River's Edge
484 – 490 Boston Post Road
Wayland, Massachusetts

RTN 3-36013

RIVER'S EDGE RAM INTERIM STATUS REPORT NO. 1

MARCH 30, 2021

PREPARED FOR:
Alta River's Edge, LLC
91 Hartwell Avenue
Lexington, MA 02421

SUBMITTED TO:
Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

PREPARED BY:
The Vertex Companies, Inc.
100 North Washington Street, Suite 302
Boston, MA 02114
PHONE 617.275.5407

VERTEX PROJECT NO: 67404

RELEASE TRACKING NUMBER (RTN): 3-36013

March 30, 2021

Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

Subject: **Release Abatement Measure Interim Status Report No. 1**
River's Edge Development
484-490 Boston Post Road
Wayland, Massachusetts
VERTEX Project No. 67404
Release Tracking Number 3-36013

Attention Bureau of Waste Site Cleanup:

The Vertex Companies, Inc. (VERTEX) prepared this Release Abatement Measure (RAM) Interim Status Report for the release listed by the Massachusetts Department of Environmental Protection (MassDEP) under Release Tracking Number (RTN) 3-36013 associated with semi-volatile organic compounds (SVOCs), lead, antimony, and copper in soil and dissolved nickel, dissolved arsenic, and ammonia in groundwater at the above-referenced property (the Site). This Status Report was prepared VERTEX on behalf of the Alta River's Edge, LLC, an Eligible Person as defined by the Massachusetts Contingency Plan (MCP) pursuant to the request of the MassDEP and in accordance with 310 CMR. 40.0441, 40.0443(3), and 40.0445.

Sincerely,

The Vertex Companies, Inc.

Kristen Sarson
Project Manager

William J. Gibbons, PG, LSP
Senior Project Manager

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FIGURES

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APPENDICES

1.0 INTRODUCTION

On behalf of Alta River's Edge, LLC (Alta), The Vertex Companies, Inc. (VERTEX) prepared this Release Abatement Measure (RAM) Interim Status Report pursuant to a request received from the Massachusetts Department of Environmental Protection (MassDEP) in an email on March 4, 2021 and in accordance with 310 CMR 40.0441. The purpose of this Interim Status Report is to provide additional information regarding existing environmental conditions referenced under release tracking number (RTN) 3-36013 and the stabilization of soils proposed as part of RAM activities. The RAM Plan was submitted to the MassDEP on January 8, 2021. This is the first RAM Status Report for the Site.

The Disposal Site associated with RTN 3-36013 (the "Site") consists of areas on a vacant 8.25-acre parcel of land in Wayland, Massachusetts (the "property") where metals and semi-volatile organcic compounds have been detected in soils at concentrations exceeding the Massachusetts Contingency Plan (MCP) RCS-1 Reportable Concentrations and where dissolved metals and ammonia have been detected in groundwater at concentrations exceeding the MCP RCGW-1 Reportable Concentrations for groundwater. The property is identified by the Town of Wayland Assessor as Map 22, Lot 6 and will be developed for multi-family residential use by Alta. The latitude and longitude of the approximate center of the property is 42.36413 degrees north and -71.38208 degrees west. A locus map adopted from the 2012 United States Geological Survey, Framingham 7.5 minute Topographic Quadrangle, is provided as Figure 1. A Site Schematic showing the general layout of the Site and property, property boundary, and the area where soil is to be excavated and/or stockpiled within the Site boundaries (also referred to henceforth as the RAM Area) is included as Figure 2.

This RAM Status report has been submitted electronically to the MassDEP along with MassDEP RAM Transmittal form BWSC-106 under RTN 3-36013.

1.1 Person/Entity Undertaking Response Actions and Licensed Site Professional

PERSON UNDERTAKING RESPONSE ACTIONS	LICENSED SITE PROFESSIONAL
Alta River's Edge, LLC 91 Hartwell Avenue Lexington, MA 02421	William J. Gibbons, PG, LSP The Vertex Companies, Inc. 100 North Washington Street, Suite 302 Boston, MA 02114 Tel: 617-275-5407

2.0 MASSDEP-REQUESTED INFORMATION

Ms. Leticia Ruiz-Boyle of the Northeast Regional Office of the MassDEP Bureau of Waste Site Cleanup requested the following in a phone conversation with William Gibbons of VERTEX on March 1, 2021 and in an email to Mr. Gibbons on March 4, 2021:

1. An evaluation of the potential risk to construction workers posed by inhalation of fugitive dust from RAM activities in the former firing range and calculation of a revised dust action level, if warranted;

2. Additional information regarding the California Air Resources Board (CARB) Method 435 used to prepare soil samples for asbestos analysis;

3. Additional information regarding how potentially leachable lead in soil, as determined by the Toxicity Characteristic Leaching Procedure (TCLP) will be stabilized, the distance to the nearby wetland from the soil to be stabilized, and how groundwater will be monitored in accordance with MCP section 40.0046;

4. Information regarding the soil gas sampling locations shown on the RAM Plan Site Schematic figure;

5. Additional details regarding the attribution of the dissolved arsenic, dissolved nickel, and ammonia in groundwater to migration from the off-site landfill;

6. Information regarding the presence or absence of public access to the firing range and/or the presence of public paths near the firing range;

7. Information regarding post-excavation sampling and analysis of firing range soils;

8. Information regarding the Site status.

The requested information is provided in the sections below, the numbering of which corresponds to the numbers of the requested information above.

2.1 Evaluation of Dust Action Level

As indicated in the RAM Plan, a dust action level of 0.15 milligrams per cubic meter (mg/m^3) has been established for particulate dust particles having maximum diameter of 10 micrometers

(PM10) at the perimeter of RAM Activities. This dust action level is appropriate during the stockpile RAM Activities.

Based on the concentrations of lead in soil within the firing range, the PM10 dust action level at the perimeter of RAM activities at the firing range has been lowered to 0.063 mg/m^3. This dust action level was derived by the maximum detected lead concentration in firing range soils. Real time perimeter dust monitoring will be conducted during RAM activities and dust mitigation will be implemented if average hourly dust levels resulting from RAM activities within the firing range exceed the 0.063 mg/m^3 action level as recorded hourly.

If required, dust mitigation may include, but not be limited to spraying of the work area with water or other dust suppression agents, limiting work or worker access to maintain lower dust levels, and/or placement of a cover or shroud to reduce potential dust emissions. If downwind dust levels attributable to RAM activities exceed the action level for a continuous period of one hour, the earthwork activities causing the dust will be stopped, water or other dust suppression agents will be applied, and workers will be removed from the dust area until the dust levels return below the action level.

2.2 Information Regarding CARB Method 435

Soil samples analyzed for asbestos were prepared at the laboratory using the CARB 435 sample preparation method prior to analysis by United States Environmental Protection Agency (USEPA) Method 600/R-93/166 using polarized light microscopy (PLM). The CARB 435 preparation method was identified as the analysis method in the VERTEX Non-Traditional Work Plan (NTWP) submitted on November 16, 2018, and was approved by the MassDEP on November 26, 2018. In addition, MassDEP has approved the use of the CARB 435 Method for analysis of asbestos in soil on other sites. The CARB 435 sample preparation method involves an initial grinding process to make the inherently heterogeneous soil samples more homogenous. This results in a sample aliquot that is more representative of the entire sample rather than a traditional non-prepared aliquot and thereby yields more reproducible and accurate results. The prepared sample was

then analyzed by the PLM method using a 400 point-count method to quantify the asbestos percentage. The laboratory results for every soil sample indicated that no asbestos fibers were observed, and that 0.00% asbestos was detected. The laboratory's stated 0.25% "limit of detection" should not be interpreted to mean that a concentration of less than 0.25% asbestos would not be reported, rather it is the smallest concentration of the analyte (asbestos fibers in this case) that the method can reliably distinguish in a field sample and a laboratory result of No Asbestos Fibers Observed and 0.00% asbestos means that the laboratory saw zero asbestos in the sample (either during the initial stereoscopic analysis of the sample aliquot, at any of the 400 points counted during the PLM analysis, or between any of the points counted during the PLM analysis).

No asbestos was detected in any of the 95 soil samples that were analyzed for asbestos.

2.3 Soil Stabilization and Remedial Additive Groundwater Monitoring

Based on the detection of lead at a concentration exceeding the RCRA TLCP threshold for classification of characteristic hazardous wastes, and area of soil delineated within stockpile characterization cell E-7 and soil within the former firing range, up to a depth of 2 feet below ground surface (bgs) (with the exception of the material directly beneath the firing range berm which is anticipated to extend to 4 feet bgs), will be stabilized to render the soil non-hazardous prior to excavation.

2.3.1 Stabilization Procedure

Soil to be stabilized within the firing range will be excavated and stockpiled on polyethylene sheeting within the firing range footprint. Stockpiles will be formed and maintained in accordance with the definitions of in-situ treatment as included in the August 2010 MassDEP Technical Update "Considerations for Managing Contaminated Soil: RCRA Land Disposal Restrictions and Contained-In Determinations." Soil to be stabilized within cell E-7 will be treated in place. At no time prior to stabilization will the soil be removed from the area of the

contaminated soil at the firing range or moved from its location in cell E7, nor will it be placed into containers.

A 75% phosphoric acid solution (Chemical Solutions, Inc. Phos-75) will be applied to the stockpile using a wand sprayer at a dose rate between 0.25% and 0.5% by volume of soil (based on the lead concentrations and physical soil characteristics). Phos-75 was selected as the stabilization agent because of its effectiveness and viscosity. The agent has a syrup-like viscosity which enables greater control over the application and increased contact time with the impacted soil particles. The manufacturer's Safety Data Sheet for Phos-75 is included in Appendix B.

Following application, the treated soil will be tilled mechanically using an excavator to mix the reagent with the soil until proper contact and mixing is achieved throughout. Following mixing activities, the stockpile will be covered with polyethylene sheeting to prevent stormwater infiltration through the soil following stabilization activities prior to off-site disposal. To confirm the efficacy of the reagent, VERTEX will collect post-stabilization confirmatory samples from the stockpile at a frequency of one sample per 100 tons. The samples will be submitted to a laboratory for TCLP extraction and lead analysis. If extractable lead in confirmatory samples exceeds 5 milligrams per liter (mg/L), the stockpile will be retreated according to the steps detailed above and the efficacy of the retreatment will be confirmed, as above, by sampling and laboratory analysis.

