

Geotechnical
Environmental
Water Resources
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Phase I Environmental Site Assessment

Bruce Freeman Rail Trail
Acton and Concord, Massachusetts

Submitted to:

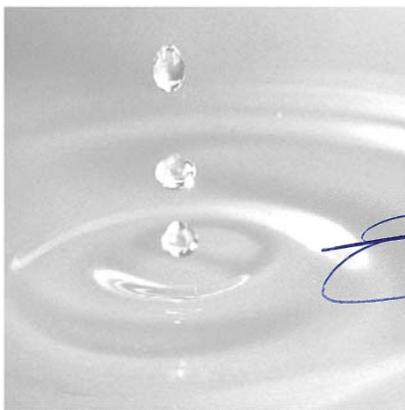
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Executive Summary

GEI completed an ASTM Phase I Environmental Site Assessment (ESA), on behalf of the Massachusetts Department of Transportation (MassDOT) for the proposed sections of the Bruce Freeman Rail Trail (Rail Trail) located in Acton and Concord, Massachusetts (approximately 8.2 miles). We used the Massachusetts Department of Environmental Protection (MassDEP) guidance document entitled “Best Management Practices for Controlling Exposure to Soil during Redevelopment of Rail Trails” in our evaluation.

Based on our evaluation of current Rail Trail conditions, and our review of available Rail Trail records, we identified 31 Recognized Environmental Conditions (RECs) defined as evidence of a past, current, or future potential release of oil and hazardous material (OHM), at or affecting the Rail Trail. These RECs are described below and summarized in Table 1.

Historic Rail Use

The Rail Trail is an abandoned railroad Right-of-Way (ROW). A rail yard for the former railroad ROW is located adjacent to The Rail Trail in West Concord, where the Rail Trail crosses an active Massachusetts Bay Transit Authority (MBTA) rail line. The rail yard included a garage, freight storage, and a spur line connecting the two intersecting lines, and was likely operated from the late 1800s until the early 1950s. The former rail yard is now occupied by 30 and 40 Beharrell Street, and 20, 6B, 66, and 68 Commonwealth Avenue in Concord. The 68 Commonwealth Avenue portion of the rail yard was subsequently operated by Boston Gas Company. In addition to incidental amounts of OHM generated from the daily operation of the railroad, small amounts of OHM, including oil and acids, were historically present in batteries used to power the railroad signals. Historic maintenance of the rail line likely included application of pesticides, especially in the vicinity of road crossings.

Open MassDEP-listed Disposal Sites

The property at 930 Main Street in Acton abuts the Rail Trail and contains three open MassDEP disposal sites: Release Tracking Number (RTNs) 2-10612, 2-10645, and 2-15875. The sites are listed for a release of oil from an underground storage tank (UST) to groundwater used as drinking water (RTNs 2-10612 and 2-10645) and a release of oil from a pole-mounted electrical transformer (RTN 2-15875). Contamination from these sites has not been mitigated and may have potentially migrated onto the Rail Trail and affected soil and groundwater conditions.

Although it is not currently a disposal site, the Acton Sand and Gravel Property at 960 Main Street has been subject to MassDEP enforcement actions for illegal dumping of various materials, including some that may potentially contain OHM.

USTs and ASTs

Five properties that abut the Rail Trail have petroleum underground storage tanks (USTs) or aboveground storage tanks (ASTs) on their premises: 94 and 275 Great Road in Acton, and 965 Elm Street, 45 Winthrop Street, and 56 Winthrop Street in Concord. There is also a UST at 802 Main Street in Acton; the purpose and content of the UST are unknown, but it appears to be a septic tank. There have been no reported releases of OHM at these properties.

Drycleaners

There is a drycleaner that abuts the Rail Trail at 132 Great Road in Acton. There are also potential historic drycleaners at 1237 Main Street and 50 Beharrell Street in Concord that abut the Rail Trail. There have been no reported releases of OHM at any of these properties. There may have been releases that have not been identified and therefore not reported. There is potential for these sites to affect conditions at the Rail Trail due to their proximity.

Historic Use of Adjacent Properties

Several properties abutting the Rail Trail were occupied by commercial, industrial, or manufacturing facilities that potentially used and/or stored OHM as part of their daily operations. There have been no reported releases of OHM at these properties. There may have been releases that have not been identified and therefore not reported, and therefore, there is the potential for these abutting properties to affect conditions at the Rail Trail.

- Historic auto maintenance garages abut the Rail Trail at 18 Wetherbee Street in Acton and 1237 Main Street in Concord. The garage at 18 Wetherbee Street operated from approximately 1953 until approximately 1981 when it became a contractor yard. The 1237 Main Street property was a garage from 1927 until 1947 when it became a machine shop. The years of operation as a machine shop are unknown.
- The 1211 Main Street property in Concord has been a service station since approximately 1958.
- The 45 Winthrop Street property in Concord was a foundry from approximately 1927 until the late 1950s.

Site Reconnaissance

During our site reconnaissance we observed several RECs:

- An unenclosed heating oil AST behind the building and adjacent to the Rail Trail at 162 Great Road in Acton.
- Contractor yards at 781 and 791 Main Street and 13 and 18 Wetherbee Street in Acton. We also observed dumped soil located adjacent to the Rail Trail and immediately south of the contractor yard at 781 and 791 Main Street.

- We observed the man-way to a UST immediately abutting the Rail Trail at 94 Great Road in Acton.

We also identified 10 historic RECs that are closed. These historic RECs are described below and summarized in Table 2.

Closed MassDEP-listed Disposal Sites

Ten MassDEP listed disposal sites that have achieved an RAO or require no further action about the Rail Trail: 1009, 1019, and 1023 Main Street (RTN 2-008); 816 Main Street (RTN 2-12173); 196 Great Road (RTN 10766); 180 Great Road (RTN 13331); and 162 Great Road (RTN 2-11924) in Acton; and 965 Elm Street (RTNs 3-1818, 3-15490, and 3-19124); 56 Winthrop Street (RTN 3-4171); and 50 Beharrell Street (RTN 3-294). Since these sites have achieved regulatory closure, it is unlikely that contamination associated with these sites has affected the Rail Trail.

Soil and Tank Sampling Results

As part of this ESA, we performed additional services consisting of soil and water laboratory testing to evaluate two RECs previously identified: the historic battery wells and signal boxes along the abandoned railroad and the UST at 802 Main Street in Acton.

- We collected soil samples from five representative battery wells and signal boxes for laboratory analysis. Based on the sampling results, soil in and around the battery wells contained polycyclic aromatic hydrocarbons (PAHs) and metals including arsenic, cadmium, chromium, lead, nickel and mercury above MCP soil category S-1 reportable concentrations (RCS-1).
- We collected one water sample from the UST for laboratory analysis. Based on levels of total and fecal coliform in the sample; it appears that the UST is likely a septic tank.

Reporting Conditions

Soil in and around the battery wells contained PAHs and metals including arsenic, cadmium, chromium, lead, nickel and mercury above MCP RCS-1 values, which constitute a 120-day reporting condition under the MCP. However, PAHs and lead may be exempt from reporting. Lead and arsenic are likely attributable to the application of pesticides and therefore an MCP reporting exemption may apply (310 CMR 40.0317 (8)(c)). The lead and PAHs may also be attributable to coal ash which is also an MCP reporting exemption (310 CMR 40.0317(9)). Reporting exemptions do not apply to the releases of mercury and cadmium; however, these releases could likely be mitigated as a Limited Removal Action (LRA; 310 CMR 40.0318) and then would not require reporting.

Arsenic at a concentration of 67 milligrams per kilogram (mg/kg) was present in one battery well location, which constituted an Imminent Hazard (i.e. greater than 40 mg/kg within 500

feet or a residence and 6 inches of the ground surface). The Rail Trail owner, the Massachusetts Bay Transit Authority (MBTA), was provided the battery well data on January 2, 2013. MBTA did not notify MassDEP of the Imminent Hazard because based on their knowledge and experience as the owner of rail lines, and MassDEP guidance documents, they believe the arsenic was likely attributable to the application of pesticides and therefore is exempt under the MCP from reporting to MassDEP.

Based on the presence of these RECs at and affecting the Rail Trail, we recommend performing additional investigations to evaluate whether a release of OHM to the environment has occurred. Additional investigations may include soil boring advancement, groundwater monitoring well installation, and soil and groundwater sampling. In accordance with the MassDEP guidance for rail trail redevelopment, we recommend conducting sampling at the former rail yard and at the Rail Trail adjacent to properties where one or more RECs have been identified. These locations are summarized in Table 1.

In addition, concentrations of PAHs and metals detected in soil in and around the battery wells above RCS-1 represent a 120-day reportable condition under the provisions of the MCP (310 CMR 40.0315). The 120-day notification requirement dates from January 2, 2013, the day the MBTA (the property owner) obtained knowledge of the release. If reporting exemptions are not applicable or LRA's are not conducted, the written notification of the 120-day reporting condition is due to MassDEP on or before May 2, 2013.

