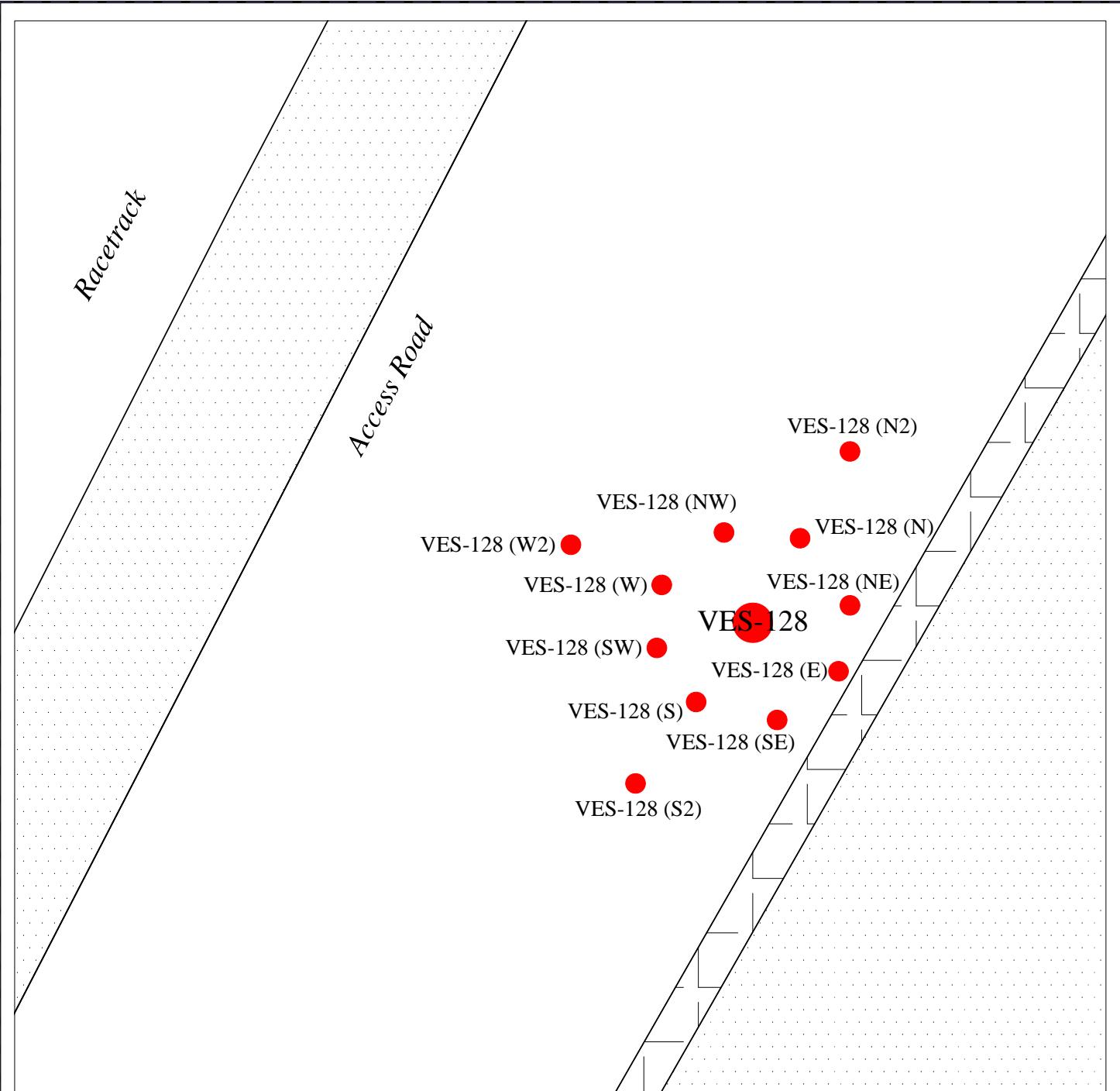
- REPAIR AREA
- EQUIPMENT STORAGE
- WOOD SHOP
- VES-MANT-S
- STORAGE
- VES-MANT-N
- MONITORING WELL
- SOIL BORING
- SURFICIAL SOIL/ STOCKPILE SAMPLE
- GEI BORINGS PERFORMED DECEMBER 2006
- CONCRETE SAMPLE
- B-402(MW) MONITORING WELL INSTALLED BY GEI (2006)
- B-401 BORING INSTALLED BY GEI (2006)
300 SERIES - GEOTECHNICAL
400 SERIES - ENVIRONMENTAL
- RIZ-1 MONITORING WELL INSTALLED BY RIZZO (1996)
- RB-1 SOIL BORING INSTALLED BY RIZZO (1996)
- MW-201 MONITORING WELL INSTALLED BY GEI (1991)
- MW-1 MONITORING WELL INSTALLED BY GEI (1986)
- WE(OW)-4 WELL INSTALLED BY OTHERS
- SS2 SEDIMENT SAMPLE
- GP14-2 GEOPROBE INSTALLED BY HALEY & ALDRICH, INC (2014)
- TP14-1 TEST PITS INSTALLED BY HALEY & ALDRICH, INC (2014)
- B12-109 TEST BORING INSTALLED BY HALEY & ALDRICH, INC (2012)



NOTES:

PLAN BASED OF ALTA SURVEY PREPARED BY NITSCH ENGINEERING OF BOSTON,
MASSACHUSETTS COMPANY DATED JANUARY 2017.





0 7.5 15 22.5



SCALE: 1" = 7.5'

LEGEND:

- VES-128 (W2) ● Approximate Boring Location
- Fence
- Landscape

NOTES:

SOURCE: VERTEX PHASE II LSI FIGURE 2, 2017

VES-128 DELINEATION

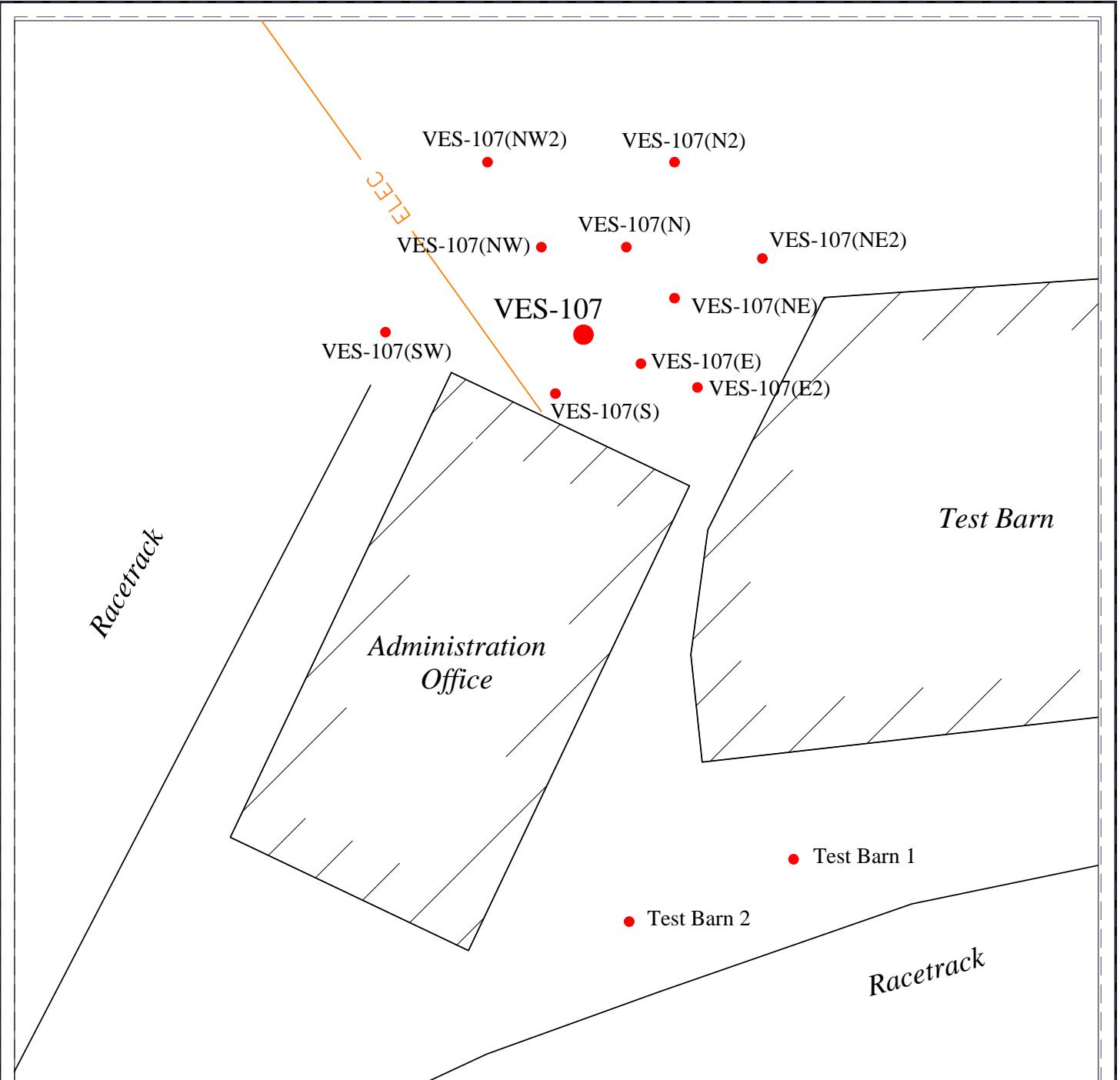
SUFFOLK DOWNS
525 William F McClellan Highway
East Boston and Revere, Massachusetts