2.3.2 On-Site Monitoring

According to a September 2020 wetland delineation survey, completed by Allen & Major Associates, Inc. of Woburn, Massachusetts, and approved by the Town of Wayland Conservation Commission, the stabilization area is located outside of the 50-foot wetland buffer. A copy of the Allen & Major Associates, Inc. survey plan, with the area of the firing range superimposed, demonstrates that the stabilization area is located outside the buffer. The survey plan is included in Appendix C. Additionally, based upon the depth of impacted soil (2-feet bgs, with the exception of the area below the berm which is anticipated to extend to 4-feet bgs), the depth of

groundwater in the area (approximately 15 feet bgs), and the method of stabilization (on polyethylene), a pathway for migration of the stabilization additives to the groundwater does not exist. Based on this information, 310 CMR 40.0046(3) is not applicable to the Site.

However, VERTEX recognizes the MassDEP's concerns associated with the abutting wetland. To address MassDEP's concerns, VERTEX will complete the following groundwater monitoring before and following stabilization activities in accordance with 310 CMR 40.0046:

- Prior to Stabilization Activities:
    - Two additional groundwater monitoring wells will be installed, one between the firing range and the wetland to the north and one between the large soil stockpile and the wetland to the north.
    - Groundwater samples will be collected from the two newly installed monitoring wells and from existing hydraulically upgradient monitoring well V-106 (MW) in general accordance with USEPA low-flow sampling techniques. The three groundwater samples will be submitted for laboratory analysis of:
        - Phosphorus by USEPA Method SM 18-20 4500;
        - Dissolved antimony, copper, and lead by USEPA Method 6010; and
        - pH.
- Following Stabilization Activities:
    - Groundwater samples will be collected from the same three monitoring wells sampled prior to stabilization and in general accordance with USEPA low-flow sampling techniques. The three groundwater samples will be submitted for laboratory analysis of:
        - Phosphorus by USEPA Method SM 18-20 4500;
        - Dissolved antimony, copper, and lead by USEPA Method 6010; and
        - pH.

We expect to include the results of these groundwater samples in the next RAM Status Report for RTN 3-36013, which is scheduled to be submitted on May 8, 2021.

2.4 Post-Excavation Confirmatory Sampling

Following the treatment and off-site disposal of the impacted firing range soils, VERTEX will collect confirmatory soil samples along the northern, western, southern, and eastern sidewalls of the excavation. The soil samples will be analyzed for total antimony, copper, and lead. The analytical results will be used to calculate Exposure Point Concentrations for these elements, for use in a risk characterization.

2.5 Soil Vapor Sample Collection

On April 9, 2019, soil vapor investigation points were advanced using a Kerfoot-Technologies, Inc. KVA soil vapor sampling system. The KVA system uses a hammer drill and probe rod to drill a pilot hole, into which a probe system is inserted to extend sample intake tubing to the desired depth. The KVA soil-vapor tubing was extended to a depth of 5 feet bgs, the bore holes were backfilled with silica sand, and an airtight seal was created at the surface using hydrated bentonite.

Prior to sampling, the tubing was purged using a four-gas meter, and the maximum LEL reading was recorded. After purging, soil-vapor samples were collected using 6-liter (L) batch-certified summa canisters equipped with flow regulators set to draw a sample at a maximum rate of 200 milliliter per minute. Soil vapor samples were transferred via chain of custody and submitted to Con-Test Laboratory of East Longmeadow, Massachusetts (Con-Test) for analysis of methane by USEPA Method 3C.

Field screening with the four-gas meter detected flammable gas at concentrations ranging from 1% of the lower explosive limit (LEL) at sample location V-SG-101 to 10% of the LEL at sample location V-SG-106. Carbon monoxide was also detected during the field screening at concentrations ranging from 11 parts per million by volume (ppmv) at sample location V-SG-104 to 120 ppmv in at sample location V-SG-106. The methane and carbon monoxide were detected almost immediately following the connection of the four-gas meter but dissipated to 0 ppmv after less than one-minute.

Based on the laboratory analytical results, methane was not detected above the laboratory detection limit of 50 ppmv (equivalent to 0.1% of the LEL) in soil vapor samples V-SG-101 through V-SG-106. Soil vapor screening and sampling locations are shown on Figure 2, the results of the soil vapor analytical results are presented on Table 1, and a copy of the laboratory analytical report is included in Appendix A.

2.6 Groundwater Evaluation

Analysis of groundwater samples collected during pre-purchase due-diligence activities, as summarized in the RAM Plan, detected dissolved arsenic, dissolved nickel, and ammonia at the Site at concentrations exceeding applicable MCP RCGW-1 Reportable Concentrations. These exceedances were reported to the MassDEP and are included under RTN 3-36013.

We anticipate that these exceedances will be addressed in a Downgradient Property Status (DPS) Opinion. The DPS Opinion will cite various lines of evidence that indicate the metals and ammonia are originating from the upgradient Sudbury Landfill. The lines of evidence to be cited are anticipated to include:

- Dissolved arsenic has historically and consistently been detected at elevated concentrations in groundwater samples collected at the Sudbury Landfill;
- Groundwater flows from west to east, toward the Sudbury River; and
- The highest detected concentrations of dissolved arsenic, dissolved nickel, and ammonia were detected at the Site's upgradient property line abutting the landfill.

VERTEX will monitor dewatering and on-site recharge of groundwater during RAM Activities at the Site to document that the recharge does not result in surface breakout or water table mounding that may affect the direction of groundwater flow outside the area of recharge. Additionally, the development of the property will not impede any environmental response actions that may be required to address groundwater impacts at the Site.

2.7 Public Access at and Near Former Firing Range

There is no public access to or public paths near the former firing range.

2.8 Site Status

Ownership of the property was transferred from the Town of Wayland to Alta River's Edge, LLC on February 22, 2021. Demolition of the former on-site wastewater treatment building began on March 8, 2021.

RAM activities began March 8, 2021 with the excavation and loading of the Town of Wayland stockpiled soils for off-site disposal. Stabilization of TCLP-lead at the former firing range and in characterization cell E7 of the large stockpile will commence soon after submittal of this Status Report.

RAM duration is currently estimated to be approximately 1 year, with subsurface activities at the site anticipated to end in spring 2022.

3.0 RELEASE ABATEMENT MEASURE STATUS

The RAM Plan submitted to the MassDEP on January 8, 2021, outlined the methods to be used to comply with the MCP environmental management requirements for excavation activities to remove the 4,500 cubic yard and 32,000 cubic yard stockpiles from the Site, and stabilize and remove the antimony, copper, and lead impacted soil from the firing range.

3.1 RAM Activities

RAM activities completed at the Site up to March 26, 2021, were completed in accordance with the RAM Plan and are described further below:

- Between March 9, 2021 and March 24, 2021, the 4,500 cubic yard stockpile was excavated and transported to approved facilities for reuse.
- Starting March 24, 2021, excavation, and transportation to approved facilities commenced for the 32,000 cubic yard stockpile (excluding cell E7).

3.2 Additional Stockpile Sampling

Between February and March 2021, VERTEX collected and analyzed additional characterization samples within the 32,000 cubic yard stockpile to meet the soil acceptance criteria of various facilities. Each sample was collected as a 5-point composite from a test pit advanced within the center of the designated characterization cell. The sample identification, analysis, and purpose of each sample is included in the table below.

Sample Designation	Laboratory Analysis	Purpose
TP-C6 (5-10)_TPH1	TPH	Additional TPH analysis for Asphalt Batch Plant Approval
TP-C6 (5-10)_TPH2		
TP-C6 (5-10)_TPH3		
TP-C6 (5-10)_TPH4		
TP-C6 (5-10)_TPH5		
TP-C5 (5-10)_TPH1		

Sample Designation	Laboratory Analysis	Purpose
TP-B4 (5-10)_TCLP	TCLP Lead	TCLP lead analysis due to detection of total lead above 100 mg/kg
TP-D3 (5-10)_TCLP	TCLP Lead	TCLP lead analysis due to detection of total lead above 100 mg/kg
TP-D6 (0-5)_TCLP	TCLP Lead	TCLP lead analysis due to detection of total lead above 100 mg/kg
TP-E7 (0-5)_TCLP	TCLP Lead	TCLP lead analysis due to detection of total lead above 100 mg/kg
TP-E7 (5-10)_TCLP	TCLP Lead	TCLP lead analysis due to detection of total lead above 100 mg/kg
TP-E7 (0-5)_N	5 feet north of TP-E7 (0-5)	Delineation of TCLP lead to the north
TP-E7 (5-10)_N	5 feet north of TP-E7 (5-10)	Delineation of TCLP lead to the north
TP-E7 (0-5)_E	5 feet east of TP-E7 (0-5)	Delineation of TCLP lead to the east
TP-E7 (5-10)_E	5 feet east of TP-E7 (5-10)	Delineation of TCLP lead to the east
TP-E7 (0-5)_S	5 feet south of TP-E7 (0-5)	Delineation of TCLP lead to the south
TP-E7 (5-10)_S	5 feet south of TP-E7 (5-10)	Delineation of TCLP lead to the south
TP-E7 (0-5)_W	5 feet west of TP-E7 (0-5)	Delineation of TCLP lead to the west
TP-E7 (5-10)_W	5 feet west of TP-E7 (5-10)	Delineation of TCLP lead to the west

*TPH = Total petroleum hydrocarbons
*TCLP extraction by USEPA Method 1311 followed by analysis of lead by USEPA Method 6010D

Based on the analytical results, TCLP extractable lead concentrations exceeding the RCRA threshold for classification of characteristic hazardous wastes was detected in characterization cell E-7 in the 0 to 5 foot and 5 to 10-foot bgs depth intervals. To delineate the extent of the TCLP lead, VERTEX oversaw the advancement of four additional test pits, 5 feet horizontally, in each compass direction, from the original samples collected from cell E-7 and at the same depths. VERTEX collected one five-point composite from each test pit from the 0 to 5 foot bgs and from the 5 to 10 foot bgs depth intervals and submitted each sample to Con-Test for analysis of total lead by USEPA Method 6010D, and for TCLP extraction by USEPA Method 1311 and lead analysis

by USEPA Method 6010D. Based on the analytical results, extractable lead was not detected in the eight samples at concentrations exceeding the RCRA regulatory threshold.