1. Introduction

GEI Consultants, Inc. has completed an ASTM Phase I Environmental Site Assessment (ESA) on behalf of the Massachusetts Department of Transportation (MassDOT), Highway Division, for the proposed sections of the Bruce Freeman Rail Trail located in Acton, and Concord Massachusetts (the Rail Trail; Fig. 1).

1.1 Purpose

The purpose of this Phase I ESA was to:

- Identify recognized environmental conditions (RECs), defined by ASTM as a condition with the potential for a past, current, or future release of oil or hazardous material (OHM) at the Rail Trail.
- Evaluate the potential for a release of OHM at the Rail Trail.
- Conduct sampling of two RECs previously identified at the Rail Trail.

1.2 Detailed Scope of Services

In accordance with our proposal dated November 20, 2012, and authorized on November 26, 2012, we:

- Reviewed available historic reports for the Rail Trail.
- Reviewed available records at select Town of Acton and Concord offices.
- Reviewed documents and maps regarding local geologic and hydrogeological conditions in the vicinity of the Rail Trail.
- Reviewed federal and state regulatory database records pertaining to the Rail Trail and surrounding area.
- Reviewed the MassDEP guidance document entitled “Best Management Practices for Controlling Exposure to Soil during Redevelopment of Rail Trails”
- Performed a site reconnaissance of the Rail Trail.
- Performed a subsurface investigation consisting of soil and water sampling from previously identified historic structures including battery wells and an underground storage tank (UST) along the Rail Trail.
- Prepared this Phase I ESA.

This report summarizes the information that we gathered as part of the ESA.

1.3 Significant Assumptions

Our conclusions and recommendations are based on the information sources presented in this report and listed in Section 13 (References), and a site reconnaissance at the Rail Trail. GEI assumes that all available information obtained as part of this ESA including database records, interview information, and historic information is accurate and reliable.

1.4 Limitations and Exceptions

This report meets the general requirements for a Phase I ESA established by ASTM Standard E1527 05, with the following exceptions:

- A review of available records maintained by municipal offices was used to substitute for interviews with employees of those departments who declined to be interviewed at length. A review of records was also used to substitute for interviews with past or present site occupants or owners.
- No title search was performed to identify previous owners. Readily available public documentation, including, but not limited to, aerial photographs, regulatory database searches, etc. were used in a lieu of a title search.

We did not review records for the Towns of Carlisle and Westford for this ESA because less than 0.4-miles of the Rail Trail is located in Carlisle and Westford, and we did not identify any significant abutters (e.g. Massachusetts Department of Environmental Protection (MassDEP) listed disposal sites, commercial or industrial properties, etc.) along this portion of the Rail Trail.

Our conclusions are based on the information reported in this report. Additional information not available to us at the time this report was prepared may result in a modification of the findings of this ESA.

1.5 Special Terms and Conditions

This ESA was performed with no Special Terms and Conditions.

1.6 User Reliance

This ESA and report were prepared for the use of MassDOT, exclusively. Reliance on this report by others is conditioned on acceptance of all of the terms and conditions contained in our “Standard Professional Services Agreement”, a copy of which will be provided upon request, and on the limitations in Section 1.4 of this report.

2. Rail Trail Description

2.1 Rail Trail Location

The proposed Rail Trail is a 66-foot wide, 8.2-mile section of abandoned railroad Right-of-Way (ROW) that begins in Westford, Massachusetts at the intersection of Routes 27 and 225 and continues south through Carlisle, Acton, and Concord, Massachusetts and ends near White Pond in Concord (Figs. 1 through 15).

2.2 Site Vicinity and General Characteristics

The Rail Trail is an abandoned railroad ROW. Abutting properties are largely undeveloped, residential and agricultural land; however there are several industrial, commercial, and manufacturing properties along portions of the Rail Trail. The address, assessor's parcel ID, and owner of each of these significant abutters are summarized in Table 3 [1, 2].

2.3 Current Use of the Property

The current use of the Rail Trail is an abandoned railroad ROW [3].

2.4 Description of Structures, Roads, and Other Improvements on the Property

No buildings are present on the Rail Trail. Historic railroad structures and features are present and include railroad track, track switches, signal boxes, a signal tower, battery wells, bridges, and a tunnel [3]. The location of these structures and features in addition to proposed features for the Rail Trail (e.g. parking lots, access paths, etc.) are shown on Figs. 2 through 15.

2.5 Current Use of the Adjoining Properties

Much of the land abutting the Rail Trail is currently undeveloped or used for residential and agricultural purposes; however, several industrial, manufacturing, and commercial properties are adjacent to the Rail Trail, particularly in portions of West Concord and East Acton (Figs. 2 through 15). A list of these significant abutters is in Table 3.

3. User Provided Information

3.1 Title Records

A title search was not performed as part of this ESA.

3.2 Environmental Liens or Institutional Controls

There are no institutional controls for the Rail Trail, nor are there any known environmental liens on the Rail Trail according to our review of state and federal databases provided by Environmental Data Resources (EDR) of Milford, Connecticut and the Middlesex County Registry of Deeds on-line database [4, 5].

3.3 Specialized Knowledge

The user of this ESA (MassDOT) did not have any specialized knowledge or experience related to the Rail Trail other than the information that was obtained during the site reconnaissance.

3.4 Commonly Known or Reasonably Ascertainable Information

GEI obtained several historic reports on-line associated with Rail Trail including two reports prepared by Fay, Spofford, and Thorndike (FST):

- “Bruce Freeman Rail Trail Environmental and Engineering Assessment Report, Concord Section,” dated August 2005.
- “Bruce N. Freeman Memorial Bicycle Path, Acton, MA, Feasibility Study,” dated January 2004.

We also used the Massachusetts Department of Environmental Protection (MassDEP) guidance document entitled “Best Management Practices for Controlling Exposure to Soil during Redevelopment of Rail Trails” in our evaluation.

The user of this ESA (MassDOT) did not have any commonly known or reasonably ascertainable information relevant to identifying RECs at the Rail Trail other than the information that was obtained during the site reconnaissance.

3.5 Valuation Reduction for Environmental Issues

The Rail Trail is a ROW under the care and control of the MBTA, and this ESA is being performed to support construction on the Rail Trail, and therefore, a purchase price is not applicable.

3.6 Owner, Property Manager, and Occupant Information

The Rail Trail is owned by the Commonwealth of Massachusetts under the care and control of the MBTA.

3.7 Reason for Performing ESA

GEI has completed this ESA, on behalf of MassDOT, as part of the due diligence to support construction of the Rail Trail.

4. Records Review

4.1 Standard Environmental Records Sources

EDR conducted a search of federal and state databases for sites up to one mile from the Rail Trail [4]. A copy of the EDR report summarizing all of the sites found by EDR is in Appendix A.

We reviewed the EDR report for sites that could potentially affect environmental conditions at the Rail Trail. It is our opinion that sites greater than 0.125 mile from the Rail Trail are generally not likely to affect environmental conditions at the Rail Trail and, therefore, they are not summarized below. Comprehensive listings of sites up to one mile from the Rail Trail are in Appendix A.

4.1.1 Hazardous Waste Sites and Releases

There are 50 State Hazardous Waste Sites (SHWS) and Release sites within 0.125 mile of the Rail Trail (Table 4).

- Five of the 50 sites are still open; however, three of these sites are hydrologically separated from the Rail Trail by the Nashoba Brook, and are therefore unlikely to affect conditions at the Rail Trail (341 Great Road [RTN 2-0848], 336 Great Road [RTN 2-10259], and 13 Church Street [RTN 3-26427]). The remaining sites (930 Main Street [RTNs 2-10612 and 2-10645]) are upgradient and adjacent to the Rail Trail. The status of these sites is discussed in Section 4.2.1.1.
- The remaining 45 of the 50 sites have achieved a Response Action Outcome (RAO) or require no further action [4]. Ten of these closed sites (1009, 1019, and 1023 Main Street, 816 Main Street; 196 Great Road, 180 Great Road, and 162 Great Road in Acton and 965 Elm Street, 56 Winthrop Street, and 50 Beharrell Street in Concord) are located on properties abutting the Rail Trail. We reviewed available files from the MassDEP on-line database for these 10 sites (Section 4.2.1). Based on our review of MassDEP documents, it appears unlikely that contamination associated with these 10 closed sites has affected the Rail Trail.
- Two of the 45 sites that require no further action are classified as Downgradient Property Status (DPS) sites (7-9 Church Street [RTN 3-14784] and 1150 Main Street [RTN 3-15553] [4]. Based on groundwater flow direction, both sites are located cross-gradient of the Rail Trail and are, therefore, unlikely to affect conditions at the Rail Trail.

4.1.2 Registered and/or Leaking Underground and Aboveground Storage Tanks

There are 15 registered underground storage tanks (UST) properties within 0.125 mile of the Rail Trail (Table 4). Five of these 15 sites are also listed as having registered aboveground storage tanks (ASTs) on their premises. Six of these 15 sites are located downgradient or crossgradient of the Rail Trail and are, therefore not expected to affect conditions at the Rail Trail. The remaining nine sites are located potentially upgradient of the Rail Trail. Of these nine sites, four abut the Rail Trail and could potentially affect conditions there if a release from an AST or UST occurred. These sites are: Bursaw Oil and Gas at 94 Great Road in Acton, 275 Great Road in Acton, the former Concord Foundry at 45 Winthrop Street in Concord, and 56 Winthrop Street in Concord [4, 6]. The presence of one or more USTs or ASTs at these properties adjacent to the Rail Trail constitutes an REC.

