



Phase I Environmental Site Assessment

Charlton Orchards Farm, 44 Old Worcester Road & 7 L Turner Drive, Charlton, Massachusetts 01507

Submitted to:

Emerald Ventures LLC

c/o Ozzy Properties
1600 Osgood Street
North Andover, MA 01845

Submitted by:

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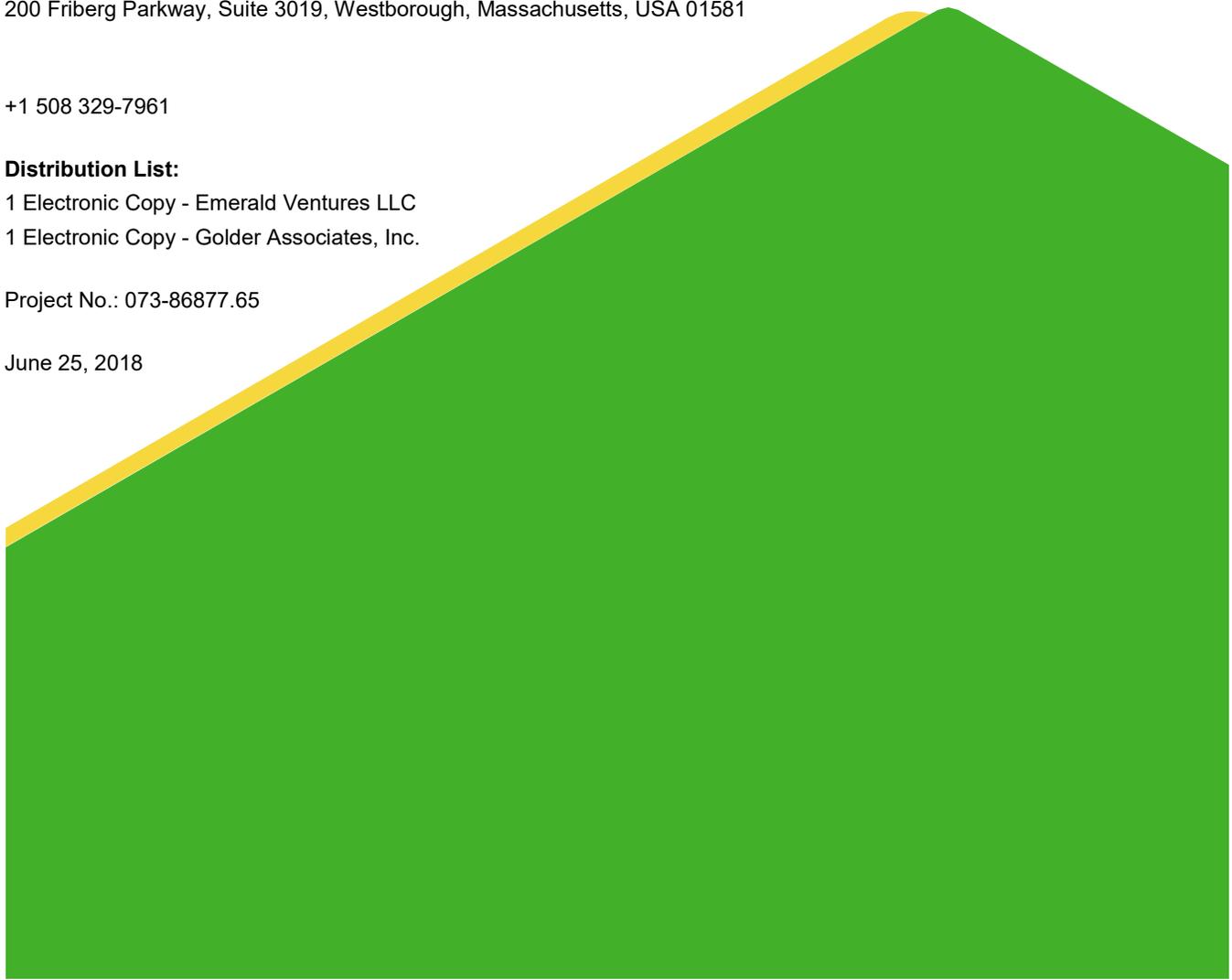
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- 1 Electronic Copy - Golder Associates, Inc.