3.3 Future RAM Activities

The 32,000 cubic yard stockpile will continue to be excavated and transported to approved off-site facilities. Additionally, the groundwater monitoring and soil stabilization activities, as outlined in Section 2.3, will take place, followed by transportation and disposal at Waste Management Turnkey Recycling and Environmental Enterprises (TREE) in Rochester, New Hampshire. The next RAM Status Report is scheduled to be submitted on May 8, 2021.

4.0 ADDITIONAL INFORMATION

VERTEX is not aware of other new significant site information or data generated during this RAM period, necessary to complete this Status Report.

5.0 LSP OPINION

The LSP Opinion required by 310 CMR 40.0445(2)(e) is presented on the MassDEP RAM Transmittal Form BWSC-106 that accompanies this submittal. This report and BWSC-106 Transmittal Forms are being submitted electronically to the MassDEP via the eDEP online filing system.

6.0 LIMITATIONS

Our professional services have been performed, our findings obtained, and our conclusions and/or 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. Our professional opinion and the conclusions contained herein are based solely on the scope of work conducted.

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 described herein. 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.

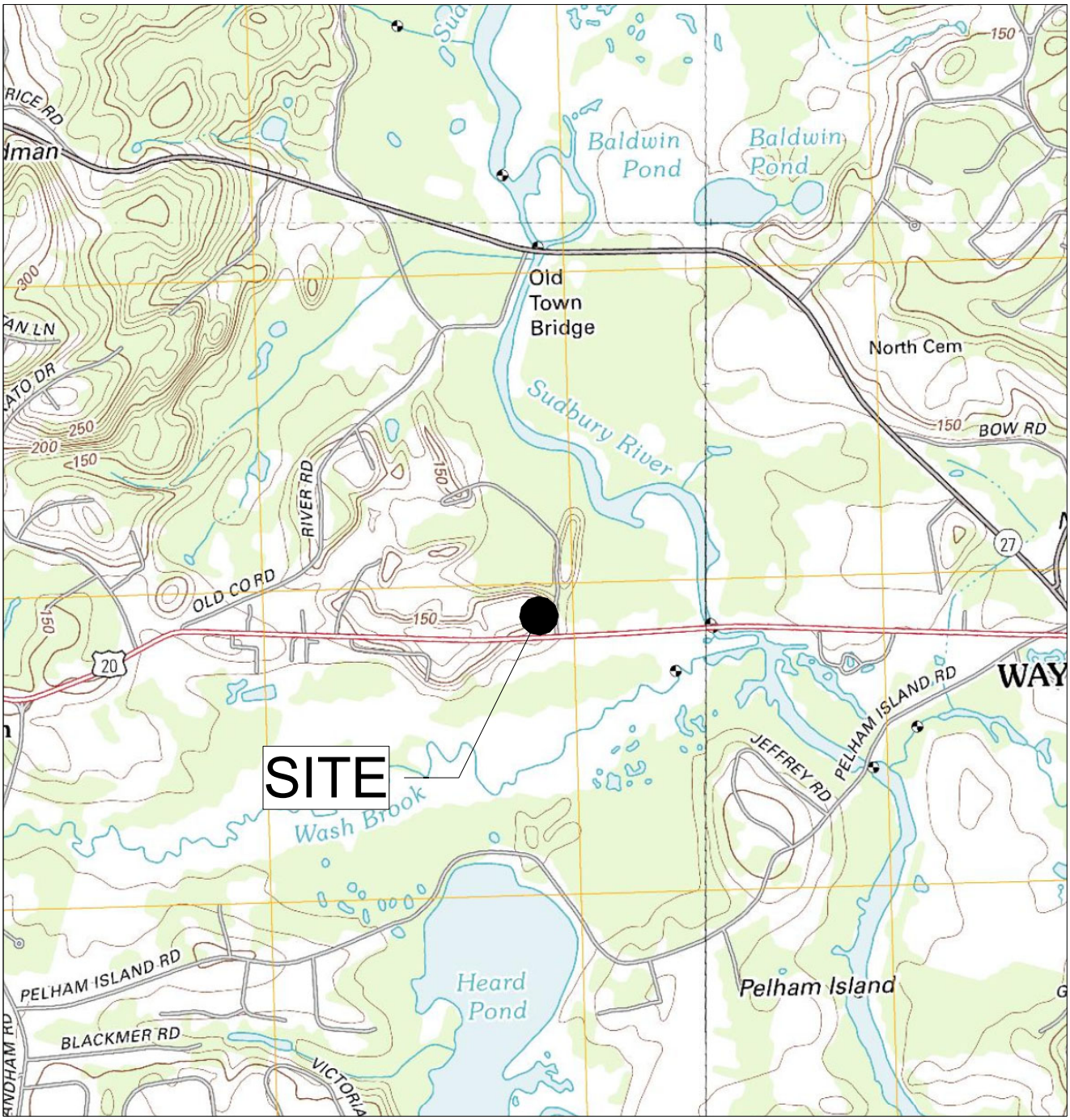
Our interpretation of the available historical information and documents reviewed, as described in this report, were also considered in the conclusions. The results of the chemical analyses that were performed on a limited number of samples of environmental media were reviewed and interpretations had been made in the text, contingent on their validity. VERTEX relied upon but did not attempt to independently verify the validity or accuracy of the findings and conclusions noted in the documentation reviewed.

The MassDEP is required to audit response actions at Disposal Sites by M.G.L. Chapter 21E s. 3A(o). This law mandates that MassDEP audit a statistically significant number of all the sites that are required to pay annual compliance assurance fees. Regulations that govern the audit process are contained in the MCP (310 CMR 40.1100). M.G.L. c. 21E and the MCP also give

the MassDEP the authority to inspect sites, collect environmental samples, and require that pertinent site information be submitted. Due to the inherent flexibility in interpreting the applicable laws, regulations and policies, the audits are often subjective and dependent on the opinion of the auditor. As a result, the auditor could require additional assessment of the Site and/or remedial action. Based on these considerations, VERTEX is not and will not be responsible for costs or other possible ramifications of any additional work required by the MassDEP or any other government or private entity.

This report is intended for the sole use of Alta River's Edge, LLC for submittal to the MassDEP. This report, in whole or in part, shall not be relied upon by any other party other than Alta River's Edge, LLC and the MassDEP, nor used in whole or in part by any other party without the written consent of The Vertex Companies, Inc. The scope of services performed during the investigation documented herein may not satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations is at the sole risk of said user.

FIGURES



N

0 0.5 1.0 1.5

SCALE: 1" = 0.5 miles
(WHEN PRINTED AT 8x11)

SOURCE: UNITED STATES GEOLOGICAL SURVEY MAP FRAMINGHAM MA QUADRANGLE 7.5 MINUTE SERIES (2012)

SITE LOCUS

RIVER'S EDGE

484 - 490 Boston Post Road
Wayland, Massachusetts

Date:	04/22/19
Drawn:	KS
Checked:	FC
Job No.:	46047

FIGURE 1

VERTEX®
VERTEXENG.COM
100 N WASHINGTON ST, 302
BOSTON, MA 02114
617.275.5407

LEGEND:

V-103 (MW) — VERTEX Monitoring Well

V-113 — Soil Boring

MW-3 — Monitoring Well Installed by Others

V-SG-101 — Soil Vapor Sample Point

32,000 cy Stockpile Material Management Area

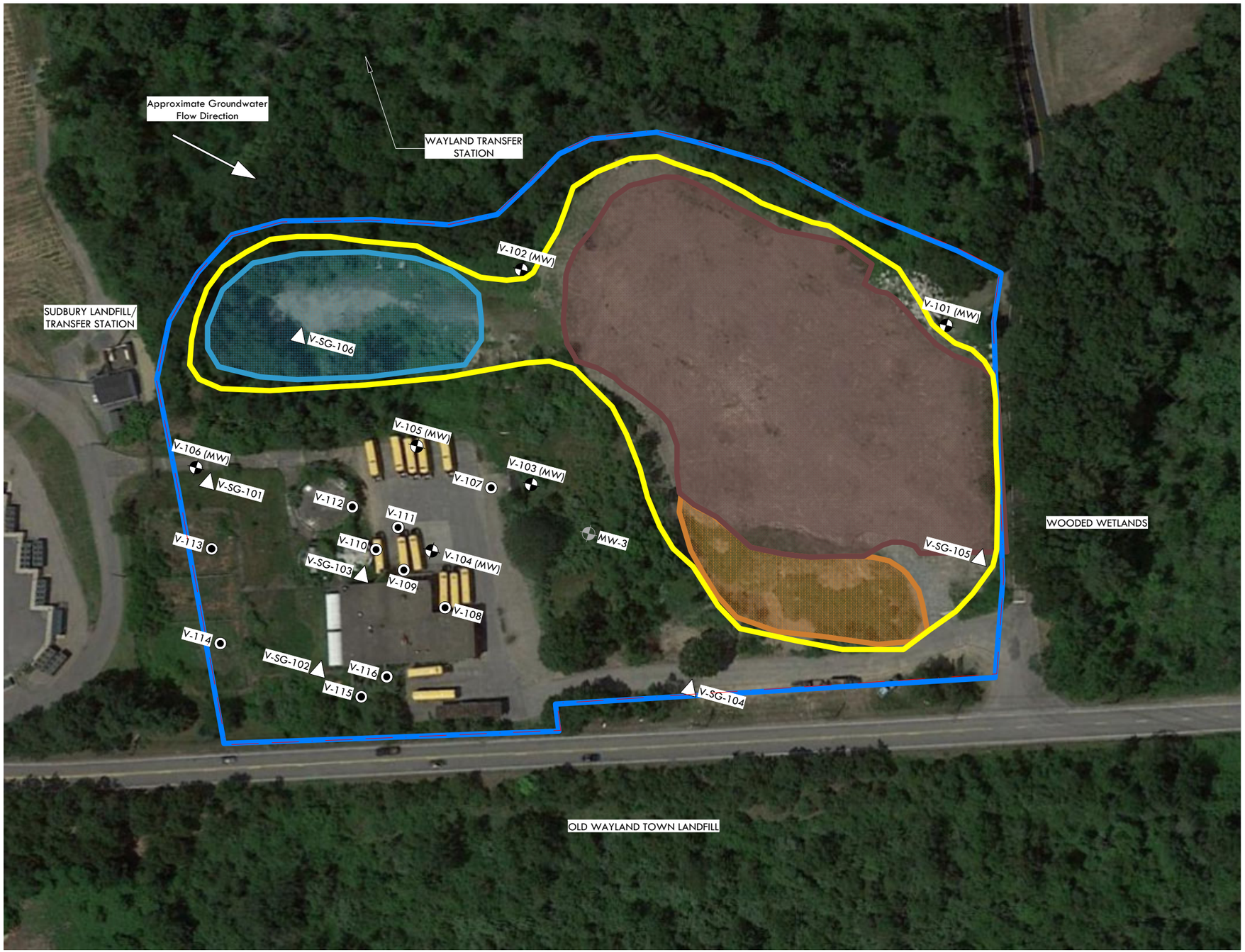
Approximate Configuration of 4,500 cy Stockpile