There are 9 leaking UST (LUST) sites within 0.125 mile of the Rail Trail. Six of these 9 sites have achieved an RAO or require no further action. Two of the remaining three sites: 44 Great Road and 341 Great Road in Acton are located downgradient and crossgradient, respectively and are not expected to affect conditions at the Rail Trail. The remaining site, 930 Main Street in Acton is discussed in Section 4.2.1.8.

There are 2 leaking AST (LAST) sites within 0.125 mile of the Rail Trail. Both of these sites have achieved regulatory closure.

4.1.3 Other Federally or District Listed Sites

According to the EDR report, none of the following site types are on the Rail Trail or within approximately 0.125-mile of the Properties: National Priorities List (NPL) sites; Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS) sites; landfill/solid waste disposal sites; RCRA Treatment, Storage, or Disposal Facilities; or federally designated Brownfields sites. The EDR report did not list any sites with institutional or engineering controls within approximately 0.125 mile of the Properties [4].

There are no drycleaners on the Rail Trail. However, there are five drycleaners located within 0.125 miles (Table 4). Of these sites, four are located potentially upgradient of the Rail Trail: 252 Great Road, 271 Great Road, and 132 Great Road in Acton, and 113 Commonwealth Avenue in Concord. No releases have been reported at these sites.

The Rail Trail is not an archived Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site. The Pars H.G.- Acton facility at 198 Great Road is adjacent to the Rail Trail and is an archived CERCLIS site. No further action is required at this site because the site has been archived.

The Rail Trail is not listed as either a RCRA Large or Small Quantity Generator (LQG or SQG). According to the EDR report, there are three RCRA SQG sites within 0.125 miles of the Rail Trail (Table 4): 196 Great Road, 171 Great Road, and 503 Commonwealth Avenue. No violations have been reported for 503 Commonwealth Avenue, and only minor violations that have been mitigated and closed have been reported for 171 Great Road. There is a release associated with the use of hazardous waste at the 196 Great Road site, but it has been closed with a Class A-2 RAO. Consequently, the presence of these three RCRA-SQGs is not expected to affect conditions at the Rail Trail.

The Rail Trail is not listed as RCRA-Conditionally Exempt Small Quantity Generators (CESQG). A RCRA-CESQG generates less than 100 kilograms (kg) of hazardous waste annually or less than 1 kg of acutely hazardous waste per month. There are 11 RCRA-CESQGs within 0.125 mile of the Rail Trail (Table 4). Eight of these sites have no record of violations. Three of these sites have at least one release associated with their use or storage of OHM: 930 Main Street and 44 Great Road in Acton, 13 Church Street in Concord [4]. Two of these sites are located downgradient or crossgradient from the Rail Trail and are not expected to affect conditions at the Rail Trail. The remaining property, 930 Main Street is discussed in Section 4.2.1.1.

The Rail Trail is not a RCRA-Non-Generator (i.e. facilities that have been RCRA generators in the past, but do not currently generate hazardous waste as a result of its operations). There are 14 RCRA-Non-Generators within 0.125 miles of the Rail Trail. Five of these sites have at least one release associated with their use or storage of OHM: 930 Main Street, and 135, 196, 336, and 341 Great Road in Acton. Except for the site at 930 Main Street all of these releases have achieved regulatory closure or require no further action [4]. The 930 Main Street site is discussed in Section 4.2.1.1.

The Rail Trail is not an Emergency Response Notification System (ERNS) site and there are no ERNS sites within 0.125 mile of the Rail Trail [4].

4.2 Additional Environmental Records Sources

4.2.1 MassDEP Records

We reviewed the MassDEP Sites, Releases and Historic Spills databases for the Towns of Acton and Concord [7, 8]. The databases are in Appendix B.

We did not identify any confirmed disposal sites located on the Rail Trail, however; as identified in Section 4.1.1., there are 50 MassDEP-listed sites within 0.125 miles of the Rail Trail (Table 4). Five of the 50 sites are still open; however, three of these sites are hydrologically separated from the Rail Trail by the Nashoba Brook, and are, therefore unlikely to affect conditions at the Rail Trail. The remaining sites (930 Main Street [RTNs 2-10612 and 2-10645]) are upgradient and abut the Rail Trail (Figure 3). Forty-five of the 50

sites have achieved an RAO or require no further action; however, ten of these closed sites abut the Rail Trail. The closed sites abutting the Rail Trail are listed below, along with the figures showing their locations.

- 1009, 1019, 1023 and Main Street, Acton (RTN 2-008; Figure 2)
- 816 Main Street, Acton (RTN 2-12713; Figure 4)
- 196 Great Road, Acton (RTNs 2-10766; Figure 7)
- 180 Great Road, Acton (RTN 2-13331; Figure 7)
- 162 Great Road, Acton (RTN 2-11924; Figure 8)
- 965 Elm Street, Concord (RTNs 3-1818, 3-15490, and 3-19124; Figure 11)
- 56 Winthrop Street, Concord (RTN 3-4171; Figure 11)
- 50 Beharrell Street, Concord (RTN 3-294; Figure 11)

We reviewed the online MassDEP database files on December 29, 2012, to obtain additional information on the one open disposal site and the 10 closed sites abutting the trail. Information obtained during the online review is summarized below. Based on our review, the nine sites that have achieved regulatory closure are not expected to affect conditions at the Rail Trail and are considered historic RECs; however, contamination from multiple releases that are still open at 930 Main Street may have potentially migrated onto the Rail Trail and affected soil and groundwater condition.

4.2.1.1 930 Main Street, Acton (RTNs 2-10612, 2-10645, 2-10942, and 2-15857)

On January 1, 1995, MassDEP was notified of a release of oil from a UST at the 930 Main Street property in Acton. MassDEP assigned RTN 2-10612 to the release. On February 2, 1995, MassDEP was notified that contamination from the UST release was identified in groundwater within 500 feet of an on-site drinking water well. MassDEP assigned RTN 2-10645 to the condition [7, 17].

On October 2, 1995, MassDEP was notified of a release of separate phase wood preservative (i.e. mineral spirits) at the property. MassDEP assigned RTN 2-10942 to the release [7, 17].

On June 16, 2003, IES, Inc. of Medford, Massachusetts submitted a Class A-2 RAO for the initial release of oil from the UST (RTN 2-10612). Since the RAO did not address the related groundwater condition (RTN 2-10645), MassDEP retracted the RAO and the site is currently listed as being in Phase V Remedy Operation Status (ROS) [7, 17]. RTN 2-10942 has been closed by MassDEP.

Based on site documents and the figures in Appendix C, it appears that contamination from at least one of these three releases has likely migrated onto the Rail Trail.

On August 4, 2005, MassDEP was notified of a spill of approximately 81 gallons of mineral oil dielectric fluid (MODF) from a pole-mounted transformer to asphalt and soil at the property. MassDEP assigned RTN 2-15857 to the release. Based on the manufacturer's specification plate and field screening the MODF was determined not to contain PCBs. Remediation was conducted as an IRA and consisted of removing excess oil from the pavement, and vacuum excavation of approximately 4 cubic yards of adjacent impacted soil. Groundwater was not impacted by the release. The release was closed with a Class A-1 RAO on August 11, 2005 [7, 17]. Based on the figure in Appendix C, the release occurred immediately adjacent to the Rail Trail and may have extended onto the Rail Trail.

Contamination from multiple releases at 930 Main Street may have potentially migrated onto the Rail Trail and affected soil and groundwater conditions.

4.2.1.2 1009, 1019, and 1023 Main Street, Acton (RTN 2-008)

MassDEP listed the property located at 1009, 1019, and 1023 Main Street in Acton as a Location-To-Be-Investigated (LTBI) on January 15, 1987. According to documents on file with the Town of Acton Building Department and MassDEP, the former property owner was in the business of demolishing gas stations and he disposed and buried the resulting waste at the property. Several response actions appear to have been conducted in 1994 and 1995 that included a subsurface investigation and removal of debris, multiple USTs and limited amounts of contaminated soil. Groundwater reportedly did not contain reportable levels of contamination [9]. As shown in the Figure in Appendix C, much of the removal activities were conducted adjacent to the Rail Trail. On August 9, 1995, Action Environmental, Inc. (AEI) submitted an LSP Evaluation Opinion to MassDEP that concluded no reportable releases of OHM had occurred at the site and no further action was necessary [7, 9].

4.2.1.3 196 Great Road, Acton (RTN 2-10766)

On April 21, 1995, MassDEP was notified of a release of petroleum to soil and groundwater from at the Acton Lincoln Mercury car dealership at 196 Great Road in Acton, Massachusetts. MassDEP assigned RTN 2-10766 to the release [7, 12].