Project No.: 073-86877.65

June 25, 2018



Ms. Ellen Keller
Emerald Ventures LLC
c/o Ozzy Properties 1600
Osgood Street
North Andover, MA 01845

**RE: PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT
Charlton Orchards Farm
44 Old Worcester Road & 7 L Turner Drive, Charlton, MA 01507**

Dear Ms. Keller:

Golder Associates Inc. (Golder) is pleased to present Emerald Ventures LLC (Emerald) with this Phase I Environmental Site Assessment Report (Report) for the above-referenced Subject Property. Information presented in this Report is subject to the general limitations presented in the Report and Golder's proposal dated April 13, 2018.

Golder appreciates this opportunity to support Emerald. If during your review you have any questions or comments regarding the information presented in this report, please do not hesitate to contact the undersigned at 508-329-7961.

Sincerely,

GOLDER ASSOCIATES INC.



Frank W. Lilley, LSP
Project Manager and Senior Consultant



Mark Haney
Principal and Program Leader

Executive Summary

Emerald Ventures LLC (Emerald) retained Golder Associates Inc. (Golder) to perform a Phase I Environmental Site Assessment (Phase I ESA) of the Charlton Orchard farm located at 44 Old Worcester Road, and a single family residence located at 7 L Turner Drive, both found in the Town of Charlton, Worcester County, Massachusetts 01507 (together, the Subject Property). The purpose of this Phase I ESA is to identify recognized environmental conditions (“RECs”)¹, historical recognized environmental conditions (“HRECs”)², and controlled recognized environmental conditions (“CRECs”)³ in connection with the Subject Property, to the extent feasible, pursuant to the processes prescribed in the ASTM Practice E 1527-13 entitled “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM Standard), and the EPA Rule entitled, “Standards and Practices for All Appropriate Inquiries; Final Rule” (AAI Rule), 40 CFR Part 312, Golder’s Proposal, dated April 13, 2018 (the Proposal), and Golder’s professional judgment.

This Summary is to be used only in conjunction with the attached Phase I ESA, Charlton Orchards Farm, 44 Old Worcester Road & 7 L Turner Drive, Charlton, Massachusetts, 01507, dated June 25, 2018 (the Report). All definitions used in this Summary have the same meanings as in the Report, and the use of this Summary is subject to the limitations and conditions contained in the Report. The Report shall govern in the event of any inconsistency between this Summary and the Report.

The Subject Property is developed with two residential dwellings, a storage building, an orchard store, a garage, a barn and horse corral, a pesticide storage shed, three greenhouses, nine aboveground storage tanks (AST) and a former outhouse. Three of the ASTs are located in a covered concrete vault and are used for the refueling of farm equipment. According to the Assessor Property Cards, 7 L Turner Drive is owned by Nathan R. Benjamin, Jr. and Catherine Benjamin T/E and 44 Old Worcester Road is owned by Charlton Orchards Group LLC. The Subject Property encompasses approximately 94.6 acres which is accessed from Old Worcester Road via L Turner Drive. The Subject Property has historically been utilized for agricultural purposes since 1907.

The Subject Property is currently operated by Charlton Orchards as a pick-your-own fruits and vegetables vendor. The residence with the address of 44 Old Worcester Road is currently vacant and used for storage. The Benjamin Family currently occupies the residence with the address of 7 L Turner Drive.

¹ The ASTM Standard defines RECs as “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property (1) due to release to the environment, (2) under conditions indicative of a release to the environment, or (3) under conditions that pose a material threat of a future release to the environment.”

² The ASTM Standard defines HRECs as “past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.”

³ The ASTM Standard defines CRECs as “a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.”

This Phase I ESA did not reveal evidence of any RECs or HRECs. The following CREC was identified in relation to the Subject Property:

- **CREC1:** The petroleum release from the upgradient ExxonMobil gas station (142 Worcester Road) which is approximately 3,400 feet upgradient of the western edge of Charlton Orchards. Based on groundwater data collected by other consultants retained by ExxonMobil from wells on adjacent properties and reviewed by Golder, this release is likely to have impacted the groundwater beneath the western portion of Charlton Orchards.

Golder recommends that Emerald does not install any production wells on the western portion of the property because groundwater located on the western portion of the property may be impacted by the historical release from ExxonMobil. Under the current conditions, the Subject Property has not been nor will it be subject to remediation or further regulatory response actions by the MassDEP due to the level of cleanup and controls currently in place on the ExxonMobil Property (source area). Placement and use of a production well on the western portion of the property may draw the residual upgradient contaminated groundwater plume from the ExxonMobil station towards and onto the Charlton Orchards property, thereby degrading the current environmental quality of the groundwater at Charlton Orchards.