Date: 07/07/2017
Drawn: KLNS
Checked: WJC
Job No.: 43068

FIGURE

3

VERTEX®



LEGEND:

VES-107(N2) Approximate Boring Location



Overhead Power Lines

NOTES:

SOURCE: VERTEX PHASE II LSI FIGURE 2, 2017



0 15 30 45

SCALE: 1" = 15'

VES-107 DELINEATION

SUFFOLK DOWNS
525 William F McClellan Highway
East Boston and Revere, Massachusetts

Date: 07/21/2017	FIGURE
Drawn: KLNS	4
Checked: WJC	
Job No.: 43068	

TABLES

VERTEX®

TABLE 1 - SUMMARY OF PCB ANALYTICAL RESULTS
SUFFOLK DOWNS
525 WILLIAM F. MCCLELLAN HIGHWAY
BOSTON, MASSACHUSETTS 02128
VERTEX PROJECT NO. 43068

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	VES-128 (2-4)	VES-128 (E) 0-2	VES-128 (SE) 0-2	VES-128 (S) 0-2	VES-128 (W) 0-2	VES-128 (SW) 0-2	VES-128 (NW) 0-2	VES-128 (N) 0-2	VES-128 (NE) 0-2
SAMPLING DATE			6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017
LAB SAMPLE ID			L1721774-01	L1721774-02	L1721774-03	L1721774-04	L1721774-05	L1721774-06	L1721774-07	L1721774-08	L1721774-09
SAMPLE DEPTH (ft.)			2-4	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
Polychlorinated Biphenyls (PCBs)											
Aroclor 1016	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1221	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1232	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1242	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1248	100	1	ND(0.0208)	ND(0.0177)	ND(0.0166)	ND(0.0138)	ND(0.0142)	ND(0.0189)	ND(0.0138)	ND(0.0136)	ND(0.0144)
Aroclor 1254	100	1	ND(0.0312)	ND(0.0265)	ND(0.0249)	ND(0.0206)	ND(0.0213)	ND(0.0283)	ND(0.0208)	ND(0.0204)	ND(0.0216)
Aroclor 1260	100	1	ND(0.0208)	ND(0.0177)	ND(0.0166)	ND(0.0138)	ND(0.0142)	ND(0.0189)	ND(0.0138)	ND(0.0136)	ND(0.0144)
Aroclor 1262	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)
Aroclor 1268	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)
PCBs, Total	100	1	ND(0.0104)	ND(0.0088)	ND(0.0083)	ND(0.0069)	ND(0.0071)	ND(0.0094)	ND(0.0069)	ND(0.0068)	ND(0.0072)

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parentheses
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
- Soil samples collected by The Vertex Companies, Inc.

TABLE 2 - SUMMARY OF ARSENIC ANALYTICAL RESULTS
SUFFOLK DOWNS
525 WILLIAM F. MCCLELLAN HIGHWAY
BOSTON, MASSACHUSETTS 02128
VERTEX PROJECT NO. 43068

LOCATION	MCP Upper Concentration	MCP Reportable Concentration	VES-107 (4-6)	VES-107 (N) 2-4	VES-107 (NW) 2-4	VES-107 (NE) 2-4	VES-107 (SW) 2-4	VES-107 (E) 2-4	VES-107 (E2) 2-4	VES-107 (S) 2-4	Test Barn 1 (2-4)	Test Barn 2 (2-4)
SAMPLING DATE			6/26/2017	6/26/2017	6/26/2017	6/26/2017	6/26/2017	7/13/2017	7/13/2017	7/13/2017	6/26/2017	6/26/2017
LAB SAMPLE ID			L1721775-01	L1721775-02	L1721775-03	L1721775-04	L1721775-05	L1723892-03	L1725283-01	L1723892-02	L1721775-06	L1721775-07
SAMPLE DEPTH (ft.)			4-6	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
Total Metals												
Arsenic, Total	500	20	5.35	3.37	3.2	4	9.89	133	44.4	38.7	14.7	12.6

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Upper Concentration Limits (UCLs) obtained from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0996(6) dated April 2014
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- N/A = Not Applicable
- ND = Not Detected above laboratory reporting limits shown in parentheses
- NA = Not Analyzed
- NS = No Standard
- Bold and highlighted values exceed the applicable standard
- E = Estimated value; Compound exceeded the calibration range on the initial low level analysis but was ND on the high level analysis
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report
- Soil samples collected by The Vertex Companies, Inc.

TABLE 3 - SUMMARY OF CHROMIUM ANALYTICAL RESULTS
SUFFOLK DOWNS
525 WILLIAM F. MCCLELLAN HIGHWAY
BOSTON, MASSACHUSETTS 02128
VERTEX PROJECT NO. 43068

LOCATION	MCP Upper Concentration Limits (UCLs)	MCP Reportable Concentration RCS-1	VES-133 (5-7)	VES-133 (4-5)
SAMPLING DATE			6/26/2017	7/13/2017
LAB SAMPLE ID			L1721775-08	L1723892-01
SAMPLE DEPTH (ft.)			5-7	4-5
Total Metals				
Chromium, Total	2000	100	74.7	32.6
Chromium, Hexavalent	2000	100	ND(1.8)	ND(1)

Notes:

- Units presented in milligrams per kilogram (mg/kg), unless otherwise noted
- Upper Concentration Limits (UCLs) obtained from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0996(6) dated April 2014
- Reportable Concentrations obtained from 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parentheses
- Soil samples collected by The Vertex Companies, Inc.

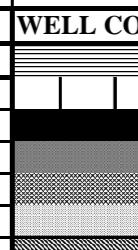
APPENDIX A:

Soil Boring/Monitoring Well Construction Logs

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-15" Dark brown fine SAND and SILT, some fine gravel, damp.			<1.0		
1						15-20" Dark brown fine to coarse SAND, damp.					
2						20-48" Dark brown fine SAND & ORGANICS (roots), sulfur odor, wet.					
3						0-13" Dark grey fine to coarse SAND and fine GRAVEL, wet.					
4	4-8'	48/48"	N/A	N/A		13-48" Mottled grey and black fine SAND, some organics (roots), damp.					
5											
6											
7											
8						Boring terminated at 8 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Sand
				Hard	>30	LENGTH OF RISER:	N/A				Grout

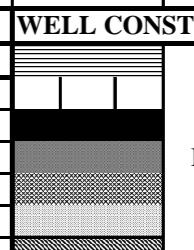
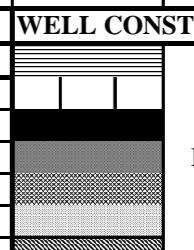
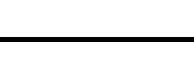
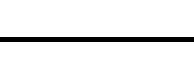
NOTES:

- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (SW)			
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068			
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.			
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson		
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS				
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A		
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A	
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A	
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A	
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual
0	0-4'	48/48"	N/A	N/A	SAND	0-6" Grey fine to coarse SAND, dry. 6-8" Tan fine to coarse SAND, dry. 8-10" Dark brown fine to coarse SAND, dry.			<1.0	
1						10-40" Tan fine to coarse SAND, trace fine gravel and silt, damp.				
2						40-48" Dark brown fine SAND, trace cobbles and coarse gravel.				
3						0-18" Dark brown and black medium to coarse SAND and fine to coarse GRAVEL, some organics (roots), wet.				
4	4-8'	48/38"	N/A	N/A		18-38" Dark brown and black fine SAND, wet.				
5										
6										
7										
8						Boring terminated at 8 feet bgs. Refusal not encountered.				
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27										
28										
29										
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION	
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				 <ul style="list-style-type: none">  Screen  Riser  Concrete  Bentonite  Native Sand Grout
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A	
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A	
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A	
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A	
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A	
				Hard	>30	LENGTH OF RISER:	N/A			

NOTES:

- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (N)				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:			
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):			
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):			
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-12" Tan fine to coarse SAND, dry.			<1.0		
1					SAND & COBBLES	12-44" Dark brown fine to medium SAND and COBBLES, dry.			<1.0		
2											
3						SAND & SILT	44-48" Grey fine SAND & SILT, little clay.			<1.0	
4	4-8'	48/48"	N/A	N/A	SAND	0-38" Grey fine SAND, some coarse gravel and organics (roots), dry.			<1.0		
5					SILT & ORGANICS	38-48" Dark brown and black SILT & ORGANICS (roots), sulfur odor, wet.			<1.0		
6											
7											
8							Boring terminated at 8 feet bgs. Refusal not encountered.				
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29											
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen Riser Concrete Bentonite Native Sand Grout
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		
				Hard	>30	LENGTH OF RISER:	N/A				
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (NW)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-38" Grey medium to coarse SAND, trace fine gravel and cobbles, dry.			<1.0		
1						38-42" Grey crushed STONE and COBBLES.					
2					COBBLES	42-48" Tan fine SAND and COBBLES.			<1.0		
3						0-48" Dark brown fine SAND and SILT, trace debris (wood and ceramics), clay and organics (roots).					
4	4-8'	48/48"	N/A	N/A	SAND & SILT	Boring terminated at 8 feet bgs. Refusal not encountered.			2.1		
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29											
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout
				Hard	>30	LENGTH OF RISER:	N/A				