The source of the release was identified as an oil water separator and septic holding tank that serviced a maintenance garage. Contaminated soil near these structures was removed as part of a Release Abatement Measure (RAM). Contamination did not migrate onto the Rail Trail as shown in the Figure in Appendix C. The site achieved closure with a Class A-2 RAO on December 30, 2002 [7, 12]

4.2.1.4 180 Great Road, Acton (RTN 2-13331)

On June 15, 2000, MassDEP was notified of a release of petroleum to soil and groundwater from at the former Files Equipment Company property at 180 Great Road in Acton, Massachusetts. MassDEP assigned RTN 2-13331 to the release [7, 11].

The source of the release was identified as a former fuel oil UST that was removed from the property in 1995. Contaminated soil and groundwater near the former UST were removed as part of a Release Abatement Measure (RAM). Contamination did not migrate onto the Rail Trail as shown in the Figure in Appendix C. The site achieved closure with a Class A-2 RAO on March 21, 2001 [7, 11]. Since the release of oil does not appear to have migrated onto the Rail Trail, and the site has been remediated and closed, it is not expected to affect conditions at the Rail Trail.

4.2.1.5 162 Great Road, Acton (RTN 2-11924)

On October 8, 1997, MassDEP was notified of a release of No. 2 fuel oil and gasoline during removal of two, 500-gallon USTs. MassDEP assigned RTN 2-11924 to the release.

Based on subsequent investigations, groundwater was not impacted by the release; however, contaminated soil beneath the USTs was removed as part of an Immediate Response Action (IRA). The site was closed with a Class A-2 RAO on February 6, 1998.

4.2.1.6 816 Main Street, Acton (RTN 2-12713)

On March 17, 1999, MassDEP was notified of a release of gasoline from a 1,000 gallon UST at the 816 Main Street property. MassDEP assigned RTN 2-12713 to the release. In March 2000, MassDEP was notified of a condition of Substantial Release Migration (SRM) when contamination from the UST release was detected in an on-site water supply well. MassDEP assigned RTN 2-13196 to the condition [7, 13].

In October 2001, MassDEP was notified of a release of oil from a second 1,000 gallon UST at the property. MassDEP assigned RTN 2-14064 to the release. RTNs 2-13196 and 2-14064 were later linked to the original RTN for the site (RTN 2-12713) [7, 13].

On April 27, 2004, Engineering and Consulting Resources, Inc. (ECR) of Acton, Massachusetts submitted a Class A-2 RAO to MassDEP for the site [7, 13].

In 2011, MassDEP audited the site to evaluate whether downgradient private wells located at 825 and 828 Main Street and 5 Wheeler Road had been impacted by the site [7, 13].

As a result of the MassDEP audit, ECR performed two rounds of groundwater sampling of the downgradient private wells in 2012. Contamination was not identified in the sampled

drinking water wells and the site remained closed with a Class A-2 RAO after conducting additional investigations [7, 13].

The site is not expected to affect conditions at the rail trail because the site has achieved closure. In addition, according to site documents and as shown in the Figures in Appendix C, groundwater flow at the site is to the southwest and the Rail Trail is located northwest of the Site (i.e. upgradient).

4.2.1.7 965 Elm Street, Concord (RTNs 3-1818, 3-15490, and 3-19124)

RTNs 3-1818 and 3-15490

On January 15, 1989, MassDEP was notified of a release of gasoline from a 1000 gallon UST at "Building F" at Massachusetts Correctional Institute (MCI) Concord. MassDEP assigned RTN 3-1818 to the release. According to available MassDEP documents planned remediation included the removal of the UST and the excavation of up to 100 cubic yards of contaminated soil. According to MassDEP the site has achieved closure with a Class A-2 RAO on June 23, 2000 [7, 14].

On September 27, 1997 MassDEP was notified of a release of oil during a UST removal at MCI Concord, and assigned RTN 3-15490. MassDEP documents for this release were incomplete; however, the release was closed with a Class A-2 RAO on February 27, 1998 [7, 14].

RTN 3-19124

On December 29, 1999, MassDEP was notified of a release of PCBs near the auto body shop/garage at the MCI facility. PCBs were identified in stained soil at concentrations up to 14 ppm. MassDEP assigned RTN 3-19124 to the condition. Remediation was conducted as an IRA and consisted of excavating approximately 25 cubic yards of soil. Groundwater was not impacted by the release. The release was closed with a Class A-2 RAO on January 5, 2001 [7, 14]. Based on the figure in Appendix D, the release occurred near the Rail Trail; however, since the contaminated soil was removed and groundwater was not impacted, it is not likely that contamination from the release migrated onto the Rail Trail.

4.2.1.8 56 Winthrop Street (RTN 3-4171)

MassDEP listed the property at 56 Winthrop Street as an LTBI on January 15, 1993 based on its historic operations as a woodworking, electronics, and computer manufacturing facility. Subsequent site assessments identified low levels of petroleum contamination in soil and chlorinated solvents in groundwater. Levels of chlorinated solvents were below the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000) GW-2 standards at the time, and consequently, no further action was required and the site was closed on July 15, 1997 [7, 15].

Although the site is closed, site documents indicate that a 2,000-gallon fuel oil UST was installed at the site and there are no records available indicating that the UST was ever removed. The UST may still be a potential source of OHM adjacent to the Rail Trail (see Figure in Appendix C). Based on this evidence, it is our opinion that conditions at the site at 56 Winthrop Street have the potential to affect conditions at the Rail Trail.

4.2.1.9 50 Beharrell Street (RTN 3-294)

In 1985, as the result of an oil and Hazardous Materials Site Evaluation performed by Haley & Aldrich, Inc. (H&A), MassDEP was notified of the presence of oil saturated fibrous materials in soil, and elevated concentrations of petroleum compounds, phenol, and metals in groundwater at the property. MassDEP assigned RTN 3-294 to the site [7, 16].

Subsequent investigations indicated that contamination was primarily located in the northwest corner of the property and likely resulted from historic operations at the property as a woodworking manufacturer. Site remediation consisted of excavation of approximately 3,500 cubic yards of soil from the northwest corner of the property and collection of confirmatory soil and samples. Based on confirmatory soil and groundwater sampling results, the site was closed in 1987 [7, 16].

4.3 Physical Setting Sources

4.3.1 Surface Topography

From the northern end, the Rail Trail slopes gently downward from north to south until Route 62 in Concord, where it begins to slope gently upward from north to south. Existing elevations along the Rail Trail typically range from 40 to 60 feet above the National Geodetic Vertical Datum (NGVD) of 1929 [18]. The elevation of the Rail Trail relative to the surrounding area varies, but is typically within plus or minus 15 feet.

4.3.2 Geologic Setting

According to the State Bedrock Geological Map of Massachusetts, bedrock near the Rail Trail typically consists of comingled metamorphic rocks, particularly gneiss and schist, of the Nashoba Formation [19]. Bedrock is overlain predominantly by glacial sand and gravel deposits with lesser amounts of glaciolacustrine, swamp, and flood plain alluvium deposits of the Assabet River and Nashoba Brook. These deposits are overlain by several sections of artificial fill along the Rail Trail, from approximately stations 45+00 to 62+00 and 88+00 to 95+00 in Concord, and approximately stations 188+00 to 195+00, 200+00 to 225+00, and 246+00 to 261+00 in Acton (Figs. 2 through 15) [20, 21].

4.3.3 Hydrogeologic Setting

Groundwater flow and surface drainage vary along the Rail Trail and likely follow surface topography and/or flow toward several nearby bodies of water including the Assabet River, White Pond, Warner's Pond, Ice House Pond, and Nashoba Brook (Figs. 2 through 15).

According to data available from the Massachusetts Geographical Information System (MassGIS), and shown in Figs. D1 through D14 (Appendix D), portions of the Rail Trail are located within a Potentially Productive Aquifer (PPA), Zone II Areas, and Interim Wellhead Protection Areas (IWPA's). However, the Rail Trail is not located in a Sole Source Aquifers (SSA) [22]. There are several public drinking water supply wells within 0.5 mile of the Rail Trail in Acton. Public Aquifer Protection Zone Maps for the Town of Acton and a Plan of the Acton Wellhead Fields and associated Zone II areas are in Appendix E. The northernmost portion of the Rail Trail is located in the Zone II for the Kennedy and Marshall Well Fields, while the portion of the Rail Trail near the intersection of Great Road and Main Street is located in the Conat Well Field [1, 23]. According to the Board of Health in Acton and Concord, there are private drinking water wells in the Rail Trail area [24].

4.3.4 Natural Heritage and Endangered Species Habitat

According to MassGIS and shown in Figures D15 through D28 in Appendix D, the Rail Trail is not located within an Areas of Critical Environmental Concern (ACECs); however it is located within several Protected Open Spaces, Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife, and NHESP Priority Habitats of Rare Species [22].

4.4 Historical Use Information on the Property

The historical use of the Rail Trail was as a railroad line. Historic ownership and operations information of the railroad was obtained from other documents and reports and is summarized below [25, 26]:

- 1870-1871: The Framingham and Lowell Railroad (F&L) was chartered, constructed and began operating passenger and freight service.
- 1881: F&L was sold at foreclosure and was reorganized and merged into the Old Colony Railroad.
- 1933: Passenger service ceased on the Old Colony railroad line. Freight service continues.
- 1969: The Old Colony Railroad was acquired by the Penn Central Transportation Company and renamed the Lowell Secondary line.