Former Firing Range Material Management Area

Approximate Site Boundary

RAM Area

RTN 3-36013 Boundary



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SCALE: 1" = 100'-0"
(WHEN PRINTED AT 11"x17")

SITE SCHEMATIC				REVISIONS
RIVER'S EDGE 484 - 490 BOSTON POST ROAD WAYLAND, MA	Date: 11/19/2020 Drawn: KS Checked: FC Job No.: 67404	FIGURE 2		

VERTEX
100 N WASHINGTON ST, STE 302
BOSTON, MA 02114
617.275.5407
VERTEXENG.COM

LEGEND:

B3 Test Pit Grid Number

<RCS-1 Facility

<RCS-2 Facility

Unlined Landfill

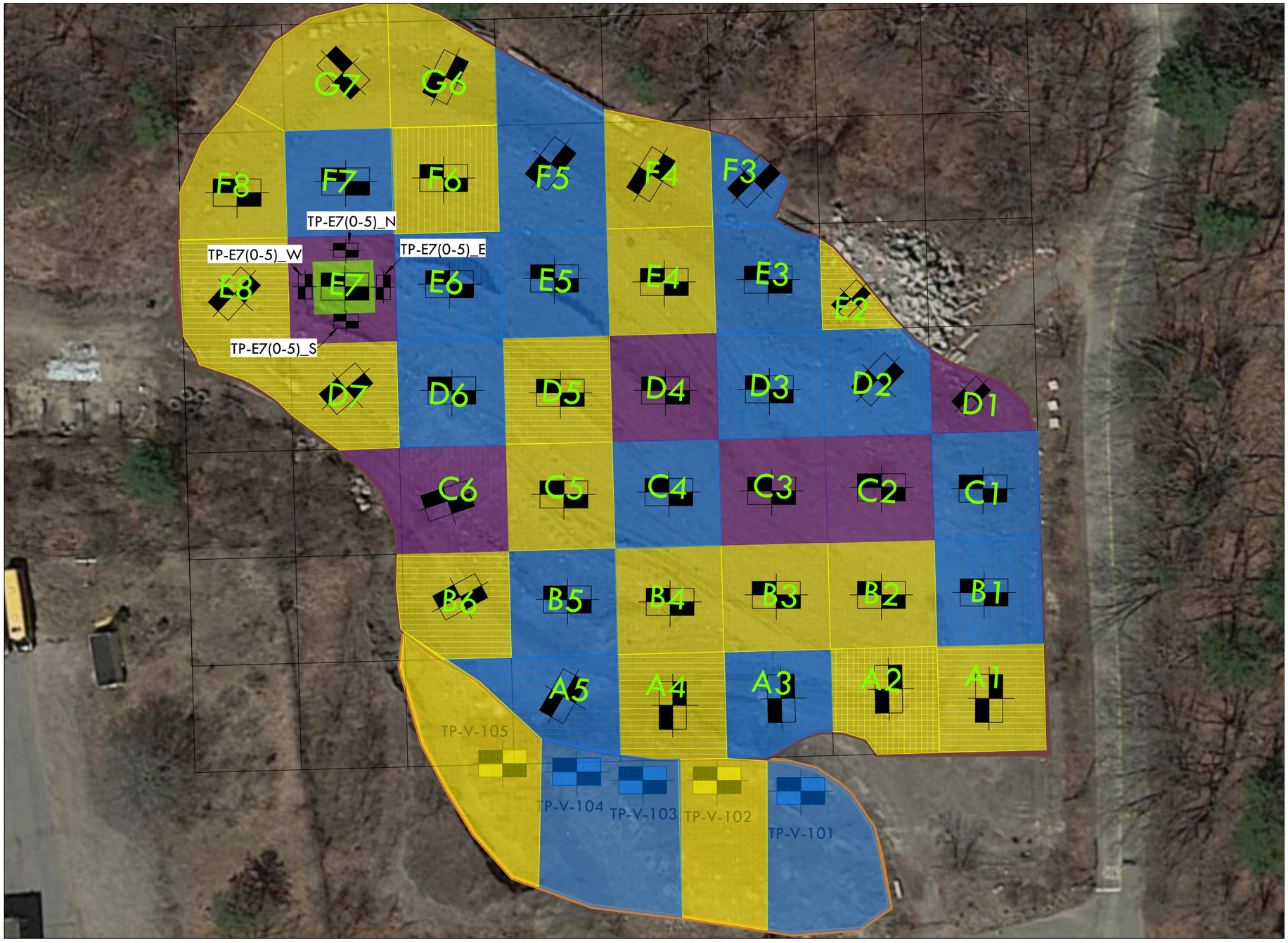
Asphalt Batch Plan

To be Stabilized & Sent to TREE

Approximate Configuration of 32,000 cy Stockpile

TP-V-101 Test Pit Location

Approximate Configuration of 4,500 cy Stockpile



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0 50 100 150

SCALE: 1" = 50'-0"
(WHEN PRINTED AT 11x17)

SOIL MANAGEMENT CLASSIFICATION 0-5 FEET

RIVER'S EDGE
484-490 BOSTON POST ROAD
WAYLAND, MA
RTN 3-36013

Date: 05/07/19
Drawn: KS
Checked: FC
Job No.: 67404

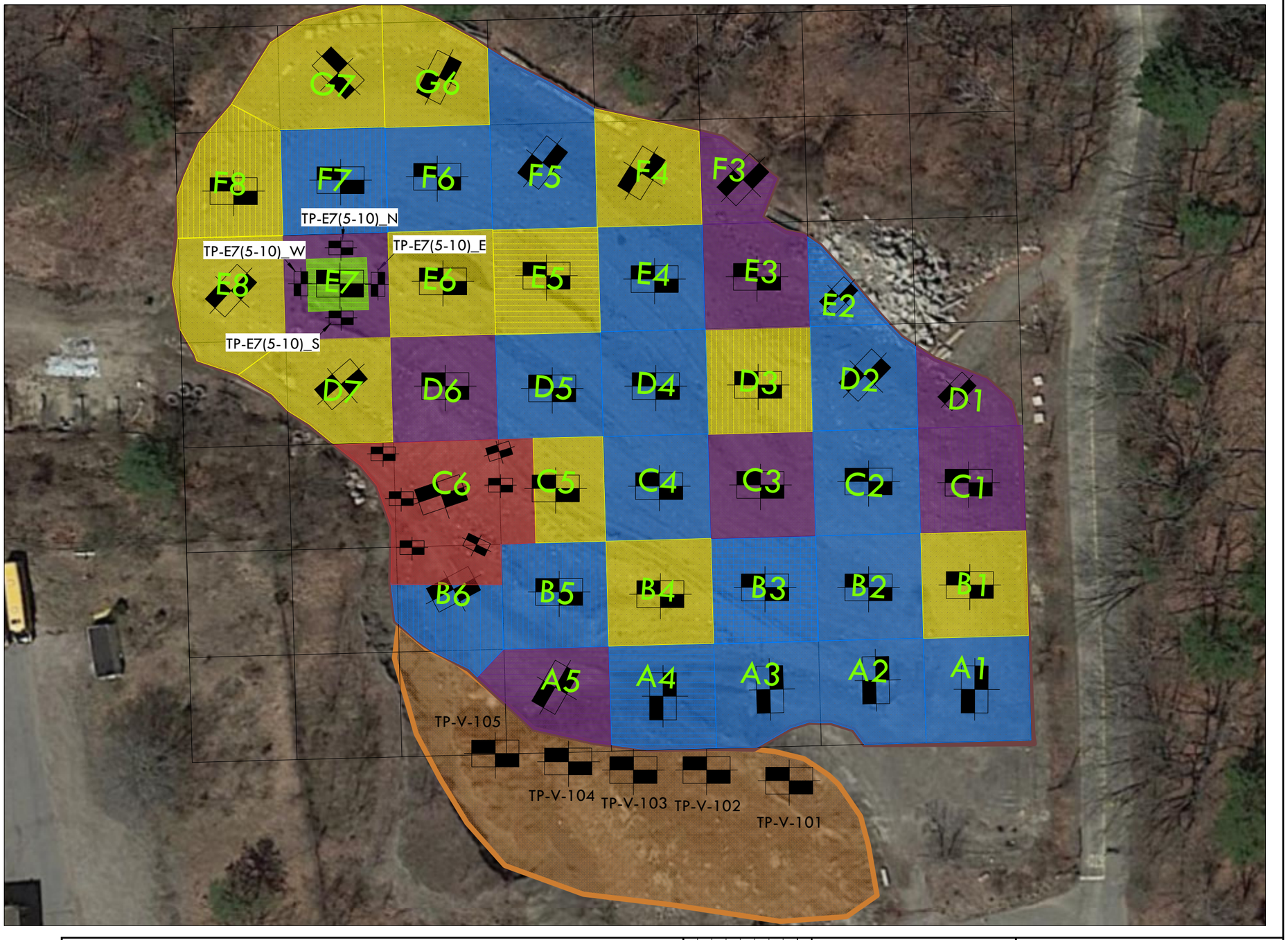
FIGURE 3A

REVISIONS	02/08/2021	03/05/2021	03/17/2021

VERTEX
100 N WASHINGTON ST, STE 302
BOSTON, MA 02114
617.275.5407
VERTEXENG.COM

LEGEND:

