Report

Springfield Redevelopment Authority

Construction Release Abatement Measure (RAM) Completion Report and Class A-2 Response Action Outcome (RAO) Statement

121 Pinevale Street
Springfield, MA
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RTN 1-14340

Weston&Sampson

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EXECUTIVE SUMMARY

Weston & Sampson, on behalf of the City of Springfield Redevelopment Authority (SRA), has prepared this Construction Release Abatement Measure (RAM) Completion Report and Class A-2 Response Action Outcome (RAO) Statement for Release Tracking Number (RTN) 1-14340 at the former Chapman Valve Manufacturing Facility complex (Site) located at 121 Pinevale Street in Springfield, Massachusetts. The RTN is associated with the detection of petroleum hydrocarbons in soil beneath the building floor slab, as well as adjacent to the northwest corner of the building. The purpose of this Construction RAM Completion Report and RAO Statement is to (a) document the response actions that have been taken in conjunction with demolition of the former manufacturing building at the Site, (b) document that the objectives on the RAM Plan have been met, and (c) demonstrate that a Permanent Solution for closure of the Site has been achieved under a Class A-2 RAO.

Upon demolition of the building, Weston & Sampson conducted soil precharacterization activities to evaluate soil conditions beneath the building floor slab as well as the area of a known release of OHM located outside the northwest corner of the building. Sub-slab and surficial soils at the Site were found to generally consist of urban fill with coal ash. Soil contaminants detected at concentrations above applicable Method 1 S-1/GW-3 standards included lead and Polycyclic Aromatic Hydrocarbon (PAH) compounds. In accordance with the Construction RAM Plan for the Site, approximately 1,725 tons of OHM-impacted soil located beneath and adjacent to the floor slab and foundations of the demolished Site building were excavated and disposed off-Site.

Groundwater was not encountered during soil remediation activities. Groundwater data from Site monitoring wells indicates low levels of PAH compound contamination in groundwater. Contaminant concentrations are below the applicable Method 1 GW-3 cleanup standards by an order of magnitude.

Following the completion of excavation activities, Weston & Sampson collected confirmatory soil samples from remaining Site soils. Based on the confirmatory data, a Method 1 risk characterization was performed to characterize the human health risks at the Site and evaluate whether a condition of No Significant Risk exists at the Site. Based on the findings of the Method 1 risk characterization, concentrations of all Site-wide contaminants of concern (COCs) were below applicable Method 1 S-1/GW-3 cleanup standards. Therefore, in accordance with 310 CMR 40.0973(7) a condition of No Significant Risk exists to human health, safety, public welfare and the environment for current and future use Site conditions. An Activity and Use Limitation (AUL) is not required to maintain a condition of No Significant Risk, and a Permanent Solution (Class A-2 RAO) has been achieved for the Site.

1.0 INTRODUCTION

1.1 General

Weston & Sampson, on behalf of the City of Springfield Redevelopment Authority (SRA), has prepared this Construction Release Abatement Measure (RAM) Completion Report and Class A-2 Response Action Outcome (RAO) Statement for remediation and closure of Release Tracking Number (RTN) 1-14340 at the former Chapman Valve Manufacturing Facility complex (Site) located at 121 Pinevale Street in Springfield, Massachusetts. The RTN is associated with the detection of petroleum hydrocarbons in soil beneath the building floor slab, as well as adjacent to the northwest corner of the building. The purpose of this Construction RAM Completion Report and RAO Statement is to (a) document the response actions that have been taken in conjunction with building demolition at the Site, (b) document that the objectives on the RAM Plan have been met, and (c) demonstrate that a Permanent Solution for closure of the Site has been achieved under a Class A-2 RAO.

The project is being funded through a United States Environmental Protection Agency (EPA) Revolving Loan Fund (RLF) administered by the Pioneer Valley Planning Commission. The City of Springfield originally acquired the Site through non-payment of taxes. Ownership of the property has since been transferred from the City of Springfield to the SRA.

The goal of the project was to remediate petroleum-impacted soils located beneath the building floor slab, as well as adjacent to the northwest corner of the building. In order to access impacted soils it was necessary to demolish the Site building which was in a state of partial collapse and deemed unsafe. Because of the overlay of the Massachusetts Contingency Plan (MCP), Weston & Sampson assisted the SRA in conducting cleanup activities at the Site in compliance with the MCP. Please note that Phase I and Tier II Classification documentation prepared by others had been previously submitted to DEP, and that Weston & Sampson has acted as LSP of record for work conducted at the Site under the Construction RAM Plan only.

Under the RLF, Weston & Sampson performed the following tasks:

- Preparation of a Community Relations Plan and Community Meeting
- Survey of hazardous materials in building materials in support of building demolition design
- Design of remediation and building demolition
- Preparation of bid documents for public bidding
- Bidding assistance to SRA for bidding the project
- Part time construction oversight during critical phases of the project
- Compliance with the MCP

This report presents the remedial activities conducted at the Site in accordance with the Construction RAM Plan. The RAM Completion Report and RAO Statement were prepared in accordance with the MCP 310 CMR 40.0446 and 40.1056, respectively, and are subject to the Limitations included in Section 7.0 of this Report. Copies of the Bureau of Waste Site Cleanup (BWSC) Transmittal Forms (BWSC-104 and BWSC-106) were submitted to DEP electronically

and this report was submitted to DEP electronically as an attachment to those BWSC forms. Copies of the legal notification letters to the Chief Municipal Officer and Board of Health are included in Appendix A.

1.2 Property Location and Description

The Site is a portion of the former Chapman Valve Manufacturing Facility complex and consisted of a former valve assembly, packaging, and shipping building. The now-demolished building at the Site was a 56,000 square-foot, generally rectangular, industrial building and was in a dilapidated condition. The approximate geographical coordinates for the property are as follows:

UTM Coordinates:	4,670,090 m N 706,530 m E
Latitude/Longitude:	42° 09' 21" N 72° 30' 02" W

The building primarily consisted of a single-story manufacturing building and a two-story office area. The manufacturing portion of the building was a large open space with high ceilings. The building construction was primarily brick exterior wall supporting a framework of wood roof trusses. The roof was constructed with an asphalt membrane. Building floors generally consisted of concrete slab on grade finished with wood block flooring. Significant portions of the roof truss framework had collapsed onto the building floor and the building interior was generally exposed to the elements. The interior of the building contained significant quantities of debris including collapsed roof materials, wood block flooring, asbestos-containing material (ACM) and brick. The building was in a partially collapsed and unsafe condition prior to its abatement and demolition.

The SRA's objective was to abate asbestos-containing building materials, demolish the Site building, remove building/demolition debris, remediate petroleum-impacted soil located beneath and adjacent to building foundations, and backfill and level the Site as a prelude to Site development in the future. Prior to the Site work, the land around the north and west sides of the Site building were generally overgrown with brush and small trees, and land around the south and east sides of the Site building generally consisted of the remaining concrete floor slabs and foundations of previously demolished buildings. Piles of demolition debris, including bricks and wood floor blocks, were located around the eastern and southern exterior of the building. This debris was removed and disposed of during the building abatement and demolition phase.

The Site abutters consist of undeveloped portions of the former Chapman Valve manufacturing Complex to the south and southeast, Pinevale Street followed by residential properties to the west, and OK Pet Supply Company to the north.

1.3 Property Ownership, History, and Existing Land Use

The Site property is currently owned by the SRA. The property was formerly utilized by the Chapman Valve/Crane Company from the 1880s until 1966, when it was sold to the Mansfield

Paper Company. The Chapman Valve/Crane Company manufacturing operations conducted in this building consisted of the assembly, packaging and shipping of valves. Little is known regarding the Mansfield Paper Company operations at the Site. The Mansfield Paper Company sold the property to C&J Industries in 1983. During the period when C&J Industries owned the property, a recycling business occupied the southern portion of the building, and an auto/tire repair business occupied the northern portion of the building. In 1987, the Park West Bank took possession of the property. In turn, the City of Springfield foreclosed on the building in 1990 for the non-payment of taxes.

The superstructures of surrounding buildings (formerly part of the Chapman Valve Manufacturing complex) had been previously razed with only on-grade floor slabs and foundations remaining. Prior to demolition, the 121 Pinevale Street building was dilapidated and in a state of partial collapse.

1.4 Area Public Health and Sensitive Environmental Receptors

Weston & Sampson prepared Figure 3 - Area Receptors Map using Massachusetts Geographic Information System (MassGIS) data. Figure 3 includes 500-foot and ½-mile radii from the center of the property.

1.4.1 Drinking Water Supplies

As shown on Figure 3, and as defined in 310 CMR 40.0932(4), the Site is not located within a Current or Potential Drinking Water Source Area. The Site is also not located within a Zone II Municipal Drinking Water Source Area. There are no municipal wells located within ½-mile of the Site. Properties surrounding the Site are connected to the municipal drinking water supply.

1.4.2 Potential Human and Environmental Receptors

The Site is located in a heavily developed urban area of Springfield with developments in the vicinity of the Site consisting of both commercial and residential properties. The Site property is currently vacant and inactive, therefore, no workers or occupants are currently present at the Site. Potential human receptors at the Site would include future construction workers or utility workers who may come into contact with potentially impacted soil during future construction activities or subsurface utility installation activities. As the Site is only partially fenced, potential human receptors would also include children and adults who may come into contact with the unfenced portion of the Site, i.e., adjacent to the northwest corner of the property. There are no schools or institutions (hospitals, boarding schools or other facilities that provide overnight housing) within 500 feet of the Site. As shown on Figure 3, the nearest surface water bodies are Long Pond, located approximately one-quarter mile to the southwest, and the Chicopee River, located approximately one-quarter mile to the north. In addition, no natural resources, such as areas of critical environmental concern, certified vernal pools, outstanding resource waters, or fish habitats are located within 500 feet of the Site.

1.5 MCP Method 1 Soil and Groundwater Classification

1.5.1 Soil

The Site is located in a residential area, therefore children may be considered present. Following demolition of the building, two exposure scenarios exist for soil as the Site is partially fenced. For the area outside the fence (northwest corner of the Site), the frequency and intensity of exposure is likely to be high for both adult and child because this portion of the Site is unrestricted. The area outside the fence is unpaved and is therefore accessible. In accordance with 310 CMR 40.0933, the S-1 standard applies to the area outside the fence. Inside the fence, Site soils are classified as S-2 and S-3 in accordance with 310 CMR 40.0933, as the property is both paved and unpaved; therefore soil is both "accessible" and "potentially accessible". The frequency and intensity of exposure is likely to be low for both adult and child receptors because the fenced portion of Site is vacant and partially restricted. However, to be conservative for risk assessment purposes (refer to Section 5.0), the S-1 standard is applied to the entire Site, which is the most stringent and considered most protective for unrestricted use.

1.5.2 Groundwater

Groundwater beneath the Site is categorized as GW-3 in accordance with 310 CMR 40.0932 as all groundwater at the Site has the potential to discharge to surface water. Category GW-1 is not applicable as the Site is not located within the boundaries of a Current or Potential Drinking Water Source Area and a Massachusetts Department of Environmental Protection- (DEP-) Approved Zone II of a Municipal Drinking Water Source Area. In addition, there are no known private drinking water wells located within 500 feet of the Site. MCP Section 40.0932(6) specifies that groundwater shall be categorized GW-2 if it is located within 30 feet of an existing occupied building or structure, and the average annual depth to groundwater in that area is 15 feet or less. Category GW-2 is not applicable because there are no buildings on the Site. In summary, the applicable Method 1 groundwater cleanup category for the Site is GW-3.

2.0 RELEASE HISTORY AND RESPONSE ACTIONS

2.1 General

A chronological summary of response actions at the Site, including associated field activities and sampling results are presented below. A number of the actions were performed prior to Weston & Sampson's involvement in the project.

2.2 April 2003 - Phase I Report and Tier Classification (O'Reilly, Talbot & Okun)

An MCP Phase I Report and Tier Classification was prepared by O'Reilly, Talbot & Okun (OTO) in April of 2003 and the Site was classified as a Tier II Site. The Phase I report included the advancement of several soil borings in which four borings were completed as groundwater monitoring wells. Releases of OHM to the environment described in the Phase I report are summarized in the following sections.

2.2.1 Releases of OHM to Soil

Selected soil samples from borings advanced by OTO were submitted to AMRO Environmental Laboratories of Merrimack, New Hampshire for laboratory analysis. Parameters analyzed included Volatile Organic Compounds (VOCs), VPH, EPH with PAH target compounds, Polychlorinated Biphenyls (PCBs), and RCRA 8 metals. A figure showing the boring locations and the soil analytical data table are included in Appendix B. Fill material, glass, wood, and ash was observed in soil samples from the 0-2 foot interval.

On March 25, 2002, the City of Springfield submitted a Release Notification form to DEP for the presence of C_{11}-C_{22} aromatic hydrocarbons at a concentration of 12,000 mg/kg, C_{19}-C_{36} aliphatic hydrocarbons at a concentration of 6,300 mg/kg and C_9-C_{10} aromatic hydrocarbons at a concentration of 180 mg/kg. These analytes were detected in surficial soil samples (collected from the 0-2 foot sampling interval) from borings OTO-9 (located adjacent to the northwest corner of the building), and B-1 (located in the approximate center of the building). In addition, soil collected from borings B-1, OTO-9, OTO-11, OTO-14, and OTO-16 exhibited PAH concentrations above the applicable S-1 soil standards. DEP assigned RTN 1-14340 to the release.

2.2.2 Releases of OHM to Groundwater

Groundwater collected from the available Site monitoring wells (OTO-10 and OTO-11) exhibited concentrations of Phenanthrene (2.1 ug/l) from OTO-10 and dissolved arsenic from OTO-10 and OTO-11 (28 ug/l and 37 ug/l, respectively). However, concentrations were below reportable criteria. Groundwater analytical data tables are included in Appendix B. Groundwater elevation measurements were collected at the time of groundwater sampling. Groundwater was present at approximately 8 feet below ground surface in two of the monitoring wells inside the building footprint. No groundwater was encountered above the bedrock surface (estimated to be approximately 10 feet below ground surface) in monitoring wells located at the northwest corner of the Site (i.e., outside of the building footprint).

2.3 December 2009 and June/July 2010 - Site Investigations (Weston & Sampson)

Weston & Sampson conducted soil investigation activities to evaluate sub-slab soil conditions as well as the area of a known release of petroleum located outside the northwest corner of the building. The investigative activities were initially conducted in December 2009, prior to demolition and removal of the building floor slab and foundations. Further investigative activities were conducted in June and July 2010, upon demolition and removal of building floor slab and foundations, to better define the extent of OHM-impacted soils discovered during the December 2009 activities. The results of these investigations are summarized as follows:

2.3.1 December 2009 Test-pitting

Prior to test-pitting, 7 test pit locations (TP-2 through TP-8) were chosen at representative locations within the building footprint, and 1 test pit location (TP-1) was chosen within the historical release area at the northwest corner of the building. See attached Figure 2 – Soil Sampling and Excavation Plan for test pit locations. The contractor excavated test pits to an approximate depth of 4 feet below ground surface. Based on observed conditions, 3 additional test pits (TP-1A, TP-1B, and TP-2A) were excavated to better evaluate the extent of suspected contamination. A total of 10 soil samples were taken from TP-1 through TP-8 for analysis at a Massachusetts-certified laboratory. Soil samples were analyzed for metals, EPH including target PAHs, PCBs, and VOCs. The soil analytical results from the December 2009 test-pitting activities are presented in Table 1 and the laboratory data is provided in Appendix C. The test pits are summarized as follows:

TP-1

Two samples were taken at TP-1 at the depth intervals of 0.5-1.5 feet and 3-4 feet, respectively. The 0.5-1.5 feet depth interval had visual evidence of ash and black staining in the soil, and had a creosote-like odor. A railroad spur was found along the outside of the building at this location. Analytical results for the TP-1 samples indicate that contaminant concentrations are below Method 1 S-1/GW-3 standards.

TP-2

The TP-2 sample was taken at a depth interval of 0.5-1.5 feet. The 0.5-1.5 feet depth interval had visual evidence of coal and asphalt pieces. Analytical results for the TP-2 sample detected chromium at concentrations in excess of the Method 1 S-1/GW-3 standard. Another sample (TP-2A) from this location was subsequently analyzed for trivalent and hexavalent chromium species, with the analytical results indicating that contaminant concentrations for each species are below the Method 1 S-1/GW-3 standards.

TP-3, TP-4, TP-5, and TP-6

No visual or olfactory evidence of contamination was observed in soils in these test pits. Analytical results for the TP-3, TP-4, TP-5, and TP-6 samples indicate that levels of contamination do not exceed the applicable Method 1 S-1/GW-3 standards.

TP-7
The TP-7 sample was taken at a depth interval of 2-3 feet. Analytical results for the TP-7 sample detected a PAH compound at a concentration in excess of its applicable Method 1 S-1/GW-3 standard.

TP-8
The TP-8 sample was taken at a depth interval of 0.5-1.5 feet. This depth interval had visual evidence of ash and tar contamination in the soil. Analytical results for the TP-8 sample detected five PAH compounds at concentrations in excess of their respective Method 1 S-1/GW-3 standard.

2.3.2 June and July 2010 Test-pitting
Further soil investigative activities were performed in June and July 2010, after removal of building floor slab and foundations, to better define the extent of OHM-impacted soils discovered at TP-7 and TP-8 during the December 2009 investigations. Sixteen (16) test pit locations (WS-1 through WS-15, and WS-24) were chosen in the vicinity of TP-7 and TP-8 for this purpose. Refer to Figure 2 – Soil Sampling and Excavation Plan for test pit and soil sample locations. A total of 17 soil samples (including 1 duplicate) were taken from these locations for analysis at a Massachusetts-certified laboratory. Soil samples were analyzed for metals, EPH including target PAHs, PCBs, and VOCs. Of the 17 soil samples submitted for laboratory analysis, 6 had contaminant concentrations in excess of their respective Method 1 S-1/GW-3 standard. The soil analytical results from the June and July 2010 test-pitting activities are presented in Table 2 and the laboratory data is provided in Appendix C. The test pits are summarized as follows:

WS-2
The WS-2 sample was taken at a depth interval of 2.5-3 feet. Analytical results for the WS-2 sample detected a PAH compound at a concentration in excess of its applicable Method 1 S-1/GW-3 standard.

WS-5
The WS-5 sample was taken at a depth interval of 1.5-2 feet. Analytical results for the WS-5 sample detected lead at a concentration in excess of its applicable Method 1 S-1/GW-3 standard.

WS-6
The WS-6 sample was taken at a depth interval of 2.5-3 feet. Analytical results for the WS-6 sample detected a PAH compound at a concentration in excess of its applicable Method 1 S-1/GW-3 standard.

WS-13
The WS-13 sample was taken at a depth interval of 0.5-1 feet. Analytical results for the WS-13 sample detected lead at a concentration (4,260 mg/kg) in excess of its applicable Method 1 S-1/GW-3 standard. Considering the high concentration of lead at this location, 4 additional soil samples were subsequently taken at a similar depth at 4 surrounding locations (identified as

WS-16 through WS-19) approximately 10 feet away from WS-13, and were analyzed for lead only. Analytical results for the WS-16 through WS-19 samples indicate that levels of lead do not exceed the applicable Method 1 S-1/GW-3 standards. Analytical results for the WS-13 sample also detected a PAH compound at a concentration in excess of its applicable Method 1 S-1/GW-3 standard.

WS-14
The WS-14 sample was taken at a depth interval of 2.5-3 feet. Analytical results for the WS-14 sample detected 6 PAH compounds at concentrations in excess of their applicable Method 1 S-1/GW-3 standard.

WS-15
The WS-15 sample was taken at a depth interval of 1.0-1.5 feet. Analytical results for the WS-15 sample detected a PAH compound at a concentration in excess of its applicable Method 1 S-1/GW-3 standard.

2.4 Conceptual Site Model

As discussed in previous sections, the Site was reported in March 2002 for (a) the presence of VPH and EPH in soil adjacent to the northwest corner of the building (i.e., outside of the building footprint), and (b) the presence of EPH in soil beneath the building floor slab (i.e., inside of the building footprint). In addition, soil collected from historic borings located in both of these areas exhibited PAH concentrations above the applicable S-1 soil standards. The contaminants were generally detected in surficial soil samples, i.e., collected from the 0-2 foot sampling interval. Subsequent pre-characterization test-pitting and sampling activities in December 2009, June 2010, and July 2010, further described Site conditions in each of these areas as follows.

2.4.1 Outside of Building Footprint

Test-pitting activities in December 2009 within this area (TP-1 Excavation Area - as shown on attached Figure 2) indicated visual evidence of ash and black staining in the soil, and the soil was noted to have a creosote-like odor. A railroad spur was found along the outside of the building at this location. Soil sampling activities detected the presence of EPH compounds, PAH compounds and metals, however, concentrations were below the applicable Method 1 S-1/GW-3 soil standards. The source(s) of the OHM-impacted soil at this area can be categorized as follows:

- An apparent historical release of petroleum to surficial soils.
- The presence of an abandoned railroad spur with associated wooden ties likely treated with creosote.
- The presence of urban fill that had been historically placed as a base material prior to construction of the abandoned railroad spur. The urban fill material was observed to consist of sand and silt with pockets of ash and black staining evident in the soil.

The conceptual model for this area of the Site is that the OHM contaminants are at limited depth (<3 feet) in soils. As noted in Section 1.5.2, potentially affected receptors include children and adults (as this area is not fenced) and Site workers who come into contact with contaminated

soil. No shallow groundwater was encountered. The goal of the project is to reduce risk at the Site due to impacted soil and achieve a condition of No Significant Risk to human health, public welfare, and the environment. The remedial approach for this area is to excavate the OHM-impacted soils associated with the historical release of petroleum and the presence of potentially creosote-treated wood ties such that remaining soils are consistent with background levels attributable to urban fill containing coal or wood ash.

2.4.2 Inside of Building Footprint

Test-pitting and soil sampling activities in December 2009, June 2010, and July 2010 within the building footprint indicated the presence of PAH and metal concentrations above the applicable Method 1 S-1/GW-3 soil standards in surficial soils (0-3 foot sampling interval) in areas at the southwest corner (TP-7 Excavation Area - as shown on attached Figure 2) and along the west side (TP-8 Excavation Area, WS-13 Excavation Area, and WS-14 Excavation Area - as shown on attached Figure 2) of the building. The source(s) of the OHM-impacted soil at the Site can be categorized as follows:

- Urban fill material that had been historically placed as a foundation/floor slab base material prior to construction of the former manufacturing building. The urban fill material was observed to consist of sand, gravel and miscellaneous debris (including glass and wood) material with pockets of ash, tar, asphalt, and black staining evident in the soil.