- 1970: Penn Central Transportation declared bankruptcy but the Lowell Secondary Line continued to operate on a reduced scale.
- 1976: The Lowell Secondary Line was bought by the Consolidated Railroad Corporation (Conrail).
- 1982: Freight service ceased and the Massachusetts Executive Office of Transportation (EOT) purchased portions of the line to preserve the railroad ROW for other public uses.

Old Colony Railroad plans from 1915 of the Acton portion of the Rail Trail are in Appendix E.

4.5 Historical Use Information on Adjoining Properties

According to aerial photographs obtained from EDR for years ranging between 1963 and 1995, properties abutting the Rail Trail consisted largely of undeveloped, residential, and agricultural land. However, the areas along Main Street and Great Road in Acton and area of West Concord have historically been developed with commercial and industrial properties [27].

Using supplemental information from historic documents, and Sanborn Fire Insurance Maps in West Concord for years ranging from 1897 to 1945, we were able to identify historic uses for the larger properties along the Rail Trail [28]. This historic information is summarized in Table 5. Aerial photographs and Sanborn Maps are in Appendices F and G, respectively.

Based on their historic industrial use, the following abutting properties are considered either RECs or historic RECs (Table 5):

- 1009, 1019, and 1023 Main Street, Acton – disposal for gas station demolition business.
- 18 Wetherbee Street, Concord – Auto maintenance garage and contractor’s yard
- 965 Elm Street, Concord – Massachusetts Correctional Facility
- 45 Winthrop Street, Concord – Foundry
- 56 Winthrop Street, Concord – Wood product, electronics, and computer manufacturing
- 50 Beharrell Street, Concord – Wood product manufacturing
- 40 Beharrell Street, Concord – Webbing manufacturing

- 30 Beharrell Street, Concord – Webbing manufacturing
- 6B Commonwealth Avenue, Concord – Rail freight storage and rail yard
- 20 Commonwealth Avenue, Concord – Train station and rail yard
- 66 Commonwealth Avenue, Concord – Conat Machine and Steel
- 68 Commonwealth Avenue, Concord – Rail yard garage and Boston Gas Company yard
- 1211 Main Street, Concord – Garage/Service Station
- 1237 Main Street, Concord – Garage and Conant Machine and Steel

5. Summary of Previous Environmental Reports

5.1 Bruce Freeman Rail Trail Environmental and Engineering Assessment Report Concord Section- Fay, Spofford & Thorndike

In their 2005 report, Fay Spofford & Thorndike (FST) summarized results of a preliminary hazardous waste and contaminated materials screening for the Concord Section. This report identified the MCI-Concord site (965 Elm Street) as a potential significant site of concern because it has three MassDEP-listed sites on the property (each closed with an A-2 RAO) and it abuts the rail trail for approximately 2,000 linear feet. These sites are discussed in Section 4.2.1.7.

FST identified the West Concord MBTA Commuter Rail Station as a property of concern based on the history and operations occurring at this location (i.e. a historic rail yard).

FST identified the potential presence of coal ash in surface soil as another concern. FST stated that while it is acceptable to leave and reuse soil containing coal ash along the Rail Trail, reuse at other properties is restricted by MassDEP's anti-degradation policy. Excess material generated by rail trail construction likely will need to be placed in a landfill or otherwise addressed. In their report, FST identified a line item in the cost estimate of excavation of 10,000 cubic yards of soil [25].

5.2 Bruce N Freeman Memorial Bike Path Feasibility Study - Acton Section- Fay, Spofford & Thorndike

In 2004, FST conducted a database review to identify known and potential contaminated sites within the study area in Acton. Their review identified 15 properties included in one or more federal or state databases (SHWS, LUST, CERCLIS, and NPL). Four of these sites had not yet been closed with a response action outcome, and only one of those sites, 838 Main Street was still in Phase II. The other three sites were in Phase IV (selected remedy has been implemented) or in Phase V (long term treatment or monitoring program is ongoing) [26]. We reviewed the sites identified by FST in addition to other sites within 1 mile of the Rail Trail. The results of our review are discussed in Section 4.2.

6. Site Reconnaissance

We visited the Rail Trail on December 11, 2012 [3]. The purpose of the site reconnaissance was to document current Rail Trail conditions and observe and document conditions related to the potential presence of OHM. Photographs that we took during the site reconnaissance are in Appendix H. All portions of the Rail Trail were accessible so there were no limiting conditions.

6.1 Site Observations

6.1.1 Site Description

The proposed Rail Trail is a 66-foot wide, 8.2-mile section of abandoned railroad ROW that begins in Westford, Massachusetts at the intersection of Routes 27 and 225 and continues south through Carlisle, Acton, and Concord, Massachusetts and ends near White Pond in Concord (Fig. 1) [1].

Abutting properties are largely residential and agricultural land; however there are several industrial, commercial, and manufacturing properties along portions of the Rail Trail (Table 3).

6.1.2 Buildings and Structures

There are no buildings on the Rail Trail; however, railroad tracks were present along most of the trail except from stations 104+00 and 117+00 in Concord and around the lumberyard in Acton near stations 84+00 to 106+00. We observed historic railroad structures including seven bridges and a tunnel under Powder Mill Road. We also observed historic railroad features including thirteen battery wells, three signal boxes, two manual switches and one signal tower [3]. The location of these structures and features are shown on Figs. 2 through 15.

6.1.3 Roads

The Rail Trail crosses several roads (from north to south) including Main Street, John Francis Lane, and Route 2A, Brook Street, Concord Road, and Wetherbee Street in Acton, Route 2, Commonwealth Avenue, Route 62, Old Marlboro Road, and Williams Road in Concord. The Rail trail passes through a tunnel under Powder Mill Road in Concord [3].

6.1.4 Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were observed on the Rail Trail [3].

6.1.5 Stained Soil or Pavement

No significantly stained soil or pavement was observed on the Rail Trail [3].

6.1.6 Odors and Stressed Vegetation

No unusual odors or stressed vegetation was observed on the Rail Trail [3].

6.1.7 Solid Waste

No areas of on-site disposal of solid waste were observed at the Rail Trail; however, we observed small amounts of litter and debris throughout the Rail Trail. Near Station 48+00 we observed two empty 5-gallon diesel buckets and near Station 175+00 we observed debris including empty propane tanks [3].

We observed a mound of dumped material including, soil and cobbles slightly south of a storage yard at the Dunk&Bubble property at 781/791 Main Street in Acton. Polyethylene sheeting was visible along one side of the mound and a candy cane type PVC pipe was observed on top of the mound [3].

6.1.8 Wells

We observed thirteen battery wells for historic railroad signals on the Rail Trail. We did not observe groundwater monitoring wells or water supply wells on the Rail Trail; however, we did identify a potential irrigation well near station 179+00 in a cultivated field in Concord [3].

6.1.9 Drains or Sumps

No drains or sumps were observed on the Rail Trail [3].

6.1.10 Wastewater Disposal

The Rail Trail is not serviced by municipal stormwater or sanitary sewers. Properties near the Rail Trail are serviced by a combination of municipal sewer and septic. Municipal sewer maps for Acton and Concord are in Appendix E.

We observed what appeared to be a Town of Acton water treatment building or pump house adjacent to the Rail Trail near the intersection with Great Road at Station 172+00. We also observed a pipe discharging water to the ground on the opposite side of the ROW at this location [3].

6.2 Oil/Chemical Storage

6.2.1 Current Chemical Storage/Waste Generation

We observed several fuel oil tanker trucks parked on the Rail Trail at 94 Great Road (Bursaw Oil & Gas) in Acton [3].

We also observed three contractor storage yards abutting the rail trail at 781/791 Main Street in Acton, and 13 and 18 Wetherbee Street in Concord. OHM could potentially be stored at these facilities which would constitute a REC [3].

6.2.2 Past Chemical Storage/Waste Generation

Small amounts of OHM were historically present in batteries used to power the railroad signals. The batteries contained an acid solution with a layer of oil on top to prevent evaporation. The batteries were stored either in wooden or metal signal boxes or in battery wells that typically consisted of an approximately 2-foot diameter concrete cylinder open on the bottom to the underlying soil and covered with a metal lid. Batteries, resembling automobile batteries, were still present in some of the structures. To evaluate whether a release of OHM had occurred from these batteries we sampled soil in and around the battery wells as described in Sections 8.1 and 8.2.

No other evidence of historic OHM generation or storage was observed at the Rail Trail during the site visit.

Historic maintenance of the rail line likely included application of pesticides, especially in the vicinity of road crossings. Additional use of OHM was likely in the rail yard in West Concord. No specific records are available for this area, except for Sanborn Maps indicating locations of some structures related to rail maintenance.