- B3 — Test Pit Grid Number
- <RCS-1 Facility
- <RCS-2 Facility
- Unlined Landfill
- Asphalt Batch Plan
- To be Stabilized & Sent to TREE
- Approximate Configuration of 32,000 cy Stockpile
- TP-V-101 — Test Pit Location
- Approximate Configuration of 4,500 cy Stockpile



0 50 100 150

SCALE: 1" = 50'-0"
(WHEN PRINTED AT 11x17)

SOIL MANAGEMENT CLASSIFICATION 5-10 FEET

RIVER'S EDGE
484-490 BOSTON POST ROAD
WAYLAND, MA
RTN 3-36013

Date: 05/07/19
Drawn: KS
Checked: FC
Job No.: 67404

FIGURE 3B

REVISIONS
02/08/2021
03/09/2021

VERTEX
100 N WASHINGTON ST, STE 302
BOSTON, MA 02114
617.275.5407
VERTEXENG.COM

VERTEX®

TABLES

Table 1
Summary of Soil Vapor Analytical Data
Rivers Edge
484 - 490 Boston Post Road
Wayland, MA
VERTEX PROJECT NO. 67404

Location ID	V-SG-101	V-SG-102	V-SG-103	V-SG-104	V-SG-105	V-SG-106
Sample Date	4/9/2019	4/9/2019	4/9/2019	4/9/2019	4/9/2019	4/9/2019
CHEMICAL NAME						
Methane	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)

Notes:
- Results reported in parts per million/volume (ppmv)
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report

APPENDIX A:

LABORATORY

ANALYTICAL REPORTS

con-test®
ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

April 18, 2019

Kristen Sarson
Vertex Engineering - Boston
100 North Washington St. Suite 302
Boston, MA 02114

Project Location: Wayland, MA
Client Job Number:
Project Number: 46047
Laboratory Work Order Number: 19D0546

Enclosed are results of analyses for samples received by the laboratory on April 10, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jessica L. Hoffman
Project Manager

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con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Vertex Engineering - Boston
100 North Washington St. Suite 302
Boston, MA 02114
ATTN: Kristen Sarson

REPORT DATE: 4/18/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 46047

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19D0546

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Wayland, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
V-SG-101	19D0546-01	Soil Gas		- Modified EPA 3C	
V-SG-102	19D0546-02	Soil Gas		- Modified EPA 3C	
V-SG-103	19D0546-03	Soil Gas		- Modified EPA 3C	
V-SG-104	19D0546-04	Soil Gas		- Modified EPA 3C	
V-SG-105	19D0546-05	Soil Gas		- Modified EPA 3C	
V-SG-106	19D0546-06	Soil Gas		- Modified EPA 3C	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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ANALYTICAL RESULTS

Project Location: Wayland, MA
Date Received: 4/10/2019
Field Sample #: V-SG-101
Sample ID: 19D0546-01
Sample Matrix: Soil Gas
Sampled: 4/9/2019 11:46

Sample Description/Location:
Sub Description/Location:
Canister ID: 1783
Canister Size: 6 liter
Flow Controller ID: 4300
Sample Type: 30 min

Work Order: 19D0546
Initial Vacuum(in Hg): -30
Final Vacuum(in Hg): -5
Receipt Vacuum(in Hg): -3.3
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling: <20%

Modified EPA 3C

Analyte	ppmv Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Methane	ND	50		1	4/15/19 11:27	TPH

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ANALYTICAL RESULTS

Project Location: Wayland, MA
Date Received: 4/10/2019
Field Sample #: V-SG-102
Sample ID: 19D0546-02
Sample Matrix: Soil Gas
Sampled: 4/9/2019 12:48

Sample Description/Location:
Sub Description/Location:
Canister ID: 1265
Canister Size: 6 liter
Flow Controller ID: 4288
Sample Type: 30 min

Work Order: 19D0546
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -0.5
Receipt Vacuum(in Hg): -.1
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling: <20%

Modified EPA 3C

Analyte	ppmv Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Methane	ND	50		1	4/15/19 11:47	TPH

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ANALYTICAL RESULTS

Project Location: Wayland, MA
Date Received: 4/10/2019
Field Sample #: V-SG-103
Sample ID: 19D0546-03
Sample Matrix: Soil Gas
Sampled: 4/9/2019 13:40

Sample Description/Location:
Sub Description/Location:
Canister ID: 1165
Canister Size: 6 liter
Flow Controller ID: 4376
Sample Type: 30 min

Work Order: 19D0546
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -4.5
Receipt Vacuum(in Hg): -3.5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling: <20%

Modified EPA 3C

Analyte	ppmv Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Methane	ND	50		1	4/15/19 12:12	TPH

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ANALYTICAL RESULTS

Project Location: Wayland, MA
Date Received: 4/10/2019
Field Sample #: V-SG-104
Sample ID: 19D0546-04
Sample Matrix: Soil Gas
Sampled: 4/9/2019 14:45

Sample Description/Location:
Sub Description/Location:
Canister ID: 1612
Canister Size: 6 liter
Flow Controller ID: 4375
Sample Type: 30 min

Work Order: 19D0546
Initial Vacuum(in Hg): -29.5
Final Vacuum(in Hg): -4.5
Receipt Vacuum(in Hg): -3.9
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling: <20%

Modified EPA 3C

Analyte	ppmv Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Methane	ND	50		1	4/15/19 12:39	TPH

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ANALYTICAL RESULTS

Project Location: Wayland, MA
Date Received: 4/10/2019
Field Sample #: V-SG-105
Sample ID: 19D0546-05
Sample Matrix: Soil Gas
Sampled: 4/9/2019 15:45

Sample Description/Location:
Sub Description/Location:
Canister ID: 1320
Canister Size: 6 liter
Flow Controller ID: 4293
Sample Type: 30 min

Work Order: 19D0546
Initial Vacuum(in Hg): -28
Final Vacuum(in Hg): -4
Receipt Vacuum(in Hg): -4.7
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling: <20%

Modified EPA 3C

Analyte	ppmv Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Methane	ND	50		1	4/15/19 13:00	TPH

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ANALYTICAL RESULTS

Project Location: Wayland, MA
Date Received: 4/10/2019
Field Sample #: V-SG-106
Sample ID: 19D0546-06
Sample Matrix: Soil Gas
Sampled: 4/9/2019 17:23

Sample Description/Location:
Sub Description/Location:
Canister ID: 1081
Canister Size: 6 liter
Flow Controller ID: 4292
Sample Type: 30 min

Work Order: 19D0546
Initial Vacuum(in Hg): -27
Final Vacuum(in Hg): -4
Receipt Vacuum(in Hg): -5.2
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling: <20%

Modified EPA 3C

Analyte	ppmv Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Methane	ND	50		1	4/15/19 13:23	TPH

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Sample Extraction Data

Prep Method: TO-15 Prep-Modified EPA 3C

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
19D0546-01 [V-SG-101]	B228259	1.5	1	N/A	1000	0.2	0.3	04/15/19
19D0546-02 [V-SG-102]	B228259	1.5	1	N/A	1000	0.2	0.3	04/15/19
19D0546-03 [V-SG-103]	B228259	1.5	1	N/A	1000	0.2	0.3	04/15/19
19D0546-04 [V-SG-104]	B228259	1.5	1	N/A	1000	0.2	0.3	04/15/19
19D0546-05 [V-SG-105]	B228259	1.5	1	N/A	1000	0.2	0.3	04/15/19
19D0546-06 [V-SG-106]	B228259	1.5	1	N/A	1000	0.2	0.3	04/15/19

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QUALITY CONTROL

Miscellaneous Air Analyses - Quality Control

Analyte	ppmv Results	ppmv RL	ug/m3 Results	ug/m3 RL	Spike Level ppmv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B228259 - TO-15 Prep											
Blank (B228259-BLK1)					Prepared & Analyzed: 04/15/19						
Methane	ND	50									
LCS (B228259-BS1)					Prepared & Analyzed: 04/15/19						
Methane	4490				5000		89.7	80-120			
Duplicate (B228259-DUP1)			**Source: 19D0546-01**		Prepared & Analyzed: 04/15/19						
Methane	ND	50	ND	33		ND				10	
Duplicate (B228259-DUP2)			**Source: 19D0546-02**		Prepared & Analyzed: 04/15/19						
Methane	ND	50	ND	33		ND				10	
Duplicate (B228259-DUP3)			**Source: 19D0546-03**		Prepared & Analyzed: 04/15/19						
Methane	ND	50	ND	33		ND				10	
Duplicate (B228259-DUP4)			**Source: 19D0546-04**		Prepared & Analyzed: 04/15/19						
Methane	ND	50	ND	33		ND				10	
Duplicate (B228259-DUP5)			**Source: 19D0546-05**		Prepared & Analyzed: 04/15/19						
Methane	ND	50	ND	33		ND				10	
Duplicate (B228259-DUP6)			**Source: 19D0546-06**		Prepared & Analyzed: 04/15/19						
Methane	ND	50	ND	33		ND				10	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

con-test ANALYTICAL LABORATORY
Phone: 413-525-2332
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Email: info@contestlabs.com

19D0546

http://www.contestlabs.com Doc #378 Rev 1_03242017

CHAIN OF CUSTODY RECORD (AIR)