The conceptual model for this area of the Site is that the OHM contaminants are at limited depth (<3 feet) in soils. As noted in Section 1.5.2, potentially affected receptors include future construction/utility workers who come into contact with contaminated soil. No shallow groundwater was encountered. The goal of the project is to reduce risk at the Site due to impacted soil and achieve a condition of No Significant Risk to human health, public welfare, and the environment. The remedial approach for this area is to demolish the Site building and associated floor slab/foundations, and excavate soils found to have exceedences of Method 1 S-1/GW-3 soil standards such that remaining soils are either below the standards or are consistent with background levels attributable to urban fill containing coal or wood ash.

3.0 RELEASE ABATEMENT MEASURE COMPLETION REPORT

In April 2009, Weston & Sampson submitted the Construction RAM Plan to DEP. The Construction RAM Plan described MCP response action activities that might be necessary during Site work related to building and foundation demolition work. The potential activities consisted of (a) removal and disposal of shallow OHM-impacted soil encountered beneath, and adjacent to, building floor slab and foundations, (b) handling of groundwater if encountered during demolition and/or soil removal activities, (c) handling of separate-phase product if encountered during demolition and/or soil removal activities, and (d) other potential issues that could arise during construction, such as spills. Building demolition and remedial activities were performed by J.R. Vinagro, Inc. (Contractor), of Johnstown, Rhode Island, selected through the public bid process.

The RAM Completion Report was prepared in accordance with 310 CMR 40.0446 of the MCP and addresses remedial activities associated with the excavation, transportation, and off-site disposal of OHM-impacted soil. The RAM transmittal form (BWSC-106) was submitted to DEP via the eDEP online system. This report, also submitted electronically via eDEP, is an attachment to that BWSC-106 form. The MCP requirements for a RAM Completion Report (310 CMR 40.0446) are detailed in the following sections of this report as shown in ***bold italic text*** and the required information is provided in normal text.

(a) A description of the release or threat of release, site conditions, and surrounding receptors;

A description of the release is provided in Section 2.2 of this Report, a description of Site conditions is included in Section 1.3, and a description of surrounding receptors is included in Section 1.5.

(b) A description of the Release Abatement Measure completed at the disposal site, including work undertaken in response to any conditions of approval imposed by the Department;

The Release Abatement Measure completed at the Site was the excavation and disposal of OHM-impacted soil, consisting of urban fill with coal ash, from beneath and adjacent to the floor slab and foundations of the former Site building. Prior to the excavation and disposal soil, Weston & Sampson conducted soil investigation activities to evaluate sub-slab soil conditions as well as the area of a known release of OHM located outside the northwest corner of the building. The investigative activities were initially conducted in December 2009, prior to demolition and removal of the building floor slab and foundations. Further investigative activities were conducted in June and July 2010, upon demolition and removal of building floor slab and foundations, to better define the extent of OHM-impacted soils discovered during the December 2009 activities. The results of these investigations are summarized in Section 2.3.

Based on the results of soil investigation activities, Weston & Sampson delineated the general extent of OHM-impacted soils within the building footprint that exhibited significant exceedences of Method 1 S-1/GW-3 standards, and directed the Contractor to remove and

dispose of soil from these areas. The locations of these areas are shown on Figure 2 – Soil Sampling and Excavation Plan and are summarized as follows:

- TP-7 Excavation Area - includes Test pit locations TP-7, WS-2, WS-4, and WS-5, with a depth of soil removal of approximately 3 feet.
- TP-8 Excavation Area – included Test pit location TP-8, with a depth of soil removal of approximately 2 feet.
- WS-13 Excavation Area (elevated lead concentration) – includes Test pit location WS-13, with a depth of soil removal of approximately 1.5 feet.
- WS-14 Excavation Area – includes Test pit location WS-14, with a depth of soil removal of approximately 2 feet.

Soil from the area of Test pit locations WS-6 and WS-15, although exhibiting exceedences of Method 1 S-1/GW-3 standards for PAH compounds, was not removed due to the relatively low concentrations of the applicable PAH compounds and the ability to include the data in the estimation of average Site-wide soil concentrations (Exposure Point Concentrations) in a Method 1 risk characterization for the Site (refer to Section 5.0).

Based on the results of soil investigation activities as well as soil analytical data from the Phase I report (OTO, 2003), Weston & Sampson delineated the general extent of OHM-impacted soils at the area adjacent to the northwest corner of the building (i.e., outside of the building footprint) associated with the historic release of petroleum. The location of this area, designated as TP-1 Excavation Area, is shown on Figure 2 – Soil Sampling and Excavation Plan. Weston & Sampson directed the Contractor to remove and dispose of soil from this area.

Between July 6, 2009 and July 9, 2009 approximately 1,245 tons of OHM-impacted soil was excavated from the TP-1 and TP-7 Excavation Areas and transported off-site under a Bill of Lading (BOL) to an accepting landfill disposal facility. On July 19, 2009, a further 479 tons of OHM-impacted soil was excavated from the TP-8 and WS-14 Excavation Areas and transported offsite under a BOL to an accepting asphalt batch facility. On October 22, 2010, approximately 1.5 tons of lead-impacted soil was removed from the WS-13 Excavation Area and transported off-site under a Hazardous Waste Manifest to an accepting disposal facility.

In July 2010, upon excavation and removal of OHM-impacted soil, Weston & Sampson collected confirmatory soil samples from the sidewalls and bottom of each excavation area. The samples were submitted to a Massachusetts-certified laboratory for the analysis of metals and EPH with target PAHs. Coal ash material was noted in the confirmatory samples taken from the TP-1 and TP-8 Excavation Areas.

Neither groundwater nor separate-phase product was encountered during demolition or soil removal activities.

(c) All investigatory and monitoring data obtained during the implementation of the Release Abatement Measure;

December 2009 Test-pitting

The soil analytical results from the December 2009 test-pitting activities are presented in Table 1 and the laboratory data is provided in Appendix C. Laboratory analyses for the TP-7 sample detected concentrations of 1 PAH compound in excess of the Method 1 S-1/GW-3 standard, and analyses for the TP-8 sample detected concentrations of 5 PAH compounds in excess of the Method 1 S-1/GW-3 standards.

June and July 2010 Test-pitting

The soil analytical results from the June and July 2010 test-pitting activities are presented in Table 2 and the laboratory data is provided in Appendix C. Laboratory analyses for the WS-2, WS-6, WS-13, WS-14, and WS-15 samples detected concentrations of PAH compounds in excess of the Method 1 S-1/GW-3 standards, analyses for the WS-5 and WS-13 samples detected concentrations of lead in excess of the Method 1 S-1/GW-3 standard.

July 2010 Confirmatory Sampling

Sidewall and pit bottom soil samples were taken from the five excavation areas and were submitted to a Massachusetts-certified laboratory for the analysis of metals and EPH with target PAHs, with the exception of the samples from the WS-13 Excavation Area - identified as an area with an elevated lead concentration – which were analyzed for lead only. The confirmatory soil analytical results from the excavation walls and bottom are presented in Table 3 and the laboratory data is provided in Appendix C. The analytical results for the July 2010 confirmatory sampling can be summarized as follows:

- *TP-1 Excavation Area*

  The sidewalls and bottom of the TP-1 Excavation Area was observed to consist of urban fill with coal ash. The analytical results indicate that of the three pit bottom samples taken, one of the samples was below Method 1 standards. One of the samples exceeded the applicable Method 1 standards for 5 PAH compounds and one of the samples exceeded the applicable Method 1 standards for 1 PAH compound. Note that analytical results for two of the samples detected chromium at concentrations in excess of the Method 1 standard. Additional samples from these locations were subsequently analyzed for the trivalent and hexavalent chromium species, with the analytical results indicating that contaminant concentrations for each species are below the Method 1 standards.

  The analytical results indicate that of the two sidewall samples taken, one of the samples exceeded the applicable Method 1 standards for 5 PAH compounds, and one of the samples exceeded the applicable Method 1 standards for 1 PAH compound. Note that analytical results for one of the samples detected chromium at concentrations in excess of the Method 1 standard. An additional sample from this location was subsequently analyzed for the trivalent and hexavalent chromium species, with the analytical results indicating that contaminant concentrations for each species are below the Method 1 standards.

- *TP-7 Excavation Area*
  The sidewalls and bottom of the TP-7 Excavation Area was observed to consist of urban fill with coal ash. The analytical results indicate that of the four pit bottom samples taken, three of the samples were below Method 1 standards. One of the samples exceeded the applicable Method 1 standards for 1 PAH compound. The analytical results indicate that all sidewall samples were below applicable Method 1 standards.

- *TP-8 Excavation Area*
  The sidewalls and bottom of the TP-8 Excavation Area was observed to consist of urban fill with coal ash. The analytical results indicate that all pit bottom samples were below applicable Method 1 standards. The analytical results indicate that of the three sidewall samples taken, one of the samples exceeded the applicable Method 1 standards for 4 PAH compounds, and one of the samples exceeded the applicable Method 1 standards for 1 PAH compound.

- *WS-13 Excavation Area – Elevated lead concentration*
  The analytical results indicate that all pit bottom and sidewall samples were below the applicable Method 1 standard for lead.

- *WS-14 Excavation Area*
  The analytical results indicate that all pit bottom and sidewall samples were below the applicable Method 1 standards.

(d) A succinct statement of findings and conclusions resulting from implementation of the Release Abatement Measure, including a statement as to whether the objectives of the Release Abatement Measure have been met;

The objective of this RAM was to remove OHM-impacted soils found to have exceedences of Method 1 S-1/GW-3 soil standards such that (a) a condition of No Significant Risk exists at the Site based on a Method 1 risk characterization, and/or (b) remaining soil contaminant concentrations are consistent with background levels attributable to urban fill containing coal or wood ash. The RAM activities performed at the Site between December 2009 and October 2010 associated with RTN 1-14340 have been completed in accordance with the Construction RAM Plan. RAM activities included the excavation, transportation, and off-site disposal of approximately 1,245 tons of OHM-impacted soil from the TP-1 and TP-7 Excavation Areas, approximately 479 tons of OHM-impacted soil from the TP-8 and WS-14 Excavation Areas, and 1.5 tons of lead-impacted soil from the WS-13 Excavation Area. Based on the findings of the Method 1 risk characterization (refer to Section 5.0), a condition of No Significant Risk to health, safety, public welfare or the environment exists for any potential future use, and a Permanent Solution (Class A-2 RAO) has been achieved for the Site. A RAO Statement has been included as part of this report and in included in Section 6.0.

(e) Details and documentation on the management of any Remediation Waste, Remedial Wastewater and/or Remedial Additives managed at the site as part of the Release Abatement Measure; and

Between July 6, 2010 and July 9, 2010, approximately 1,245 tons of OHM-impacted soil from the TP-1 and TP-7 Excavation Areas was excavated, transported, and disposed off-site to a licensed landfill facility (Casella Waste Systems, Inc., Worcester Landfill, Worcester, Massachusetts) under a BOL. A copy of the BOL for this material has been included in Appendix D.1.

On July 19, 2010, approximately 479 tons of OHM-impacted soil from the TP-8 and WS-14 Excavation Areas was excavated, transported, and disposed off-site at a asphalt batching facility (Ted Ondrick Company, LLC, Chicopee, Massachusetts) under a BOL. A copy of the BOL for this material has been included in Appendix D.2.

On October 22, 2010, approximately 1.5 tons of lead-impacted soil from the WS-13 Excavation Area was transported and disposed off-site at a licensed disposal facility (Northland Environmental, LLC, Providence, Rhode Island) under a Hazardous Waste Manifest. A copy of the Hazardous Waste Manifest for this material has been included in Appendix D.3.

(f) A description of any ongoing activities related to the Release Abatement Measure that will be conducted at the disposal site, including monitoring activities, and the maintenance of fences, caps and other passive systems.

No additional activities are required at the Site regarding RTN 1-14340. The RAM activities were conducted in accordance with the Construction RAM Plan. The Licensed Site Professional (LSP) Opinion is included in the RAM Transmittal form (BWSC-106) submitted electronically via eDEP.

4.0 DATA REPRESENTATIVENESS EVALUATION & DATA USABILITY ASSESSMENT

4.1 General

The Representativeness Evaluation and Data Usability Assessment (REDUA) presented in this section was prepared in general accordance with DEP Policy #WSC-07-350, dated September 2007, and is required under the MCP, 310 CMR 40.1056(2)(k), which states:

> *"...for all Class A, B, or C Response Action Outcomes, a Data Usability Assessment documenting that the data relied upon is scientifically valid and defensible, and of a sufficient level of precision, accuracy, and completeness to support the RAO, and a Representativeness Evaluation, documenting the adequacy of the spatial and temporal data sets to support the RAO."*

4.2 Representativeness Evaluation

The purpose of the Representativeness Evaluation is to demonstrate the following: the spatial and temporal data sets used to support this RAO are adequate considering the Site's historical use, hydrogeological and physical characteristics, and field observations; the data set in total sufficiently characterizes conditions at the Site and supports a coherent Conceptual Site Model; the cumulative data to characterize the nature and extent of contamination at the Site, the risk to health, safety, public welfare and the environment, and the elimination/control of OHM sources is adequate; and, the use of the data to support this RAO is justified considering any inconsistent and incomplete information, and potential sources of uncertainty. Sections 4.2.1 through 4.2.8 below describe the elements that were evaluated in the Representativeness Evaluation in support of this RAO.

4.2.1 Conceptual Site Model ("CSM")

The CSM for the Site is described in Section 2.4. As described in that Section, the soil analytical data sets support the CSM for the Site. In addition, confirmatory soil sampling results were consistent with the CSM.

4.2.2 Use of Field Screening Data

Visual, olfactory and PID screening evidence was used during pre-characterization activities to determine the extent of OHM-impacted soil. The use of PID screening was appropriate at this Site because the Site RTN is associated with the historical release of petroleum hydrocarbons in soil beneath the building floor slab, as well as adjacent to the northwest corner of the building. Consequently, TVOC concentrations combined with visual and olfactory evidence were practical indicators of the extent of impact.

The field screening results (low PID readings and absence of visual and olfactory evidence of petroleum contamination) were confirmed by laboratory analyses of both pre-characterization and confirmatory soil samples collected at the Site, which generally did not contain significant concentrations of petroleum-related compounds.

4.2.3 Sampling Rationale

The pre-characterization sampling program was focused on determining the extent of impacts from (a) the original petroleum release to soil beneath the building floor slab and adjacent to the northwest corner of the building, and (b) ash-impacted urban fill associated with the base material for the building floor slab and foundations and an abandoned railroad spur at the northwest corner of the building. The locations of pre-characterization soil samples are described in Section 2.3. The locations were based on (a) proximity to the source area of the original petroleum release (i.e., adjacent to the northwest corner of the building), (b) a spatially distributed layout over the footprint area of the building, and (c) a subsequent iterative layout approach to better define the extent those areas exhibiting OHM-impacted soil. There was no evidence to indicate that the extent of impact went beyond these areas based on Site conditions.

4.2.4 Number, Spatial Distribution and Handling of Samples

The number and spatial distribution of sample locations during Site pre-characterization was adequate in initially identifying areas of the Site having OHM-impacted soils, and subsequently better defining the extent of contaminated areas for the purpose of soil excavation. For post-excavation confirmatory sampling, sidewall and pit bottom soil samples were taken from the five excavation areas.

Consistency in the collection of samples was maintained throughout both the pre-characterization and confirmatory soil sampling period. All samples were collected in general accordance with the DEP guidance document, *Compendium of Quality Control Requirements and Performance Standards for Selected Analytical Protocols* (WSC #10-320) using pre-cleaned sample containers and sampling equipment that was decontaminated prior to each sample being taken. The samples were transported under ice to the laboratory with a completed chains of custody.

4.2.5 Temporal Distribution of Samples

Pre-characterization sample was collected from the Site during winter (December 2009) and summer (June and July 2010) to provide a full range of seasonal changes in atmospheric conditions and temperature, which could impact concentrations.

4.2.6 Completeness

All pre-characterization sample locations identified prior to commencement of field investigation activities were sampled. All post-excavation confirmatory sample locations identified prior to commencement of excavation activities were sampled, with the exception of side wall samples along the south and east sides of the TP-7 Excavation Area. The excavation side walls at these locations consisted of the concrete foundation wall of a former adjacent building and, therefore, soil samples were unobtainable. All samples collected were analyzed and no data gaps were identified in the data set. The ratio of valid data to expected data is 100 percent.

4.2.7 Inconsistency and Uncertainty

No inconsistencies were identified. Field screening results (low PID readings and absence of visual and olfactory evidence of petroleum contamination) were confirmed by laboratory

analyses of both pre-characterization and confirmatory soil samples collected at the Site, which generally did not contain significant concentrations of petroleum-related compounds. Analytes inconsistent with the known Site history and condition were not detected. Confirmatory soil sampling results were consistent with the CSM.

4.2.8 Information Considered Unrepresentative

All data was considered representative for purposes of the risk characterization and support of the RAO because active cleanup activities were ongoing.

4.3 Data Usability Assessment

The Data Usability Assessment evaluates the validity of the data being used for MCP risk characterization and/or other response actions, focusing on actual quality assurance/quality control (QA/QC) procedures used in the field during sample collection, and laboratory analytical methods. The broad performance standards for the acquisition, analysis and reporting of the analytical and environmental monitoring data used to support MCP response actions are specified in 310 CMR 40.0017 and 40.0191(2)(c). To facilitate the application of these MCP performance standards, the DEP published a Compendium of Analytical Methods (CAM), a series of recommended protocols for the acquisition, analysis, and reporting of MCP-related analytical data. The minimum criteria and performance standards for the collection and analyses of data to be used in MCP risk assessments, background determinations, and/or site closure are outlined in the current DEP publications WSC-CAM-VIIA (revised July 1, 2010) and WSC-10-320 (effective July 1, 2010). Samples collected and analyzed in compliance with CAM have achieved "Presumptive Certainty", which assures that the precision, accuracy, and sensitivity have been adequately determined.

The CAM criteria were in effect at the time of pre-characterization (June and July 2010) and confirmatory (July 2010) sampling and analysis at the Site, and required that the laboratory provide a satisfactory completion of a DEP MCP Analytical Method Report Certification Form for "Presumptive Certainty". The DEP MCP Analytical Method Report Certification Forms are included with the soil laboratory reports in Appendix C.

Weston & Sampson collected QA/QC samples in accordance with CAM requirements, and the laboratory reported that all soil samples were delivered in good condition. Data qualifiers identified in the case narrative section of the laboratory reports have been compiled in summary tables C-1 thru C-12, which are included with Appendix C. As indicated in the summary tables, all qualifying conditions have been resolved. In summary, no significant data quality issues were identified and the soil data generally met the criteria for Presumptive Certainty.

If presumptive certainty is met the next step is to assess the usability of the data based on the following parameters: precision, accuracy, representativeness, comparability, completeness and sensitivity (i.e., PARCCS).

4.3.1 Precision

Precision is a measure of mutual agreement among individual measurements of the same property and is generally expressed as the reproducibility of the analytical result between initial

sample and field duplicate as expressed by the relative percent difference (RPD). Precision is a measure of the reproducibility of sampling technique, matrix homogeneity, and analytical method. Where RPD is flagged as a data qualifier in the case narrative section of laboratory reports, resolution is provided (refer to Tables C-1 thru C-12 in Appendix C). Overall the data are considered suitably precise to support this RAO, and no further action was taken.

4.3.2 Accuracy

Accuracy is the degree of agreement of a measurement with an accepted reference or true value. Accuracy is reported as the percent recovery of known concentrations added to the matrix sample to determine the influence of matrix on the analytical method. Where percent recovery is flagged as a data qualifier in the case narrative section of laboratory reports, resolution is provided (refer to Tables C-1 thru C-12 in Appendix C). Overall the data are considered suitably accurate to support this RAO, and no further action was taken.

4.3.3 Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of the population, parameter variation, or environmental condition. Weston & Sampson has designed the sampling protocol to ensure representativeness by incorporating factors such as site history, visual and olfactory observations, physical features, proper sample collection and preservation procedures, appropriate testing methodology, and field screening data. The samples collected from the Site are considered representative based on the known subsurface conditions.

4.3.4 Completeness

Completeness is a measure of whether enough data has been collected to support an opinion and is expressed as a percent representing the ratio of valid data to expected data. Data may be considered invalid for reasons such as exceeding the holding time, poor calibration of analytical instruments, and poor surrogate or matrix spike recoveries. Three samples in the confirmatory soil data set were reported as qualified for exceedence of the holding time for mercury analysis, and one sample in the data set were reported as qualified for exceedence of the holding time for hexavalent chromium analysis.. In these cases, the qualifiers were resolved by satisfactory review of the precision and accuracy of the data (refer to Tables C-1 thru C-12 in Appendix C). Overall, the data collected for this Site is complete and sufficient to support an opinion.

4.3.5 Comparability

Comparability refers to the level of confidence with the correlation of data collected during separate events or by different persons, or analyzed by different methods. This may be measured qualitatively based on a review of sampling and testing procedures or quantitatively by comparison of sample data collected at the same location using the same sampling and testing procedures. All sampling and testing procedures were followed utilizing accepted standards for quality assurance and quality control.

4.3.6 Sensitivity

Sensitivity is a measure of whether the laboratory method was sufficient to report detected contaminants at concentrations at or below the applicable MCP cleanup criteria. For example, if

a contaminant is reported as "not detected", but the laboratory method detection limit was higher than the MCP cleanup criteria, we would be unable to state unequivocally that the tested medium was free of impact consistent with a level of No Significant Risk. All sampling results were adequately sensitive to support the conclusion of No Significant Risk.

In summary, the results of the PARCCS evaluation indicate that data quality indicators are acceptable, and the soil data obtained during this investigation is adequate for characterizing Site conditions, risk and RAO determination. Weston & Sampson considers the data to be of sufficient level of sensitivity to support the conclusions in this RAO Statement.

4.3 Data Representativeness Evaluation & Data Usability Assessment Conclusions

Our evaluation of data available for this opinion and how it was used to support this opinion are described in the previous sections. In general, data were used to determine general nature and extent of contamination and assessment of risks. The data herein has been assessed for representativeness and selected QA/QC parameters, and Weston & Sampson concludes that the results are acceptable for incorporation into this RAO Statement and are suitable for the intended use.

5.0 METHOD 1 RISK CHARACTERIZATION

5.1 General

A Method 1 risk characterization was performed to evaluate if a condition of "No Significant Risk" (NSR) to human health, public welfare and the environment exists due to the presence of residual metals, EPH parameters and target PAHs in soil at the Site. The Method 1 risk characterization was performed in general accordance with 310 CMR 40.0970 of the MCP and the DEP guidance document "Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan" dated July 1995. Method 1 risk characterizations are applicable at sites where all of the following criteria are met:

- Contaminated media and exposure is limited to soil and groundwater only.
- No known bio-accumulative contaminants of concern ("COC") are present in the top 2 feet of soil.
- A Method 1 cleanup standard has been promulgated for each COC.