6.3 On-Site Storage Tanks

6.3.1 Underground Storage Tanks

No USTs were observed on the Rail Trail; however, we observed what appeared to be a man-way to a UST adjacent to the Rail Trail at the 94 Great Road property (Bursaw Oil & Gas) in Acton. The size and contents of the UST are unknown. Photographs of the structure are in Appendix H. According to EDR and records from the Town of Acton Fire Prevention Office, there are several USTs located at the Property; however, according to available plans the USTs are located near the garage and office building and not adjacent to the ROW [4, 29].

The presence of this potential UST immediately adjacent to the Rail Trail is considered an REC.

We also observed a possible septic tank adjacent to the ROW at the 802 Main Street property in Acton (near station 112+00). To confirm the structure was a septic tank, we collected a sample of the tank contents as described in Section 11.3 [3].

6.3.2 Aboveground Storage Tanks

No ASTs were observed on the Rail Trail; however, we observed an approximately 300-gallon AST behind a building at the 162 Great Road property in Acton. The AST is likely is likely used for storage of heating oil. A photograph of the AST is in Appendix H [3].

6.4 PCB-Containing Equipment

Small amounts of oil were historically present in batteries used to power the railroad signals (Section 6.2.2). Based on the age of the railroad, oil in the signal batteries have the potential to contain PCBs. Representative soil samples from the battery wells were collected and analyzed for PCBs as described in sections 11.1 and 11.2.

7. Interviews

7.1 Interview with Local Government Officials

We reviewed files and/or requested information from the Town of Acton and Town of Concord municipal offices. We reviewed files for both the Rail Trail and the significant abutters identified in Table 3. The results of the municipal file review are summarized in Table 6 and copies of relevant records are in Appendix E.

7.2 Acton Municipal Offices

We reviewed records and information for the Rail Trail and significant abutters (Table 3) from the Town of Acton's Assessor's Office, Town Clerk's Office, Building Department, Board of Health, Fire Prevention Office, Conservation Commission, Planning Department and Engineering Department. No records for the Rail Trail or its significant abutters were available at the Town Clerk's Office or Conservation Commission.

7.2.1 Assessor's Office

We reviewed information from the Town of Acton's GIS on-line database on December 9, 2012 to obtain ownership and other property information [1]. This information is listed in Table 3.

7.2.2 Building Department

We reviewed the available information for the Town of Acton's Building Department on December 18, 2012. No records were available for the Rail Trail; however, records available for abutters typically included permits for building renovations, plumbing, electrical work, sign construction, certificates of occupancy, and inspection reports and certificates [30]. Several records were available at the Building Department related to the usage and storage of OHM at the 1009, 10119, and 1023 Main Street property including:

- 1983 correspondence between the Town of Acton, MassDEP and the property owner, Gordon D. Martin, indicating that the debris from the demolition of gas stations, including tanks, had been buried at the property in approximately 1974.
- 1983 groundwater testing results indicating that 1,1,1-trichlorethane and ethylbenzene were detected in groundwater at the property.
- 1990 Notice that the property had been listed by MassDEP as an LTBI under RTN 2-008. Response actions conducted at the property are discussed in Section 4.2.1.2.

No other records related to the usage or storage of OHM at abutting properties were available; however, there were notices of violations at several properties including:

- 960 Main Street (Acton Sand and Gravel): A 1988 letter from the Town of Acton Water District indicated that soil from an unknown source was being illegally dumped at the property near the well field for a public drinking water supply well.
- 802 Main Street: A 2005 Cease and Desist Order indicated that a zoning violation occurred when a storage shed was constructed and the property was used as a contractor's yard. The shed was removed in 2006. This property has the septic tank that was sampled as part of this ESA.
- 94 Great Road (Bursaw Gas and Oil): Correspondence from 1971 through 1984 indicated that the owner of the property had illegally filled wetlands and altered the nearby riverbank. Records from 1997 indicated that a portion of the property was paved without obtaining the proper permits.
- 18 Wetherbee Street: Correspondence from 1986 between the owner and the Town of Acton indicate that the property was used as an auto repair garage from 1953 until 1981 when it was bought and converted into a contractor's storage yard.

7.2.3 Board of Health

We reviewed records for the Rail Trail and its abutters at the Acton Board of Health on December 18, 2012. Several records were available at the Board of Health related to the usage and storage of OHM at the following properties abutting the Rail Trail:

- 930 Main Street: The majority of available records were related to the MassDEP disposal sites at this property (Section 4.2.1.1). Other records on-file involved the discontinuation of use of a drinking water well at the property as a result of contamination from the MassDEP disposal sites. A 2006 Notice of Responsibility (NOR) for RTN 2-16105 was also issued for detection of petroleum contaminants in the well, but the release was retracted, presumably because the contamination was already being addressed under RTNs previously issued for the property.
- 960 Main Street: Records indicate that complaints of sand and gravel plant practices including dumping trash, storage of potentially OHM containing materials, and poor stormwater management practices resulted in a MassDEP Enforcement Conference in 2010. OHM was not detected in onsite groundwater testing results from 2012.
- 162 Great Road: A 2012 note to file indicated that a UST had been removed from the property without a permit and a release of OHM from the UST was identified. This is likely related to a 1998 release of No. 2 fuel oil from a UST that was reported to

MassDEP and assigned RTN 2-11924 (Table 4). The release was closed with a Class A-2 RAO and is not expected to affect conditions at the Rail Trail.

Other records from the Board of Health indicated that drinking water wells are present on the following properties abutting the Rail Trail: 1000 Main Street, 930 Main Street, and 924 Main Street. Irrigation wells are present at 25 Ledgerock Way and there is a water treatment plant at 960 Main Street. Septic systems are present at 1009, 1019, and 1023 Main Street;, 1000, 960, 930, and 924 Main Street; 25 Ledgerock Way; and 94 Great Road [24].

7.2.4 Fire Prevention Office

We visited the Acton Fire Prevention Office on December 23, 2012 and reviewed information related to USTs, ASTs, and flammable storage permits for the Rail Trail and its significant abutters [29].

Based on the available records the following properties have permits for propane storage: 1009, 1019, 1023 Main Street, 930 Main Street, and 18 Wetherbee Street. The properties at 781/791 Main Street and 18 Wetherbee Street have permits to store small quantities of OHM.

The following properties have had at least one AST or UST removed from their premises: 781/791 Main Street, 301 Great Road, 275 Great Road, and 162 Great Road. Of these properties only 162 Great Road had a MassDEP release associated with the UST removal (RTN 2-11924). The release was closed with a Class A-2 RAO and is not expected to impact conditions at the Rail Trail. Details of size, content, and number of USTs removed from each of these properties are in Table 4.

Active USTs and ASTs are located at 94 Great Road. Details of size, content, and number of tanks are in Tables 4 and 6. The presence of the USTs and ASTs and their proximity to the Rail Trail constitute an REC.

7.2.5 Planning Department

We visited the Acton Planning Department on December 18, 2012 and reviewed their on-line database on January 3, 2012 to obtain information on the Rail Trail. Several documents were available for the Rail Trail including 1915 plans of the Acton section of the former Old Colony railroad, and a 2004 Feasibility Study for the Rail Trail prepared by FST (Section 5.2) [31].

7.2.6 Engineering

We visited the Acton Engineering Department on December 18, 2012 and reviewed their on-line database on January 3, 2012 to obtain information on the Rail Trail and its abutters. Available records included a plan showing properties in Acton that are connected to

municipal sewer (Appendix E). Municipal water service is provided by public drinking water supply wells. Public Aquifer Protection Zone Maps for the Town of Acton and a Plan of the Acton Wellhead Fields and associated Zone II areas are in Appendix E. Private drinking water wells are present at 1000 Main Street, 930 Main Street, and 924 Main Street [32].

7.3 Concord Municipal Offices

We reviewed records and information for the Rail Trail and significant abutters (Table 3) from the Town of Concord's Assessor's Office, Town Clerk's Office, Building Department, Board of Health, Fire Prevention Office, Conservation Commission, Planning Department, Engineering Department, and Water and Sewer Department. No records for the Rail Trail or its significant abutters were available at the Town Clerk's Office or Planning Department..

7.3.1 Assessor's Office

We reviewed information from the Town of Concord's GIS on-line database on December 9, 2012 to obtain ownership and other property information. This information is listed in Table 3.

7.3.2 Building Department and Board of Health

We reviewed records for the Rail Trail and its abutters in the combined files of the Acton Board of Health and Building Department on December 18, 2012 [33, 34]. Several records were available related to the usage and storage of OHM at the following properties abutting the Rail Trail:

- 965 Elm Street: NORs for RTNs 3-15490 and 3-191214. There was also a letter request for a one-time dump permit from 1985 on file. The reason for the permit was not clear from the letter. Several records for the correctional facility were also on file regarding air emissions permits and violations, illegal burning of trash, and illegal dumping of material in the vacant lot south of the facility.
- 50 Beharrell Street: Reports prepared by Haley & Aldrich regarding response actions conducted for RTN 3-294 (Section 4.2.1.9). Other documents included a 1991 building permit for a tenant fit-up for a drycleaners. It is not clear from the records if the work was ever done, or if a drycleaner operated on the premises.
- 1237 Main Street: A 1991 building permit for a tenant fit-up for a drycleaners. It is not clear from the records if the work was ever done, or if a drycleaner operated on the premises.