NOTES:

- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (NE)				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-25" Tan fine to coarse SAND, damp.			<1.0		
1					COBBLES	25-30" Grey COBBLE.			<1.0		
2					SAND	30-48" Dark grey fine SAND, trace coarse gravel and silt, damp.			<1.0		
3						0-48" Dark brown fine SAND and ORGANICS (roots), trace debris (wood and ceramics) and silt.			<1.0		
4	4-8'	48/48"	N/A	N/A		Boring terminated at 8 feet bgs. Refusal not encountered.					
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29											
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Screen Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete Bentonite Native Sand Grout
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Native Sand Grout
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		
				Hard	>30	LENGTH OF RISER:	N/A				

NOTES:

- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (N2)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/EI.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	ASPHALT	0-5" Black ASPHALT and coarse GRAVEL, dry.				14.4	
1					SAND	5-10" Tan fine to coarse SAND, trace fine to coarse gravel, dry.				<1.0	
2					SAND & ORGANICS	10-17" Tan medium to coarse SAND, some coarse gravel and cobbles, dry.			<1.0		
3						17-48" Grey fine SAND, trace coarse gravel and silt, dry.			<1.0		
4	4-8'	48/48"	N/A	N/A		0-45" Dark brown fine SAND and ORGANICS (roots), layers of grey clay, damp.				3.0	
5						45-48" Brown fine SAND and ORGANICS (roots), some debris (brick, glass, wood and ceramic), damp.				2.5	
6											
7											
8						Boring terminated at 8 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Screen Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete Bentonite
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Native Sand
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Grout
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		
				Hard	>30	LENGTH OF RISER:	N/A				

NOTES:

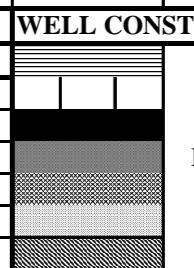
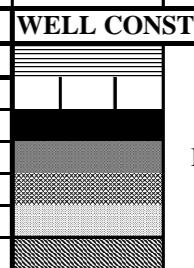
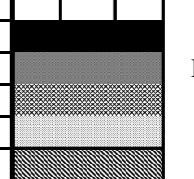
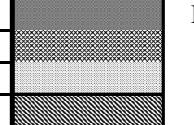
- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (NE2)			
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068			
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.			
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson		
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS				
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A		
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A	
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A	
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A	
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/EI.)					Background/ Actual
0	0-4'	48/48"	N/A	N/A	SAND	0-13" Tan fine to medium SAND, trace cobbles, dry.			<1.0	
1						13-39" Grey fine SAND, some cobbles and silt, dry.				
2					SAND & ORGANICS	39-48" Dark grey fine SAND and ORGANICS (roots), wet.				
3						0-8" Grey CLAY, wet.				
4	4-8'	48/48"	N/A	N/A		8-42" Dark grey fine SAND and ORGANICS (roots), wet.				
5						42-48" Dark brown fine SAND & ORGANICS (roots), some debris (glass, ceramic, wood, brick).				
6									1.4	
7										
8						Boring terminated at 8 feet bgs. Refusal not encountered.				
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION	
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A	
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A	
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A	
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A	
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A	
				Hard	>30	LENGTH OF RISER:	N/A			
NOTES: 1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.										

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-107 (NW2)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING	CORE		GROUNDWATER DEPTH MEASUREMENTS						
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-15" Tan fine to coarse SAND, dry.				<1.0	
1						15-39" Grey fine SAND and coarse GRAVEL, some cobbles, dry.				<1.0	
2						39-48" Grey fine SAND and COBBLES, some silt, dry.				<1.0	
3					SAND, SILT, & ORGANICS	0-45" Dark brown fine SAND, SILT, and ORGANICS (roots), damp.				2.5	
4	4-8'	48/48"	N/A	N/A		45-48" Dark brown fine SAND and DEBRIS (wood, brick, glass), damp.				2.7	
5											
6					SAND & DEBRIS						
7											
8						Boring terminated at 8 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive			WELL CONSTRUCTION	
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen Riser
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Concrete Bentonite
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Native Sand Grout
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Grout
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		
				Hard	>30	LENGTH OF RISER:	N/A				
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG							DESIGNATION	Test Barn 1			
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Split Spoon	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/EI.)					Background/ Actual	
0	0-2'	24/20"	N/A	N/A	SAND	0-20" Tan fine to medium SAND, some cobbles, dry.			<1.0		
1						0-8" Tan fine to medium SAND, dry.					
2	2-4'	24/12"	N/A	N/A	SAND & DEBRIS	8-12" Tan fine to medium SAND and DEBRIS (brick, glass, ceramic), dry.			<1.0		
3						0-4" Dark brown medium to coarse SAND, trace debris (glass), damp.					
4	4-6'	24/4"	N/A	N/A							
5											
6						Boring terminated at 8 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive			WELL CONSTRUCTION	
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen Riser
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Concrete Bentonite Native Sand Grout
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete Bentonite Native Sand Grout
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Concrete Bentonite Native Sand Grout
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Concrete Bentonite Native Sand Grout
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Concrete Bentonite Native Sand Grout
				Hard	>30	LENGTH OF RISER:	N/A				Concrete Bentonite Native Sand Grout
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG							DESIGNATION	Test Barn 2				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068					
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.					
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson				
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS						
TYPE	Split Spoon	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A				
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A			
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A			
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A			
SAMPLE INFORMATION						SOIL DESCRIPTION				WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)						Background/ Actual	
0	0-2'	24/15"	N/A	N/A	SAND	0-15" Tan fine to coarse SAND, dry.				<1.0		
1						0-20" Tan fine to coarse SAND, dry.						
2	2-4'	24/24"	N/A	N/A	SAND & DEBRIS	20-24" Dark brown fine SAND and DEBRIS (coal, coal ash, wood, brick), damp.				<1.0		
3						0-12" Dark brown find SAND and DEBRIS (coal, coal ash, wood, brick), wet.						
4	4-6'	24/12"	N/A	N/A		Refusal encountered at 5 feet bgs. Boring terminated.						
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive			WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA						Screen
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser	
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete	
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite	
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native	
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Sand	
				Hard	>30	LENGTH OF RISER:	N/A				Grout	
NOTES:												
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.												

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-12" Tan fine to coarse SAND, dry.			<1.0		
1						12-20" Dark brown fine to medium SAND, some fine gravel, dry.					
2						20-28" Grey COBBLES.					
3						28-48" Fine SAND and DEBRIS (brick, ash, wood, glass, asphalt), dry.					
4	4-8'	48/25"	N/A	N/A		0-25" Fine SAND and DEBRIS (brick, ash, wood, glass, asphalt), wet.					
5											
6											
7											
8						Boring terminated at 8 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen Riser Concrete Bentonite Native Sand Grout
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (E)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/37"	N/A	N/A	SAND	0-28" Tan fine to medium SAND, dry.			<1.0		
1						28-37" Dark brown fine SAND & DEBRIS (asphalt, glass, coal, wood, brick), dry.					
2					SAND & DEBRIS						
3											
4						Boring terminated at 4 feet bgs. Refusal not encountered.			<1.0		
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout
				Hard	>30	LENGTH OF RISER:	N/A				
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

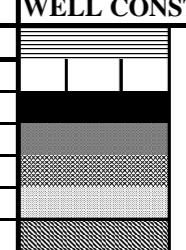
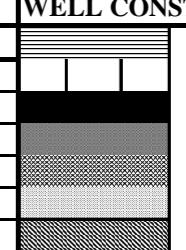
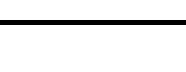
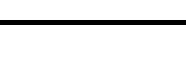
SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (SE)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-30" Tan fine to coarse SAND, trace coarse gravel, dry.			<1.0		
1						30-48" Dark brown fine SAND & DEBRIS (asphalt, glass, coal, wood, brick), dry.					
2					SAND & DEBRIS						
3											
4						Boring terminated at 4 feet bgs. Refusal not encountered.			<1.0		
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout
				Hard	>30	LENGTH OF RISER:	N/A				

NOTES:

- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (S)				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-20" Tan fine to medium SAND, some coarse sand, dry.			<1.0		
1						20-30" Tan fine to coarse SAND, some cobbles, dry.					
2					SAND & DEBRIS	30-48" Dark brown fine SAND & DEBRIS (brick, ash, coal, asphalt), dry.			<1.0		
3						Boring terminated at 4 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Sand
				Hard	>30	LENGTH OF RISER:	N/A				Grout
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (S2)				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-18" Tan fine to medium SAND, some coarse sand and fine gravel, dry.			<1.0		
1						18-27" Tan fine to coarse SAND, some cobbles, dry.					
2					SAND & DEBRIS	27-48" Dark brown fine SAND & DEBRIS (brick, ash, coal, asphalt), dry.					
3						Boring terminated at 4 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Sand
				Hard	>30	LENGTH OF RISER:	N/A				Grout
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

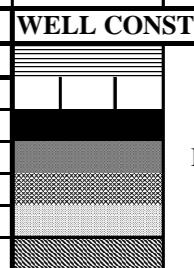
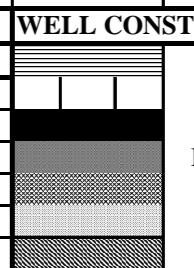
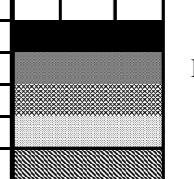
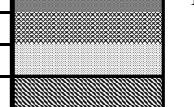
SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (W)					
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068					
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.					
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson				
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS						
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A				
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A			
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A			
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A			
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)		
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual		
0	0-4'	48/48"	N/A	N/A	SAND	0-46" Dark grey fine SAND, dry. 46-48" Grey CLAY, damp.				<1.0		
1											<1.0	
2												
3					CLAY	Boring terminated at 4 feet bgs. Refusal not encountered.						
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive			WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA						Screen Riser Concrete Bentonite Native Sand Grout
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A			
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A			
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A			
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A			
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A			
				Hard	>30	LENGTH OF RISER:	N/A					
NOTES:												
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.												