39 Spruce Street
East Longmeadow, MA 01028

Company Name:	The Vertex Companies, Inc.
Address:	100 N Washington Street, Ste 302, Boston, MA 02114
Phone:	617-275-5407
Project Name:	River's Edge
Project Location:	Wayland, MA
Project Number:	46047
Project Manager:	Kristen Sarson
Con-Test Quote Name/Number:	
Invoice Recipient:	Kristen Sarson
Sampled By:	Kristen Sarson

Turnaround Time (Business Days)
7-Day ☐ 10-Day ☐
Due Date: 5-Day TAT

Rush (Surcharge Applies)
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Deliverables
Format: PDF ☑ EXCEL ☑
Other: EDD
CLP Like Data Pkg Required: ☐
Email To: ksarson@vertexeng.com
Fax To #:

ANALYSIS REQUESTED

Lab Use	Client Use	Collection Data		Duration	Flow Rate	Matrix	Volume	Methane				" Hg			Please fill out completely, sign, date and retain the yellow copy for your records	
Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Total Minutes Sampled	☐ m³/min ☑ L/min	Code	☑ Liters ☐ m³					Initial Pressure	Final Pressure	Lab Receipt Pressure	Summa Can ID	Flow Controller ID
01	V-SG-101	4/9/19@11:16	4/9/19 @11:46	30	0.2	SG	6					30	5	-33	1783	4300
02	V-SG-102	4/9/19 @12:20	4/9/19 @12:48	28	0.2	SG	6					29	0.5	-1	1265	4288
03	V-SG-103	4/9/19 @13:10	4/9/19 @13:40	30	0.2	SG	6					29	4.5	-35	1165	4376
04	V-SG-104	4/9/19 @14:15	4/9/19 @143:45	30	0.2	SG	6					29.5	4.5	-31	1612	4375
05	V-SG-105	4/9/19 @15:15	4/9/19 @15:45	30	0.2	SG	6					28	4	-42	1320	4293
06	V-SG-106	4/9/19 @16:53	4/9/19 @17:23	30	0.2	SG	6					27	4	-52	1081	4292

Summa canisters and flow controllers must be returned within 15 days of receipt or rental fees will apply

For summa canister and flow controller information please refer to Con-Test's Air Media Agreement

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Matrix Codes:
SG = SOIL GAS
IA = INDOOR AIR
AMB = AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = Other_____

Relinquished by: (signature)	4/10/19	Date/Time:	10:15
Received by: (signature)	4/10/19	Date/Time:	10P
Relinquished by: (signature)	4/10/19	Date/Time:	340
Received by: (signature)	4.10.19	Date/Time:	15:40
Relinquished by: (signature)		Date/Time:	
Received by: (signature)		Date/Time:	

Special Requirements
☑ MA MCP Required
☐ MCP Certification Form Required
☐ CT RCP Required
☐ RCP Certification Form Required
☐ Other

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

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Doc# 278 Rev 6 2017

Air Media Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Vertex

Received By PB | Date 4.10.19 | Time 15:40

How were the samples received? In Cooler _____ | On Ice _____ | No Ice _____ | In Box T | Ambient _____ | Melted Ice _____

Were samples within Temperature Compliance? 2-6°C NA | By Gun # _____ | Actual Temp - _____ | By Blank # _____ | Actual Temp - _____

Was Custody Seal Intact? NA | Were Samples Tampered with? NA

Was COC Relinquished ? T | Does Chain Agree With Samples? T

Are there any loose caps/valves on any samples? F

Is COC in ink/ Legible? T

Did COC Include all Pertinent Information? Client T | Analysis T | Sampler Name T | Project T | ID's T | Collection Dates/Times T

Are Sample Labels filled out and legible? T

Are there Rushes? F | Who was notified? _____

Samples are received within holding time? T

Proper Media Used? T | Individually Certified Cans? F

Are there Trip Blanks? F | Is there enough Volume? T

Containers:	#	Size	Regulator	Duration	Accessories:			
Summa Cans	6	6Lit	6	30 min	Nut/Ferrule	6	IC Train	
Tedlar Bags					Tubing	18		
TO-17 Tubes					T-Connector		Shipping Charges	
Radiello					Syringe			
Pufs/TO-11s					Tedlar			

Can #'s		Reg #'s	
	1783		4288
	1265		4320
	1165		4293
	1612		4292
	1320		4315
	1081		4376

Unused Media		Pufs/TO-17's	

Comments:

analysis noted but not checked off

APPENDIX B:

SAFETY DATA SHEETS

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	:	Mixture
Product name	:	Phos-т5®
Product code	:	AMMGA, BDMGA
Formula	:	H_3PO_4 (Phosphoric acid)
Synonyms	:	tKƻăǀKƻ ! ŎʎŘ

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Industrial use Agricultural chemical

1.3. Details of the supplier of the safety data sheet

CKŜY ʎŎl·f SƻƭdzŰʎƻyă, Inc.

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1.4. Emergency telephone number

Emergency number	:	800-424-9300 CHEMTREC

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 4 (Oral)	H302
Skin Corr. 1A	H314
Eye Dam. 1	H318
Carc. 1A	H350
STOT SE 3	H335
Aquatic Acute 2	H401

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS05 GHS07 GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H350 - May cause cancer
H401 – Toxic to aquatic life

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe fume, mist, vapours, spray
P264 - Wash hands and forearms thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, face protection, protective gloves, protective clothing
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER or doctor
P330 - If swallowed, rinse mouth
P363 - Wash contaminated clothing before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

2.3. Other hazards

Hazardous to the aquatic environment

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Phosphoric acid	(CAS No.) 7664-38-2	72 - 77	Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 2, H401
Sulfuric acid	(CAS No.) 7664-93-9	2.5 - 4	Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318 Carc. 1A, H350
Fluorides, as F		0.4 - 0.7	Not classified

Note: AMMGA Typical Nutrient Strength is 53.5% (as P_2O_5)
Note: BDMGA Typical Nutrient Strength is 53.5% (as P_2O_5)

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Seek immediate medical advice. Symptoms may be delayed.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse immediately with plenty of water (for at least 15 minutes). Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists.

First-aid measures after ingestion : If swallowed, do not induce vomiting. Seek medical advice immediately and show this container or label.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Corrosive. Causes burns. Harmful if swallowed.

Symptoms/injuries after inhalation : Causes severe respiratory irritation if inhaled. Symptoms may include: Burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. Contact may cause immediate severe irritation progressing quickly to chemical burns. May cause pulmonary edema. Symptoms may be delayed.

Symptoms/injuries after skin contact : Contact may cause immediate severe irritation progressing quickly to chemical burns.

Symptoms/injuries after eye contact	: Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.
Symptoms/injuries after ingestion	: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.
Chronic symptoms	: Repeated or prolonged inhalation may damage lungs. Prolonged and repeated contact will eventually cause permanent tissue damage and effects such as erosion of teeth, lesions on the skin, tracheo-bronchitis, mouth inflammation, conjunctivitis, and gastritis. Repeated or prolonged inhalation of mist may cause cancer.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: Do not get water inside containers. Do not apply water stream directly at source of leak. Do not use a heavy water stream. A direct water stream will cause violent splattering and generation of heat.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Not flammable. Under conditions of fire this material may produce: Oxides of phosphorus; Phosphine; Sulphur oxides.
Explosion hazard	: Product is not explosive.

5.3. Advice for firefighters

Firefighting instructions	: Keep upwind. Use water spray or fog for cooling exposed containers. If water is added to concentrated acid, violent splattering can occur, and considerable heat may be generated. Cool non-leaking, fire-exposed containers with water spray.
Protection during firefighting	: Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.
Emergency procedures	: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Keep upwind.

6.1.2. For emergency responders

Protective equipment	: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.
Emergency procedures	: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area.

6.2. Environmental precautions

If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300. In other countries call CHEMTREC at (International code) +1-703-527-3887.

6.3. Methods and material for containment and cleaning up

For containment	: Contain any spills with dikes or inert absorbents to prevent migration and entry into sewers or streams. Do not allow into drains or water courses or dispose of where ground or surface waters may be affected.
Methods for cleaning up	: Ventilate area. Small quantities of liquid spill: take up in non-combustible inert absorbent material and shovel into container for disposal. Collect absorbed material and place into a sealed, labelled container to be disposed at an appropriate disposal facility according to current applicable laws and regulations and product characteristics at the time of disposal. Liquid spill: neutralize with powdered limestone or sodium bicarbonate. Practice good housekeeping – spillage can be slippery on smooth surface either wet or dry.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Avoid all eye and skin contact and do not breathe vapour and mist. Wear recommended personal protective equipment. Ensure there is adequate ventilation. Keep away from heat and sources of ignition. Employ good maintenance practices to prevent leaks. Use good process control measures to prevent releases. Do not add water to acid. When diluting, always add acid to water. Causes severe burns.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety procedures. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store in dry, cool area. Store in a well-ventilated place. Keep away from combustible materials. Diking of storage tanks is recommended.
Incompatible materials	: Avoid contact with combustibles and reactive materials.
Prohibitions on mixed storage	: Keep away from (strong) bases.
Storage area	: Store in dry, cool area. Store in a well-ventilated place. Keep away from combustible materials.