Site contaminants are present in shallow soil (0 to 3 feet) only. The highest concentrations were detected in the sand and gravel fill units in the TP-1, TP-7 and TP-8 Excavation Areas which contained glass and wood debris with pockets of ash, asphalt, tar and creosote. There is no field evidence to suggest that groundwater or other environmental media have been impacted. None of the COCs retained for the risk characterization are bio-accumulative; and, each has an applicable Method 1 soil cleanup standard provided in 310 CMR 40.0974.

Data Set

The soil data set used to evaluate human health risk was based on 13 pre-characterization and 27 confirmatory soil samples which are representative of surficial (<3' below grade) soils remaining at the Site upon completion of remedial activities. The samples were collected from the following locations (see Figure 2 – Site Plan):

Pre-characterization sampling

- TP-2 and TP-5
- WS-1, WS-3, WS-6 thru WS-12, WS-15, WS-24

Confirmatory sampling

- CS-7 through CS-10 (TP-1 Excavation Area)
- CS-7A, -8A and 10A (TP-1 Excavation Area - total and hexavalent chromium only)
- CS-1 through CS-6 (TP-7 Excavation Area)
- CS-17 through CS-21 (TP-8 Excavation Area)
- CS-11 through CS-16 (WS-14 Excavation Area)
- CS-22 through CS-24 (WS-13 Excavation Area - lead only)

The Site-wide soil concentrations for these locations are summarized in Tables 1, 2 and 3.

5.2 Hazard Identification

5.2.1 Compound Elimination Criteria

In accordance with DEP risk assessment guidance, a compound detected at a site may be eliminated from the risk assessment as a COC based on any of the following criteria:

1. The chemical is present at a low detection frequency and at low concentrations.
2. The chemical is a laboratory or field contaminant.
3. The chemical concentration is consistent with "background" levels, and there is no evidence that the chemical is associated with Site activities.

The first and second criteria do not apply at this Site because all contaminants detected in one or more samples above reporting limits were considered COCs and none of the compounds detected were identified as laboratory or field contaminants. The third criteria applies because levels of PAH contaminants detected at the Site are consistent with background levels attributable to urban fill containing coal or wood ash. This consideration is discussed in greater detail in the following section.

5.2.2 Background Concentrations in Urban Fill

In accordance with the MCP, 310 CMR 40.0006, "background" concentrations refer to OHM that are not related to the release, but are attributed to specific conditions defined in the MCP, one of which is the presence of coal or wood ash in fill material. Pockets of coal and wood ash, which are known sources of elevated PAHs, were observed in the urban fill material in the TP-1, TP-7 and TP-8 Excavation Areas. Other potential sources of elevated PAHs, such as asphalt, tar, and creosote were also observed in the fill material at the Site.

The DEP's May 2002 Technical Update, "*Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil*" provides typical background levels for "urban fill" containing soil and wood ash. The DEP's published background concentrations for urban fill were based on the 90th percentile concentrations of 750 to 1,000 soil samples collected by the Massachusetts Highway Department as part of the Central Artery/Tunnel (CA/T) project during the 1990s. The DEP's *Technical Update* states that PAHs may be eliminated as COCs if there is evidence of fill material containing wood or coal ash at a site that does not appear to be related to a particular release, and if all detected concentrations (as defined by the maximum concentration of each analyte within the data set) are below the "background" levels.

5.2.3 Comparison of Site-wide PAH Data to Background Concentrations

A comparison of Site-wide PAH data to DEP's published urban fill background concentrations is presented in Table 4. Site-wide concentrations of PAHs were generally above "background" levels. However, the fact that concentrations at some sample locations exceeded the DEP background levels does not establish that their presence is due to an on-Site release. The DEP as well acknowledges in their Technical Update that:

> *"...In many cases, additional information about the location of the site, the nature of the soils or the known or suspected disposal practices may be used to*

justify the application of different literature values or site-specific background information."

The Site was reported in March 2002 for (a) the presence of VPH and EPH in soil adjacent to the northwest corner of the building (TP-1 Excavation Area), and (b) the presence of EPH in soil beneath the building floor slab. In addition, soil collected from historic borings located in both of these areas exhibited PAH concentrations above the applicable S-1 soil standards. The elevated PAHs detected in samples collected from the TP-1 Excavation Area were not petroleum-related but were more consistent with the visible evidence of ash and the creosote-like odors noted in this area. Similarly, the elevated PAHs in samples collected from the TP-7 and TP-8 Excavation Areas were not petroleum-related but were more consistent with the visible evidence of tar/asphalt and ash noted in these areas.

Given the nature of fill observed at the Site and the absence of petroleum sources or impacts, the elevated PAH concentrations detected in remaining Site soils were also compared to the CA/T database 95th percentile and maximum concentrations to evaluate if these were reasonably consistent with DEP's background levels. Table 4 indicates that although some of the detected concentrations exceeded the 95th percentile concentrations, the concentrations were still significantly below maximum background levels (in most cases by an order-of-magnitude).

On this basis, it is our opinion that the contaminants detected in remaining Site soils are consistent with urban fill contaminants (ash, tar, creosote, asphalt) and can be considered background conditions. Consequently, PAHs were eliminated as COCs from the risk characterization. Metals and EPH parameters were retained as COCs for the risk characterization.

5.3 Applicable Soil and Groundwater Classification

As discussed in Section 1.6, the applicable Method 1 soil classification for the Site is the S-1 category, which is the most stringent and considered most protective for unrestricted use. The applicable Method 1 groundwater classification for the Site is the GW-3 category. For purposes of the risk characterization, the EPH and metal concentrations were compared to the S-1/GW-3 Method 1 cleanup standards.

5.4 Comparison of Exposure-Point Concentrations to Method 1 Standards

The data sets for remaining shallow (0 to 3 feet) soils within the entire Disposal Site Area (i.e., the OHM-impacted areas inside and outside the building footprint – refer to Figure 2) were considered for calculation of a Site-wide exposure-point concentration (EPC) for comparison to Method 1 cleanup standards. In accordance with 310 CMR 40.0926(3)(c), EPCs for shallow soil were based on the 95th upper confidence limit on the mean (UCL95) for each data set described in Section 5.1. The arithmetic average of Site data was not used as the criteria given in the MCP, 310 CMR 40.0926(3)(b)(1), that no data point used be ten times greater the applicable Method 1 standard was not met. The UCL95 represents a concentration in which we are 95% confident or certain that the true mean of the sample population will be at or less than this value. The UCL95 is calculated as follows:

UCL95	=	95^{th} upper confidence limit on mean
	=	$x + t\ (s/n^{½})$

where:

x	=	sample data set mean (average concentration)
t	=	t-statistic (significance level or $\alpha = 0.05$)
s	=	standard deviation
n	=	number of samples

The UCL95 was calculated using an Excel spreadsheet which assumes that the data has a normal distribution. The UCL95 calculations for the Site are presented in Table 5. As shown in Table 5, all UCL95 concentrations for EPH and metals were below the Method 1 S-1/GW-3 cleanup standards.

5.5 Method 1 Risk Characterization Summary

Concentrations of Site-wide COCs were below applicable Method 1 S-1/GW-3 cleanup standards. Therefore, in accordance with 310 CMR 40.0973(7) a condition of No Significant Risk exists to human health, safety, public welfare and the environment for current and future use Site conditions. An Activity and Use Limitation (AUL) is not required to maintain a condition of No Significant Risk.

6.0 RESPONSE ACTION OUTCOME STATEMENT

The RAM activities to remove OHM-impacted soil located at the Site began on July 6, 2010 and concluded on October 22, 2010. Removal of OHM-impacted soil from the Site resulted in achieving contaminant concentration levels consistent with background concentrations associated with urban fill containing ash, and achieving a condition of No Significant Risk for current or future Site use. Weston & Sampson has, therefore, prepared the following Response Action Outcome (RAO) Statement to document the regulatory closure of RTN 1-14340 assigned to the release of OHM at the Site. The Site information required for an RAO is provided in this section. The information presented below in ***bold italic text*** corresponds to the requirements specified in 310 CMR 40.1056 of the MCP. The corresponding Site information is shown in normal text.

6.1 General Disposal Site Information

(a) the site or disposal site name, address and DEP Release Tracking Number(s)

Site Name:	Former Chapman Valve Manufacturing Facility
Site Address:	121 Pinevale Street Springfield, Massachusetts 01151
Release Tracking Number:	1-14340

(b) the class of Response Action Outcome

The requirements of a Class A-2 RAO have been met at this Site in accordance with 310 CMR 40.1036(2).

(c) for all RAOs other than RAOs where the concentrations of oil and hazardous material are consistent with or have been reduced to background or where a threat of release has been abated, the Method(s) (Methods 1, 2 or 3) used to characterize the risk of harm posed by the disposal site to health, public welfare and the environment, pursuant to 310 CMR 40.0900:

A Method 1 risk characterization was performed to characterize the human health risks at the Site, and evaluate whether a condition of No Significant Risk exists. The Method 1 risk characterization was determined to be applicable for characterization of risk to human health, public welfare and the environment because OHM impacts were limited to shallow soils beneath, and adjacent to, the concrete floor slab. Groundwater was not encountered during the scope of the project.

(d) the relationship of the Response Action Outcome Statement to any other Response Action Outcome Statements that have been filed for the disposal site, if applicable, together with a statement as to whether any additional response actions are needed for any other portions of the disposal site:

No RAO Statements have previously been filed for RTN 1-14340. Based on field investigations and the data provided in this report, no additional response actions are required.

(e) where the RAO Statement applies to a Class C RAO, indication as to whether a feasible Permanent Solution exists for the disposal site and whether any Post-Class C RAO Operation, Maintenance and/or Monitoring of the remedial action under 310 CMR 40.0897 and 310 CMR 40.0898 will be conducted:

Not Applicable

(f) indication as to whether the RAO is based upon the implementation of an Activity and Use Limitation, and if so, the type of Activity and Use Limitation implemented at the disposal site. In such cases, an Activity and Use Limitation Opinion accompanied by an Activity and Use Limitation Opinion form prescribed by the Department shall be appended to the RAO Statement pursuant to 310 CMR 40.1056(2)(g):

Based on the findings of the Method 1 risk characterization, an AUL is not required to support the RAO Statement because a condition of "No Significant Risk" to health, safety, public welfare or the environment exists for any potential future use.

(g) except where specifically exempted by the Department based upon the Department's level of involvement in the oversight of response actions at the site or disposal site, an Opinion from a Licensed Site Professional as to whether the requirements of the applicable class of Response Action Outcome specified in 310 CMR 40.1000 have been met:

George Naslas is the LSP of record for this Site. A copy of the LSP Opinion is provided in the BWSC form (BWSC-104) that is submitted to DEP (via e-DEP) as an electronic attachment. This report provides the necessary documentation and is submitted as an attachment to that form.

(h) a certification of the Response Action Outcome Statement and all documents submitted with the RAO Statement as required by 310 CMR 40.0009:

The certification of this RAO statement and LSP Opinion are provided in the BWSC form that is submitted to DEP (via e-DEP) as an electronic attachment. Public notification letters regarding the RAO have been sent to the City of Springfield Board of Health and Chief Municipal Officer. Copies of the public notification letters are included in Appendix A.

(i) indication as to whether oil and/or hazardous material exceed one or more applicable Upper Concentration Limits in Soil or Groundwater, as described at 310 CMR 40.0996:

Oil and/or Hazardous Material in soil and groundwater do not exceed one or more UCLs.

(j) indication as to whether the analytical data used to support the RAO was generated pursuant to the Department's Compendium of Analytical Methods:

The analytical data used to support the RAO was generated pursuant to the DEP's Compendium of Analytical Methods. Please refer to the Representativeness Evaluation and Data Usability Assessment in Section 4.0.

6.2 Supporting Documentation for the RAO

(a) as specified in 310 CMR 40.1003(4), a clear and accurate description of the location of the site or the location and boundaries of the disposal site or portion of disposal site to which the RAO applies. Such description shall reference, to the extent practicable, the location of the site, and location and boundaries of the disposal site or portion thereof relative to permanent or semi-permanent landmarks, and/or surveyed boundaries:

The Site is a former manufacturing facility located at 121 Pinevale Street in the City of Springfield. The location of the Site is illustrated in Figure 1 – Locus Map. Significant Site features and the Site boundary are shown in Figure 2 – Soil Sampling & Excavation Plan.

(b) for all Class A Response Action Outcomes and, to the extent feasible, for Class C Response Action Outcomes, a demonstration that all uncontrolled sources, as specified in 310 CMR 40.1003(5) have been eliminated or controlled:

The source of soil contamination is attributed to the historical release of petroleum at the Site. As part of the RAM remedial activities, contaminated fill material was excavated and disposed of at licensed disposal facilities. At the conclusion of excavation activities, confirmatory samples were collected and analyzed. Based on analytical results for soil samples, remaining soils are below Method 1 S-1/GW-3 standards for EPH and metals and are indicative of background conditions for PAHs in urban fill containing coal ash or wood ash. Groundwater was not encountered during remediation activities. Further information detailing the scope and sequence of the completed remedial measures are included in Section 3.0 of this report. There are no ongoing sources of oil and/or hazardous material contamination at the Site.

Groundwater was not encountered during soil remediation activities. Groundwater data from Site monitoring wells indicates low levels of PAH compound contamination in groundwater. Contaminant concentrations are below the applicable Method 1 GW-3 cleanup standards by an order of magnitude.

(c) for all Class A and B Response Action Outcomes, information supporting the conclusion that a level of No Significant Risk has been achieved or exists:

In accordance with 310 CMR 40.0973(7), a condition of No Significant Risk has been achieved if no Exposure Point Concentration is greater than the applicable MCP Method 1 Soil or Groundwater standard. As described in Section 5.0, a Method 1 risk characterization was performed to evaluate whether contaminants at the Site pose a significant risk of harm to human health and public welfare and the environment under current and future Site conditions. Based on the Method 1 Risk Characterization described therein, Site-wide Exposure Point Concentrations do not exceed the applicable Method 1 clean-up standards and a condition of No

Significant Risk exists for this Site. In addition, no environment receptors exist at the Site, therefore, no significant risk of harm to the environment exists under current and future Site conditions.

(d) for all Class C Response Action Outcomes, information supporting the conclusion that no substantial hazards remain at the disposal site:

Not Applicable

(e) for all Class A Response Action Outcomes, information documenting the extent to which levels of oil and/or hazardous material in the environment have been reduced to background, and for all Class A-2 and A-3 RAOs, the results of the feasibility evaluation conducted pursuant to 310 CMR 40.0860 demonstrating that the achievement of background is not feasible:

Based on information presented in the July 16, 2004 DEP document entitled *Conducting Feasibility Evaluations Under The MCP,* Policy #WSC-04-160, background levels are considered "approached" when the concentrations of oil and/or hazardous materials (OHM) in each sampling location are at or below the applicable MCP Method 1 S-1 cleanup standards. Confirmatory soil samples collected at the Site from a number of sampling locations contained contaminant concentrations above their applicable MCP Method 1 cleanup standards. Therefore, background levels are not considered "approached" at the Site.

A total of approximately 1,725 tons of OHM-impacted soil have been excavated and removed to reduce EPH (associated with the historical release of petroleum) and metal contaminant concentrations below the Method 1 cleanup standards, such that remaining soils are consistent with background levels attributable to urban fill containing coal or wood ash. With respect to feasibility of restoration to background, remediation is technologically feasible. However, additional actions to further reduce OHM-impacted soils would involve additional excavation, transportation, and disposal of such materials. The costs to implement these proposed remedial alternatives would be greater than 20 percent of the costs of response actions to date, and are substantial and disproportionate to the incremental benefit of risk reduction, environmental restoration, and monetary and non-pecuniary values. Therefore, it is Weston & Sampson's opinion that reducing contaminant concentrations to background levels is not feasible pursuant to 310 CMR 40.0860(4)(b) and (6)(a).

The remaining contaminant concentrations in soil at the Site constitute a current and future level of No Significant Risk to human health, public welfare, safety, and the environment without the implementation of an AUL. Based on the Method 1 risk assessment findings, further assessment and remedial activities at the Site are not necessary, and an AUL, as defined in the MCP at 310 CMR 40.1012, is not necessary to maintain a condition of No Significant Risk at the Site.

(f) for all Class A-4 and B-3 Response Action Outcomes, the results of the evaluation conducted pursuant to 310 CMR 40.0860 demonstrating that the achievement of Upper Concentration Limits in Soil located at a depth greater than fifteen feet from the ground surface or in the area beneath an engineered barrier is not feasible:

Not Applicable

(g) a copy of any and all Activity and Use Limitations certified by the appropriate registry of deeds or land registration office which have been implemented under 310 CMR 40.1070:

Not Applicable

(h) where the RAO is based upon the implementation of an Activity and Use Limitation, an Activity and Use Limitation Opinion accompanied by an Activity and Use Limitation Opinion form prescribed by the Department as specified in 310 CMR 40.1071 or 310 CMR 40.1074, whichever is applicable:

Not Applicable

(i) a description of any operation, maintenance, and/or monitoring that will be required to confirm and/or maintain those conditions at the disposal site upon which the RAO is based:

Not Applicable

(j) for all Class C Response Action Outcomes, a copy of the plan, as specified in 310 CMR 40.0861(2)(h), which presents definitive and enterprising steps to be taken toward achieving a Permanent Solution at the disposal site:

Not Applicable

(k) for all Class A, B, or C Response Action Outcomes, a Data Usability Assessment documenting that the data relied upon is scientifically valid and defensible, and of a sufficient level of precision, accuracy, and completeness to support the RAO, and a Data Representativeness Evaluation, documenting the adequacy of the spatial and temporal data sets to support the RAO:

Please refer to the Representativeness Evaluation and Data Usability Assessment in Section 4.0.

7.0 LIMITATIONS

This Report was prepared for the use of the Springfield Redevelopment Authority, exclusively. The findings provided by Weston & Sampson in this report are based solely on the information reported in this document. Future sampling, and/or information that was not available to Weston & Sampson at the time of the study, may result in a modification of the findings stated in this report.

Should additional information become available concerning this Site or neighboring properties, which could directly impact the Site in the future, that information should be made available to Weston & Sampson for review so that, if necessary, conclusions presented in this report may be modified. The conclusions of this report are based on Site conditions observed by Weston & Sampson personnel at the time of the study, information provided by the Springfield Redevelopment Authority and samples collected and analyzed on the dates shown or stated in this report. This report has been prepared in accordance with generally accepted engineering and geological practices. No other warranty, express or implied, is made.

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APPENDIX A

Public Notification Letters

Five Centennial Drive
Peabody, MA 01960-7985
tel: 978-532-1900 fax: 978-977-0100
www.westonandsampson.com

City of Springfield – 121 Pinevale Street Property
Weston & Sampson Project No. 2090277

March 1, 2011

The Honorable Domenic J. Sarno
Mayor's Office
City of Springfield
36 Court Street
Springfield, Massachusetts, 01103

Re: **Release Abatement Measure Completion Report and Response Action Outcome Statement**
Former Chapman Valve Manufacturing Facility, 121 Pinevale Street, Springfield
DEP Release Tracking Number 1-14340

Dear Mayor Sarno:

Weston & Sampson, Inc., on behalf of the Springfield Redevelopment Authority is hereby notifying your office that a Release Abatement Measure (RAM) Completion Report and Response Action Outcome (RAO) Statement has been submitted to the Massachusetts Department of Environmental Protection (DEP) for the above-referenced location (the Site). The RAM activities included the removal and disposal of approximately 1,725 tons of petroleum and lead-impacted soil, following the demolition of the former manufacturing building at the Site. A Permanent Solution for closure of the Site has been achieved under a Class A-2 RAO.

The RAM Completion Report and RAO Statement is on file and available for review at DEP's Western Regional Office in Springfield, Massachusetts, and at the Springfield Office of Planning and Economic Development. This notification is provided in accordance with public involvement requirements of the Massachusetts Contingency Plan (MCP), 310 CMR 40.1403(3)(f). If you have any comments or questions regarding the site, please contact the undersigned at 978-532-1900, extension 2279.

Very truly yours,

WESTON & SAMPSON, INC.

George D. Naslas, P.G., LSP
Associate

cc: DEP-WERO, Springfield, MA, File

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Five Centennial Drive
Peabody, MA 01960-7985
tel: 978-532-1900 fax: 978-977-0100
www.westonandsampson.com

City of Springfield – 121 Pinevale Street Property
Weston & Sampson Project No. 2090277

March 1, 2011

Ms. Helen R. Caulton-Harris, Director
Springfield Board of Health and Human Services
95 State Street
Springfield, Massachusetts 01103

Re: **Release Abatement Measure Completion Report and Response Action Outcome Statement**
Former Chapman Valve Manufacturing Facility, 121 Pinevale Street, Springfield
DEP Release Tracking Number 1-14340

Dear Ms. Caulton-Harris:

Weston & Sampson, Inc., on behalf of the Springfield Redevelopment Authority is hereby notifying your office that a Release Abatement Measure (RAM) Completion Report and Response Action Outcome (RAO) Statement has been submitted to the Massachusetts Department of Environmental Protection (DEP) for the above-referenced location (the Site). The RAM activities included the removal and disposal of approximately 1,725 tons of petroleum and lead-impacted soil, following the demolition of the former manufacturing building at the Site. A Permanent Solution for closure of the Site has been achieved under a Class A-2 RAO.

The RAM Completion Report and RAO Statement is on file and available for review at DEP's Western Regional Office in Springfield, Massachusetts, and at the Springfield Office of Planning and Economic Development. This notification is provided in accordance with public involvement requirements of the Massachusetts Contingency Plan (MCP), 310 CMR 40.1403(3)(f). If you have any comments or questions regarding the site, please contact the undersigned at 978-532-1900, extension 2279.

Very truly yours,

WESTON & SAMPSON, INC.