Other records related to environmental conditions at abutting properties included:

- Permits for asbestos abatement work at 965 Elm Street, 50 Beharrell Street, and 11-13 Derby Street. A notice of a field violation for work at 965 Elm Street was also on file at the Board of Health/Building Department, but the reason for the violation was not clear from available correspondence.
- Notices of violations related to sewage disposal (i.e. septic systems, cesspools) at 965 Elm Street, 50 and 40 Beharrell Street. The violations at 40 and 50 Beharrell Street were resolved by connecting the buildings to the town sewer systems, while the planned resolution for sewage issues at the 965 Elm Street property is repair the existing septic system pending construction of a new waste treatment plant.

There were no available records indicating that drinking water wells are present on the Rail Trail or its abutters. However, there was a 2002 groundwater monitoring well installation log for the 45 Winthrop Street property [33, 34].

Building Department and Board of Health records also provided information regarding the historic use of several properties abutting the Rail Trail. Building permits for 45 Winthrop Street indicated that the foundry was operating on the premises through at least 1955, and building permits from the early 1950s indicated that the 68 Commonwealth Avenue property was owned and operated by Boston Gas Company. Both of these facilities likely used and/or stored OHM as part of their daily operations which constitutes an REC.

7.3.3 Fire Prevention

We visited the Concord's Fire Prevention Office on December 23, 2012 and reviewed information related to USTs, ASTs, and flammable storage permits for the Rail Trail and its significant abutters [35].

Based on the available records the 40 Beharrell Street property has a permit for propane storage. The properties at 45 Winthrop Street, 6B Commonwealth, and 50 Beharrell Street have permits to store small quantities of OHM.

Both the 50 Beharrell Street and 965 Elm Street properties have had at least one AST or UST removed from their premises. Of these properties, 965 Elm Street has MassDEP releases associated with UST removal (RTNs 3-1818 and 3-15490). The MassDEP records available for these releases are discussed in Section 4.2.1.7. Details of size, content, and number of USTs removed from each of these properties are in Tables 4 and 6.

Active USTs and ASTs are located at 45 Winthrop Street, 50 Beharrell Street, and 965 Elm Street. Two 330 gallon fuel oil ASTs are located at both the 45 Winthrop Street and 50 Beharrell Street properties, while 965 Elm Street has at least one 1,000 gallon diesel AST and two 6,000 gallon diesel USTs [35]. Based on their size and function, a potential release from the ASTs at 45 Winthrop Street or 50 Beharrell Street is not likely to impact conditions

at the Rail Trail; however, the larger quantity of OHM stored at 965 Elm Street, much of it underground does have potential to impact the Rail Trail and is therefore considered an REC. Based on available information it is not known where these tanks are located on the property.

7.3.4 Conservation Commission

We visited the Concord Conservation Commission on December 18, 2012. Available records included Order of Conditions for construction at 965 Elm Street (MassDEP File 137-422) and 68 Commonwealth Avenue (MassDEP File 137-1194). In addition Conservation Commission records indicated an NOI had been filed for 50 Beharrell Street (MassDEP File 137-1194) and the case was currently under review [36].

7.3.5 Water and Sewer

We reviewed records at the Sewer Department on December 18, 2012. Available records included plans showing water and sewer connections and utility easements (Appendix E) [37]. Several properties are shown on the plans as not having water service; however, according to Sewer Department personnel, this is likely because the plans have not yet been entered into the sewer department database and is not necessarily an indication that the properties have private drinking water wells. However, private water wells do exist in parts of Concord [37].

7.3.6 Engineering

We reviewed records for available properties on the Concord GIS on-line database on December 29, 2012 [1]. Records included registered and recorded property plans and street layout plans. None of the plans indicated the storage or usage of OHM.

8. Additional Services

8.1 Battery Well and Signal Box Sampling

Historic structures present along the Rail Trail include signal boxes and battery wells, which housed batteries and signaling equipment along the rail line. The battery wells typically consisted of an approximately 2-foot diameter concrete cylinder open on the bottom to the underlying soil and covered with a metal lid. During our site reconnaissance, we documented locations of three signal boxes and thirteen battery wells. Batteries, resembling automobile batteries, were still present in some of the structures. Historically, other types of batteries were likely used. Older batteries likely included a zinc electrode and a copper electrode submersed in an acid solution that was covered with a layer of oil to prevent evaporation of the solution. These batteries were housed in glass or ceramic containers.

The battery wells and signal boxes represent potential RECs due to the use of chemicals. As part of this ESA we collected surface soil samples from the top six inches of soil at five locations on December 13, 2012. Two samples were collected from soil around battery wells that had water present inside the battery well. One sample was collected from within a dry battery well that still contained an automobile type battery, and two soil samples were collected from soil beneath signal boxes. The samples were submitted to AMRO Environmental Laboratories Corporation of Merrimack, New Hampshire (AMRO) for Extractable Petroleum Hydrocarbons (EPH), polychlorinated biphenyls (PCBs), and MCP 14 Metals.

8.2 Battery Well and Signal Box Sampling Results

The results of the soil sampling are presented in Table 7. The laboratory data report is in Appendix I. EPH fractions and PCBs were not detected at concentrations greater than the Massachusetts Contingency Plan (MCP) S-1 Reportable Concentrations (RCS-1). Two locations had polycyclic aromatic hydrocarbons (PAHs) at concentrations slightly greater than RCS-1. Some of the metals tested for were detected at concentrations greater than the RCS-1. These included arsenic (2 locations), cadmium (2 locations), chromium (3 locations), lead (3 locations), nickel (3 locations), and mercury (1 location). Three soil samples (Battery Well B, Signal FF, and Signal Y) contained chromium at concentrations greater than the reportable concentration for chromium (30 milligrams per kilogram [mg/kg]) in the absence of hexavalent chromium data. Consequently, we submitted the samples for testing for hexavalent chromium. Hexavalent chromium was detected well below the applicable reportable concentration in all three samples.

Arsenic was present in one of the five samples (Battery Well B) at a concentration of 67.3 milligrams per kilogram (mg/kg). Since the sample was collected at a depth of 6 inches, within 500 feet of residences, and arsenic was present at a concentration above 40 mg/kg, the sample represented an Imminent Hazard reporting condition. On January 2, 2013, Ms. Ileen Gladstone, P.E., LSP contacted Ms. Debra Darby of the MBTA, the current owner of the Property. Ms. Darby reviewed the data and the MassDEP Guidance on the development of rail trails. Based on her knowledge and experience as the owner of rail lines and the information in the MassDEP guidance document, it is Ms. Darby's opinion that the arsenic is likely attributable to the application of pesticides and therefore a MCP reporting exemption applies (310 CMR 40.0317 (c)). Ms. Gladstone acceded to her opinion and the single arsenic concentration was not reported as an Imminent Hazard. The arsenic would also be exempt from 120 day reporting condition because it is likely attributable to the application of pesticides.

Concentrations of PAHs and metals detected in soil in and around the battery wells exceed the RCS-1 and represent a 120-day reportable condition under the provisions of the MCP (310 CMR 40.0315). However, reporting exemptions may be applicable to some of these exceedences. The Property owner, the MBTA, was provided the data on January 2, 2013; and it is their obligation to notify MassDEP. Written notification of the 120-day reporting condition is due to MassDEP on or before May 2, 2013.

Lead and arsenic is likely attributable to the application of pesticides and therefore a MCP reporting exemption applies (310 CMR 40.0317 (8)(c)). The lead and PAHs may be attributable to the coal which is also an MCP reporting exemption (310 CMR 40.0317(9)). Reporting exemptions do not apply for the mercury and cadmium detected in Battery Well J and the cadmium detected in Signal Y. However, these releases could likely be mitigated as a Limited Removal Action (310 CMR 40.0318) and then would not require reporting.

8.3 Tank Sampling

MassDOT identified a "warning – do not enter, 2 compartment poison gas tank" labeled manhole at 802 Main Street in Acton, adjacent to the rail trail where a parking area associated with the rail trail is proposed. GEI observed conditions at the property on December 13, 2012, and found the manhole previously identified, which measured 2 feet in diameter. No other manholes were observed. GEI removed the cover and observed conditions inside the manhole and no other connections with a tank were observed. GEI did not detect VOCs with an organic vapor meter (OVM). GEI monitored for hydrogen sulfide, carbon monoxide, and lower explosive limit, and oxygen with a 4-gas meter. Oxygen was detected at 20.2 percent. None of the other analytes were detected in the manhole. Water was observed in the manhole approximately 3 feet below the rim and a 1-inch diameter metal

pipe was observed near the surface of the water. The total depth of the manhole was greater than 8 feet and no tanks or other connections were observed in the manhole above the water line.

Review of records at the Acton Building Department indicated the property had a structure on it that was not permitted under the existing zoning and town records included 2005 Cease and Desist Order to remove the structure. The structure was apparently a contractor's storage shed and may have been connected to the tank onsite. No structures are currently present at the site. Review of aerial photographs indicates the property was occupied by at least two structures in 2001 and 2005. No structures were present on a 2008 photograph [22, 29].