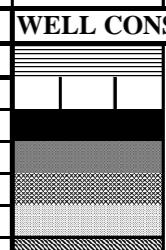
SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (SW)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-48" Light brown fine to coarse SAND, some debris (ceramic, glass, brick, wood), dry.			<1.0		
1											
2											
3											
4						Boring terminated at 4 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout
				Hard	>30	LENGTH OF RISER:	N/A				
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (W2)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-48" Light brown fine to coarse SAND, some debris (ceramic, glass, brick, wood), dry.			<1.0		
1											
2											
3											
4						Boring terminated at 4 feet bgs. Refusal not encountered.					
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout
				Hard	>30	LENGTH OF RISER:	N/A				
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (W2)						
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068						
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.						
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson					
SAMPLER		CASING	CORE		GROUNDWATER DEPTH MEASUREMENTS								
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A					
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A				
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A				
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A				
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)			
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual			
0	0-4'	48/48"	N/A	N/A	SAND & GRAVEL	0-38" Tan fine to coarse SAND and fine GRAVEL, dry.				<1.0			
1						38-48" Dark brown fine SAND and DEBRIS (glass, brick, asphalt, coal), dry.				<1.0			
2													
3					SAND & DEBRIS								
4						Boring terminated at 4 feet bgs. Refusal not encountered.							
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive			WELL CONSTRUCTION			
1 - 10%	Trace	Density	Blows (N)	Consistency		Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft		<2	DEPTH:	N/A		DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete		
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite		
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand		
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout		
NOTES:													
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.													

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (NE)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-29" Tan fine to coarse SAND, damp.			<1.0		
1						29-48" Dark brown and black fine SAND & DEBRIS (brick, ash, coal, asphalt), damp.					
2					SAND & DEBRIS						
3											
4						Boring terminated at 4 feet bgs. Refusal not encountered.			<1.0		
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MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				Screen	
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native Sand
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Grout
				Hard	>30	LENGTH OF RISER:	N/A				
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (N)				
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS					
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-28" Tan fine to coarse SAND, dry.			<1.0		
1						STONE	28-30" Grey crushed STONE.				
2					SAND & DEBRIS	30-48" Dark brown fine SAND & DEBRIS (brick, ash, coal, asphalt), dry.					
3							Boring terminated at 4 feet bgs. Refusal not encountered.				
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen Riser Concrete Bentonite Native Sand Grout
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Screen Riser Concrete Bentonite Native Sand Grout
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-128 (N2)				
		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068				
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.				
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson			
SAMPLER		CASING	CORE		GROUNDWATER DEPTH MEASUREMENTS						
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A			
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A		
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A		
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A		
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)	
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (F/El.)					Background/ Actual	
0	0-4'	48/48"	N/A	N/A	SAND	0-35" Dark brown fine to coarse SAND, trace coarse gravel, dry.			<1.0		
1						30-48" Dark brown and black fine SAND & DEBRIS (brick, ash, coal, asphalt), dry.					
2					SAND & DEBRIS						
3											
4						Boring terminated at 4 feet bgs. Refusal not encountered.			<1.0		
5											
6											
7											
8											
9											
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27											
28											
29											
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION		
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA					Screen
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A		Riser
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A		Concrete
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A		Bentonite
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A		Native
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A		Sand
				Hard	>30	LENGTH OF RISER:	N/A				Grout
NOTES:											
1. Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.											

SOIL BORING/MONITORING WELL CONSTRUCTION LOG						DESIGNATION	VES-133			
VERTEX®		PROJECT:	Suffolk Downs Racecourse			PROJECT NO.:	43068			
		LOCATION:	525 William F. McClellan Highway, Boston, MA			DRILLER:	Carr-Dee Corp.			
		INSTALLATION DATES		6/26/20107			INSPECTOR:	Kristen Sarson		
SAMPLER		CASING		CORE		GROUNDWATER DEPTH MEASUREMENTS				
TYPE	Geoprobe	TYPE	N/A	BARREL TYPE	N/A	ELEVATION INFORMATION	DATE:	N/A		
SIZE (ID)	2"	MATERIAL	N/A	SIZE (ID)	N/A	DATUM:	N/A	TIME:	N/A	
HAMMER (LB.)	N/A	DIAMETER	N/A	DIAMETER	N/A	TOC:	N/A	DEPTH (Ft):	N/A	
FALL (IN.)	N/A	LENGTH	N/A			GS:	N/A	ELEVATION (Ft):	N/A	
SAMPLE INFORMATION						SOIL DESCRIPTION			WELL CONST	PID (PPM)
DEPTH ELEVATION	INTERVAL	PEN / REC	BLOWS / 6"	SPT	STRATA CHANGE (Ft/El.)					Background/ Actual
0	0-4'	48/48"	N/A	N/A	SAND	0-25" Grey fine to coarse SAND and fine to coarse GRAVEL, dry.			<1.0	
1						25-30" Grey crushed STONE.				
2						30-45" Dark grey fine SAND and SILT, some coarse gravel, dry.				
3						45-48" Dark grey fine SAND and SILT, some coarse gravel, wet.				
4	4-8'	48/15"	N/A	N/A		0-15" Dark brown and black fine SAND and SILT, some debris (rubber, brick, glass), wet.				
5										
6										
7										
8						Boring terminated at 8 feet bgs. Refusal not encountered.				
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
MODIFIER		SAND AND GRAVEL		SILT AND CLAY		LOCATION:	Memorial Drive		WELL CONSTRUCTION	
1 - 10%	Trace	Density	Blows (N)	Consistency	Blows (N)	MONITORING WELL CONSTRUCTION DATA				
10 - 20%	Little	Very loose	0 - 4	Very soft	<2	DEPTH:	N/A	DEPTH/TYPE PACK:	N/A	
20 - 35%	Some	Loose	4 - 10	Soft	2 - 4	DIAMETER (inches):	N/A	DEPTH/TYPE SEAL:	N/A	
35 - 50%	And	Medium Dense	10 - 30	Medium Stiff	4 - 8	MATERIAL:	N/A	BACKFILL MATERIAL:	N/A	
		Dense	30 - 50	Stiff	8 - 15	SLOT SIZE (inches):	N/A	SURFACE SEAL:	N/A	
		Very Dense	>50	Very Stiff	15 - 30	SCREEN INTERVAL:	N/A	ROADBOX DESC.:	N/A	
				Hard	>30	LENGTH OF RISER:	N/A			

NOTES:

- Soil are visually classified in general accordance with the Modified Burmister Soil Classification System.

APPENDIX B

Laboratory Analytical Reports



ANALYTICAL REPORT

Lab Number:	L1721774
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	07/05/17

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

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

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1721774-01	VES-128 (2-4)	SOIL	BOSTON, MA	06/26/17 13:00	06/27/17
L1721774-02	VES-128 (E) 0-2	SOIL	BOSTON, MA	06/26/17 13:10	06/27/17
L1721774-03	VES-128 (SE) 0-2	SOIL	BOSTON, MA	06/26/17 13:20	06/27/17
L1721774-04	VES-128 (S) 0-2	SOIL	BOSTON, MA	06/26/17 13:30	06/27/17
L1721774-05	VES-128 (W) 0-2	SOIL	BOSTON, MA	06/26/17 14:00	06/27/17
L1721774-06	VES-128 (SW) 0-2	SOIL	BOSTON, MA	06/26/17 13:50	06/27/17
L1721774-07	VES-128 (NW) 0-2	SOIL	BOSTON, MA	06/26/17 14:20	06/27/17
L1721774-08	VES-128 (N) 0-2	SOIL	BOSTON, MA	06/26/17 14:30	06/27/17
L1721774-09	VES-128 (NE) 0-2	SOIL	BOSTON, MA	06/26/17 14:50	06/27/17

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

Case Narrative (continued)

MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/05/17

ORGANICS

PCBS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-01
Client ID: VES-128 (2-4)
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 19:51
Analyst: AF
Percent Solids: 63%