George D. Naslas

George D. Naslas, P.G., LSP
Associate

cc: DEP-WERO, Springfield, MA, File

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APPENDIX B

Historic Soil and Groundwater Data Summary Tables and Site Plan

Table 1
Soil Analytical Data
Pinevale Street Property

Boring No.:	OTO-9	OTO-11	OTO-11	B-1	B-1	Floor	OTO-12	OTO-12	OTO-13	OTO-14	OTO-15 (duplicate)	OTO-15D (duplicate)	OTO-16	S-1 Standards
Depth (feet):	0-2	0-2	10-12	0-2	2-4	Grab*	0-2'	2-4'	2-4'	0-2'	2-4'	2-4'	0-2'	
Date Collected:	8/25/00	8/25/00	8/25/00	8/25/00	8/25/00	8/25/00	12/16/02	12/16/02	12/16/02	12/16/02	12/16/02	12/16/02	12/16/02	
Volatile Organic Compounds (VOCs)														
cis-1,2 Dichloroethene	0.088	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	100
1,2,4-Trimethylbenzene	12.00	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	NA
1,3,5-Trimetheylbenzene	4.6	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	NA
4-Isopropyltoluene	0.33	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	NA
Isopropylbenzene	0.22	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	500
Toluene	0.64	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	NA
n-Propylbenzene	0.58	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	NA
sec-Butylbenzene	0.41	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	500
Ethylbenzene	0.34	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	500
Xylenes	4.20	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	0.082	100
Naphthalene	3.00	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	100
Volatile Petroleum Hydrocarbons (VPH)														
C5-C8 Aliphatics	17	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	100
C9-C12 Aliphatics	20	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	1000
C9-C10 Aromatics	180	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	100
Toluene	0.65	--	ND	--			ND	ND	ND	ND	ND	ND	ND	500
Ethylbenzene	0.39	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	500
m,p-Xylene	2.1	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	500
Naphthalene	3.7	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	100
o-Xylene	1.9	--	ND	--	--	--	ND	ND	ND	ND	ND	ND	ND	500
Extractable Petroleum Hydrocarbons (EPH)														
C9-C18 Aliphatics	140	ND	ND	69	ND	3200	ND	ND	ND	ND	ND	ND	ND	1000
C19-C36 Aliphatics	6300	ND	ND	230	ND	3200	ND	ND	ND	200	ND	ND	450	2500
C11-C22 Aromatics	290	86	ND	12000	ND	3800	ND	ND	ND	220	ND	ND	80	800
2-Methylnaphthalene	1.6	ND	ND	19	ND	1.4	ND	ND	ND	ND	ND	ND	ND	500
Acenaphthene	ND	0.46	ND	26	ND	5	ND	ND	ND	ND	ND	ND	ND	1000
Acenaphthylene	ND	0.61	ND	220	0.27	8.8	ND	ND	ND	ND	ND	ND	ND	100
Anthracene	0.42	2.2	ND	280	ND	22	ND	ND	ND	0.61	ND	ND	0.79	1000
Benz(a)anthracene	1.5	6.7	0.37	330	ND	230	0.75	ND	ND	3.3	ND	ND	3.8	0.7
Benzo(a)pyrene	0.94	5.7	0.32	270	ND	270	0.78	ND	ND	2.9	ND	ND	4.1	0.7
Benzo(b)fluoranthene	0.79	6.8	0.39	310	ND	420	1.4	ND	ND	4.3	ND	ND	5.6	0.7
Benzo(k)fluoranthene	0.81	2.4	ND	54	ND	100	1.4	ND	ND	1.2	ND	ND	1.7	7
Benzo(g,h,i)perylene	0.65	3.2	ND	150	ND	69	0.45	ND	ND	1.1	ND	ND	1.8	1000
Chrysene	2.9	5.1	0.45	240	ND	170	0.8	ND	ND	3.7	ND	ND	3.9	7
Dibenz(a,h)anthracene	ND	0.97	ND	17	ND	32	ND	ND	ND	ND	ND	ND	0.54	0.7
Fluoranthene	1.9	15	1.1	850	0.31	200	1.5	ND	ND	5.6	ND	ND	6.6	1000
Fluorene	0.29	0.63	ND	180	ND	3.6	ND	ND	ND	ND	ND	ND	ND	1000
Indeno(1,2,3-cd)pyrene	0.38	3.2	ND	170	ND	80	0.48	ND	ND	0.87	ND	ND	2.1	0.7
Naphthalene	1.6	ND	ND	27	ND	1.8	ND	ND	ND	ND	ND	ND	ND	100
Phenanthrene	1.3	8.1	0.85	1200	0.28	64	0.77	ND	ND	2.6	ND	ND	4.4	100
Pyrene	2.4	12	0.9	680	ND	580	1.2	ND	ND	5.2	ND	ND	6.3	700
Polychlorinated Biphenyls (PCBs)														
Aroclor 1254	ND	ND	--	ND	ND	1.3	--	--	--	--	--	--	--	2
Aroclor 1260	ND	ND	--	ND	ND	1.0	--	--	--	--	--	--	--	2
Total Metals														
Arsenic	ND	ND	ND	--	--	48	--	--	--	--	--	--	--	30
Barium	69	49	58	--	--	470	--	--	--	--	--	--	--	1000
Cadmium	ND	ND	ND	--	--	320	--	--	--	--	--	--	--	30
Chromium	19	19	16	--	--	2400	--	--	--	--	--	--	--	1000
Lead	14	6.3	6.2	--	--	ND	--	--	--	--	--	--	--	300
Mercury	ND	ND	ND	--	--	42	--	--	--	--	--	--	--	20

NOTES:

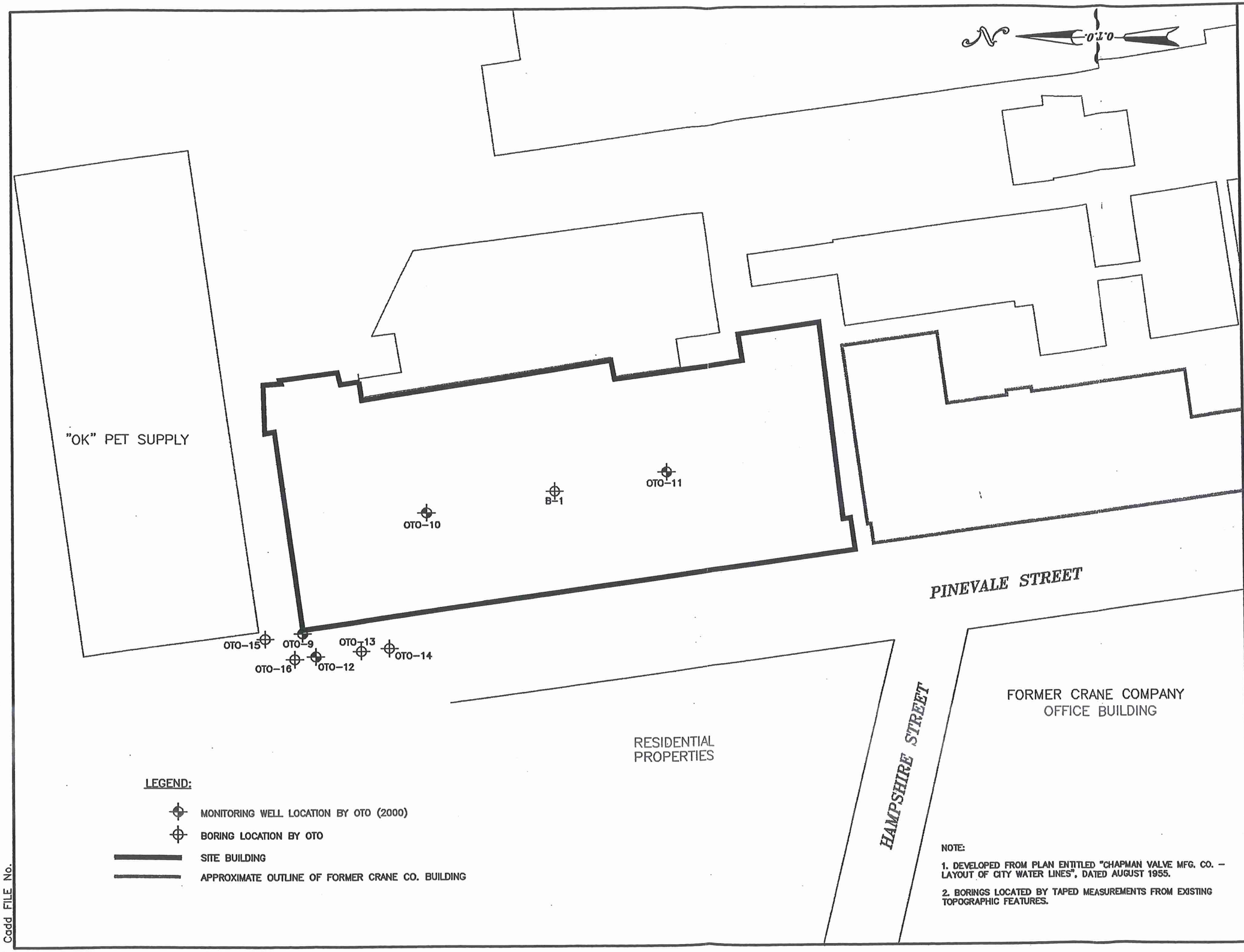
1. Concentrations in mg/kg.
2. Only compounds detected in at least one sample are shown. "--" indicates not analyzed. "ND" indicates not detected.

* This sample was collected from the interior floor surface of the site building, and is not representative of environmental conditions.

Table 3
Groundwater Analytical Data
Pinevale Street Property

Monitoring Well:	OT-10	OT-11	RCGW-2 Standards
Date Collected:	9/8/00	9/8/00	
Volatile Organic Compounds (VOCs)	ND	ND	vary
Volatile Petroleum Hydrocarbons (VPH)			
C5-C8 Aliphatic Hydrocarbons	ND	ND	1000
C9-C12 Aliphatic Hydrocarbons	ND	ND	1000
C9-C10 Aromatic Hydrocarbons	ND	ND	4000
Extractable Petroleum Hydrocarbons (EPH)			
C9-C18 Aliphatic Hydrocarbons	ND	ND	1000
C19-C36 Aliphatic Hydrocarbons	ND	ND	20000
C11-C22 Aromatic Hydrocarbons	ND	ND	30000
Phenanthrene	2.1	ND	50
RCRA-8 Dissolved Metals			
Arsenic	28	37	400

Note:
1. Concentrations in ug/l.
2. Analytes including other PAHs and RCRA-8 metals were analyzed but not detected.
3. ND = Not detected.



DESIGNED BY: JEG DRAWN BY: CDA
REVIEWED BY: DJM DATE: DEC. 5, 2000
REV: FEBRUARY 28, 2003/CDA

O'REILLY, TALBOT & OKUN ASSOCIATES, Inc.

SCALE IN FEET
1"= 60'
0' 30' 60' 120'

INDIAN ORCHARD BROWNFIELDS SITE
SPRINGFIELD, MASSACHUSETTS

SITE PLAN
PINEVALE STREET PROPERTY

PROJECT No.
J76-22-01

FIGURE No.
2

Table 1
Pre-Characterization Analytical Results - December 2009
Chapman Valve, Pinevale Street
Springfield, Massachusetts
December 17, 2009

Parameter	Units	Method 1 S-1/GW-3 Standards	TP -1 (0.5-1.5ft)	TP -1 (3-4ft)	TP -2 (0.5-1.5ft) (See Note 4)	TP -2A (0.5-1.5ft) (See Note 4)	TP -3 (4-5ft)	TP -4 (4-5ft)	TP -5 (1-2ft)	TP -5 (6-7ft)	TP -6 (3-4ft)	TP -7 (2-3ft)	TP -8 (0.5-1.5ft)
Metals													
Arsenic	mg/kg	20	~~<3.6~~	<3.6	<3.5	NA	<3.5	<3.4	<3.8	<3.5	<3.5	~~<3.7~~	~~<3.5~~
Barium	mg/kg	1,000	~~**36.6**~~	**42.1**	**40.1**	NA	**46.4**	**22.2**	**30.5**	**20.4**	**46.6**	~~**28.6**~~	~~**31.4**~~
Cadmium	mg/kg	2	~~<0.73~~	<0.73	<0.70	NA	<0.71	<0.69	<0.76	<0.69	<0.70	~~<0.75~~	~~<0.70~~
Chromium	mg/kg	30	~~**16.8**~~	**10.2**	**30**	**16**	**9.4**	**5.5**	**7.6**	**4.0**	**9.7**	~~**7.5**~~	~~**7.2**~~
Chromium, Hexavalent	mg/kg	30	~~NA~~	NA	NA	**0.17**	NA	NA	NA	NA	NA	~~NA~~	~~NA~~
Chromium, Trivalent	mg/kg	1000	~~NA~~	NA	NA	NA	NA	NA	NA	NA	NA	~~NA~~	~~NA~~
Lead	mg/kg	300	~~**51.4**~~	<7.2	**32.6**	NA	<7.1	**8.4**	<7.5	<6.9	<7.0	~~**16.7**~~	~~**23.1**~~
Mercury	mg/kg	20	~~<0.038~~	<0.035	<0.035	NA	<0.032	<0.032	<0.038	<0.034	<0.035	~~**0.052**~~	~~**0.048**~~
Selenium	mg/kg	400	~~<7.3~~	<7.2	<6.9	NA	<7.1	<6.8	<7.5	<6.9	<7.0	~~<7.5~~	~~<7.0~~
Silver	mg/kg	100	~~<0.73~~	<0.73	<0.70	NA	<0.71	<0.69	<0.76	<0.69	<0.70	~~<0.75~~	~~<0.70~~
Extractable Petroleum Hydrocarbons													
C9-C18 Aliphatics	mg/kg	1,000	~~<34.2~~	<32.3	<32.6	NA	<32.6	<30.9	<34.2	<32.3	<32.9	~~<32.5~~	~~<31.1~~
C19-C36 Aliphatics	mg/kg	3,000	~~**210**~~	**60.8**	<32.6	NA	<32.6	<30.9	<34.2	<32.3	<32.9	~~<32.5~~	~~<31.1~~
C11-C22 Aromatics	mg/kg	1,000	~~**93.9**~~	<32.3	<32.6	NA	<32.6	<30.9	<34.2	<32.3	**41.2**	~~**77.9**~~	~~**420**~~
Total Petroleum Hydrocarbons	mg/kg	1,000	~~**303.9**~~	**60.8**	<32.6	NA	<32.6	<30.9	<34.2	<32.3	**41.2**	~~**77.9**~~	~~**420**~~
Polycyclic Aromatic Hydrocarbons													
2-Methylnaphthalene	mg/kg	300	~~<0.46~~	<0.43	<0.44	NA	<0.43	<0.41	<0.46	<0.43	<0.44	~~**1.0**~~	~~**0.47**~~
Acenaphthene	mg/kg	1000	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	<0.88	~~<0.87~~	~~**0.97**~~
Naphthalene	mg/kg	500	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	<0.88	~~**2.0**~~	~~**1.29**~~
Phenanthrene	mg/kg	500	~~<0.91~~	<0.86	<0.87	NA	**1.44**	<0.82	<0.91	<0.86	**4.29**	~~**15**~~	~~**28.3**~~
Acenaphthylene	mg/kg	10	~~<0.46~~	<0.43	<0.44	NA	<0.43	<0.41	<0.46	<0.43	**0.45**	~~**0.96**~~	~~**1.51**~~
Anthracene	mg/kg	1000	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	**1.1**	~~**3.41**~~	~~**5.8**~~
Benzo(a)anthracene	mg/kg	7	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	**1.55**	~~**4.66**~~	~~**25.7**~~
Benzo(a)pyrene	mg/kg	2	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	**1.24**	~~**3.21**~~	~~**20.7**~~
Benzo(b)fluoranthene	mg/kg	7	~~<0.91~~	<0.86	**0.93**	NA	<0.87	<0.82	<0.91	<0.86	**1.45**	~~**4.08**~~	~~**24.2**~~
Benzo(g,h,i)perylene	mg/kg	1000	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	<0.88	~~**1.36**~~	~~**4.63**~~
Benzo(k)fluoranthene	mg/kg	70	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	<0.88	~~**1.31**~~	~~**2.9**~~
Chrysene	mg/kg	70	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	**1.24**	~~**3.81**~~	~~**21.1**~~
Dibenzo(a,h)Anthracene	mg/kg	0.7	~~<0.46~~	<0.43	<0.44	NA	<0.43	<0.41	<0.46	<0.43	<0.44	~~**0.49**~~	~~**1.48**~~
Fluoranthene	mg/kg	1000	~~**1.01**~~	<0.86	<0.87	NA	**1.39**	<0.82	<0.91	<0.86	**3.54**	~~**11.6**~~	~~**53.3**~~
Fluorene	mg/kg	1000	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	<0.88	~~**1.28**~~	~~**1.31**~~
Indeno(1,2,3-cd)Pyrene	mg/kg	7	~~<0.91~~	<0.86	<0.87	NA	<0.87	<0.82	<0.91	<0.86	<0.88	~~**1.67**~~	~~**6.74**~~
Pyrene	mg/kg	1000	~~**1.02**~~	<0.86	<0.87	NA	**1.06**	<0.82	<0.91	<0.86	**3.0**	~~**7.98**~~	~~**47.8**~~
Total PAHs	mg/kg	NS	~~**2.03**~~	<13.33	**0.93**	NA	**3.89**	<12.71	<14.12	<13.33	**17.86**	~~**63.82**~~	~~**248.2**~~
Polychlorinated Biphenyls													
Arlocor 1016	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1221	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1232	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1242	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1248	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1254	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1260	mg/kg	NS	~~**0.0666**~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1262	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Arlocor 1268	mg/kg	NS	~~<0.0563~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
Total PCBs	mg/kg	2	~~**0.0666**~~	<0.0531	<0.0535	NA	<0.0557	<0.0535	<0.0565	<0.0546	<0.0557	~~<0.0573~~	~~<0.0529~~
VOCs													
Naphthalene	mg/kg	500	~~<0.0490~~	<0.0406	<0.0390	NA	<0.0334	<0.0301	<0.0447	<0.0314	<0.0395	~~<0.0404~~	~~**0.149**~~
Total VOCs	mg/kg	NS	~~<0.0490~~	<0.0406	<0.0390	NA	<0.0334	<0.0301	<0.0447	<0.0314	<0.0395	~~<0.0404~~	~~**0.149**~~
Conductivity	umhos/cm	NS	~~NA~~	NA	NA	NA	NA	NA	NA	NA	NA	~~NA~~	~~NA~~

QA/QC by LEM 8/9/10

Notes:

1. Results shown in bold were detected at the concentration listed.
2. Results shown in bold with tan shading exceed the Method 1 S-1/GW-3 criteria.
3. Results for Total VOCs, Total PAHs, and Total PCBs are the sum of detected analytes.
4. Sample TP-2A is a resample of TP-2 for hexavelent chromium analysis.
5. Method 1 S-1/GW-3 standards taken from Massachusetts Contingency Plan 310 CMR 40.0000 (February 14, 2008).

Abbreviations:

EPA = Environmental Protection Agency
MCP = Massachusetts Contingency Plan
mg/kg = milligrams per kilogram
NA = Not Analyzed
NS = No Standard
VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
PCBs = Polychlorinated Biphenyls

BOLD Exceeds the Method 1 S-1/GW-3 Criteria
~~strikethrough~~ Soil was excavated from this location during RAM activities

Table 2
Pre-Characterization Analytical Results - June/July 2010
Chapman Valve, Pinevale Street
Springfield, Massachusetts
June 21, July 6, and July 16, 2010