This Phase I ESA identified five de minimis conditions at the Subject Property, as follows:

- **2015 Fire:** In 2015, a fire destroyed the former winery, vineyard and barn on the eastern portion of the Site. Residual burnt materials are likely to present in the subsurface portions of the property impacted by the fire.
- **Pesticides and Herbicides:** Pesticides and herbicides were historically used at the property. Based on a preliminary review of records and discussions with the Site owner during the Site Visit, it appears the pesticides and herbicides were used in accordance with their intended purpose and thus meet the requirement for a Massachusetts Contingency Plan (MCP) reporting exemption (310 CMR 40.0317 (8c)). The subsurface investigation results (e.g., see Table 1 summarizing the 5/8/2018 soil sampling data) indicated that all detections of all pesticides, herbicides and metals were below the referenced MCP reportable concentration (RCS-1) with the exception of arsenic. Arsenic is a historical component of certain pesticides and is included in the pesticide reporting exemption.

If the soil remains in place or if it is relocated within the property boundaries, the historical and current use of pesticides and herbicides should not present a concern for industrial/commercial redevelopment of the property. However, this property is not appropriate for future residential use without further evaluation. Also, any soil intended for excavation and disposal outside the property boundaries should be evaluated by an MCP Licensed Site Professional (LSP) prior to off-site disposal.

- **Solid Waste:** there are several locations where unused farm machinery, small power equipment and oil tanks formerly used for heating greenhouses are present on the Subject Property. This material should be removed prior to redevelopment.
- **Special Waste** includes residual waste oil that is stored on the Subject Property, residual gasoline and diesel fuel that remains in bulk tanks, and unused quantities of pesticides, herbicides and fertilizers. This waste should be removed and disposed of in accordance with applicable state and Federal requirements prior to redevelopment.

- **Wetlands:** Wetlands are present on the western portions of the Subject Property and these Wetlands may hamper redevelopment of locations within 100 feet. Golder recommends that Emerald Ventures retain a qualified wetlands scientist to assist with the permitting associated with this matter.

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Table 1: Soil Sample Analytical Results – May 2018

FIGURES

Figure 1: Site Location

Figure 2: Surrounding Properties

Figure 3: Subject Property Plan

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APPENDICES

Appendix A: Legal Information for the Subject Property

Appendix B: Federal and State Regulatory Database/ Vapor Encroachment Screen Report

Appendix C: Historical Documentation

Appendix D: Photographs Recorded During the Subject Property Visit

Appendix E: User Questionnaire

Appendix F: Information Provided by Other Sources

Appendix G: State/City Information

Appendix H: Resume of Environmental Professionals

1.0 INTRODUCTION

1.1 Purpose

Emerald Ventures LLC (Emerald) retained Golder Associates Inc. (Golder) to perform a Phase I Environmental Site Assessment (Phase I ESA) of the Charlton Orchard farm located at 44 Old Worcester Road and a single family residence, located at 7 L Turner Drive found in the Town of Charlton, Worcester County, Massachusetts 01507 (Figure 1). The property parcels (Parcel IDs 36-C-10 and 36-C-10.1) upon which the Charlton Orchards farm and residence are located is in a predominantly residential and commercial area (Figure 2). According to the Assessor Property Cards, 7 L Turner Drive is owned by Nathan R Benjamin, Jr. and Catherine Benjamin and 44 Old Worcester Road is owned by Charlton Orchards Group, LLC (Charlton Orchards).

The purpose of this Phase I ESA is to identify “recognized environmental conditions” (RECs), historical recognized environmental conditions (“HRECs”), and controlled recognized environmental conditions (“CRECs”) in connection with the Subject Property, to the extent feasible, pursuant to the processes prescribed in the ASTM Practice E 1527-13 entitled “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM Standard), and the EPA Rule entitled, “Standards and Practices for All Appropriate Inquiries; Final Rule” (AAI Rule), 40 CFR Part 312, Golder’s proposal dated October 25, 2017 (the Proposal), and Golder’s professional judgment. The AAI Rule states that the ASTM Standard may be used to comply with the requirements of the AAI Rule, so whenever reference is made in this Report to the ASTM Standard, it shall include the AAI Rule.

The ASTM Standard defines RECs as “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.” An HREC is defined as... A CREC is ...