7.3. Specific end use(s)

Industrial use. Agricultural chemical.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sulfuric acid (7664-93-9)		
USA ACGIH	TWA	0.2 mg/m³ (thoracic fraction)
USA NIOSH	IDLH	15 mg/m³
USA NIOSH	TWA	1 mg/m³
USA OSHA	TWA	1 mg/m³
Alberta	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
British Columbia	TWA	0.2 mg/m³ (thoracic, contained in strong inorganic acid mists)
Manitoba	TWA	0.2 mg/m³ (thoracic fraction)
New Brunswick	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Newfoundland & Labrador	TWA	0.2 mg/m³ (thoracic fraction)
Northwest Territories	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Nova Scotia	TWA	0.2 mg/m³ (thoracic fraction)
Nunavut	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Ontario	TWA	0.2 mg/m³ (thoracic)
Prince Edward Island	TWA	0.2 mg/m³ (thoracic fraction)
Quebec	TWAEV / STEV	1 mg/m³ (TWAEV), 3 mg/m³ (STEV)
Saskatchewan	TWA / STEL	0.2 mg/m³ (TWA, thoracic fraction), 0.6 mg/m³ (STEL, thoracic fraction)
Yukon	TWA / STEL	1 mg/m³ (TWA), 1 mg/m³ (STEL)

Phosphoric acid (7664-38-2)		
USA ACGIH	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
USA NIOSH	IDLH	1000 mg/m³
USA NIOSH	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
USA OSHA	TWA	1 mg/m³
Alberta	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
British Columbia	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Manitoba	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
New Brunswick	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Newfoundland & Labrador	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)

Phosphoric acid (7664-38-2)		
Northwest Territories	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Nova Scotia	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Nunavut	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Ontario	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Prince Edward Island	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Quebec	TWAEV / STEV	1 mg/m³ (TWAEV), 3 mg/m³ (STEV)
Saskatchewan	TWA / STEL	1 mg/m³ (TWA), 3 mg/m³ (STEL)
Yukon	TWA / STEL	1 mg/m³ (TWA), 1 mg/m³ (STEL)

8.2. Exposure controls

Appropriate engineering controls : Provide sufficient ventilation to keep vapors below the permissible exposure limit. Ensure adequate ventilation, especially in confined areas. Packaging and unloading areas and open processing equipment may require mechanical exhaust systems. Corrosion-proof construction recommended.

Personal protective equipment : Protective goggles. Face shield. Gas mask at concentration in the air > > TLV. Protective clothing.

Hand protection : Impermeable protective gloves, such as: nitrile, neoprene, or PVC. Wear gauntlet gloves. Check glove manufacturer's permeation / degradation information.

Eye protection : Chemical safety goggles and full face shield. Do not wear contact lenses. For increased protection, use supplied-air acid hood.

Skin and body protection : Wear suitable protective clothing. Wear acid-resistant suit with acid-resistant apron, boots.

Respiratory protection : Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. Use respirator approved for acid fumes and mist.

Environmental exposure controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Viscous

Colour : Amber to black

Odour : Acrid

Odour threshold : No data available

pH : 1 – 1.5

pH solution	: 1 – 10 g/l
Molecular mass	: 98 g/mol (Phosphoric acid)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 136 - 163 °C (277 - 326 °F)
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 2 - 6 mm Hg at 25 °C (77 °F)
Relative vapour density at 20 °C	: No data available
Relative density	: 1.7 at 24 °C (75 °F)
Bulk Density	: 14 lb/gal
Solubility	: Water: Miscible
Log Pow	: No data available
Log Kow	: No data available
Viscosity	: 90-125 cP at 24 °C (75 °F) (53% P_2O_5) 60-90 cP at 38 °C (100 °F) (53% P_2O_5)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Product is hygroscopic. Acidic liquids, such as this material, may react with metals and release hydrogen gas.

10.2. Chemical stability

Stable at standard temperature and pressure.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Protect from moisture. Avoid high temperatures.

10.5. Incompatible materials

Avoid contact with bases, aluminum, copper, mild steel, brass, and bronze.

10.6. Hazardous decomposition products

Under conditions of fire this material may produce: Oxides of phosphorus; Phosphine; Sulphur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

Sulfuric acid (7664-93-9)	
LD50 oral rat	2140 mg/kg
LC50 inhalation rat (mg/l)	0.36 mg/l 4 h (reported as 510 mg/m3/2 h)
LC50 inhalation rat (ppm)	86.75 ppm 4 h (reported as 347 ppm/1 h)

Phosphoric acid (7664-38-2)	
LD50 oral rat	1530 mg/kg
LD50 dermal rabbit	2730 mg/kg
LC50 inhalation rat (mg/l)	> 850 mg/m³ (Exposure time: 1 h)

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: 1 – 1.5

Serious eye damage/irritation : Causes serious eye damage.
pH: 1 – 1.5

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : May cause cancer[1].

Sulfuric acid (7664-93-9)	
IARC group	1

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity	**EPA Ecological Toxicity rating :**	High
	Acute Toxicity to Fish:	(L. *macrochirus* (bluegill sunfish)) 96-hr static: LC_{50} = pH 3.0–3.5.
	Chronic Toxicity to Fish:	Mosquito fish: LD50=138 mg/L; 96 hours (CAS# 7664-38-2)
	Acute Toxicity to Aquatic Invertebrates:	(*Daphnia magna*) 12-hr static: EC_{50} = pH 4.6; (*Daphnia pulex*) 12-hr static: EC_{50} = pH 4.1; (*Gammarus pulex*) 12-hr static: LC_{50} = pH 3.4
	Chronic Toxicity to Aquatic Invertebrates:	No data available
	Toxicity to Aquatic Plants:	Dangerous to aquatic plants at high concentrations.

[1] "The International Agency for Research on Cancer (IARC) classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". The National Toxicity Program classified "strong inorganic acid mists containing sulfuric acid" as a "known human carcinogen". These classifications are for strong inorganic acid mists only and do not apply to sulfuric acid or sulfuric acid solutions. The basis for the classifications rest on several epidemiology studies which have several deficiencies. These studies did not account for exposure to other substances, some known to be animal or potential human carcinogens, social influences (smoking, etc.) and included small numbers of subjects. Based on the overall weight of evidence from all human and chronic animal studies, no definitive causal relationship between sulfuric acid mist exposure and respiratory tract tumors has been shown. When handling this material avoid the creation of mist.

	Toxicity to Bacteria:	(Activated sludge): EC_{50} = pH 2.55.
	Toxicity to Soil Dwelling Organisms:	No data available
	Toxicity to Terrestrial Plants:	(Peas, beans, beets, rapeseed and weeds) Sprayed with 15-20% solution of H_3PO_4: Foliage was destroyed on all plants.
Environmental Fate:	**Stability in Water:**	Ionic dissociation in water.
	Stability in Soil:	Dissolves some soil material (carbonates).
	Transport and Distribution:	Under acidic soil conditions, sparsely soluble phosphates tend to solubilize and may migrate to water.
Toxicity:	Inorganic phosphates have the potential to increase the growth of freshwater algae, whose eventual death will reduce the available oxygen for aquatic life.	
Degradation Products:	**Biodegradation:**	Under anaerobic conditions, microorganisms may degrade the product to phosphine.
	Photodegradation:	No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Waste disposal recommendations : Place in a appropriate container and dispose of contaminated material at a licenced site.

Additional information Dispose of waste material in accordance with all local, regional, national, and international regulations.

SECTION 14: Transport information

In accordance with DOT / TDG / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : 1805

DOT NA no. UN1805

14.2. UN proper shipping name

DOT Proper Shipping Name : Phosphoric Acid Solution

Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136

Hazard labels (DOT) : 8 - Corrosive substances

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102)	:	**A7** - Steel packagings must be corrosion-resistant or have protection against corrosion **IB3 -** Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). **N34 -** Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material. **T4 –**See Table (172.102(7)) **TP1-** TP1 The maximum degree of filling must not exceed the degree of filling determined by the following: $\left[\text{Degree of filling} = \frac{97}{1+\alpha\left(t_r - t_f\right)}\right]$. Where: t_r is the maximum mean bulk temperature during transport, and t_f is the temperature in degrees celsius of the liquid during filling (For additional clarification, see 49 CFR 172.102(8)).
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241

14.3. Additional information

Emergency Response Guide (ERG) Number	:	154
Reportable Quantity	:	5000 pounds (at 100% Phosphoric Acid)
Other information	:	No supplementary information available.

Overland transport

No additional information available

Transport by sea

DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

IATA ERG Number : 8L

SECTION 15: Regulatory information

15.1. US Federal regulations

AmberPhos-54®	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

Sulfuric acid (7664-93-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 302 (Specific toxic chemical listings) Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb
SARA Section 313 - Emission Reporting	1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

Phosphoric acid (7664-38-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State regulations

The following states have an OSH program approved by OSHA. If you are located in any of these states you may be under state jurisdiction rather than federal jurisdiction and your state may have more stringent requirements than OSHA. You should consult your state regulations to ensure compliance.

Alaska	Indiana	Minnesota	North Carolina	Utah
Arizona	Iowa	Nevada	Oregon	Vermont
California	Kentucky	New Mexico	Puerto Rico	*Virgin Islands
*Connecticut	Maryland	*New Jersey	South Carolina	Virginia
Hawaii	Michigan	*New York	Tennessee	Washington
*Illinois				Wyoming

*The state plans in these states apply only to public sector employers. In these states private sector employers are subject to USOL – OSHA jurisdiction. All other state plans apply to both public and private sector employers.

Sulfuric acid (7664-93-9)
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Hawaii - Occupational Exposure Limits - STELs
U.S. - Hawaii - Occupational Exposure Limits - TWAs
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs

U.S. - Illinois - Toxic Air Contaminant Carcinogens
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Height 25 Ft to Less Than 40 Ft
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Height 40 Ft to Less Than 75 Ft
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

Phosphoric acid (7664-38-2)
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Hawaii - Occupational Exposure Limits - STELs
U.S. - Hawaii - Occupational Exposure Limits - TWAs
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - STELs
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - STELs
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 1-Hour
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - STELs
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

U.S. - Vermont - Permissible Exposure Limits - STELs
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Height 25 Ft to Less Than 40 Ft
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Height 40 Ft to Less Than 75 Ft
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

15.3. Canadian regulations

AmberPhos-54®	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class E - Corrosive Material

Sulfuric acid (7664-93-9)	
Listed on the Canadian DSL (Domestic Sustances List) inventory. Listed on the Canadian Ingredient Disclosure List – Disclosure at 1%	
WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material

Phosphoric acid (7664-38-2)	
Listed on the Canadian DSL (Domestic Sustances List) inventory. Listed on the Canadian Ingredient Disclosure List – Disclosure at 1%	
WHMIS Classification	Class E - Corrosive Material

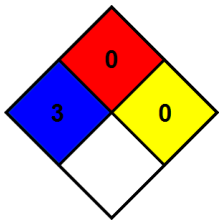
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

SECTION 16: Other information

NFPA health hazard : 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



Full text of H-phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1A	skin corrosion/irritation Category 1A
STOT SE 3	Specific target organ toxicity (single exposure) Category 3

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
H335	May cause respiratory irritation
H350	May cause cancer

Previous MSDS Number: MSDS 46 – tKϮăπтpϮ

SDS US (GHS HazCom 2012)

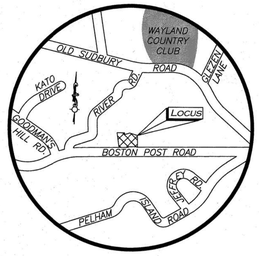
Although the information contained is offered in good faith, SUCH INFORMATION IS EXPRESSLY GIVEN WITHOUT ANY WARRANTY (EXPRESS OR IMPLIED) OR ANY GUARANTEE OF ITS ACCURACY OR SUFFICIENCY and is taken at the user's sole risk. User is solely responsible for determining the suitability of use in each particular situation. /KŜYϮϬl·ƚ {ϮƚǁƶϮyăΣ LyŎф specifically DISCLAIMS ANY LIABILITY WHATSOEVER FOR THE USE OF SUCH INFORMATION, including without limitation any recommendation which user may construe and attempt to apply which may infringe or violate valid patents, licenses, and/or copyright.