8.4 Tank Sampling Results

GEI collected a sample of the water in the manhole and submitted the sample to AMRO. The sample was tested for VOCs, EPH, PCBs, MCP 14 Metals, and Total and Fecal Coliform. The results of the sampling are presented in Table 8. The laboratory data report is in Appendix I. No VOCs, EPH, or PCBs were detected in the sample. Lead was detected at 141 micrograms per liter (ug/L) and zinc was detected at 22.8 ug/L. No other metals were detected. The laboratory reported 50 colonies of fecal coliform in 100 milliliters (ml), and greater than 2,420 colonies of total coliform in 100 ml. Based on these results, it appears the tank likely is a septic tank.

9. Phase I ESA Findings

GEI completed an ASTM Phase I ESA, on behalf of MassDOT for the proposed sections of the Bruce Freeman Rail Trail located in Acton and Concord, Massachusetts.

Based on our evaluation of current Rail Trail conditions, and our review of available Rail Trail records, we identified 31 RECs defined as evidence of a past, current, or future potential release of OHM, at or affecting the Rail Trail. These RECs are described below and summarized in Table 1.

Historic Rail Use

The Rail Trail is an abandoned railroad ROW. A rail yard for the former railroad ROW is located adjacent to the Rail Trail in West Concord, where the Rail Trail crosses an active MBTA rail line. The rail yard included a garage, freight storage, and a spur line connecting the two intersecting lines, and was likely operated from the late 1800s until the early 1950s. The former rail yard is now occupied by 30 and 40 Beharrell Street, and 20, 6B, 66, and 68 Commonwealth Avenue in Concord. The 68 Commonwealth Avenue portion of the rail yard was subsequently operated by Boston Gas Company. In addition to incidental amounts of OHM generated from the daily operation of the railroad, small amounts of OHM, including oil and acids, were historically present in batteries used to power the railroad signals. Historic maintenance of the rail line likely included application of pesticides, especially in the vicinity of road crossings.

Open MassDEP-listed Disposal Sites

The property at 930 Main Street in Acton abuts the Rail Trail and contains three open disposal sites : RTNs 2-10612, 2-10645, and 2-15875. The sites are listed for a release of oil from a UST to groundwater used as drinking water (RTNs 2-10612 and 2-10645) and a release of oil from a pole-mounted electrical transformer (RTN 2-15875). Contamination from these sites has not been mitigated and may have potentially migrated onto the Rail Trail and affected soil and groundwater conditions.

Although it is not currently a disposal site, the Acton Sand and Gravel Property at 960 Main Street has been subject to MassDEP enforcement actions for illegal dumping of various materials, including some that may potentially contain OHM.

USTs and ASTs

Five properties that abut the Rail Trail have petroleum USTs or ASTs on their premises: 94 and 275 Great Road in Acton, and 965 Elm Street, 45 Winthrop Street, and 56 Winthrop Street in Concord. There is also a UST at 802 Main Street in Acton. The purpose and

content of the UST are unknown, but it appears to be a septic tank. There have been no reported releases of OHM at these properties.

Drycleaners

There is a drycleaner that abuts the Rail Trail at 132 Great Road in Acton. There are also potential historic drycleaners at 1237 Main Street and 50 Beharrell Street in Concord that abut the Rail Trail. There have been no reported releases of OHM at any of these properties. There may have been releases that have not been identified and therefore not reported. There is potential for these sites to affect conditions at the Rail Trail due to their proximity.

Historic Use of Adjacent Properties

Several properties abutting the Rail Trail were occupied by commercial, industrial, or manufacturing facilities that potentially used and/or stored OHM as part of their daily operations. There have been no reported releases of OHM at these properties. There may have been releases that have not been identified and therefore not reported, and therefore, there is the potential for these abutting properties to affect conditions at the Rail Trail.

- Historic auto maintenance garages abut the Rail Trail at 18 Wetherbee Street in Acton and 1237 Main Street in Concord. The garage at 18 Wetherbee Street operated from approximately 1953 until approximately 1981 when it became a contractor yard. The 1237 Main Street property was a garage from 1927 until 1947 when it became a machine shop. The years of operation as a machine shop are unknown.
- The 1211 Main Street property in Concord has been a service station since approximately 1958.
- The 45 Winthrop Street property in Concord was a foundry from approximately 1927 until the late 1950s.

Site Reconnaissance

During our site reconnaissance we observed several RECs:

- An unenclosed heating oil AST behind the building and adjacent to the Rail Trail at 162 Great Road in Acton.
- Contractor yards at 781 and 791 Main Street and 13 and 18 Wetherbee Street in Acton. We also observed dumped soil located adjacent to the Rail Trail and immediately south of the contractor yard at 781 and 791 Main Street.
- We observed the man-way to a UST immediately abutting the Rail Trail at 94 Great Road in Acton.

We also identified 10 historic RECs that are closed. These historic RECs are described below and summarized in Table 2.

Closed MassDEP-listed Disposal Sites

Ten MassDEP listed disposal sites that have achieved an RAO or require no further action about the Rail Trail: 1009, 1019, and 1023 Main Street (RTN 2-008); 816 Main Street (RTN 2-12173); 196 Great Road (RTN 10766); 180 Great Road (RTN 13331); and 162 Great Road (RTN 2-11924) in Acton; and 965 Elm Street (RTNs 3-1818, 3-15490, and 3-19124); 56 Winthrop Street (RTN 3-4171); and 50 Beharrell Street (RTN 3-294). Since these sites have achieved regulatory closure, it is unlikely that contamination associated with these sites has affected the Rail Trail.

Soil and Tank Sampling Results

As part of this ESA, we performed additional services consisting of soil and water laboratory testing to evaluate two RECs previously identified: the historic battery wells and signal boxes along the abandoned railroad and the UST at 802 Main Street in Acton.

- We collected soil samples from five representative battery wells and signal boxes for laboratory analysis. Based on the sampling results, soil in and around the battery wells contained PAHs and metals including arsenic, cadmium, chromium, lead, nickel and mercury above MCP soil category S-1 reportable concentrations (RCS-1).
- We collected one water sample from the UST for laboratory analysis. Based on levels of total and fecal coliform in the sample; it appears that the UST is likely a septic tank.

Reporting Conditions

Soil in and around the battery wells contained PAHs and metals including arsenic, cadmium, chromium, lead, nickel and mercury above MCP RCS-1 values, which constitute a 120-day reporting condition under the MCP. However, PAHs and lead may be exempt from reporting. Lead and arsenic are likely attributable to the application of pesticides and therefore an MCP reporting exemption may apply (310 CMR 40.0317 (8)(c)). The lead and PAHs may also be attributable to coal ash which is also an MCP reporting exemption (310 CMR 40.0317(9)). Reporting exemptions do not apply to the releases of mercury and cadmium; however, these releases could likely be mitigated as a Limited Removal Action (LRA; 310 CMR 40.0318) and then would not require reporting.

Arsenic at a concentration of 67 mg/kg was present in one battery well location, which constituted an Imminent Hazard (i.e. greater than 40 mg/kg within 500 feet or a residence and 6 inches of the ground surface). The Rail Trail owner, the MBTA, was provided the battery well data on January 2, 2013. MBTA did not notify MassDEP of the Imminent Hazard because based on their knowledge and experience as the owner of rail lines, and MassDEP guidance documents, they believed the arsenic was likely attributable to the application of pesticides and therefore is exempt under the MCP from reporting to MassDEP.

9.1 Recommendations

Based on the presence of these RECs at and affecting the Rail Trail, we recommend performing additional investigations to evaluate whether a release of OHM to the environment has occurred. Additional investigations may include soil boring advancement, groundwater monitoring well installation, and soil and groundwater sampling. In accordance with the MassDEP guidance for rail trail redevelopment, we recommend conducting sampling at the former rail yard and at the Rail Trail adjacent to properties where one or more RECs have been identified. These locations are summarized in Table 1.

In addition, concentrations of PAHs and metals detected in soil in and around the battery wells above RCS-1 represent a 120-day reportable condition under the provisions of the MCP (310 CMR 40.0315). The 120-day notification requirement dates from January 2, 2013, the day the MBTA (the property owner) obtained knowledge of the release. If reporting exemptions are not applicable or LRA's are not conducted, the written notification of the 120-day reporting condition is due to MassDEP on or before May 2, 2013.

10. Phase I ESA Opinion and Conclusions

Based on the presence of the RECs identified in Section 9, we recommended performing an ASTM Phase II ESA to evaluate whether a release of OHM to the environment has occurred.

11. Deviations

Limitations and exceptions are discussed in Section 1.4. In addition, we identified the following data gaps associated with the findings of the Phase I ESA:

- The absence of select historic documents, particularly documentation of the UST removals and certain disposal sites at municipal offices and MassDEP.
- The absence of site-specific groundwater flow information for the Rail Trail and surrounding sites.

12. Environmental Professionals Statement

Resumes for staff involved in the preparation of this report are attached in Appendix J. To the best of our professional knowledge and belief, we meet the definition of an Environmental Professional, as defined in 40 CFR 312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Rail Trail. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

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