Parameter	Units	Method 1 S-1/GW-3 Standards	WS -1 (2.5-3.0ft) 21-Jun-10	WS -2 (2.5-3.0ft) 21-Jun-10	WS -3 (2.0-2.5ft) 21-Jun-10	WS -4 (2.5-3.0ft) 21-Jun-10	WS -5 (1.5-2.0ft) 21-Jun-10	WS -6 (1.5-2.0ft) 21-Jun-10	WS -7 (2.5-3.0ft) 21-Jun-10	WS -8 (2.0-2.5ft) 21-Jun-10	WS -9 (2.0-2.5ft) 21-Jun-10	WS-10 (2.5-3.0ft) 21-Jun-10	WS-11 (2.5-3.0ft) 21-Jun-10	DUP-1 Duplicate of WS-11 21-Jun-10	WS-12 (2.5-3.0ft) 21-Jun-10	WS-13 (0.5-1.0ft) 21-Jun-10	WS-14 (2.5-3.0ft) 21-Jun-10	WS-15 (1.0-1.5ft) 21-Jun-10	WS-16 (1.0-1.5ft) 16-Jul-10	WS-17 (1.0-1.5ft) 16-Jul-10	WS-18 (1.0-1.5ft) 16-Jul-10	WS-19 (1.0-1.5ft) 16-Jul-10	WS-24 (1.0-1.5ft) 6-Jul-10
Metals																							
Arsenic	mg/kg	20	<2.5	~~<2.5~~	<2.2	~~<2.5~~	~~5.8~~	<2.1	<2.2	<2.7	<2.5	<2.3	<2.7	<2.4	<2.6	~~<2.6~~	~~<2.2~~	<2.2	NA	NA	NA	NA	<2.6
Barium	mg/kg	1,000	**13.3**	~~41.5~~	**35**	~~34.7~~	~~40.5~~	**36.2**	**35.1**	**47.8**	**28.9**	**28.2**	**22.3**	**17**	**68.5**	~~42.3~~	~~40.6~~	**20.1**	NA	NA	NA	NA	**18**
Cadmium	mg/kg	2	<0.50	~~<0.50~~	<0.45	~~<0.50~~	~~<0.51~~	<0.43	<0.44	<0.55	<0.50	<0.46	<0.54	<0.48	<0.52	~~0.85~~	~~<0.44~~	<0.45	NA	NA	NA	NA	<0.26
Chromium	mg/kg	30	**5.6**	~~9.3~~	**8.1**	~~8.3~~	~~9.1~~	**8.9**	**7.4**	**9.3**	**7.6**	**10.8**	**9.1**	**10.2**	**12.2**	~~7.2~~	~~8.6~~	**5.4**	NA	NA	NA	NA	**6.2**
Lead	mg/kg	300	<5.0	~~77~~	**16.8**	~~5.4~~	~~362~~	**8.8**	**266**	**27.1**	<5.0	**6.4**	**6.1**	<4.8	<5.2	~~4,260~~	~~<4.4~~	<4.4	**3.4**	**9.2**	**19**	**81**	**140**
Mercury	mg/kg	20	<0.03	~~0.07~~	**0.034**	~~<0.035~~	~~0.067~~	**0.181**	**0.23**	**0.081**	<0.032	<0.034	<0.03	<0.033	<0.031	~~0.119~~	~~<0.032~~	<0.032	NA	NA	NA	NA	**0.047**
Selenium	mg/kg	400	<5.0	~~<5.0~~	<4.5	~~<5.0~~	~~<5.1~~	<4.3	<4.4	<5.4	<5.0	<4.6	<5.4	<4.8	<5.2	~~<5.2~~	~~<4.4~~	<4.4	NA	NA	NA	NA	<5.2
Silver	mg/kg	100	<0.50	~~<0.50~~	<0.45	~~<0.50~~	~~3.39~~	<0.43	<0.44	<0.55	<0.50	<0.46	<0.54	<0.48	<0.52	~~5.96~~	~~<0.44~~	<0.45	NA	NA	NA	NA	<0.52
TCLP Metals																							
TCLP Lead	mg/l	NS	NA	~~NA~~	NA	~~NA~~	~~0.207~~	NA	**0.523**	NA	NA	NA	NA	NA	NA	~~5.94~~	~~NA~~	NA	NA	NA	NA	NA	NA
Extractable Petroleum Hydrocarbons																							
C9-C18 Aliphatics	mg/kg	1,000	<31.4	~~<33.1~~	<32.8	~~<31~~	~~<33.1~~	<31.7	<33	<35.6	<31.2	<32.3	<33.2	<33.1	<33	~~<33.1~~	~~<31.8~~	<30.1	NA	NA	NA	NA	<10
C19-C36 Aliphatics	mg/kg	3,000	<31.4	~~<33.1~~	<32.8	~~<31~~	~~<33.1~~	<31.7	<33	<35.6	<31.2	<32.3	<33.2	<33.1	<33	~~<33.1~~	~~<31.8~~	<30.1	NA	NA	NA	NA	<10
C11-C22 Aromatics	mg/kg	1,000	<31.4	~~47.5~~	<32.8	~~<31~~	~~<33.1~~	**59.9**	<33	**37.9**	<31.2	<32.3	**47.7**	<33.1	<33	~~100~~	~~142~~	**56.8**	NA	NA	NA	NA	<10
Total Petroleum Hydrocarbons	mg/kg	1,000	ND	~~47.5~~	ND	~~ND~~	~~ND~~	**59.9**	ND	**37.9**	ND	ND	**47.7**	ND	ND	~~100~~	~~142~~	**56.8**	NA	NA	NA	NA	<10
Polycyclic Aromatic Hydrocarbons																							
2-Methylnaphthalene	mg/kg	300	<0.42	~~<0.44~~	<0.44	~~<0.41~~	~~<0.44~~	**0.68**	<0.44	<0.47	<0.42	<0.43	<0.44	<0.44	<0.44	~~<0.44~~	~~<0.42~~	<0.40	NA	NA	NA	NA	<0.10
Acenaphthene	mg/kg	1000	<0.84	~~<0.88~~	<0.87	~~<0.83~~	~~<0.88~~	<0.84	<0.88	<0.95	<0.83	<0.86	<0.89	<0.88	<0.88	~~<0.88~~	~~<0.85~~	<0.80	NA	NA	NA	NA	<0.10
Naphthalene	mg/kg	500	<0.84	~~<0.88~~	<0.87	~~<0.83~~	~~<0.88~~	**4.28**	<0.88	<0.95	<0.83	<0.86	<0.89	<0.88	<0.88	~~<0.88~~	~~<0.85~~	<0.80	NA	NA	NA	NA	<0.10
Phenanthrene	mg/kg	500	<0.84	~~3.53~~	<0.87	~~<0.83~~	~~<0.88~~	**5.53**	<0.88	**1.51**	<0.83	<0.86	**2.17**	<0.88	<0.88	~~8.55~~	~~15.9~~	**2.16**	NA	NA	NA	NA	**0.27**
Acenaphthylene	mg/kg	10	<0.42	~~<0.44~~	<0.44	~~<0.41~~	~~<0.44~~	<0.42	<0.44	<0.47	<0.42	<0.43	<0.44	<0.44	<0.44	~~0.56~~	~~1.50~~	<0.40	NA	NA	NA	NA	<0.10
Anthracene	mg/kg	1000	<0.84	~~<0.88~~	<0.87	~~<0.83~~	~~<0.88~~	<0.84	<0.88	<0.95	<0.83	<0.86	<0.89	<0.88	<0.88	~~2.45~~	~~3.27~~	<0.80	NA	NA	NA	NA	<0.10
Benzo(a)anthracene	mg/kg	7	<0.84	~~1.66~~	<0.87	~~<0.83~~	~~<0.88~~	**3.38**	<0.88	<0.95	<0.83	<0.86	**1.87**	<0.88	<0.88	~~4.18~~	~~6.66~~	**1.97**	NA	NA	NA	NA	**0.44**
Benzo(a)pyrene	mg/kg	2	<0.84	~~1.54~~	<0.87	~~<0.83~~	~~<0.88~~	**3.76**	<0.88	<0.95	<0.83	<0.86	**1.68**	<0.88	<0.88	~~3.21~~	~~5.05~~	**1.63**	NA	NA	NA	NA	**0.42**
Benzo(b)fluoranthene	mg/kg	7	<0.84	~~1.67~~	<0.87	~~<0.83~~	~~<0.88~~	**4.21**	<0.88	<0.95	<0.83	<0.86	**1.83**	<0.88	<0.88	~~3.98~~	~~5.93~~	**1.74**	NA	NA	NA	NA	**0.54**
Benzo(g,h,i)perylene	mg/kg	1000	<0.84	~~0.95~~	<0.87	~~<0.83~~	~~<0.88~~	**2.30**	<0.88	<0.95	<0.83	<0.86	**1.01**	<0.88	<0.88	~~1.73~~	~~2.57~~	**0.88**	NA	NA	NA	NA	**0.32**
Benzo(k)fluoranthene	mg/kg	70	<0.84	~~<0.88~~	<0.87	~~<0.83~~	~~<0.88~~	**1.47**	<0.88	<0.95	<0.83	<0.86	<0.89	<0.88	<0.88	~~1.43~~	~~1.75~~	<0.80	NA	NA	NA	NA	**0.19**
Chrysene	mg/kg	70	<0.84	~~1.56~~	<0.87	~~<0.83~~	~~<0.88~~	**3.19**	<0.88	<0.95	<0.83	<0.86	**1.48**	<0.88	<0.88	~~3.50~~	~~4.71~~	**1.50**	NA	NA	NA	NA	**0.40**
Dibenzo(a,h)Anthracene	mg/kg	0.7	<0.42	~~<0.44~~	<0.44	~~<0.41~~	~~<0.44~~	**0.52**	<0.44	<0.47	<0.42	<0.43	<0.44	<0.44	<0.44	~~0.52~~	~~0.80~~	<0.40	NA	NA	NA	NA	<0.10
Fluoranthene	mg/kg	1000	<0.84	~~3.55~~	<0.87	~~<0.83~~	~~<0.88~~	**6.47**	<0.88	**1.76**	<0.83	<0.86	**3.36**	<0.88	<0.88	~~8.14~~	~~16.80~~	**4.05**	NA	NA	NA	NA	**0.87**
Fluorene	mg/kg	1000	<0.84	~~<0.88~~	<0.87	~~<0.83~~	~~<0.88~~	<0.84	<0.88	<0.95	<0.83	<0.86	<0.89	<0.88	<0.88	~~<0.88~~	~~1.24~~	<0.80	NA	NA	NA	NA	<0.10
Indeno(1,2,3-cd)Pyrene	mg/kg	7	<0.84	~~0.92~~	<0.87	~~<0.83~~	~~<0.88~~	**2.25**	<0.88	<0.95	<0.83	<0.86	**1.08**	<0.88	<0.88	~~1.84~~	~~2.63~~	**0.94**	NA	NA	NA	NA	**0.28**
Pyrene	mg/kg	1000	<0.84	~~3.30~~	<0.87	~~<0.83~~	~~<0.88~~	**5.62**	<0.88	**1.46**	<0.83	<0.86	**2.97**	<0.88	<0.88	~~6.99~~	~~14.4~~	**3.41**	NA	NA	NA	NA	**0.90**
Semi-Volatile Organic Compounds																							
1,1 Biphenyl	mg/kg	1,000	<0.007	~~<0.036~~	<0.007	~~<0.007~~	~~<0.008~~	<0.007	<0.007	<0.038	<0.007	<0.007	<0.037	<0.008	<0.007	~~<0.038~~	~~0.167~~	**0.047**	NA	NA	NA	NA	NA
2-Methylnaphthalene	mg/kg	300	<0.345	~~<0.360~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	<0.365	<0.375	<0.35	~~<0.378~~	~~0.427~~	<0.334	NA	NA	NA	NA	**0.20**
Acenaphthylene	mg/kg	10	<0.345	~~<0.360~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	<0.365	<0.375	<0.35	~~<0.378~~	~~2.19~~	**0.664**	NA	NA	NA	NA	<0.18
Anthracene	mg/kg	1000	<0.345	~~0.751~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	<0.365	<0.375	<0.35	~~0.918~~	~~4.54~~	**2.44**	NA	NA	NA	NA	<0.18
Benzo(a)anthracene	mg/kg	7	<0.345	~~2.6~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	**0.504**	<0.356	<0.347	**1.25**	<0.375	<0.35	~~2.04~~	~~10.6~~	**4.7**	NA	NA	NA	NA	**0.31**
Benzo(a)pyrene	mg/kg	2	<0.173	~~2.26~~	<0.183	~~<0.169~~	~~<0.188~~	<0.174	<0.184	**0.486**	<0.179	<0.174	**1.21**	<0.188	<0.175	~~1.99~~	~~7.66~~	**3.94**	NA	NA	NA	NA	**0.28**
Benzo(b)fluoranthene	mg/kg	7	<0.345	~~1.97~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	**0.4**	<0.356	<0.347	**0.894**	<0.375	<0.35	~~1.47~~	~~7.17~~	**4.19**	NA	NA	NA	NA	**0.31**
Benzo(g,h,i)perylene	mg/kg	1000	<0.345	~~1.12~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	**0.653**	<0.375	<0.35	~~0.928~~	~~2.57~~	**1.65**	NA	NA	NA	NA	**0.22**
Benzo(k)fluoranthene	mg/kg	70	<0.345	~~1.68~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	**0.389**	<0.356	<0.347	**1.05**	<0.375	<0.35	~~1.6~~	~~4.24~~	**2.45**	NA	NA	NA	NA	<0.18
Chrysene	mg/kg	70	<0.173	~~2.3~~	<0.183	~~<0.169~~	~~<0.188~~	<0.174	<0.184	**0.507**	<0.179	<0.174	**1.11**	<0.188	<0.175	~~1.76~~	~~8.42~~	**3.78**	NA	NA	NA	NA	**0.29**
Dibenzo(a,h)Anthracene	mg/kg	0.7	<0.173	~~0.364~~	<0.183	~~<0.169~~	~~<0.188~~	<0.174	<0.184	<0.19	<0.179	<0.174	**0.198**	<0.188	<0.175	~~0.283~~	~~1.02~~	**0.596**	NA	NA	NA	NA	<0.18
Dibenzofuran	mg/kg	NS	<0.345	~~<0.360~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	<0.365	<0.375	<0.35	~~<0.378~~	~~1.5~~	**0.489**	NA	NA	NA	NA	<0.36
Fluoranthene	mg/kg	1000	<0.345	~~4.55~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	**1.17**	<0.356	<0.347	**2.35**	<0.375	<0.35	~~4.63~~	~~26~~	**12.4**	NA	NA	NA	NA	**0.65**
Fluorene	mg/kg	1000	<0.345	~~<0.360~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	<0.365	<0.375	<0.35	~~<0.378~~	~~1.83~~	**0.65**	NA	NA	NA	NA	<0.18
Indeno(1,2,3-cd)Pyrene	mg/kg	7	<0.345	~~1.07~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	**0.629**	<0.375	<0.35	~~0.923~~	~~3~~	**1.82**	NA	NA	NA	NA	**0.23**
Naphthalene	mg/kg	500	<0.345	~~<0.360~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	<0.379	<0.356	<0.347	<0.365	<0.375	<0.35	~~<0.378~~	~~0.497~~	<0.334	NA	NA	NA	NA	**0.39**
Phenanthrene	mg/kg	500	<0.345	~~3.3~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	**0.9**	<0.356	<0.347	**1.26**	<0.375	<0.35	~~3.83~~	~~17.4~~	**8.83**	NA	NA	NA	NA	**0.21**
Pyrene	mg/kg	1000	<0.345	~~3.78~~	<0.365	~~<0.336~~	~~<0.375~~	<0.347	<0.367	**0.999**	<0.356	<0.347	**2.0**	<0.375	<0.35	~~3.87~~	~~20.8~~	**9.13**	NA	NA	NA	NA	**0.61**
Total PAHs/SVOCs	mg/kg	NS	ND	~~25.75~~	ND	~~ND~~	~~ND~~	ND	ND	**5.36**	ND	ND	**12.60**	ND	ND	~~24.24~~	~~120.03~~	**57.8**	NA	NA	NA	NA	**3.70**
Polychlorinated Biphenyls																							
Aroclor 1016	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1221	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1232	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1242	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1248	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1254	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1260	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1262	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Aroclor 1268	mg/kg	NS	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Total PCBs	mg/kg	2	<0.0527	~~<0.0539~~	<0.0539	~~<0.0519~~	~~<0.057~~	<0.0532	<0.0551	<0.0589	<0.0526	<0.0532	<0.057	<0.0556	<0.0531	~~<0.0561~~	~~<0.0527~~	<0.0513	NA	NA	NA	NA	<0.10
Total VOCs	mg/kg	NS	ND	~~ND~~	ND	~~ND~~	~~ND~~	ND	ND	ND	ND	ND	ND	ND	ND	~~ND~~	~~ND~~	ND	NA	NA	NA	NA	ND
TPH																							
TPH as Diesel	mg/kg	NS	<39.1	~~301~~	<40.8	~~<39.9~~	~~<41.9~~	<39.1	<41.7	<43.6	<39.7	<39	**42.1**	<41.5	<42	~~118~~	~~405~~	**91.2**	NA	NA	NA	NA	**30**

QC by LEM 10/4/10

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Notes:
1. Results shown in bold were detected at the concentration listed.
2. Results for Total VOCs, Total SVOCs, and Total PCBs are the sum of detected analytes.
3. Method 1 S-1/GW-3 standards taken from Massachusetts Contingency Plan 310 CMR 40.0000 (February 14, 2008).

BOLD Exceeds the Method 1 S-1/GW-3 Criteria
~~ ~~ Soil was excavated from this location during RAM activities

Abbreviations:
MCP = Massachusetts Contingecy Plan
EPA = Environmental Protection Agency
mg/kg = milligrams per kilogram
mg/l - milligrams per liter
ND = Not Detected NS = No Standard

Table 3
Confirmatory Sampling Analytical Results - TP-1, TP-7, TP-8, WS-13, and WS-14 Excavation Areas
Chapman Valve, Pinevale Street
Springfield, Massachusetts
July 9, 13, 19, and 20, 2010

			TP-7 Area							TP-1 Area							
Parameter	**Units**	**Method 1 S-1/GW-3 Standards**	**CS -1** 3.0 ft 9-Jul-10	**CS -2** 3.0 ft 9-Jul-10	**CS -3** 3.0 ft 9-Jul-10	**CS -4** 3.0 ft 9-Jul-10	**DUP-2** Duplicate of CS-4	**CS -5** 1.5 ft 9-Jul-10	**CS -6** 1.5 ft 9-Jul-10	**CS -7** 1.5 ft 13-Jul-10 (See Note 4)	**CS -7A** 1.5 ft 20-Jul-10 (See Note 4)	**CS -8** 1.5 ft 13-Jul-10 (See Note 4)	**CS -8A** 1.5 ft 20-Jul-10 (See Note 4)	**CS -9** 1.5 ft 13-Jul-10	**CS -10** 1.0 ft 13-Jul-10 (See Note 4)	**CS -10A** 1.0 ft 20-Jul-10 (See Note 4)	**CS -11** 1.0 ft 13-Jul-10
Metals																	
Arsenic	mg/kg	20	<2.7	<2.6	<2.7	<2.6	<2.6	<2.6	<2.6	<2.8	NA	**3.6**	NA	<2.4	<2.6	NA	**3.0**
Barium	mg/kg	1,000	**48**	**48**	**21**	**42**	**45**	**44**	**42**	**54**	NA	**69**	NA	**44**	**29**	NA	**68**
Cadmium	mg/kg	2	**0.28**	<0.26	<0.27	<0.26	<0.26	<0.26	<0.26	**0.49**	NA	**0.61**	NA	<0.24	<0.26	NA	**0.42**
Chromium	mg/kg	30	**9.1**	**9.3**	**8.6**	**7.7**	**10**	**9.2**	**8.6**	**47**	**62**	**40**	**21**	**10**	**48**	**67**	**18**
Chromium, Hexavalent	mg/kg	30	NA	NA	NA	NA	NA	NA	NA	NA	**2.9**	NA	<1.7	NA	NA	<0.85	NA
Chromium, Trivalent	mg/kg	1000	NA	NA	NA	NA	NA	NA	NA	NA	**59.1**	NA	**19.3**	NA	NA	**66.15**	NA
Lead	mg/kg	300	**53**	**25**	**5.4**	**20**	**39**	**25**	**10**	**46**	NA	**110**	NA	**29**	**51**	NA	**120**
Mercury	mg/kg	20	**0.54**	**0.80**	**0.025**	**0.038**	**0.033**	**0.037**	**0.035**	**0.027**	NA	**0.05**	NA	<0.025	<0.024	NA	**0.037**
Selenium	mg/kg	400	<5.3	<5.3	<5.3	<5.2	<5.2	<5.3	<5.2	<5.6	NA	<5.7	NA	<4.7	<5.2	NA	<5.1
Silver	mg/kg	100	<0.53	<0.53	<0.53	<0.52	<0.52	<0.53	<0.52	<0.56	NA	<0.57	NA	<0.47	<0.52	NA	<0.51
Extractable Petroleum Hydrocarbons																	
C9-C18 Aliphatics	mg/kg	1,000	<11	<11	<11	<10	<10	<11	<10	**16**	NA	<110	NA	<20	<21	NA	<42
C19-C36 Aliphatics	mg/kg	3,000	<11	<11	<11	<10	<10	<11	<10	**520**	NA	**230**	NA	<20	**130**	NA	**46**
C11-C22 Aromatics	mg/kg	1,000	**28**	**48**	<11	**23**	**120**	**24**	<10	**130**	NA	**660**	NA	**110**	**110**	NA	**430**
Total Petroleum Hydrocarbons	mg/kg	1,000	**28**	**48**	ND	**23**	**120**	**24**	ND	**666**	NA	**890**	NA	**110**	**240**	NA	**476**
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	mg/kg	1000	<0.11	**0.12**	<0.11	<0.10	**1.7**	<0.11	<0.10	<0.11	NA	**5.0**	NA	**0.63**	**0.56**	NA	**5.5**
Acenaphthylene	mg/kg	10	<0.11	**0.17**	<0.11	<0.10	**0.44**	**0.11**	<0.10	<0.11	NA	<1.1	NA	<0.20	<0.21	NA	<0.42
Anthracene	mg/kg	1000	**0.27**	**0.69**	**0.11**	**0.31**	**4.2**	**0.27**	<0.10	**0.26**	NA	**9.4**	NA	**1.2**	**1.1**	NA	**11**
Benzo(a)anthracene	mg/kg	7	**1.4**	**2.8**	**0.26**	**1.3**	**6.3**	**1.2**	**0.24**	**1.0**	NA	**32**	NA	**4.7**	**4.0**	NA	**29**
Benzo(a)pyrene	mg/kg	2	**1.4**	**2.6**	**0.29**	**1.2**	**4.1**	**1.2**	**0.24**	**1.3**	NA	**27**	NA	**4.3**	**3.3**	NA	**24**
Benzo(b)fluoranthene	mg/kg	7	**1.8**	**3.5**	**0.38**	**1.6**	**6.0**	**1.5**	**0.34**	**2.1**	NA	**40**	NA	**6.1**	**4.8**	NA	**34**
Benzo(g,h,i)perylene	mg/kg	1000	**1.1**	**1.8**	**0.6**	**0.78**	**2.1**	**0.8**	**0.27**	**0.98**	NA	**16**	NA	**2.4**	**1.9**	NA	**15**
Benzo(k)fluoranthene	mg/kg	70	**0.63**	**1.2**	**0.14**	**0.57**	**2.2**	**0.53**	**0.12**	**0.69**	NA	**15**	NA	**2.2**	**1.7**	NA	**12**
Chrysene	mg/kg	70	**1.4**	**2.8**	**0.28**	**1.3**	**6.2**	**1.2**	**0.26**	**1.5**	NA	**36**	NA	**5.4**	**4.5**	NA	**31**
Dibenzo(a,h)Anthracene	mg/kg	0.7	**0.22**	**0.4**	<0.11	**0.19**	**0.73**	**0.19**	<0.10	**0.3**	NA	**4.9**	NA	**0.68**	**0.56**	NA	**4.4**
Fluoranthene	mg/kg	1000	**2.3**	**5.6**	**0.51**	**2.5**	**15**	**2.1**	**0.43**	**1.8**	NA	**75**	NA	**11**	**8.9**	NA	**66**
Fluorene	mg/kg	1000	**0.13**	**0.16**	<0.11	**0.13**	**3.1**	<0.11	<0.10	<0.11	NA	**4.0**	NA	**0.62**	**0.5**	NA	**5.0**
Indeno(1,2,3-cd)Pyrene	mg/kg	7	**0.94**	**1.7**	**0.18**	**0.8**	**2.6**	**0.81**	**0.17**	**1.1**	NA	**18**	NA	**2.7**	**2.2**	NA	**17**
2-Methylnaphthalene	mg/kg	300	<0.11	<0.11	<0.11	<0.10	**1.4**	<0.11	<0.10	<0.11	NA	**1.2**	NA	<0.20	<0.21	NA	**1.7**
Naphthalene	mg/kg	500	<0.11	**0.15**	<0.11	**0.12**	**1.3**	<0.11	<0.10	**0.17**	NA	**2.2**	NA	**0.25**	**0.26**	NA	**4.0**
Phenanthrene	mg/kg	500	**1.2**	**2.9**	**0.27**	**1.4**	**19**	**1.0**	**0.22**	**0.89**	NA	**57**	NA	**7.6**	**7.5**	NA	**54**
Pyrene	mg/kg	1000	**2.5**	**5.8**	**0.55**	**2.6**	**14**	**2.2**	**0.44**	**2.3**	NA	**79**	NA	**11**	**9.9**	NA	**67**
Total PAHs	mg/kg	NS	**15.29**	**32.39**	**3.57**	**14.8**	**90.37**	**13.11**	**2.730**	**14.39**	NA	**421.7**	NA	**60.78**	**51.68**	NA	**380.6**

QC by LEM 7/23/10

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Notes:

1. Results shown in bold were detected at the concentration listed. **BOLD** Exceeds the Method 1 S-1/GW-3 Criteria
2. Results for Total PAHs are the sum of detected analytes.
3. Method 1 S-1/GW-3 standards taken from Massachusetts Contingency Plan 310 CMR 40.0000 (February 14, 2008)
4. Samples CS-7A, CS-8A and CS-10A are resamples of CS-7, CS-8, and CS-10 for hexavelent chromium analysis.