SDS US (GHS HazCom 2012)

APPENDIX C:

ALLEN & MAJOR

SURVEY PLAN

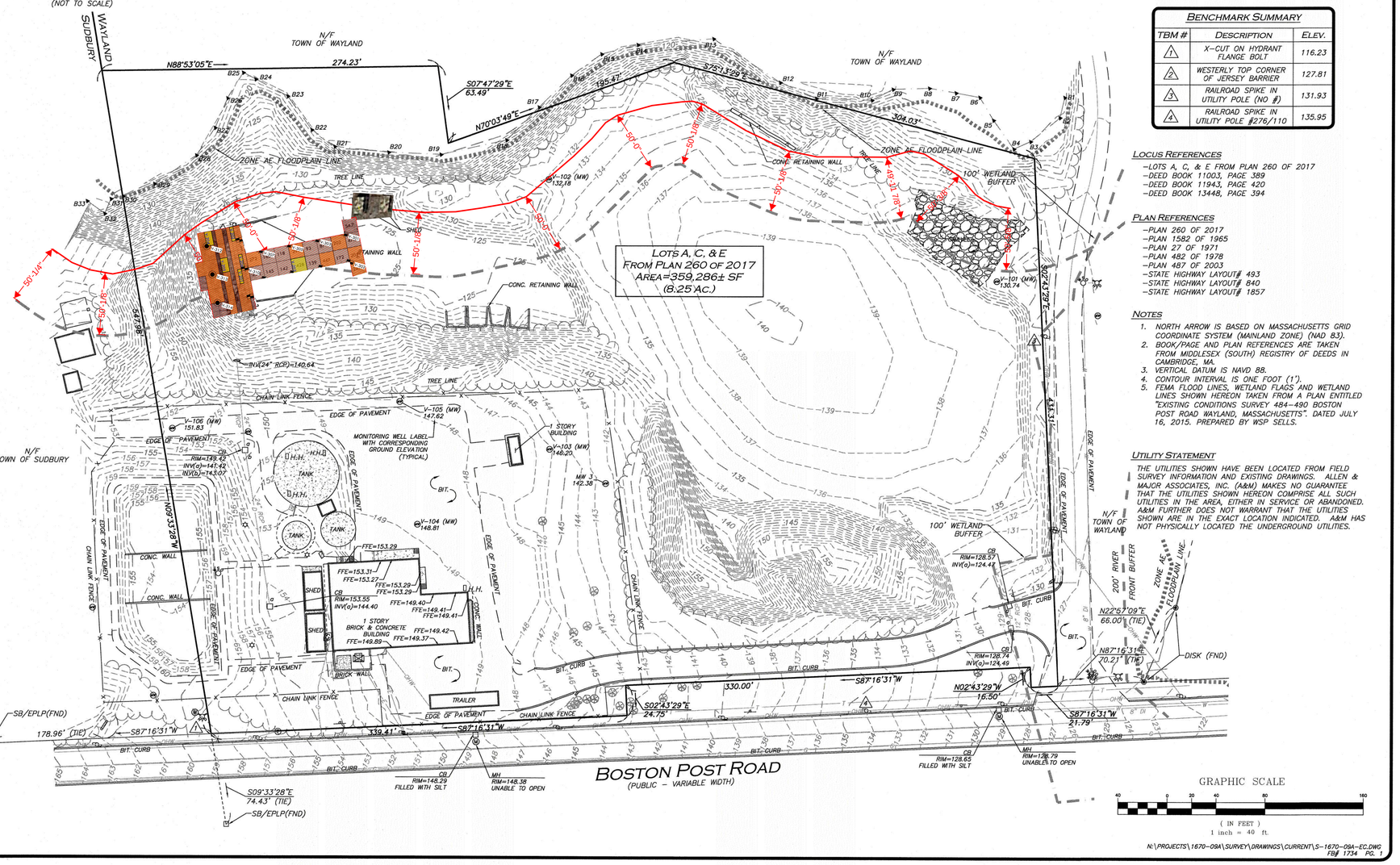


LOCUS MAP
(NOT TO SCALE)

LEGEND

DISK		WATER GATE		BUILDING OVERHANG		GAS LINE	G
STONE BOUND (SB)		INVERT (INV)		WETLAND		ELECTRIC LINE	E
DRAIN MANHOLE (DMH)		LIGHT		1' CONTOUR	131	TELEPHONE LINE	T
SEWER MANHOLE (SMH)		TREE		5' CONTOUR	135	OVERHEAD WIRES	OHW
ELECTRIC MANHOLE (EMH)		SIGN		PROPERTY LINE		FINISHED FLOOR ELEVATION	FFE
MISC. MANHOLE (MH)		SIGN		ABUTTERS LINE		BITUMINOUS	BIT.
TELEPHONE MANHOLE (TMH)		TRANSFORMER		TOWN LINE		CONCRETE	CONC.
WATER MANHOLE (WMH)		MONITOR WELL		TREE LINE		REINFORCED CONCRETE PIPE	RCP
CATCH BASIN (CB)		WETLAND FLAG	A31	EDGE OF PAVEMENT		ESCUTCHEON PIN IN LEAD PLUG	EPLP
UTILITY POLE		HAND HOLE	H.H.	CURB		STONE BOUND W/EPLP	SB/EPLP
UTILITY POLE W/RISER		GAS METER		STOCKADE FENCE		FOUND	FND
GUY WIRE		CONCRETE		CHAIN LINK FENCE	x	NOW OR FORMERLY	N/F
FIRE HYDRANT		WETLAND AREA		WATER LINE	W	BOOK	BK.
GAS GATE		BUILDING		DRAIN LINE	D	PAGE	PG.

FOR REGISTRY USE ONLY



BENCHMARK SUMMARY

TBM #	DESCRIPTION	ELEV.
1	X-CUT ON HYDRANT FLANGE BOLT	116.23
2	WESTERLY TOP CORNER OF JERSEY BARRIER	127.81
3	RAILROAD SPIKE IN UTILITY POLE (NO #)	131.93
4	RAILROAD SPIKE IN UTILITY POLE #276/110	135.95

LOCUS REFERENCES
- LOTS A, C, & E FROM PLAN 260 OF 2017
- DEED BOOK 11003, PAGE 389
- DEED BOOK 11943, PAGE 420
- DEED BOOK 13448, PAGE 394

PLAN REFERENCES
- PLAN 260 OF 2017
- PLAN 1582 OF 1965
- PLAN 27 OF 1971
- PLAN 482 OF 1978
- PLAN 487 OF 2003
- STATE HIGHWAY LAYOUT # 493
- STATE HIGHWAY LAYOUT # 840
- STATE HIGHWAY LAYOUT # 1857

NOTES
1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM MIDDLESEX (SOUTH) REGISTRY OF DEEDS IN CAMBRIDGE, MA.
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. FEMA FLOOD LINES, WETLAND FLAGS AND WETLAND LINES SHOWN HEREON TAKEN FROM A PLAN ENTITLED "EXISTING CONDITIONS SURVEY 484-490 BOSTON POST ROAD WAYLAND, MASSACHUSETTS", DATED JULY 16, 2015. PREPARED BY WSP SELLS.

UTILITY STATEMENT
THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

WE HEREBY CERTIFY THAT:

THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN MARCH 27, 2019 AND MAY 9, 2019.

THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.

ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF WAYLAND AND TOWN OF SUDBURY ASSESSOR'S INFORMATION.

THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

June 18, 2019
PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.

COMMONWEALTH OF MASSACHUSETTS NORMAN J. LIPSITZ NO. 28409 PROFESSIONAL LAND SURVEYOR
6/19/19

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
WP EAST ACQUISITIONS, LLC
91 HARTWELL AVENUE – 3RD FLOOR
LEXINGTON, MA 02421

PROJECT:
490 BOSTON POST ROAD
WAYLAND, MA

PROJECT NO.	1670-09A	DATE:	06/17/19
SCALE:	1" = 40'	DWG. NAME:	S-1670-09A-EC
DRAFTED BY:	COB/KAC	CHECKED BY:	NIL

PREPARED BY:
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environmental consulting ◆ landscape architecture
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
EXISTING CONDITIONS	V-101

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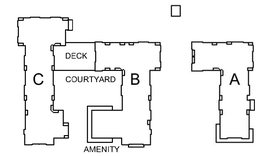
Revision:

Engineer of Record:

Drawn: SJL/ND
Checked: CMQ
Scale: 1" = 40'
Key Plan:



Project Name:
ALTA AT RIVER'S EDGE
490, 492, 494 BOSTON POST RD
WAYLAND, MA 01778

Sheet Name:
RECORD EXISTING CONDITIONS

Project Number:
1670-09A

Issue Date:
SEPTEMBER 23, 2020

Sheet Number:
V-101

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