1.2 Scope of Services

The scope of services for this Phase I ESA consisted of the following tasks:

Records Review

- Reviewing available information to confirm the legal description and location of the Subject Property. This information is included in Appendix A.
- Reviewing environmental record sources, including federal and state regulatory databases, to identify facilities with past or current regulatory enforcement actions within applicable distances of the Subject Property as defined in the ASTM Standard. The regulatory database search report prepared by Environmental Database Resources Inc. (EDR) is presented in Appendix B. The EDR Vapor Encroachment Screen (VES) Report is also provided in Appendix B.
- Reviewing physical setting information sources to identify information about the geologic, hydro-geologic, hydrologic, and topographic conditions in the area of the Subject Property. The U.S. Geological Survey (USGS) 7.5-minute topographic map of the area of the Subject Property is shown on Figure 1.
- Reviewing historical record sources to identify past land use activities at the Subject Property and surrounding properties. Historical information obtained during performance of the Phase I ESA investigation is included in Appendix C.

Site Visit

- Performing a visual inspection of the Subject Property and surrounding properties to identify potential sources of chemical and petroleum contamination such as aboveground storage tanks (ASTs), underground storage tanks (USTs), or other potential sources of polychlorinated biphenyls (PCBs), chemicals, and hazardous materials. Surficial evidence of potential RECs, such as distressed vegetation, stained soils, and/or stained paving was also evaluated. Photographs recorded during the site reconnaissance are included in Appendix D. A Subject Property Plan is illustrated on Figure 3.

Interviews

- Interviewing available individuals with knowledge of current or historical use, storage, or disposal of potentially hazardous materials or other environmentally related activities on or adjacent to the Subject Property. User provided information is included in Appendix E.

Limited Subsurface Investigation

- Collecting representative subsurface samples from three historical and current agricultural farm fields at limited, owner-identified locations across the Subject Property and submitting these samples for laboratory analysis of the Massachusetts Contingency Plan (MCP) Pesticides/Herbicides and MCP metals. Soil sampling locations are illustrated on Figure 4. The soil analytical results are provided in Table 1.

Report Preparation

- Preparing this report to document the findings, opinions, and conclusions of the Phase I ESA conducted at the Subject Property, and provide the supporting documentation and references for those findings, opinions, and conclusions (the Report). Responses received to date from agency record request are provided in Appendix G. Information regarding state agency contaminated sites and water quality designations are included in Appendix G. Resumes for the environmental professionals that performed the assessment and prepared this Phase I ESA Report are included in Appendix H.

1.3 Limitations and Exceptions

Golder performed our services in accordance with the following principles, which are an integral part of the ASTM Standard: (i) No environmental site assessment can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this Phase I ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with the Subject Property, and the ASTM Standard recognizes reasonable limits of time and cost; (ii) "all appropriate inquiry" does not mean an exhaustive assessment of a property. Golder performed this Phase I ESA in conformance with the ASTM Standard's principle of identifying a balance between the competing goals of limiting the costs and time demands inherent in performing a Phase I ESA and the reduction of uncertainty about unknown conditions resulting from additional information; (iii) not every property warrants the same level of assessment - the type of property subject to the assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry guided the appropriate level of assessment for this Phase I ESA; and (iv) Phase I ESAs must be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made. Subsequent Phase I ESAs should not be considered valid standards to judge the appropriateness of any prior assessment based on hindsight, new information, use of developing technology or analytical techniques, or other factors.

1.4 Special Terms and Conditions

No special terms and conditions are applicable to this Phase I ESA.

1.5 User Reliance

Golder has prepared this Report at the request of the User for the purpose identified by the User in Section 3.7. Use of the information contained in this Report by anyone other than User is permissible only with the prior written authorization to do so from Golder, and only under the conditions allowed by the ASTM Standard. Golder is not responsible for independent conclusions, opinions, or recommendations made by others or otherwise based on the findings presented in this Report.

2.0 PROPERTY DESCRIPTION

2.1 Location and Legal Description

The Subject Property is located at 44 Old Worcester Road and 7 L Turner Drive, Charlton, Worcester County, Massachusetts, has been assigned parcel IDs 36-C-10 and 36-C-10.1 by the town of Charlton's Assessors Office, and is located at 42° 8' 38.56" north latitude and 71° 56' 53.98" west longitude, as depicted on the United States Geological Survey (USGS) 7.5-minute, Leicester, Massachusetts-Worcester Co. (2015) topographic quadrangle map (Figure 1). According to the Assessor Property Cards, 7 L Turner Drive is owned by Nathan R. Benjamin, Jr. and Catherine Benjamin T/E and 44 Old Worcester Road is owned by Charlton Orchards Group LLC. The Subject Property encompasses approximately 94.6 acres which is accessed from Old Worcester Road via L Turner Drive. The Subject Property has historically been used for agricultural purposes since 1907.