Date Collected: 06/26/17 13:00
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	31.2	--	1	A
Aroclor 1221	ND		ug/kg	31.2	--	1	A
Aroclor 1232	ND		ug/kg	31.2	--	1	A
Aroclor 1242	ND		ug/kg	31.2	--	1	A
Aroclor 1248	ND		ug/kg	20.8	--	1	A
Aroclor 1254	ND		ug/kg	31.2	--	1	A
Aroclor 1260	ND		ug/kg	20.8	--	1	A
Aroclor 1262	ND		ug/kg	10.4	--	1	A
Aroclor 1268	ND		ug/kg	10.4	--	1	A
PCBs, Total	ND		ug/kg	10.4	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	A
Decachlorobiphenyl	45		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	56		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-02
Client ID: VES-128 (E) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 20:05
Analyst: AF
Percent Solids: 72%

Date Collected: 06/26/17 13:10
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	26.5	--	1	A
Aroclor 1221	ND		ug/kg	26.5	--	1	A
Aroclor 1232	ND		ug/kg	26.5	--	1	A
Aroclor 1242	ND		ug/kg	26.5	--	1	A
Aroclor 1248	ND		ug/kg	17.7	--	1	A
Aroclor 1254	ND		ug/kg	26.5	--	1	A
Aroclor 1260	ND		ug/kg	17.7	--	1	A
Aroclor 1262	ND		ug/kg	8.84	--	1	A
Aroclor 1268	ND		ug/kg	8.84	--	1	A
PCBs, Total	ND		ug/kg	8.84	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	52		30-150	A
Decachlorobiphenyl	40		30-150	A
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	48		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-03
Client ID: VES-128 (SE) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 20:18
Analyst: AF
Percent Solids: 78%

Date Collected: 06/26/17 13:20
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	24.9	--	1	A
Aroclor 1221	ND		ug/kg	24.9	--	1	A
Aroclor 1232	ND		ug/kg	24.9	--	1	A
Aroclor 1242	ND		ug/kg	24.9	--	1	A
Aroclor 1248	ND		ug/kg	16.6	--	1	A
Aroclor 1254	ND		ug/kg	24.9	--	1	A
Aroclor 1260	ND		ug/kg	16.6	--	1	A
Aroclor 1262	ND		ug/kg	8.29	--	1	A
Aroclor 1268	ND		ug/kg	8.29	--	1	A
PCBs, Total	ND		ug/kg	8.29	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	43		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	56		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-04
Client ID: VES-128 (S) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 20:32
Analyst: AF
Percent Solids: 94%

Date Collected: 06/26/17 13:30
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	20.6	--	1	A
Aroclor 1221	ND		ug/kg	20.6	--	1	A
Aroclor 1232	ND		ug/kg	20.6	--	1	A
Aroclor 1242	ND		ug/kg	20.6	--	1	A
Aroclor 1248	ND		ug/kg	13.8	--	1	A
Aroclor 1254	ND		ug/kg	20.6	--	1	A
Aroclor 1260	ND		ug/kg	13.8	--	1	A
Aroclor 1262	ND		ug/kg	6.88	--	1	A
Aroclor 1268	ND		ug/kg	6.88	--	1	A
PCBs, Total	ND		ug/kg	6.88	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	42		30-150	A
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	56		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-05
Client ID: VES-128 (W) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 20:46
Analyst: AF
Percent Solids: 91%

Date Collected: 06/26/17 14:00
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	21.3	--	1	A
Aroclor 1221	ND		ug/kg	21.3	--	1	A
Aroclor 1232	ND		ug/kg	21.3	--	1	A
Aroclor 1242	ND		ug/kg	21.3	--	1	A
Aroclor 1248	ND		ug/kg	14.2	--	1	A
Aroclor 1254	ND		ug/kg	21.3	--	1	A
Aroclor 1260	ND		ug/kg	14.2	--	1	A
Aroclor 1262	ND		ug/kg	7.11	--	1	A
Aroclor 1268	ND		ug/kg	7.11	--	1	A
PCBs, Total	ND		ug/kg	7.11	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	47		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	54		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-06
Client ID: VES-128 (SW) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 20:59
Analyst: AF
Percent Solids: 70%

Date Collected: 06/26/17 13:50
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	28.3	--	1	A
Aroclor 1221	ND		ug/kg	28.3	--	1	A
Aroclor 1232	ND		ug/kg	28.3	--	1	A
Aroclor 1242	ND		ug/kg	28.3	--	1	A
Aroclor 1248	ND		ug/kg	18.9	--	1	A
Aroclor 1254	ND		ug/kg	28.3	--	1	A
Aroclor 1260	ND		ug/kg	18.9	--	1	A
Aroclor 1262	ND		ug/kg	9.44	--	1	A
Aroclor 1268	ND		ug/kg	9.44	--	1	A
PCBs, Total	ND		ug/kg	9.44	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	58		30-150	B
Decachlorobiphenyl	56		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-07
Client ID: VES-128 (NW) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 21:13
Analyst: AF
Percent Solids: 94%

Date Collected: 06/26/17 14:20
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	20.8	--	1	A
Aroclor 1221	ND		ug/kg	20.8	--	1	A
Aroclor 1232	ND		ug/kg	20.8	--	1	A
Aroclor 1242	ND		ug/kg	20.8	--	1	A
Aroclor 1248	ND		ug/kg	13.8	--	1	A
Aroclor 1254	ND		ug/kg	20.8	--	1	A
Aroclor 1260	ND		ug/kg	13.8	--	1	A
Aroclor 1262	ND		ug/kg	6.92	--	1	A
Aroclor 1268	ND		ug/kg	6.92	--	1	A
PCBs, Total	ND		ug/kg	6.92	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	46		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	57		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-08
Client ID: VES-128 (N) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 21:27
Analyst: AF
Percent Solids: 95%

Date Collected: 06/26/17 14:30
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	20.4	--	1	A
Aroclor 1221	ND		ug/kg	20.4	--	1	A
Aroclor 1232	ND		ug/kg	20.4	--	1	A
Aroclor 1242	ND		ug/kg	20.4	--	1	A
Aroclor 1248	ND		ug/kg	13.6	--	1	A
Aroclor 1254	ND		ug/kg	20.4	--	1	A
Aroclor 1260	ND		ug/kg	13.6	--	1	A
Aroclor 1262	ND		ug/kg	6.79	--	1	A
Aroclor 1268	ND		ug/kg	6.79	--	1	A
PCBs, Total	ND		ug/kg	6.79	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	45		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	62		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-09
Client ID: VES-128 (NE) 0-2
Sample Location: BOSTON, MA

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 07/01/17 21:41
Analyst: AF
Percent Solids: 87%

Date Collected: 06/26/17 14:50
Date Received: 06/27/17
Field Prep: Not Specified
Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	21.6	--	1	A
Aroclor 1221	ND		ug/kg	21.6	--	1	A
Aroclor 1232	ND		ug/kg	21.6	--	1	A
Aroclor 1242	ND		ug/kg	21.6	--	1	A
Aroclor 1248	ND		ug/kg	14.4	--	1	A
Aroclor 1254	ND		ug/kg	21.6	--	1	A
Aroclor 1260	ND		ug/kg	14.4	--	1	A
Aroclor 1262	ND		ug/kg	7.21	--	1	A
Aroclor 1268	ND		ug/kg	7.21	--	1	A
PCBs, Total	ND		ug/kg	7.21	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	48		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	54		30-150	B

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 07/02/17 16:56
Analyst: AF

Extraction Method: EPA 3540C
Extraction Date: 06/29/17 20:15
Cleanup Method: EPA 3665A
Cleanup Date: 06/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 07/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s):	01-09		Batch:	WG1018568-1		
Aroclor 1016	ND		ug/kg	19.8	--	A
Aroclor 1221	ND		ug/kg	19.8	--	A
Aroclor 1232	ND		ug/kg	19.8	--	A
Aroclor 1242	ND		ug/kg	19.8	--	A
Aroclor 1248	ND		ug/kg	13.2	--	A
Aroclor 1254	ND		ug/kg	19.8	--	A
Aroclor 1260	ND		ug/kg	13.2	--	A
Aroclor 1262	ND		ug/kg	6.60	--	A
Aroclor 1268	ND		ug/kg	6.60	--	A
PCBs, Total	ND		ug/kg	6.60	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	55		30-150	A
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	60		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-09 Batch: WG1018568-2 WG1018568-3									
Aroclor 1016	74		75		40-140	1		30	A
Aroclor 1260	72		75		40-140	4		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		76		30-150	A
Decachlorobiphenyl	64		67		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		72		30-150	B
Decachlorobiphenyl	68		75		30-150	B

INORGANICS & MISCELLANEOUS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID:	L1721774-01	Date Collected:	06/26/17 13:00
Client ID:	VES-128 (2-4)	Date Received:	06/27/17
Sample Location:	BOSTON, MA	Field Prep:	Not Specified
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	62.6		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-02
Client ID: VES-128 (E) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 13:10
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.1		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-03
Client ID: VES-128 (SE) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 13:20
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-04
Client ID: VES-128 (S) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 13:30
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.2		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-05
Client ID: VES-128 (W) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 14:00
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.3		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-06
Client ID: VES-128 (SW) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 13:50
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69.7		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-07
Client ID: VES-128 (NW) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 14:20
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.4		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-08
Client ID: VES-128 (N) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 14:30
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.2		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721774-09
Client ID: VES-128 (NE) 0-2
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 14:50
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	06/28/17 13:51	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Serial_No:07051712:32
Lab Number: L1721774
Report Date: 07/05/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1721774-01A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-02A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-03A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-04A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-05A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-06A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-07A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-08A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)
L1721774-09A	Glass 120ml/4oz unpreserved	A	NA		5.3	Y	Absent		TS(7),MCP-8082LL-10-3540C(365)

*Values in parentheses indicate holding time in days

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

Data Qualifiers

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

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721774
Report Date: 07/05/17

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**,

SM2130B, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.

Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**, **SM9222D**.

Non-Potable Water

SM4500H,B, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.

Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

Mansfield Facility:

Drinking Water

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

Non-Potable Water

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

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

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



CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab:

6/27/17

ALPHA Job #: L1721774

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Client Information

Client: VERTEX

Address: Congress St
Boston MA 02114

Phone: 281-917-5360

Email: ksarson@vertexeng.com

Additional Project Information:
B. Gibbons@vertexeng.com

Project Information

Project Name: Suffolk Downs

Project Location: Boston MA

Project #: 43068

Project Manager: B. Gibbons

ALPHA Quote #:

Turn-Around Time

 Standard RUSH (only confirmed if pre-approved!)

Date Due:

Report Information - Data Deliverables

AADEEx

EMAIL

Billing Information

 Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

- Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

ANALYSIS	SAMPLE INFO										TOTAL #			
	Filtration													
VOC:	<input type="checkbox"/> 8260	<input type="checkbox"/> 624	<input type="checkbox"/> 524.2	Field										
SVOC:	<input type="checkbox"/> ABN	<input type="checkbox"/> PAH	Lab to do											
METALS:	<input type="checkbox"/> MCP 13	<input type="checkbox"/> MCP 14	<input type="checkbox"/> RCP 15	Preservation										
EPH:	<input type="checkbox"/> RCRA5	<input type="checkbox"/> RCRA8	<input type="checkbox"/> PP13	Lab to do										
VPH:	<input type="checkbox"/> Ranges & Targets	<input type="checkbox"/> Ranges Only	PCB											
TPH:	<input type="checkbox"/> Quant Only	<input type="checkbox"/> Fingerprint	PEST											
PCP: <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Sediment <input type="checkbox"/> Other														

Sample Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials								
		Date	Time										
21774-01	VES-128 (2-4)	6/26/17	1300	Soil	KS								
2	VES-128 (E) 0-2		1310										
3	VES-128 (SE) 0-2		1320										
4	VES-128 (S) 0-2		1330										
5	VES-128 (W) 0-2		1400										
6	VES-128 (SW) 0-2		1350										
7	VES-128 (NW) 0-2		1420										
8	VES-128 (N) 0-2		1430										
9	VES-128 (NE) 0-2		1450										

Container Type

P= Plastic

A= Amber glass

V= Vial

G= Glass

B= Bacteria cup

C= Cube

O= Other

E= Encore

D= BOD Bottle

Preservative

A= None

B= HCl

C= HNO₃D= H₂SO₄

E= NaOH

F= MeOH

G= NaHSO₄H= Na₂S₂O₃

I= Ascorbic Acid

J= NH₄Cl

K= Zn Acetate

O= Other

Container Type

A

Preservative

A

Relinquished By:	Date/Time	Received By:	Date/Time
<i>John Sengs</i>	6/27/17 10:25	<i>John Sengs</i>	6/27/17 10:25
<i>John Sengs AAL</i>	6/27/17 12:00	<i>John Sengs CM</i>	6/27/17 12:00

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

FORM NO: 01-01 (rev. 12-Mar-2012)



ANALYTICAL REPORT

Lab Number:	L1721775
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	07/05/17

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

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

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1721775-01	VES-107 (4-6)	SOIL	BOSTON, MA	06/26/17 10:45	06/27/17
L1721775-02	VES-107 (N) 2-4	SOIL	BOSTON, MA	06/26/17 07:45	06/27/17
L1721775-03	VES-107 (NW) 2-4	SOIL	BOSTON, MA	06/26/17 08:15	06/27/17
L1721775-04	VES-107 (NE) 2-4	SOIL	BOSTON, MA	06/26/17 08:45	06/27/17
L1721775-05	VES-107 (SW) 2-4	SOIL	BOSTON, MA	06/26/17 11:15	06/27/17
L1721775-06	TEST BARN 1 (2-4)	SOIL	BOSTON, MA	06/26/17 11:45	06/27/17
L1721775-07	TEST BARN 2 (2-4)	SOIL	BOSTON, MA	06/26/17 11:55	06/27/17
L1721775-08	VES-133 (5-7)	SOIL	BOSTON, MA	06/26/17 15:00	06/27/17

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	NO
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Case Narrative (continued)

MCP Related Narratives

Sample Receipt

In reference to question H:

A Matrix Spike was not submitted for the analysis of Metals and Hexavalent Chromium.

Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

Chromium, Hexavalent

LCS/LCSD SRM Lot#: ERA D093-921

In reference to question A:

L1721775-08: The analyses of pH and ORP were performed beyond the required 24hr holding time specified per the Sample Collection, Preservation, and Handling Procedures for Hexavalent Chromium (Cr(VI)) by WSC-CAM-VI B.

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

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/05/17

METALS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-01
Client ID: VES-107 (4-6)
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 84%

Date Collected: 06/26/17 10:45
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	5.35		mg/kg	0.464	--	1	06/28/17 21:15	06/29/17 23:33	EPA 3050B	97,6010C	AB



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-02
Client ID: VES-107 (N) 2-4
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 88%

Date Collected: 06/26/17 07:45
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	3.37		mg/kg	0.441	--	1	06/28/17 21:15	06/29/17 23:38	EPA 3050B	97,6010C	AB

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-03
Client ID: VES-107 (NW) 2-4
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 90%

Date Collected: 06/26/17 08:15
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	3.20		mg/kg	0.437	--	1	06/28/17 21:15	06/29/17 23:42	EPA 3050B	97,6010C	AB

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-04
Client ID: VES-107 (NE) 2-4
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 87%

Date Collected: 06/26/17 08:45
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	4.00		mg/kg	0.449	--	1	06/28/17 21:15	06/29/17 23:46	EPA 3050B	97,6010C	AB

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-05
Client ID: VES-107 (SW) 2-4
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 76%

Date Collected: 06/26/17 11:15
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	9.89		mg/kg	0.522	--	1	06/28/17 21:15	06/29/17 23:51	EPA 3050B	97,6010C	AB

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID:	L1721775-06		Date Collected:	06/26/17 11:45	
Client ID:	TEST BARN 1 (2-4)		Date Received:	06/27/17	
Sample Location:	BOSTON, MA		Field Prep:	Not Specified	
Matrix:	Soil				
Percent Solids:	80%				

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	14.7		mg/kg	0.491	--	1	06/28/17 21:15	06/29/17 23:55	EPA 3050B	97,6010C	AB



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-07
Client ID: TEST BARN 2 (2-4)
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 77%

Date Collected: 06/26/17 11:55
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	12.6		mg/kg	0.516	--	1	06/28/17 21:15	06/30/17 00:00	EPA 3050B	97,6010C	AB

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-08
Client ID: VES-133 (5-7)
Sample Location: BOSTON, MA
Matrix: Soil
Percent Solids: 45%

Date Collected: 06/26/17 15:00
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
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MCP Total Metals - Mansfield Lab

Chromium, Total	74.7	mg/kg	0.875	--	1	06/28/17 21:15	06/30/17 00:19	EPA 3050B	97,6010C	AB
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Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1018085-1									
Arsenic, Total	ND	mg/kg	0.400	--	1	06/28/17 21:15	06/29/17 20:25	97,6010C	AB
Chromium, Total	ND	mg/kg	0.400	--	1	06/28/17 21:15	06/29/17 20:25	97,6010C	AB

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1018085-2 WG1018085-3 SRM Lot Number: D093-540								
Arsenic, Total	94		102		70-130	8		30
Chromium, Total	102		102		80-120	0		30

INORGANICS & MISCELLANEOUS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID:	L1721775-01	Date Collected:	06/26/17 10:45
Client ID:	VES-107 (4-6)	Date Received:	06/27/17
Sample Location:	BOSTON, MA	Field Prep:	Not Specified
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-02
Client ID: VES-107 (N) 2-4
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 07:45
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.3		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-03
Client ID: VES-107 (NW) 2-4
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 08:15
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.1		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-04
Client ID: VES-107 (NE) 2-4
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 08:45
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.3		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-05
Client ID: VES-107 (SW) 2-4
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 11:15
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-06
Client ID: TEST BARN 1 (2-4)
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 11:45
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID: L1721775-07
Client ID: TEST BARN 2 (2-4)
Sample Location: BOSTON, MA
Matrix: Soil

Date Collected: 06/26/17 11:55
Date Received: 06/27/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.6		%	0.100	NA	1	-	06/28/17 10:40	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