Abbreviations:

MCP = Massachusetts Contingency Plan
EPA = Environmental Protection Agency
mg/kg = milligrams per kilogram
ND = Not Detected
NS = No Standard
NA = Not Analyzed
SVOCs = Semi-Volatile Organic Compounds

Table 3
Confirmatory Sampling Analytical Results - TP-1, TP-7, TP-8, TP-13, and WS-14 Excavation Areas
Chapman Valve, Pinevale Street
Springfield, Massachusetts
July 9, 13, 19, and 20, 2010

			WS-14					TP-8						WS-13 Area		
Parameter	**Units**	**Method 1 S-1/GW-3 Standards**	**CS -12** 2.0 ft 19-Jul-10	**CS -13** 2.0 ft 19-Jul-10	**CS -14** 1.0 ft 19-Jul-10	**CS -15** 1.0 ft 19-Jul-10	**CS -16** 1.0 ft 19-Jul-10	**CS -17** 2.0 ft 19-Jul-10	**CS -18** 2.0 ft 19-Jul-10	**CS -19** 1.0 ft 19-Jul-10	**CS -20** 1.0 ft 19-Jul-10	**DUP-3** Duplicate of CS-20	**CS -21** 1.0 ft 19-Jul-10	**CS -22** 2.0 ft 19-Jul-10	**CS -23** 1.0 ft 19-Jul-10	**CS -24** 1.0 ft 19-Jul-10
Metals																
Arsenic	mg/kg	20	<2.8	<2.7	<2.7	<2.6	<2.8	<2.6	<2.6	<2.4	<2.6	<2.4	**3.9**	NA	NA	NA
Barium	mg/kg	1,000	**49**	**62**	**61**	**64**	**45**	**36**	**19**	**45**	**29**	**27**	**43**	NA	NA	NA
Cadmium	mg/kg	2	<0.28	<0.27	<0.27	<0.26	<0.28	<0.26	<0.26	**0.26**	<0.26	<0.24	<0.29	NA	NA	NA
Chromium	mg/kg	30	**10**	**12**	**13**	**12**	**10**	**7.9**	**5.7**	**8.9**	**7.8**	**7**	**7.4**	NA	NA	NA
Lead	mg/kg	300	**2.6**	**2.3**	**2.3**	**3.1**	**2.7**	**23**	**11**	**96**	**35**	**36**	**78**	**21**	**18**	**15**
Mercury	mg/kg	20	<0.026	<0.015	<0.015	<0.013	<0.010	**0.089**	<0.015	**0.049**	**0.046**	**0.08**	**0.072**	NA	NA	NA
Selenium	mg/kg	400	<5.7	<5.5	<5.5	<5.2	<5.6	<5.1	<5.1	<4.9	<5.3	<4.7	<5.8	NA	NA	NA
Silver	mg/kg	100	<0.57	<0.55	<0.55	<0.52	<0.56	<0.51	<0.51	<0.49	<0.53	<0.47	<0.58	NA	NA	NA
Extractable Petroleum Hydrocarbons																
C9-C18 Aliphatics	mg/kg	1,000	<11	<11	<11	<11	<11	<10	<11	<21	<10	<10	<11	NA	NA	NA
C19-C36 Aliphatics	mg/kg	3,000	<11	<11	<11	<11	<11	<10	<11	**37**	<10	**24**	<11	NA	NA	NA
C11-C22 Aromatics	mg/kg	1,000	**18**	<11	<11	**12**	**29**	**17**	<11	**270**	**72**	**38**	**27**	NA	NA	NA
Total Petroleum Hydrocarbons	mg/kg	1,000	**18**	ND	ND	**12**	**29**	**17**	ND	**307**	**72**	**62**	**27**	NA	NA	NA
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	mg/kg	1000	<0.11	<0.11	<0.11	<0.11	<0.11	<0.10	<0.11	**0.58**	**0.45**	<0.10	**0.14**	NA	NA	NA
Acenaphthylene	mg/kg	10	**0.19**	<0.11	<0.11	<0.11	**0.19**	<0.10	<0.11	**1.7**	**0.19**	**0.16**	**0.11**	NA	NA	NA
Anthracene	mg/kg	1000	**0.4**	<0.11	<0.11	**0.2**	**0.49**	**0.4**	<0.11	**5.2**	**1.4**	**0.57**	**0.42**	NA	NA	NA
Benzo(a)anthracene	mg/kg	7	**0.71**	**0.13**	<0.11	**0.5**	**1.6**	**0.71**	**0.31**	**14**	**3.6**	**2**	**1.3**	NA	NA	NA
Benzo(a)pyrene	mg/kg	2	**0.62**	**0.13**	<0.11	**0.48**	**1.4**	**0.67**	**0.3**	**11**	**3.1**	**1.9**	**1.3**	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	7	**0.84**	**0.17**	**0.12**	**0.62**	**1.7**	**0.87**	**0.39**	**15**	**4.2**	**2.5**	**1.7**	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	1000	**0.39**	<0.11	<0.11	**0.35**	**0.72**	**0.4**	**0.24**	**6.9**	**1.9**	**1.1**	**0.83**	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	70	**0.29**	<0.11	<0.11	**0.23**	**0.62**	**0.3**	**0.14**	**5.2**	**1.5**	**0.88**	**0.58**	NA	NA	NA
Chrysene	mg/kg	70	**0.71**	**0.14**	<0.11	**0.5**	**1.5**	**0.76**	**0.31**	**13**	**3.7**	**2.1**	**1.4**	NA	NA	NA
Dibenzo(a,h)Anthracene	mg/kg	0.7	<0.11	<0.11	<0.11	<0.11	**0.2**	<0.10	<0.11	**1.8**	**0.53**	**0.32**	**0.22**	NA	NA	NA
Fluoranthene	mg/kg	1000	**1.7**	**0.28**	**0.21**	**1.1**	**3.3**	**1.7**	**0.64**	**32**	**8.2**	**4.2**	**3**	NA	NA	NA
Fluorene	mg/kg	1000	**0.16**	<0.11	<0.11	<0.11	**0.14**	<0.10	<0.11	**2**	**0.68**	**0.14**	**0.15**	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	mg/kg	7	**0.37**	<0.11	<0.11	**0.33**	**0.83**	**0.45**	**0.2**	**7.3**	**2.1**	**1.3**	**0.94**	NA	NA	NA
2-Methylnaphthalene	mg/kg	300	<0.11	<0.11	<0.11	<0.11	<0.11	<0.10	<0.11	**0.29**	<0.10	<0.10	<0.11	NA	NA	NA
Naphthalene	mg/kg	500	<0.11	<0.11	<0.11	<0.11	<0.11	<0.10	<0.11	**0.62**	**0.15**	<0.10	**0.11**	NA	NA	NA
Phenanthrene	mg/kg	500	**1.5**	**0.22**	**0.17**	**0.75**	**1.9**	**1.3**	**0.38**	**21**	**6.9**	**2.6**	**2**	NA	NA	NA
Pyrene	mg/kg	1000	**1.7**	**0.28**	**0.21**	**1.1**	**3.3**	**1.7**	**0.59**	**32**	**7.9**	**4.1**	**3**	NA	NA	NA
Total PAHs	mg/kg	NS	**9.6**	**1.4**	**0.71**	**6.2**	**17.9**	**9.3**	**3.5**	**169.6**	**46.5**	**23.9**	**17.2**	NA	NA	NA

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Notes:

1. Results shown in bold were detected at the concentration listed. **BOLD** Exceeds the RCS-1 Criteria and Method 1 S-1/GW-3 Criteria
2. Results for Total PAHs are the sum of detected analytes.
3. Method 1 S-1/GW-3 standards taken from Massachusetts Contingency Plan 310 CMR 40.0000 (February 14, 2008).

Abbreviations:

MCP = Massachusetts Contingency Plan
EPA = Environmental Protection Agency
mg/kg = milligrams per kilogram
ND = Not Detected
NS = No Standard
NA = Not Analyzed
SVOCs = Semi-Volatile Organic Compounds

Table 4
Comparison of Maximum Site Soil PAH Concentrations to DEP Background Levels
Chapman Valve, Pinevale Street
Springfield, Massachusetts

Parameter	Units	DEP Urban Fill Background	CA/T 95% Concentrations	CA/T Maximum Concentrations	Site-wide Maximum Concentration
Polycyclic Aromatic Hydrocarbons/SVOCs					
1,1 Biphenyl	mg/kg	NS	NS	NS	0.05
Acenaphthene	mg/kg	2	4.1	42	5.5
Acenaphthylene	mg/kg	1	1.9	10	1.7
Anthracene	mg/kg	4	10	130	11.0
Benzo(a)anthracene	mg/kg	9	19	250	32.0
Benzo(a)pyrene	mg/kg	7	17	230	27.0
Benzo(b)fluoranthene	mg/kg	8	18	270	40.0
Benzo(g,h,i)perylene	mg/kg	3	7.7	77	16.0
Benzo(k)fluoranthene	mg/kg	4	9.7	150	15.0
Chrysene	mg/kg	7	18	240	36.0
Dibenzo(a,h)Anthracene	mg/kg	1	2.1	39	4.9
Fluoranthene	mg/kg	10	33	490	75.0
Fluorene	mg/kg	2	5.5	79	5.0
Indeno(1,2,3-cd)Pyrene	mg/kg	3	7	100	18.0
2-Methylnaphthalene	mg/kg	1	2.2	13	1.7
Naphthalene	mg/kg	1	3	28	4.0
Phenanthrene	mg/kg	20	38	480	57.0
Pyrene	mg/kg	20	35	440	79.0

Notes:

1. Maximum concentrations were determined from the following data sets:
   - Sub-slab Testpitting Analytical Results (December 2009): TP-2 and TP-5
   - Pre-characterization Testpitting Analytical Results (June 2010): WS-1, WS-3, WS-6 thru WS-12, and WS-24.
   - Confirmatory Soil Analytical Results (July 2010): CS-1 thru CS-24.
2. Background concentrations for urban fill containing ash taken from DEP's May 2002 Technical Update, "Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil."

Abbreviations:

mg/kg = milligrams per kilogram
DEP= Department of Environmental Protection
CA/T = Central Artery Tunnel

Table 5
Comparison of Exposure Point Concentrations to Method 1 S-1/GW-3 Standards
Chapman Valve, Pinevale Street
Springfield, Massachusetts

Parameter	Units	Method 1 S-1/GW-3 Standards	Mean	No. of Samples	Standard Deviation	Confidence Interval	95th UCL Mean (EPC)
Metals							
Arsenic	mg/kg	20	1.5	36	0.6	0.2	**1.1**
Barium	mg/kg	1,000	41	36	15.2	5.0	**46.4**
Cadmium	mg/kg	2	0.2	36	0.1	0.0	**0.2**
Chromium	mg/kg	30	16	39	15.6	4.9	**18.1**
Chromium, Hexavalent	mg/kg	30	1.4	3	1.3	1.5	**2.9**
Chromium, Trivalent	mg/kg	1,000	48	3	25.3	28.6	**76.8**
Lead	mg/kg	300	36	39	51.4	16.1	**53.1**
Mercury	mg/kg	20	0.08	36	0.2	0.1	**0.1**
Selenium	mg/kg	400	2.63	36	0.3	0.1	**1.4**
Silver	mg/kg	100	0.26	36	0.0	0.0	**0.1**
Extractable Petroleum Hydrocarbons							
C9-C18 Aliphatics	mg/kg	1,000	12	36	9.1	3.0	**9.0**
C19-C36 Aliphatics	mg/kg	3,000	36	36	92.9	30.3	**49.2**
C11-C22 Aromatics	mg/kg	1,000	70	36	130.6	42.7	**79.2**
Polycyclic Aromatic Hydrocarbons/SVOCs							
1,1 Biphenyl	mg/kg	1000	0.011	10	0.014	0.009	**0.009**
Acenaphthene	mg/kg	1000	0.6	36	1.2	0.4	**0.9**
Acenaphthylene	mg/kg	10	0.3	36	0.3	0.1	**0.3**
Anthracene	mg/kg	1000	1.2	36	2.5	0.8	**2.0**
Benzo(a)anthracene	mg/kg	7	3.3	36	7.2	2.4	**5.7**
Benzo(a)pyrene	mg/kg	2	2.7	36	6.0	2.0	**4.7**
Benzo(b)fluoranthene	mg/kg	7	3.8	36	8.7	2.8	**6.7**
Benzo(g,h,i)perylene	mg/kg	1000	1.7	36	3.6	1.2	**2.9**
Benzo(k)fluoranthene	mg/kg	70	1.5	36	3.1	1.0	**2.5**
Chrysene	mg/kg	70	3.4	36	7.8	2.6	**6.1**
Dibenzo(a,h)Anthracene	mg/kg	0.7	0.5	36	1.1	0.3	**0.9**
Fluoranthene	mg/kg	1000	7.4	36	16.7	5.5	**12.9**
Fluorene	mg/kg	1000	0.6	36	1.1	0.4	**0.9**
Indeno(1,2,3-cd)Pyrene	mg/kg	7	1.9	36	4.1	1.3	**3.2**
2-Methylnaphthalene	mg/kg	300	0.3	36	0.4	0.1	**0.3**
Naphthalene	mg/kg	500	0.4	36	0.7	0.2	**0.6**
Phenanthrene	mg/kg	500	5.7	36	13.2	4.3	**10.1**
Pyrene	mg/kg	1000	7.4	36	17.3	5.6	**13.3**

Notes:

1. Exposure Point Concentrations calculated as Site-wide values for soils remaining in place. The data sets used in the calculations include:
   - Sub-slab Testpitting Analytical Results (December 2009): TP-2 and TP-5
   - Pre-characterization Testpitting Analytical Results (June 2010): WS-1, WS-3, WS-6 thru WS-12, and WS-24.
   - Confirmatory Soil Analytical Results (July 2010): CS-1 thru CS-24.
2. In the calculations for site-wide mean, laboratory detection limits for data points reported as non-detect were divided by 2.

Abbreviations:

mg/kg = milligrams per kilogram
ND = Not Detected
NS = No Standard
NA = Not Analyzed
DEP= Department of Environmental Protection

Exceeds the Method 1 S-1/GW-3 standard

APPENDIX D.1

Bill of Lading for Group "A" Soils

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number*: 1 - 14340

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

Release Name (optional): Former Chapman Valve

Street: 121 Pinevale Street Location Aid:

City/Town: Springfield, MA ZIP Code: 01104

Date/Period of Generation: 6/28/2010 to: 7/28/2010

Additional Release Tracking Numbers Associated with this Bill of Lading:

** Note: If this Bill of Lading is the result of a Limited Removal Action (LRA) taken prior to Notification, a Release Tracking Number is not needed.*

B. PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

Name of Organization: City Of Springfield

Name of Contact: Alan M. Delaney Title: Director of Engineering Mass Developm

Street: 33 Andrews Parkway

City/Town: Devens State: MA ZIP Code: 01434

Telephone: (978) 784-2917 Ext.:

C. RELATIONSHIP TO RELEASE OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

☐ RP or PRP Specify: ☐ Owner ☐ Operator ☐ Generator ☐ Transporter Other RP or PRP:

☐ Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ Other Person:

If an owner and/or operator is not conducting the response action associated with the Bill of Lading, provide on an attachment the name, contact person, address and telephone number, including any area code and extension, for each, if known.

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

Transporter/Common Carrier Name: J.R. Vinagro Corporation

Contact Person: Dana Zewinski Title: Environmental Engineer

Street: 2208 Plainfield Pike

City/Town: Johnston State: RI ZIP Code: 02919

Telephone: (401) 943-7100 Ext.: 130

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

Operator/Facility Name: Casella Waste Services / Greenwood Street Landfill

Contact Person: Scott Sampson Title: Environmental Engineer

Street: 30 Nipp Napp Trail

City/Town: Worcester State: MA ZIP Code: 01607

Telephone: 303-235-3597 Ext.:

Type of Facility (check one):
☐ Asphalt Batch/Cold Mix ☑ Landfill/Disposal ☐ Incinerator ☐ Temporary Storage
☐ Asphalt Batch/Hot Mix ☐ Landfill/Daily Cover ☐ Other:
☐ Thermal Processing ☐ Landfill/Structural Fill

EPA Identification #:

Division of Hazardous Waste/Class A Permit #: Division of Solid Waste Management Permit #: W056147

Actual/Anticipated Period of Temporary Storage (specify dates if applicable): N/A to:

Reason for Temporary Storage:
N/A

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number*: 1 - 14380

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION (continued) :

Temporary Storage Address:

Street: N/A

City/Town: _____ State: _____ ZIP Code: _____

F. DESCRIPTION OF REMEDIATION WASTE:

(check all that apply)

☐ Contaminated Media (check all that apply): ☑ Soil ○ Groundwater ○ Surface Water ☑ Other: _____

☐ Contaminated Debris (check all that apply): ○ Vegetation or Organic Debris ○ Demolition/Construction Waste ○ Inorganic Absorbant Materials ○ Other: _____

☐ Non-hazardous Uncontainerized Waste (check all that apply): ○ Non-aqueous Phase Liquid ○ Other: _____

☐ Non-hazardous Containerized Waste (check all that apply): ○ Tank Bottoms/Sludges ○ Containers ○ Drums ○ Engineered Impoundments ○ Other: _____

Type of Contamination (check all that apply): ☐ Gasoline ☐ Diesel Fuel ☐ #2 Oil ☐ #4 Oil ☐ #6 Oil ☐ Waste Oil ☐ Kerosene ☐ Jet Fuel ☑ Other: Lead and SVOCs

Estimated Volume of Materials: Cubic Yards: _____ Tons: 1,800 Other: _____

Contaminant Source (check one/specify): ☐ Transportation Accident ☐ Underground Storage Tank ☑ Other: _____

Response Action Associated with Bill of Lading (check one): ☐ Immediate Response Action ☑ Release Abatement Measure

☐ Utility-Related Abatement Measure ☐ Limited Removal Action ☐ Comprehensive Response Action ☐ Other _____

Remediation Waste Charcterization Support Documentation attached:

☐ Site History Information ☐ Sampling and Analytical Methods and Procedures ☑ Laboratory Data ☐ Field Screening Data

If supporting documentation is not appended, provide an attachment stating thedate and in connection with what document such information was previously submitted to DEP.

G. LICENSED SITE PROFESSIONAL (LSP) OPINION:

Name of Organization: Weston & Sampson

LSP Name: George D. Naslas Title: Associate

Telephone: (978) 977-0110 Ext.: 2279

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of

(i) the standard of care in 309 CMR 4.02(1),
(ii) the applicable provisions of 309 CMR 4.02(2) and (3), and
(iii) the provisions of 309 CMR 4.03(5),

to the best of my knowledge, information and belief, the assessment actions undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with the applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal. I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

LSP Signature: George D. Naslas Seal:

Date: 7/6/10

License Number: G524

COMMONWEALTH OF MASSACHUSETTS
GEORGE D. NASLAS
No. 6524
REGISTERED
LICENSED SITE PROFESSIONAL

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A

Release Tracking Number*
1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

H. CERTIFICATION OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

Signature: Alan M Delaney Date: 6/30/10

Name of Person (print): ALAN M. DELANEY, MASSDEVELOPMENT REPRESENTATIVE FOR CITY OF SPRINGFIELD

Massachusetts Department of Environmental Protection — **BWSC-012B**

Bureau of Waste Site Cleanup

Vin 37

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative: BoB Palmer
Date of Shipment: 7-6-10
Time of Shipment: 1000 ☑ AM ☐ PM
Truck/Tractor Registration: 26333 MA
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Receipt: 7-6-10
Time of Receipt: 1130 ☑ AM ☐ PM
Load Size (cu. yds./tons): 32.55

Load 2:
Signature of Transporter Representative: BoB Palmer
Date of Shipment: 7-6-10
Time of Shipment: 1240 ☐ AM ☑ PM
Truck/Tractor Registration: 26333
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Receipt: 7-6-10
Time of Receipt: 1556 ☐ AM ☑ PM
Load Size (cu. yds./tons): 33.65

Load 3:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 66.20
Total Carried Forward (cu. yds./tons):
Total Carried Forward and This Page (cu. yds./tons):

Revised 10/3/94

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Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

Release Tracking Number: 1 - 14340

I. LOAD INFORMATION:

	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:		Greenwood Street Landfill
Date of Shipment: 7/6/10	Time of Shipment: 11:25 ☑ AM ☐ PM	Date of Receipt: 7-6-10 Time of Receipt: 1130 ☐ AM ☐ PM
Truck/Tractor Registration: 24259 RF.	Trailer Registration (if any):	Load Size (cu. yds./tons): 30.11
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
		Greenwood Street Landfill
Date of Shipment: 7/6/10	Time of Shipment: 1:45 ☐ AM ☑ PM	Date of Receipt: 7.6.10 Time of Receipt: 1.50 ☐ AM ☐ PM
Truck/Tractor Registration: 24259	Trailer Registration (if any):	Load Size (cu. yds./tons): 28-30
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 58.41

Total Carried Forward (cu. yds./tons): 66.20

Total Carried Forward and This Page (cu. yds./tons): 124.61

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Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

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Release Tracking Number

1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:

Signature of Transporter Representative:

Date of Shipment: 7-6-10

Time of Shipment: 11:15 ☒ AM ☐ PM

Truck/Tractor Registration: RI - ~~2~~ 29384

Trailer Registration (if any): 28340 - RI

Receiving Facility/Temporary Storage Representative:

Date of Receipt: 7-6-10

Time of Receipt: 11:15 ☐ AM ☐ PM

Load Size (cu. yds./tons): 34.40

Load 2:

Signature of Transporter Representative:

Date of Shipment: 7-6-10

Time of Shipment: 1:40 ☐ AM ☒ PM

Truck/Tractor Registration: RI 29384

Trailer Registration (if any): RI 28340

Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill

Date of Receipt: 7-6-10

Time of Receipt: 1:40 ☐ AM ☐ PM

Load Size (cu. yds./tons): 23.01

Load 3:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 4:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 5:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 57.41

Total Carried Forward (cu. yds./tons): 124.61

Total Carried Forward and This Page (cu. yds./tons): 182.02

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Massachusetts Department of Environmental Protection **BWSC-012B**

Bureau of Waste Site Cleanup

Win

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:

Signature of Transporter Representative: [signature]

Date of Shipment: 7/6/10

Time of Shipment: 11:10 ☒ AM ☐ PM

Truck/Tractor Registration: 18843 RI.

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative: [signature]

Greenwood Street Landfill

Date of Receipt: 7.6.10

Time of Receipt: 11.15 ☐ AM ☐ PM

Load Size (cu. yds./tons): 27.34

Load 2:

Signature of Transporter Representative: [signature]

Date of Shipment: 7/6/10

Time of Shipment: 1:35 ☐ AM ☒ PM

Truck/Tractor Registration: 18843 RI.