SAMPLE RESULTS

Lab ID:	L1721775-08	Date Collected:	06/26/17 15:00
Client ID:	VES-133 (5-7)	Date Received:	06/27/17
Sample Location:	BOSTON, MA	Field Prep:	Not Specified
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.8	--	1	06/29/17 14:00	06/30/17 08:45	97,7196A	NH
General Chemistry - Westborough Lab										
Solids, Total	45.1	%		0.100	NA	1	-	06/28/17 10:40	121,2540G	RI
pH (H)	7.3	SU		-	NA	1	-	06/28/17 00:57	1,9045D	AS
Oxidation/Reduction Potential	27	mv		-	NA	1	-	06/28/17 03:17	68,1498	KA

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab for sample(s): 08 Batch: WG1018450-1									
Chromium, Hexavalent	ND	mg/kg	0.80	--	1	06/29/17 14:00	06/30/17 08:40	97,7196A	NH



Lab Control Sample Analysis

Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 08 Batch: WG1017679-1								
pH	100	-	-	-	99-101	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 08 Batch: WG1017680-1								
Oxidation/Reduction Potential	100	-	-	-	90-110	-	-	20
MCP General Chemistry - Westborough Lab Associated sample(s): 08 Batch: WG1018450-2 WG1018450-3								
Chromium, Hexavalent	96	-	107	-	70-129	11	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 08 QC Batch ID: WG1017679-2 QC Sample: L1721775-08 Client ID: VES-133 (5-7)						
pH (H)	7.3	7.3	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 08 QC Batch ID: WG1017680-2 QC Sample: L1721775-08 Client ID: VES-133 (5-7)						
Oxidation/Reduction Potential	27	28	mv	4		20

Project Name: SUFFOLK DOWNS
Project Number: 43068

Serial_No:07051712:38
Lab Number: L1721775
Report Date: 07/05/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1721775-01A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-01B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-02A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-02B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-03A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-03B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-04A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-04B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-05A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-05B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-06A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-06B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-07A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		MCP-AS-6010T-10(180)
L1721775-07B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		TS(7)
L1721775-08A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.3	Y	Absent		ORP-9045(1),TS(7),PH-9045(1)
L1721775-08B	Glass 120ml/4oz unpreserved/No Headspace	A	NA		5.3	Y	Absent		MCP-HEXCR7196-10(30)
L1721775-08C	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		MCP-CR-6010T-10(180)

*Values in parentheses indicate holding time in days

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

Data Qualifiers

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

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1721775
Report Date: 07/05/17

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 68 Annual Book of ASTM (American Society for Testing and Materials) Standards following extraction by SW-846 EPA Method 9045C under the requirements of MADEP BWSC, WSC-CAM-VIB. August 2004.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

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

Mansfield Facility

SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; EPA 353.2: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**, **SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**
EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.
Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

Non-Potable Water

SM4500H,B, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

Mansfield Facility:

Drinking Water

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

Non-Potable Water

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

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



CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 6/27/07

ALPHA Job #: L1721775



ANALYTICAL REPORT

Lab Number:	L1723892
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	07/20/17

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

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

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1723892-01	VES-133 (4-5)	SOIL	EAST BOSTON, MA	07/13/17 09:30	07/13/17
L1723892-02	VES-107 (S) 2-4	SOIL	EAST BOSTON, MA	07/13/17 10:30	07/13/17
L1723892-03	VES-107 (E) 2-4	SOIL	EAST BOSTON, MA	07/13/17 11:00	07/13/17
L1723892-04	VES-107 (E2) 2-4	SOIL	EAST BOSTON, MA	07/13/17 11:15	07/13/17

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Case Narrative (continued)

MCP Related Narratives

Sample Receipt

In reference to question H:

A Matrix Spike was not submitted for the analysis of Hexavalent Chromium.

Total Metals

In reference to question H:

The WG1022734-4 MS recovery, performed on L1723892-02, is outside the acceptance criteria for arsenic (214%). Re-analysis of the MS yielded an unacceptable recovery for arsenic in the range of 30-74% or >125%. The LCS recovery was within acceptance criteria for this analyte; therefore, no further action was taken.

The WG1022734-5 MSD recovery, performed on L1723892-02, is outside the acceptance criteria for arsenic (0%). Re-analysis of the MSD yielded an unacceptable recovery of <30%. The MSD % recovery is <30%, but the sample detection is above the RL. The LCS recovery is acceptable; therefore, no further action was taken.

The WG1022734-4/-5 MS/MSD RPD for arsenic (46%), performed on L1723892-02, is above the acceptance criteria.

The WG1022734-6 serial dilution analysis, associated with L1723892-02, had a %D above the acceptance criteria for arsenic (12%).

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

Hexavalent Chromium

LCS/LCSD SRM Lot#: ERA D092-921

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

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/20/17

METALS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

SAMPLE RESULTS

Lab ID: L1723892-01
Client ID: VES-133 (4-5)
Sample Location: EAST BOSTON, MA
Matrix: Soil
Percent Solids: 80%

Date Collected: 07/13/17 09:30
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Chromium, Total	32.6		mg/kg	0.494	--	1	07/14/17 20:46	07/19/17 20:27	EPA 3050B	97,6010C	PS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

SAMPLE RESULTS

Lab ID: L1723892-02
Client ID: VES-107 (S) 2-4
Sample Location: EAST BOSTON, MA
Matrix: Soil
Percent Solids: 94%

Date Collected: 07/13/17 10:30
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	38.7		mg/kg	0.415	--	1	07/14/17 20:46	07/19/17 19:53	EPA 3050B	97,6010C	PS

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

SAMPLE RESULTS

Lab ID: L1723892-03
Client ID: VES-107 (E) 2-4
Sample Location: EAST BOSTON, MA
Matrix: Soil
Percent Solids: 93%

Date Collected: 07/13/17 11:00
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	133		mg/kg	0.430	--	1	07/14/17 20:46	07/19/17 20:17	EPA 3050B	97,6010C	PS

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1022734-1									
Arsenic, Total	ND	mg/kg	0.400	--	1	07/14/17 20:46	07/19/17 18:08	97,6010C	PS
Chromium, Total	ND	mg/kg	0.400	--	1	07/14/17 20:46	07/19/17 18:08	97,6010C	PS

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1022734-2 WG1022734-3 SRM Lot Number: D093-540								
Arsenic, Total	95		102		70-130	7		30
Chromium, Total	105		102		80-120	3		30

Matrix Spike Analysis
Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1022734-4 WG1022734-5 QC Sample: L1723892-02 Client ID: VES-107 (S) 2-4												
Arsenic, Total	38.7	9.93	60.0	214	Q	37.5	0	Q	75-125	46	Q	35
Chromium, Total	14.2	16.5	27.9	83		28.4	84		75-125	2		35

Project Name: SUFFOLK DOWNS
Project Number: 43068

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L1723892
Report Date: 07/20/17

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1022734-6 QC Sample: L1723892-02 Client ID: VES-107 (S) 2-4						
Arsenic, Total	38.7	43.2	mg/kg	12	Q	10

INORGANICS & MISCELLANEOUS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

SAMPLE RESULTS

Lab ID: L1723892-01
Client ID: VES-133 (4-5)
Sample Location: EAST BOSTON, MA
Matrix: Soil

Date Collected: 07/13/17 09:30
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.0	--	1	07/15/17 09:10	07/16/17 11:53	97,7196A	NH
General Chemistry - Westborough Lab										
Solids, Total	80.1	%	0.100	NA	1	-	07/14/17 12:24	121,2540G	RI	
pH (H)	7.7	SU	-	NA	1	-	07/13/17 22:00	1,9045D	AS	
Oxidation/Reduction Potential	210	mv	-	NA	1	-	07/13/17 22:45	68,1498	AS	



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

SAMPLE RESULTS

Lab ID: L1723892-02
Client ID: VES-107 (S) 2-4
Sample Location: EAST BOSTON, MA
Matrix: Soil

Date Collected: 07/13/17 10:30
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.9		%	0.100	NA	1	-	07/14/17 12:24	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

SAMPLE RESULTS

Lab ID: L1723892-03
Client ID: VES-107 (E) 2-4
Sample Location: EAST BOSTON, MA
Matrix: Soil

Date Collected: 07/13/17 11:00
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.8		%	0.100	NA	1	-	07/14/17 12:24	121,2540G	RI



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1022862-1									
Chromium, Hexavalent	ND	mg/kg	0.80	--	1	07/15/17 09:10	07/16/17 11:51	97,7196A	NH



Lab Control Sample Analysis

Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1022404-1								
pH	100	-	-	-	99-101	-	-	-
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1022405-1								
Oxidation/Reduction Potential	100	-	-	-	90-110	-	-	20
MCP General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1022862-2 WG1022862-3								
Chromium, Hexavalent	82	-	83	-	70-129	1	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1022405-2 QC Sample: L1723892-01 Client ID: VES-133 (4-5)						
Oxidation/Reduction Potential	210	220	mv	5		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1022625-1 QC Sample: L1723892-02 Client ID: VES-107 (S) 2-4						
Solids, Total	93.9	93.9	%	0		20

Project Name: SUFFOLK DOWNS
Project Number: 43068

Serial_No:07201714:52
Lab Number: L1723892
Report Date: 07/20/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1723892-01A	Glass 120ml/4oz unpreserved/No Headspace	A	NA		3.4	Y	Absent		MCP-HEXCR7196-10(30)
L1723892-01B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		MCP-CR-6010T-10(180)
L1723892-01C	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		ORP-9045(1),TS(7),PH-9045(1)
L1723892-02A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		MCP-AS-6010T-10(180)
L1723892-02A1	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		MCP-AS-6010T-10(180)
L1723892-02B	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L1723892-02B1	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L1723892-03A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		MCP-AS-6010T-10(180)
L1723892-03B	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L1723892-04A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		HOLD-METAL(180)
L1723892-04B	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		HOLD-WETCHEM()

*Values in parentheses indicate holding time in days

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

Data Qualifiers

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

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1723892
Report Date: 07/20/17

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 68 Annual Book of ASTM (American Society for Testing and Materials) Standards following extraction by SW-846 EPA Method 9045C under the requirements of MADEP BWSC, WSC-CAM-VIB. August 2004.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

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

Mansfield Facility

SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; EPA 353.2: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**, **SM2130B**, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**
EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.
Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**,**SM9222D**.