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative: [signature]

Greenwood Street Landfill

Date of Receipt: 7.6.10

Time of Receipt: 1 30 ☐ AM ☒ PM

Load Size (cu. yds./tons): 30.19

Load 3:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 4:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 5:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 57.53

Total Carried Forward (cu. yds./tons): 182.02

Total Carried Forward and This Page (cu. yds./tons): 239.55

10.091

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

Vin 100

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:

Signature of Transporter Representative:

Date of Shipment: 7-9-10

Time of Shipment: 8:10 ☒ AM ☐ PM

Truck/Tractor Registration: RI 29354

Trailer Registration (if any): RI 28430

Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill

Date of Receipt: 7.9.10

Time of Receipt: 8.10 ☒ AM ☐ PM

Load Size (cu. yds./tons): 21 70

Load 2:

Signature of Transporter Representative:

Date of Shipment: 7-9-10

Time of Shipment: 10:18 ☒ AM ☐ PM

Truck/Tractor Registration: 29364

Trailer Registration (if any): 28430

Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill

Date of Receipt: 7-9-10

Time of Receipt: 10 00 ☐ AM ☒ PM

Load Size (cu. yds./tons): 17.50

Load 3:

Signature of Transporter Representative:

Date of Shipment: 7-9-10

Time of Shipment: 12:33 ☐ AM ☒ PM

Truck/Tractor Registration: 29384

Trailer Registration (if any): 28430

Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill

Date of Receipt: 7-9-10

Time of Receipt: 12 30 ☐ AM ☒ PM

Load Size (cu. yds./tons): 24 39

Load 4:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 5:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 6359

Total Carried Forward (cu. yds./tons):

Total Carried Forward and This Page (cu. yds./tons):

10.091

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

Release Tracking Number: 1 - 14340

I. LOAD INFORMATION:

Load 1:
Date of Shipment: 7/9/10
Time of Shipment: 7:20 ☑ AM ☐ PM
Truck/Tractor Registration: 94
Trailer Registration (if any): TD1
Signature of Transporter Representative:
Receiving Facility/Temporary Storage Representative:
Greenwood Street Landfill
Date of Receipt: 7-9-10
Time of Receipt: 8 25 ☒ AM ☐ PM
Load Size (cu. yds./tons): 23.02

Load 2:
Signature of Transporter Representative:
Date of Shipment: 7/9/10
Time of Shipment: 9:50 ☑ AM ☐ PM
Truck/Tractor Registration: 94
Trailer Registration (if any): TD1
Receiving Facility/Temporary Storage Representative:
Greenwood Street Landfill
Date of Receipt: 7-9-10
Time of Receipt: 10 50 ☒ AM ☐ PM
Load Size (cu. yds./tons): 19.58

Load 3:
Signature of Transporter Representative:
Date of Shipment: 7/9
Time of Shipment: 12:00 ☐ AM ☑ PM
Truck/Tractor Registration: 94
Trailer Registration (if any): TD1
Receiving Facility/Temporary Storage Representative:
Date of Receipt: 7.9.10
Time of Receipt: 1.00 ☐ AM ☒ PM
Load Size (cu. yds./tons): 23.53

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 66.13
Total Carried Forward (cu. yds./tons): 63.59
Total Carried Forward and This Page (cu. yds./tons): 129.72

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Massachusetts Department of Environmental Protection — **BWSC-012B**

Bureau of Waste Site Cleanup

V.in 24

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION: Signature of Transporter Representative:

Load 1:

Date of Shipment: 7.9.2010 Time of Shipment: 8:01 ☑ AM ☐ PM

Truck/Tractor Registration: 18843 Trailer Registration (if any): 16T 55725

Receiving Facility/Temporary Storage Representative:

Date of Receipt: 7.9.10 Time of Receipt: 8 55 ☐ AM ☐ PM

Load Size (cu. yds./tons): 15.73

Load 2: Signature of Transporter Representative:

Date of Shipment: 7.9.2010 Time of Shipment: 10:10 ☑ AM ☐ PM

Truck/Tractor Registration: 18843 Trailer Registration (if any): 16T 55725

Receiving Facility/Temporary Storage Representative:

Date of Receipt: 7.9.10 Time of Receipt: 11 00 ☐ AM ☐ PM

Load Size (cu. yds./tons): 20.18

Load 3: Signature of Transporter Representative:

Date of Shipment: 7-9-2010 Time of Shipment: 12:23 ☐ AM ☑ PM

Truck/Tractor Registration: 18843 Trailer Registration (if any): 16T 55725

Receiving Facility/Temporary Storage Representative:

Date of Receipt: 7.9.10 Time of Receipt: 1.20 ☐ AM ☑ PM

Load Size (cu. yds./tons): 19.57

Load 4: Signature of Transporter Representative:

Date of Shipment: Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration: Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt: Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 5: Signature of Transporter Representative:

Date of Shipment: Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration: Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt: Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6: Signature of Transporter Representative:

Date of Shipment: Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration: Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt: Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 55.48

Total Carried Forward (cu. yds./tons): 129.72

Total Carried Forward and This Page (cu. yds./tons): 185.20

10.091

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

Vin 100

Release Tracking Number

1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:		Greenwood Street Landfill
Date of Shipment: 7-7-10	Time of Shipment: 6:15 ☒ AM ☐ PM	Date of Receipt: 7-7-10 Time of Receipt: 8:15 ☒ AM ☐ PM
Truck/Tractor Registration: 29384-RI	Trailer Registration (if any): RI .28340	Load Size (cu. yds./tons): 23.33
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7-7-10	Time of Shipment: 10:21 ☒ AM ☐ PM	Greenwood Street Landfill Date of Receipt: 7-7-10 Time of Receipt: 10:20 ☐ AM ☒ PM
Truck/Tractor Registration: RI 29384	Trailer Registration (if any): RI 28340	Load Size (cu. yds./tons): 23.89
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7-7-10	Time of Shipment: 12:53 ☐ AM ☑ PM	Greenwood Street Landfill Date of Receipt: 7-7-10 Time of Receipt: 1:00 ☐ AM ☒ PM
Truck/Tractor Registration: 29384	Trailer Registration (if any): 28346	Load Size (cu. yds./tons): 28.72
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 75.94

Total Carried Forward (cu. yds./tons):

Total Carried Forward and This Page (cu. yds./tons):

10.071

Massachusetts Department of Environmental Protection — **BWSC-012B**

Bureau of Waste Site Cleanup

Vin 77

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ OF _____

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative:
Date of Shipment: 7/7/10
Time of Shipment: 9:45 ☑ AM ☐ PM
Truck/Tractor Registration: 24259 RI
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Receipt: 7-7-10
Time of Receipt: 950 ☑ AM ☐ PM
Load Size (cu. yds./tons): 17.96

Load 2:
Signature of Transporter Representative:
Date of Shipment: 7/7/10
Time of Shipment: 12:00 ☐ AM ☑ PM
Truck/Tractor Registration: 24259 RI
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt: 7-7-10 Greenwood Street Landfill
Time of Receipt: 12-20 ☑ AM ☐ PM
Load Size (cu. yds./tons): 24.68

Load 3:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 42.68
Total Carried Forward (cu. yds./tons): 75.94
Total Carried Forward and This Page (cu. yds./tons): 118.58

Revised 10/3/94

Massachusetts Department of Environmental Protection — **BWSC-012B**

Bureau of Waste Site Cleanup

Vin 37

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative: Bob Palmer
Date of Shipment: 7-7-10
Time of Shipment: 9:06 ☑ AM ☐ PM
Truck/Tractor Registration: RR 26333
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Receipt: 7-7-10
Time of Receipt: 10:00 ☑ AM ☐ PM
Load Size (cu. yds./tons): 29.49

Load 2:
Signature of Transporter Representative: Bob Palmer
Date of Shipment: 7-7-10
Time of Shipment: 11:12 ☐ AM ☐ PM
Truck/Tractor Registration: RR 26333
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Receipt: 7-7-10
Time of Receipt: 12:08 ☑ AM ☐ PM
Load Size (cu. yds./tons): 34.70

Load 3:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 64.19
Total Carried Forward (cu. yds./tons): 118.58
Total Carried Forward and This Page (cu. yds./tons): 182.77

10.091

Via 24

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

Release Tracking Number: 1 - 14340

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative: [signature]
Date of Shipment: 7/7/10
Time of Shipment: 8:05 ☒ AM ☐ PM
Truck/Tractor Registration: 18843 RI
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: [signature] Greenwood Street Landfill
Date of Receipt: 7-7-10
Time of Receipt: 8 00 ☒ AM ☐ PM
Load Size (cu. yds./tons): 26.64

Load 2:
Signature of Transporter Representative: [signature]
Date of Shipment: 7/7/10
Time of Shipment: 10:15 ☒ AM ☐ PM
Truck/Tractor Registration: 18843 RI.
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: [signature] Greenwood Street Landfill
Date of Receipt: 7-7-10
Time of Receipt: 10:15 ☒ AM ☐ PM
Load Size (cu. yds./tons): 27.64

Load 3:
Signature of Transporter Representative: [signature]
Date of Shipment: 7/7/10
Time of Shipment: 12:45 ☐ AM ☒ PM
Truck/Tractor Registration: 18843 RI.
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: [signature] Greenwood Street Landfill
Date of Receipt: 7-7-10
Time of Receipt: 12 48 ☐ AM ☒ PM
Load Size (cu. yds./tons): 24.79

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 79.07
Total Carried Forward (cu. yds./tons): 182.77
Total Carried Forward and This Page (cu. yds./tons): 261.84

Revised 10/3/94

10.071

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

Vin 94

Release Tracking Number 1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:		Greenwood Street Landfill
Date of Shipment: 7/7/10	Time of Shipment: 8:35 ☑ AM ☐ PM	Date of Receipt: 7/7/10 Time of Receipt: 930 ☒ AM ☐ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 29.02
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Shipment: 7/7/10	Time of Shipment: 10:45 ☑ AM ☐ PM	Date of Receipt: 7-7-10 Time of Receipt: 11:35 ☒ AM ☐ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 34.25
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7/7/10	Time of Shipment: 1:00 ☐ AM ☑ PM	Date of Receipt: 7-7-10 Time of Receipt: 215 ☐ AM ☒ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 35.46
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons)	98.73
Total Carried Forward (cu. yds./tons):	261.84
Total Carried Forward and This Page (cu. yds./tons):	360.57

10.091

Massachusetts Department of Environmental Protection — **BWSC-012B**

Bureau of Waste Site Cleanup

Vin 77

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:		Greenwood Street Landfill
Date of Shipment: 7/8/10	Time of Shipment: ☑ AM ☐ PM	Date of Receipt: 7-8-10 Time of Receipt: ☑ AM ☐ PM
Truck/Tractor Registration: 24259	Trailer Registration (if any):	Load Size (cu. yds./tons): 19.57
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Shipment: 7/8/10	Time of Shipment: 11:00 ☑ AM ☐ PM	Date of Receipt: 7-8-10 Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration: 24259	Trailer Registration (if any):	Load Size (cu. yds./tons): 27.02
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Shipment: 7/8/10	Time of Shipment: 1:00 ☐ AM ☑ PM	Date of Receipt: 7-8-10 Time of Receipt: 1:00 ☐ AM ☐ PM
Truck/Tractor Registration: 24259	Trailer Registration (if any):	Load Size (cu. yds./tons): 17.91
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Shipment: 7/8/10	Time of Shipment: 3:15 ☐ AM ☑ PM	Date of Receipt: 7-8-10 Time of Receipt: 3:15 ☐ AM ☑ PM
Truck/Tractor Registration: 24259	Trailer Registration (if any):	Load Size (cu. yds./tons): 18.00
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 82.50

Total Carried Forward (cu. yds./tons):

Total Carried Forward and This Page (cu. yds./tons):

16.091

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

V.in 100

Release Tracking Number: 1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:		Greenwood Street Landfill
Date of Shipment: 7-8-10	Time of Shipment: 8:40 ☒ AM ☐ PM	Date of Receipt: 7-8-10 Time of Receipt: 8 45 ☒ AM ☐ PM
Truck/Tractor Registration: RI 29384	Trailer Registration (if any): RI 28430	Load Size (cu. yds./tons): 19.02
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Shipment: 7-8-10	Time of Shipment: 10:48 ☒ AM ☐ PM	Date of Receipt: 7-8-10 Time of Receipt: 10 50 ☐ AM ☐ PM
Truck/Tractor Registration: 29384	Trailer Registration (if any): 28430	Load Size (cu. yds./tons): 23.28
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative: Greenwood Street Landfill
Date of Shipment: 7-8-10	Time of Shipment: 12:50 ☐ AM ☒ PM	Date of Receipt: 7-8-10 Time of Receipt: ☒ AM ☐ PM
Truck/Tractor Registration: 29384	Trailer Registration (if any): 28436	Load Size (cu. yds./tons): 20.92
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7-8-10	Time of Shipment: 3:02 ☐ AM ☒ PM	Date of Receipt: 7-8-10 Time of Receipt: 3 00 ☐ AM ☐ PM
Truck/Tractor Registration: 29384	Trailer Registration (if any): 28430	Load Size (cu. yds./tons): 19.14
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons)	82.36
Total Carried Forward (cu. yds./tons):	
Total Carried Forward and This Page (cu. yds./tons):	164 86

10.091

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

Vin 94

Release Tracking Number: 1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ OF _____

I. LOAD INFORMATION:

	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:		
Date of Shipment: 7/8/10	Time of Shipment: 7:30 ☑ AM ☐ PM	Date of Receipt: 7.8.10 Time of Receipt: 8 30 ☑ AM ☐ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 27.58
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7/8/10	Time of Shipment: 9:30 ☑ AM ☐ PM	Date of Receipt: 7.8.10 Time of Receipt: 10 40 ☑ AM ☐ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 24.48
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7/8/10	Time of Shipment: 11:45 ☑ AM ☐ PM	Date of Receipt: 7.8.10 Time of Receipt: 12 40 ☐ AM ☐ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 27.12
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment: 7/8/10	Time of Shipment: 1:50 ☐ AM ☑ PM	Date of Receipt: 7.8.10 Time of Receipt: 300 ☐ AM ☑ PM
Truck/Tractor Registration: 94	Trailer Registration (if any): TD1	Load Size (cu. yds./tons): 22.22
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons)	101.45
Total Carried Forward (cu. yds./tons):	164.86
Total Carried Forward and This Page (cu. yds./tons):	266.31

10691

Massachusetts Department of Environmental Protection — **BWSC-012B**

Bureau of Waste Site Cleanup

Vin 24

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number: 1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative:
Date of Shipment: 7-8-2010
Time of Shipment: 8:57 ☑ AM ☐ PM
Truck/Tractor Registration: 18843
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Greenwood Street Landfill
Date of Receipt: 7-8-10
Time of Receipt: 9:55 ☐ AM ☐ PM
Load Size (cu. yds./tons): 28.47

Load 2:
Signature of Transporter Representative:
Date of Shipment: 7-8-2010
Time of Shipment: 11:00 ☑ AM ☐ PM
Truck/Tractor Registration: 18843
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Greenwood Street Landfill
Date of Receipt: 7-8-10
Time of Receipt: 12:10 ☐ AM ☐ PM
Load Size (cu. yds./tons): 20.65

Load 3:
Signature of Transporter Representative:
Date of Shipment: 7-8-2010
Time of Shipment: 1:32 ☐ AM ☑ PM
Truck/Tractor Registration: 18843
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt: 7-8-10
Time of Receipt: 2:30 ☐ AM ☐ PM
Load Size (cu. yds./tons): 20.63

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 69.75
Total Carried Forward (cu. yds./tons): 266.31
Total Carried Forward and This Page (cu. yds./tons): 336.06

Revised 10/3/94

10.091

Massachusetts Department of Environmental Protection **BWSC-012B**

Bureau of Waste Site Cleanup

Vin 37

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

1 - 14340

SUMMARY SHEET _____ **OF** _____

I. LOAD INFORMATION:

Load 1:

Signature of Transporter Representative: Bob Palmer

Date of Shipment: 7-8-10

Time of Shipment: 845 ☑ AM ☐ PM

Truck/Tractor Registration: RI 26333

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Greenwood Street Landfill

Date of Receipt: 7-8-10

Time of Receipt: 9.50 ☒ AM ☐ PM

Load Size (cu. yds./tons): 20.33

Load 2:

Signature of Transporter Representative: Bob Palmer

Date of Shipment: 7-8-10

Time of Shipment: 11:00 ☑ AM ☐ PM

Truck/Tractor Registration: 26333

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt: 7-8-10

Time of Receipt: 12:05 ☐ AM ☑ PM

Load Size (cu. yds./tons): 20.75

Load 3:

Signature of Transporter Representative: Bob Palmer

Date of Shipment: 7-8-10

Time of Shipment: 113 ☐ AM ☑ PM

Truck/Tractor Registration: 26333

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Greenwood Street Landfill

Date of Receipt: 7-8-10

Time of Receipt: 2:20 ☐ AM ☑ PM

Load Size (cu. yds./tons): 16.07

Load 4:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 5:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 57.15

Total Carried Forward (cu. yds./tons): 336.06

Total Carried Forward and This Page (cu. yds./tons): 393.21

10-091

Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC-012B

Vin 54

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ **OF** _____

Release Tracking Number: 1 - 14340

I. LOAD INFORMATION:

Load 1:

Signature of Transporter Representative: Mark Blair

Date of Shipment: 7-8-10

Time of Shipment: 850 ☑ AM ☐ PM

Truck/Tractor Registration: 29711 Rd

Trailer Registration (if any): 53167 Rd

Receiving Facility/Temporary Storage Representative:

Greenwood Street Landfill

Date of Receipt: 7-8-10

Time of Receipt: 954 ☑ AM ☐ PM

Load Size (cu. yds./tons): 22.97

Load 2:

Signature of Transporter Representative: Mark Blair

Date of Shipment: 7-8-10

Time of Shipment: 1110 ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Greenwood Street Landfill

Date of Receipt: 7-8-10

Time of Receipt: 1210 ☐ AM ☑ PM

Load Size (cu. yds./tons): 22.95

Load 3:

Signature of Transporter Representative: Mark Blair

Date of Shipment: 7-8-10

Time of Shipment: 121 ☐ AM ☑ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Greenwood Street Landfill

Date of Receipt: 7-8-10

Time of Receipt: 211 ☐ AM ☑ PM

Load Size (cu. yds./tons): 20.85

Load 4:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 5:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

Load 6:

Signature of Transporter Representative:

Date of Shipment:

Time of Shipment: ☐ AM ☐ PM

Truck/Tractor Registration:

Trailer Registration (if any):

Receiving Facility/Temporary Storage Representative:

Date of Receipt:

Time of Receipt: ☐ AM ☐ PM

Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 66.77

Total Carried Forward (cu. yds./tons): 393.21

Total Carried Forward and This Page (cu. yds./tons): 459.98

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012C

BILL OF LADING (pursuant to 310 CMR 40.0030

SUMMARY SHEET

10.091

Release Tracking Number
1 - 14340

ONLY COMPLETE ONE COPY OF THIS PAGE AND ATTACH TO THE FINAL COPY OF THE SUMMARY SHEET.

L. ACKNOWLEDGMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

Receiving Facility/Temporary Storage Representative (print): Greenwood St LF. CRAIG SACTER Title: Operations

Signature: [signature] Date: 12-15-10

M. ACKNOWLEDGMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in herein is, to the best of my knowledge and belief, true, accurate and complete, I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

Signature: Alan M Delaney Date: 12-21-10

Name of Person (print): ALAN M. DELANEY, MASSDEVELOPMENT REPRESENTATIVE FOR CITY OF SPRINGFIELD

APPENDIX D.2

Bill of Lading for Group "C" Soils

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number*: 1 - 14340

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

Release Name (optional): Former Chapman Valve

Street: 121 Pinevale Street Location Aid:

City/Town: Springfield, MA ZIP Code: 01104

Date/Period of Generation: 7/9/2010 to: 7/28/2010

Additional Release Tracking Numbers Associated with this Bill of Lading:

**Note: If this Bill of Lading is the result of a Limited Removal Action (LRA) taken prior to Notification, a Release Tracking Number is not needed.*

B. PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

Name of Organization: Massachusetts Development / City of Springfield

Name of Contact: Alan M. Delaney Title: Director of Engineering Mass Developm

Street: 33 Andrews Parkway

City/Town: Devens State: MA ZIP Code: 01434

Telephone: (978) 784-2917 Ext.:

C. RELATIONSHIP TO RELEASE OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

☐ RP or PRP Specify: ☑ Owner ☐ Operator ☐ Generator ☐ Transporter Other RP or PRP:

☐ Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ Other Person:

If an owner and/or operator is not conducting the response action associated with the Bill of Lading, provide on an attachment the name, contact person, address and telephone number, including any area code and extension, for each, if known.

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

Transporter/Common Carrier Name: J.R. Vinagro Corporation

Contact Person: Dana Zewinski Title: Environmental Engineer

Street: 2208 Plainfield Pike

City/Town: Johnston State: RI ZIP Code: 02919

Telephone: (401) 943-7100 Ext.: 130

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

Operator/Facility Name: Ted Ondrick Co. LLC

Contact Person: Alan P. Desrosiers Title: Manager

Street: 58 Industry Road

City/Town: Chicopee State: MA ZIP Code: 01020

Telephone: 413-592-2566 Ext.:

Type of Facility (check one):
☐ Asphalt Batch/Cold Mix ☐ Landfill/Disposal ☐ Incinerator ☐ Temporary Storage
☑ Asphalt Batch/Hot Mix ☐ Landfill/Daily Cover ☐ Other:
☐ Thermal Processing ☐ Landfill/Structural Fill

EPA Identification #: MP4135922081

Division of Hazardous Waste/Class A Permit #: WR-96-07 Division of Solid Waste Management Permit #:

Actual/Anticipated Period of Temporary Storage (specify dates if applicable): N/A to:

Reason for Temporary Storage:
N/A

Massachusetts Department of Environmental Protection — BWSC-012A
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number*: 1 - 14340

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION (continued):

Temporary Storage Address:

Street: _____

City/Town: _____ State: _____ ZIP Code: _____

F. DESCRIPTION OF REMEDIATION WASTE:
(check all that apply)

☑ Contaminated Media (check all that apply): ◉ Soil ○ Groundwater ○ Surface Water ○ Other: ~~Group C Soils~~ 7/13/10

☐ Contaminated Debris (check all that apply): ○ Vegetation or Organic Debris ○ Demolition/Construction Waste ○ Inorganic Absorbant Materials ○ Other: _____

☐ Non-hazardous Uncontainerized Waste (check all that apply): ○ Non-aqueous Phase Liquid ○ Other: _____

☐ Non-hazardous Containerized Waste (check all that apply): ○ Tank Bottoms/Sludges ○ Containers ○ Drums ○ Engineered Impoundments ○ Other: _____

Type of Contamination (check all that apply): ☐ Gasoline ☐ Diesel Fuel ☐ #2 Oil ☐ #4 Oil ☐ #6 Oil ☐ Waste Oil ☐ Kerosene ☐ Jet Fuel ☒ Other: Urban fill/Historical Petroleum Release

Estimated Volume of Materials: Cubic Yards: _____ Tons: 500 Other: _____

Contaminant Source (check one/specify): ☐ Transportation Accident ☐ Underground Storage Tank ☐ Other: _____

Response Action Associated with Bill of Lading (check one): ☐ Immediate Response Action ☒ Release Abatement Measure ☐ Utility-Related Abatement Measure ☐ Limited Removal Action ☐ Comprehensive Response Action ☐ Other _____

Remediation Waste Charcterization Support Documentation attached:
☐ Site History Information ☐ Sampling and Analytical Methods and Procedures ☑ Laboratory Data ☐ Field Screening Data

If supporting documentation is not appended, provide an attachment stating thedate and in connection with what document such information was previously submitted to DEP.