Non-Potable Water

SM4500H,B, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**, **SM5210B**, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

Mansfield Facility:

Drinking Water

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

Non-Potable Water

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

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



CHAIN OF CUSTODY

PAGE 1 OF 1Date Rec'd in Lab: 7-13-17ALPHA Job #: L1723842

Client Information

Client: VertexAddress: 10 Congress St, 10th Fl

Boston MA 02114

Phone: 781-917-5360Email: ksarson@vertexeng.combgbobons@vertexeng.com

Additional Project Information:

Please hold VES-107 (E2)320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Project Information

Project Name: Suffolk DownsProject Location: 730 East Boston MAProject #: 43068Project Manager: B. Gibbons

ALPHA Quote #:

Turn-Around Time

 Standard RUSH (only confirmed if pre-approved!)

Date Due:

Report Information - Data Deliverables

 DADEX EMAIL

Billing Information

 Same as Client Info | PO #:

Regulatory Requirements & Project Information Requirements

- Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

SAMPLE INFO		TOTAL # BOTTLES
Filtration	<input type="checkbox"/> Field	
	<input type="checkbox"/> Lab to do	
Preservation	<input type="checkbox"/> Lab to do	
	Sample Comments	

ALPHA Lab ID (Lab Use Only)		Collection		Sample Matrix	Sampler Initials
		Date	Time		
23892-01	VES-133 (4-5)	7/13/17	0930	Soil	KS
-02	VES-107 (S) 2-4		1030		X
-03	VES-107 (E) 2-4		1100		X
-04	*VES-107 (E2) 2-4		1115		X

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO₃
D= H₂SO₄
E= NaOH
F= MeOH
G= NaHSO₄
H= Na₂S₂O₃
I= Ascorbic Acid
J= NH₄Cl
K= Zn Acetate
O= Other

Container Type

Preservative

A A

A A

Relinquished By:	Date/Time	Received By:	Date/Time
<u>K. Carson</u>	7/13/17 11:50	<u>AAC</u>	7/13/17 1150

All samples submitted are subject to
Alpha's Terms and Conditions.
See reverse side.
FORM NO: 01-01 (rev. 12-Mar-2012)



ANALYTICAL REPORT

Lab Number:	L1725283
Client:	Vertex Environmental Services, Inc. 400 Libbey Pkwy Weymouth, MA 02184
ATTN:	Bill Gibbons
Phone:	(617) 830-1540
Project Name:	SUFFOLK DOWNS
Project Number:	43068
Report Date:	07/28/17

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

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1725283-01	VES-107 (E2) 2-4	SOIL	EAST BOSTON, MA	07/13/17 11:15	07/13/17

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MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

Case Narrative

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

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

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

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

HOLD POLICY

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

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

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

Case Narrative (continued)

MCP Related Narratives

Sample Receipt

In reference to question H:

A Matrix Spike was not submitted for the analysis of Metals.

Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

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

Authorized Signature:

 Amita Naik

Title: Technical Director/Representative

Date: 07/28/17

METALS

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

SAMPLE RESULTS

Lab ID: L1725283-01
Client ID: VES-107 (E2) 2-4
Sample Location: EAST BOSTON, MA
Matrix: Soil
Percent Solids: 92%

Date Collected: 07/13/17 11:15
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	44.4		mg/kg	0.419	--	1	07/24/17 21:58	07/25/17 12:16	EPA 3050B	97,6010C	PS

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1025322-1									
Arsenic, Total	ND	mg/kg	0.400	--	1	07/24/17 21:58	07/25/17 10:51	97,6010C	PS

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

Parameter	LCS	LCSD		%Recovery		RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual	Limits			
MCP Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1025322-2 WG1025322-3 SRM Lot Number: D093-540								
Arsenic, Total	96		106		70-130	10		30

INORGANICS & MISCELLANEOUS



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

SAMPLE RESULTS

Lab ID: L1725283-01
Client ID: VES-107 (E2) 2-4
Sample Location: EAST BOSTON, MA
Matrix: Soil

Date Collected: 07/13/17 11:15
Date Received: 07/13/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.4		%	0.100	NA	1	-	07/24/17 10:49	121,2540G	JK



Project Name: SUFFOLK DOWNS
Project Number: 43068

Serial_No:07281714:49
Lab Number: L1725283
Report Date: 07/28/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1725283-01A	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L1725283-01B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		MCP-AS-6010T-10(180)

Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

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

Terms

- Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.
- Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.
- Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.
- Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.
- Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

Data Qualifiers

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

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

Report Format: Data Usability Report



Project Name: SUFFOLK DOWNS
Project Number: 43068

Lab Number: L1725283
Report Date: 07/28/17

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C**, **SM4500CN-CE**, **EPA 180.1**,

SM2130B, **SM4500CI-D**, **SM2320B**, **SM2540C**, **SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2**: THMs and VOCs; **EPA 504.1**: EDB, DBCP.

Microbiology: **SM9215B**; **SM9223-P/A**, **SM9223B-Colilert-QT**, **SM9222D**.

Non-Potable Water

SM4500H,B, **EPA 120.1**, **SM2510B**, **SM2540C**, **SM2320B**, **SM4500CL-E**, **SM4500F-BC**, **SM4500NH3-BH**, **EPA 350.1**: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, **SM4500NO3-F**, **EPA 353.2**: Nitrate-N, **EPA 351.1**, **SM4500P-E**, **SM4500P-B**, **E**, **SM4500SO4-E**, **SM5220D**, **EPA 410.4**,

SM5210B, **SM5310C**, **SM4500CL-D**, **EPA 1664**, **EPA 420.1**, **SM4500-CN-CE**, **SM2540D**.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.

Microbiology: **SM9223B-Colilert-QT**; **Enterolert-QT**, **SM9221E**.

Mansfield Facility:

Drinking Water

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

Non-Potable Water

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

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

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



8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

CHAIN OF CUSTODY

PAGE 1 OF 1

DM 7/22/17 L1725283

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Client Information

Client: Vertex

Address: One Congress St., 10th Fl
Boston, MA 02114

Phone: 781-917-5360

Email: ksarson@vertexeng.com

bgrubbs@vertexeng.com

Additional Project Information:

Please hold VES-107 (E2)

Project Information

Project Name: Suffolk Downs

Project Location: 730 East Boston MA

Project #: 43068

Project Manager: B. Gibbons

ALPHA Quote #:

Turn-Around Time

Standard

RUSH (only confirmed if pre-approved!)

Date Due:

Date Rec'd in Lab: 7-13-17

ALPHA Job #: L1725283

Billing Information

Same as Client Info | PO #:

Regulatory Requirements & Project Information Requirements

- Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program

Criteria

ANALYSIS	MCP-AS-6010T-10, TS										TOTAL				
	VOC: <input type="checkbox"/> 8260	<input type="checkbox"/> 624	<input type="checkbox"/> 524.2	PAH	METALS: <input type="checkbox"/> MCP 13	<input type="checkbox"/> MCP 14	<input type="checkbox"/> RCP 15	EPH: <input type="checkbox"/> RCR45	<input type="checkbox"/> RCR48	<input type="checkbox"/> PP13	TPH: <input type="checkbox"/> Ranges & Targets	<input type="checkbox"/> Ranges Only	PCB	<input type="checkbox"/> PEST	<input type="checkbox"/> Quant Only
Preservation										Filtration					
<input type="checkbox"/> Lab to do										<input type="checkbox"/> Field					
<input type="checkbox"/> Lab to do										<input type="checkbox"/> Lab to do					
Sample Comments															

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials
23892-01	VES-133 (4-5)	7/13/17	0930	Soil	KS
-02	VES-107 (S) 2-4		1030		
-03	VES-107 (E) 2-4		1100		
25283-01	*VES-107 (E2) 2-4		1115		

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO₃
D= H₂SO₄
E= NaOH
F= MeOH
G= NaHSO₄
H= Na₂S₂O₃
I= Ascorbic Acid
J= NH₄Cl
K= Zn Acetate
O= Other

Container Type

Preservative

A A

A A

Relinquished By: <u>JK</u>	Date/Time: <u>7/13/17 11:50</u>	Received By: <u>JAG</u>	Date/Time: <u>7/13/17 11:50</u>
SAU	7/13/17 1730	Tamara	7/13/17 1730

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

FORM NO: 01-01 (rev. 12-Mar-2012)