G. LICENSED SITE PROFESSIONAL (LSP) OPINION:

Name of Organization: Weston & Sampson

LSP Name: ~~George Nasias~~ Prasanta Bhunia Title: ~~Associate~~ Vice President

Telephone: (978) 977-0110 Ext.: ~~2279~~ 2287

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of

(i) the standard of care in 309 CMR 4.02(1),
(ii) the applicable provisions of 309 CMR 4.02(2) and (3), and
(iii) the provisions of 309 CMR 4.03(5),

to the best of my knowledge, information and belief, the assessment actions undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with the applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal. I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

LSP Signature: P Bhunia Seal:

Date: 07/13/10

License Number: ~~6524~~ 2999

COMMONWEALTH OF MASSACHUSETTS
PRASANTA K. BHUNIA, Ph.D.
No. 2999
REGISTERED LICENSED SITE PROFESSIONAL

P Bhunia

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A

Release Tracking Number*
1 - 14340

BILL OF LADING (pursuant to 310 CMR 40.0030)

H. CERTIFICATION OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

Signature: Alan M Delaney Date: 7-9-10

Name of Person (print): ALAN M. DELANEY, MASSDEVELOPMENT
REPRESENTATIVE FOR CITY OF SPRINGFIELD

10-7-12640 MA

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012B

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET 1 **OF** ____

Release Tracking Number [ ] - [ ]

I. LOAD INFORMATION:

Load	Signature of Transporter Representative	Date of Shipment	Time of Shipment	Truck/Tractor Registration	Trailer Registration (if any)	Receiving Facility/Temporary Storage Representative	Date of Receipt	Time of Receipt	Load Size (cu. yds./tons)	
Load 1	Michael Bunkley	07-19-10	845 ☒ AM ☐ PM	RI 23844	28340 RI	JMH	07-19-10	8:58 AM ☒ AM ☐ PM	23.94 tons	1
Load 2:	[signature]	07-19-10	8:56 ☑ AM ☐ PM	23730	16T55725	JMH	07-19-10	9:10 AM ☐ AM ☐ PM	29.67	2
Load 3:	M Bunkley	07-19-10	925 ☒ AM ☐ PM	RI 23844	28340 RI	JMH	07-19-10	9:39 AM ☒ AM ☐ PM	37.45 tons	3
Load 4:	[signature]	07-19-10	9135 ☑ AM ☐ PM	23730	16T55725	JMH	07-19-10	9:50 AM ☒ AM ☐ PM	35.20 tons	4
Load 5:	M Bunkley	07-19-10	1005 ☒ AM ☐ PM	RI 23844	28340 RI	JMH	07-19-10	10:16 AM ☒ AM ☐ PM	30.94	5
Load 6:	[signature]	07-19-10	10:17 ☑ AM ☐ PM	23730	16T55725	JMH	07-19-10	10:28 AM ☒ AM ☐ PM	33.03	6

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons) 190.23

Total Carried Forward (cu. yds./tons): 0

Total Carried Forward and This Page (cu. yds./tons): 190.23

10-7-12640MA

Massachusetts Department of Environmental Protection **BWSC-012B**

Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET 2 **OF** _____

Release Tracking Number: ☐ - ☐

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative: M. Buckley
Date of Shipment: 07-19-10
Time of Shipment: 10:55 ☒ AM ☐ PM
Truck/Tractor Registration: RI 23844
Trailer Registration (if any): RI 28340
Receiving Facility/Temporary Storage Representative: SMH
Date of Receipt: 07-19-10
Time of Receipt: 10:59 AM ☒ AM ☐ PM
Load Size (cu. yds./tons): 34.94 TN
7

Load 2:
Signature of Transporter Representative: [signature]
Date of Shipment: 07-19-10
Time of Shipment: 10:57 ☒ AM ☐ PM
Truck/Tractor Registration: 23730
Trailer Registration (if any): T 16 55725
Receiving Facility/Temporary Storage Representative: SMH
Date of Receipt: 07-19-10
Time of Receipt: 11:09 AM ☒ AM ☐ PM
Load Size (cu. yds./tons): 32.12 TN
8

Load 3:
Signature of Transporter Representative: M. Buckley
Date of Shipment: 07-19-10
Time of Shipment: 11:35 ☒ AM ☐ PM
Truck/Tractor Registration: RI 23844
Trailer Registration (if any): RI 28340
Receiving Facility/Temporary Storage Representative: SMH
Date of Receipt: 07-19-10
Time of Receipt: 11:48 AM ☒ AM ☐ PM
Load Size (cu. yds./tons): 35.30
9

Load 4:
Signature of Transporter Representative: [signature]
Date of Shipment: 07-19-10
Time of Shipment: 11:44 ☒ AM ☐ PM
Truck/Tractor Registration: 23730
Trailer Registration (if any): T 16 55725
Receiving Facility/Temporary Storage Representative: SMH
Date of Receipt: 07-19-10
Time of Receipt: 11:55 AM ☒ AM ☐ PM
Load Size (cu. yds./tons): 36.96 TN
10

Load 5:
Signature of Transporter Representative: M. Buckley
Date of Shipment: 07-19-10
Time of Shipment: 12:15 ☐ AM ☒ PM
Truck/Tractor Registration: RI 23844
Trailer Registration (if any): RI 28340
Receiving Facility/Temporary Storage Representative: SMH
Date of Receipt: 07-19-10
Time of Receipt: 12:27 PM ☐ AM ☒ PM
Load Size (cu. yds./tons): 37.30 TN
11

Load 6:
Signature of Transporter Representative: [signature]
Date of Shipment: 07-19-10
Time of Shipment: 12:31 ☐ AM ☒ PM
Truck/Tractor Registration: 23730
Trailer Registration (if any): T 16 55725
Receiving Facility/Temporary Storage Representative: SMH
Date of Receipt: 07-19-10
Time of Receipt: 12:47 PM ☐ AM ☒ PM
Load Size (cu. yds./tons): 34.93 TN
12

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 211.55
Total Carried Forward (cu. yds./tons): 190.23
Total Carried Forward and This Page (cu. yds./tons): 401.78

10-7-12640MM

Massachusetts Department of Environmental Protection **BWSC-012B**

Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

SUMMARY SHEET 3 **OF** _____

I. LOAD INFORMATION:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Load 1:	M. Buckley	SMH
Date of Shipment: 07-19-10	Time of Shipment: 1255 ☐ AM ☐ PM	Date of Receipt: 07-19-10 Time of Receipt: 1:09 PM ☐ AM ☒ PM 13
Truck/Tractor Registration: RF 23844	Trailer Registration (if any): RF 28390	Load Size (cu. yds./~~tons~~): 39.18 TW
Load 2:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
		SMH
Date of Shipment: 07-19-10	Time of Shipment: 1214 ☐ AM ☑ PM	Date of Receipt: 07-19-10 Time of Receipt: 1:27 PM ☐ AM ☒ PM 14
Truck/Tractor Registration: 23730	Trailer Registration (if any): 16T 55725	Load Size (cu. yds./tons): 38.06
Load 3:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 4:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 5:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):
Load 6:	Signature of Transporter Representative:	Receiving Facility/Temporary Storage Representative:
Date of Shipment:	Time of Shipment: ☐ AM ☐ PM	Date of Receipt: Time of Receipt: ☐ AM ☐ PM
Truck/Tractor Registration:	Trailer Registration (if any):	Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:

Total Volume Recorded This Page (cu. yds./tons): 77.24

Total Carried Forward (cu. yds./tons): 401.78

Total Carried Forward and This Page (cu. yds./tons): 479.02

10-7-12640 MA

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012C

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET 1 **OF** 1

Release Tracking Number

[ ] - [ ]

K. SUMMARY OF SHIPMENTS:

Date of Shipment:	Date of Receipt:	Number of Loads Shipped:	Daily Volume Shipped (cu. yds./tons):
7-19-10	7-19-10	14	479.02
Summary Sheet Total Shipped:		14	479.02
Bill of Lading Total Shipped (only if different):			

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012C

BILL OF LADING (pursuant to 310 CMR 40.0030

SUMMARY SHEET

Release Tracking Number
[ ] - [ ]

ONLY COMPLETE ONE COPY OF THIS PAGE AND ATTACH TO THE FINAL COPY OF THE SUMMARY SHEET.

L. ACKNOWLEDGMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

Receiving Facility/Temporary Storage Representative (print): Alan P Desrosiers Title: Manager

Signature: [signature] Date: 8/24/2010

M. ACKNOWLEDGMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in herein is, to the best of my knowledge and belief, true, accurate and complete, I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

Signature: [signature] Date: 9/20/10

Name of Person (print): Alan Delaney

APPENDIX D.3

Hazardous Waste Manifests for Lead-Impacted Soil

352742

1220855

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MP9787842917
2. Page 1 of: 1
3. Emergency Response Phone: (877) 577-2669
4. Manifest Tracking Number: 003155641 FLE

5. Generator's Name and Mailing Address:
CITY OF SPRINGFIELD RELEASE TRACKING# 1-14340
33 ANDREWS PARKWAY
DEVENS MA 01434 (978)784-2917

Generator's Site Address (if different than mailing address):
CHAPMAN VALVE FACILITY RELEASE TRACK# 1-14340
121 PINVALE STREET
SPRINGFIELD MA 01151 (978)784-2917

Generator's Phone:

6. Transporter 1 Company Name: 21ST CENTURY ENV MGT LLC. OF RI — U.S. EPA ID Number: RID980906986

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
NORTHLAND ENVIRONMENTAL, LLC
275 ALLENS AVENUE
PROVIDENCE, RI 02905 (401) 781-6340
U.S. EPA ID Number: RID040098352

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077 HAZARDOUS WASTE, SOLID, N.O.S. (LEAD) 9 PGIII	004	DM	03200	P	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
(1) 473457-00 - ERG(171) LEAD CONTAMINATED SO

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Sean Hennes on behalf of City of Springfield — Signature: x [signature] — Month/Day/Year: 10 22 10

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: ____ Date leaving U.S.: ____
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Sean [illegible] Hennes — Signature: [signature] — Month/Day/Year: 10 22 10
Transporter 2 Printed/Typed Name: — Signature: — Month/Day/Year:

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H141 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [signature] — Signature: [signature] — Month/Day/Year: 10 22 10

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

GENERATOR / INT'L / TRANSPORTER / DESIGNATED FACILITY

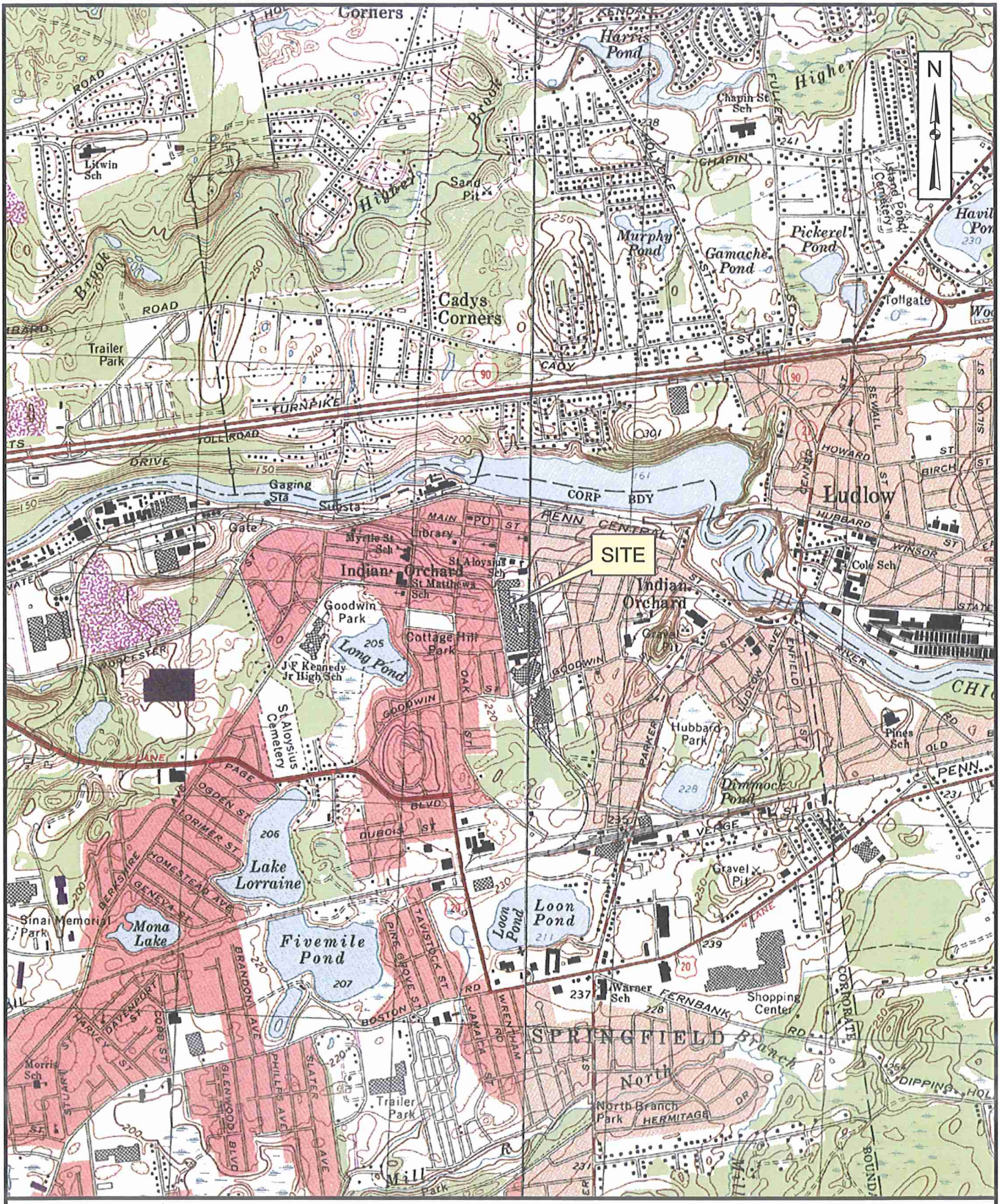

FIGURE 1
121 PINEVALE STREET
SPRINGFIELD, MASSACHUSETTS

LOCUS MAP

Weston&Sampson

O:\Springfield MA\Chapman\Pinevale Application\RAM Plan KSN\LOCUS MAP.mxd 4/2/2009 11:43:44 AM commonuse

n/f PAWPRINT REALTY CORP.

OK PET SUPPLY BUILDING

EDGE OF CONCRETE

CONCRETE SLAB

CB

LOADING DOCK

121 PINEVALE STREET (DEMOLISHED)

TP-7 EXCAVATION AREA

n/f GOODWIN REALTY LLC. (BERGDOLL PROPERTY)

CONCRETE SLAB

TP-1B TP-1 TP-1A TP-2 TP-2A TP-3 TP-4 TP-5 TP-6 TP-7 TP-8

CS-1 CS-2 CS-3 CS-4 CS-5 CS-6 CS-7/7A CS-8/8A CS-9 CS-10/10A CS-11 CS-12 CS-13 CS-14 CS-15 CS-16 CS-17 CS-18 CS-19 CS-20 CS-21 CS-22 CS-23 CS-24

WS-1 WS-2 WS-3 WS-4 WS-5 WS-6 WS-7 WS-8 WS-9 WS-10 WS-11 WS-12 WS-13 WS-14 WS-15 WS-24

PINEVALE STREET

HAMPSHIRE STREET

TP-1 EXCAVATION AREA

WS-14 EXCAVATION AREA

WS-13 EXCAVATION AREA (ELEVATED LEAD CONCENTRATION)

TP-8 EXCAVATION AREA

LEGEND:

- DISPOSAL SITE BOUNDARY – RTN 1-14340
- TP-5 PRECHARACTERIZATION TEST PIT LOCATION (DECEMBER 2009)
- WS-15 PRECHARACTERIZATION SAMPLE LOCATION (JUNE 2010, JULY 2010)
- CS-1 CONFIRMATORY SOIL SAMPLING LOCATION (JULY 2010)
- "GROUP A" SOIL (UNLINED LANDFILL)
- LEAD IMPACTED SOIL
- "GROUP C" SOIL (ASPHALT BATCH/RECYCLING FACILITY)
- FORMER BUILDING PERIMETER

SCALE: 1"=50'

0 50 100

FIGURE 2

SPRINGFIELD REDEVELOPMENT AUTHORITY
SPRINGFIELD, MASSACHUSETTS

SOIL SAMPLING & EXCAVATION PLAN

DESIGNED BY: BJM	CHECKED BY: GDN	DATE: DECEMBER 2010

Weston&Sampson®

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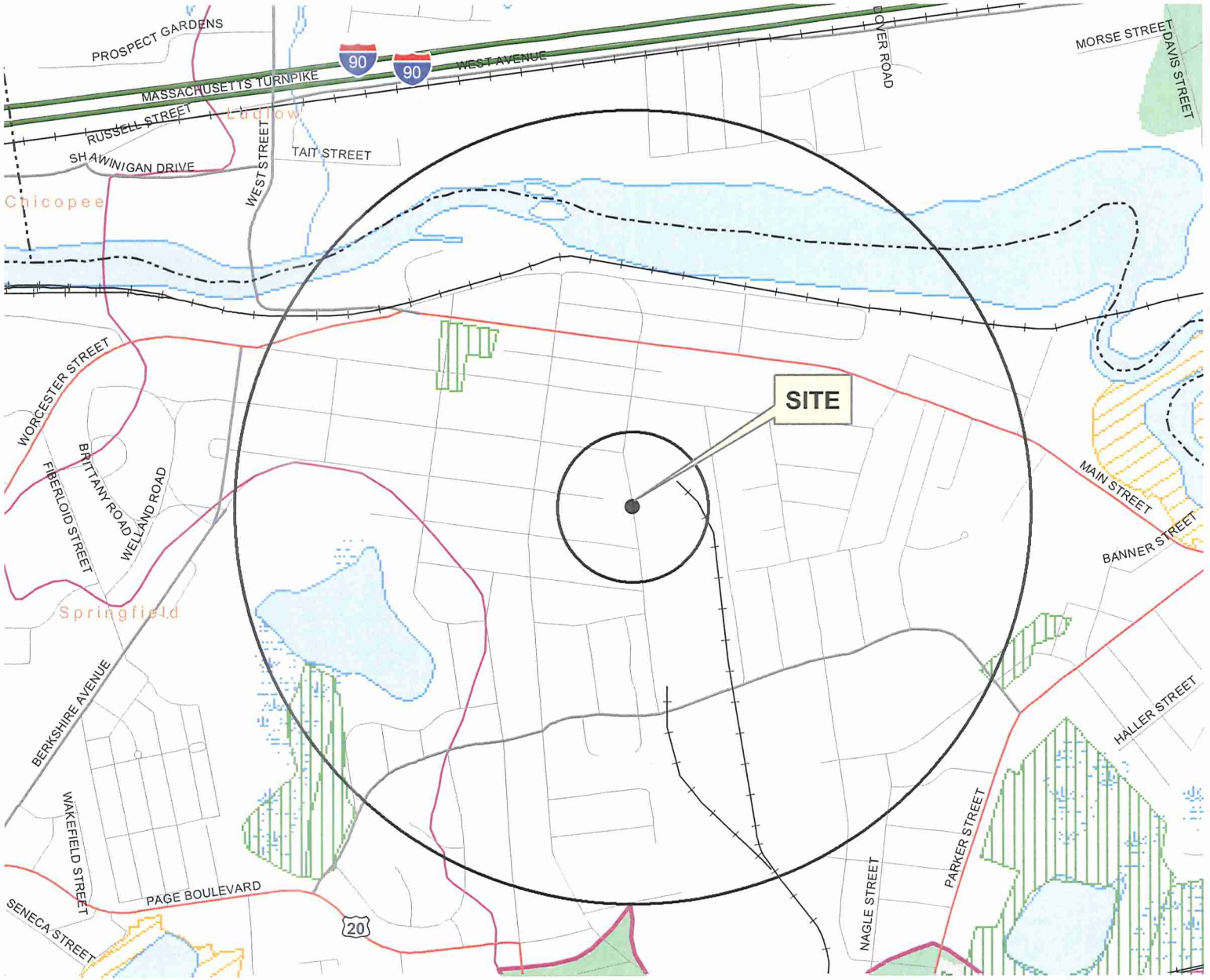

N
W E
S

1,000 500 0 1,000 Feet

0.08 0.04 0 0.08 Miles

Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

Radii shown are approximately 500-feet and 1/2-mile from center of Site.

Legend

- Town Boundaries
- State Boundary
- Ground Water
- Surface Water
- Non-Community
- NHESP Certified Vernal Pools
- Railroads by Ownership
- Pipeline
- Pipeline Arbitrary Extension
- Powerline
- Powerline Arbitrary Extension
- Ski Lift/Tramway
- Substation
- Landing Strip/Airport
- Highway Exit Locations

All Roads

Road Classification

- Limited Access Highway
- Multi-lane Hwy, not limited access
- Other Numbered Highway
- Major Road, Collector
- Minor Road, Arterial
- Sub-basins
- Major Basins
- Solid Waste Facilities
- Protected Open Space
- ACECs
- Zone A
- IWPAs
- DEP Approved Zone IIs
- River, Stream, Shoreline
- Water
- Wetland
- Sole Source Aquifers
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species

Non Potential Drinking Water Source Area

- High Yield
- Medium Yield

Aquifers

- High Yield
- Medium Yield

MA Towns (from Survey Points)

- MA Towns (from Survey Points)

FIGURE 3

Area Receptors Map
121 Pinevale Street
Springfield, MA

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