The Subject Property is developed with two residential dwellings, a storage building, an orchard store, a garage, a barn and horse corral, a pesticide storage shed, three green houses and a former outhouse (Figure 3). The Subject Property is currently operated by Charlton Orchards as a pick-your-own fruits and vegetables vendor. The residential dwelling with the address of 44 Old Worcester Road is currently vacant and used for storage. The Benjamin Family currently occupies the residence with the address of 7 L Turner Drive.

Based on conversations with Mr. Nathan Benjamin, the property owner and Charlton Orchards representative, the Subject Property was originally comprised of one parcel. The United States Department of Agriculture (USDA) obtained ownership of the Subject Property from a foreclosure and operated it as a cattle ranch from 1907 to 1949. Nelson Wheeler purchased the property from the USDA in 1949 and continued to use the Subject Property for agricultural purposes. Brookfield Orchards purchased the property in 1972 from Mr. Wheeler and began operations as an orchard. Charlton Orchard purchased the Subject Property in 1998 and operated the farm as an apple orchard and winery. Prior to 2007, Mr. Benjamin had the Subject Property split into two parcels with addresses 44 Old Worcester Road and 7 L Turner Drive. A new residential residence was constructed at 7 L Turner Drive in late 2007. In 2015, arson resulting in a fire burned down the vineyard, winery and barn which led to Charlton Orchards to begin operating solely as a pick-your-own orchard and farm.

2.2 General Characteristics of Site and Vicinity

The Subject Property is located in an area developed for commercial and residential purposes. The Subject Property occupies a hill which generally slopes to the north toward Worcester Road, to the east and west toward undeveloped land and residential properties, and toward Old Worcester Road to the south. Storm water on the Subject Property flows toward vegetated areas and infiltrates into the ground, toward a stormwater pond located to the northeast of the greenhouses, or toward onsite drainage ditches which infiltrate into the ground.

The surrounding properties are illustrated on Figure 2. A layout of the Subject Property is presented on Figure 3.

2.3 Current Use of the Subject Property

The Subject Property is currently owned by Charlton Orchards, a company owned by the Benjamin Family that operates as a pick-your-own orchard and farm. It is developed with 12 buildings for either agricultural or residential uses. A horse corral and barn houses three horses. At the time of the Site Visit, the orchard was in its off season and the property owner was in the process of selling excess equipment in preparation of the potential sale of the property. Descriptions of the buildings are provided in section 2.4 below. A Subject Property Plan is illustrated on Figure 3.

The property owner indicated that the Subject Property agricultural crops include 18 acres of apples, 14 acres of wooded pasture, 9 acres of vegetables, 4.5 acres of blueberries, 2 acres of cherries, 2 acres of blackberries and raspberries, 2 acres of strawberries, and 2 acres of peaches, nectarines and plums. There is an additional 40 acres of undeveloped woodland within the Subject Property limits. When operating, the orchard store would sell excess produce and baked goods made on an onsite bakery during peak season. Irrigation lines are located throughout the orchards and agricultural fields.

Farming equipment used at the Subject Property includes tractors, lifts, haying equipment, trucks, Gators, forklifts, sprayers, and cultivators. Maintenance of trucks is performed off-site by a dealer while repair of the fork lifts is completed by farm personnel onsite.

The agricultural practices follow conventional methods including the use of pesticides, herbicides, fungicides and fertilizers. Mr. Benjamin stated that the orchard was scheduled to spray pesticides from May 3 to 4, 2018. The pesticides and herbicides require spraying on a weekly cycle. Mr. Benjamin provided his inventory of all pesticides, herbicides, fungicides and fertilizer for years 2015 to 2017 which are provided in Appendix F.

Two private water supply wells are located on the Subject Property and each provides drinking water to the separate residences. The supply well associated with 7 L Turner Drive also provides water for farming activities. A water fill station is adjacent to the pesticide storage shed for the filling of water trucks.

A total of nine aboveground storage tanks (ASTs) were observed across the Subject Property for heating (oil and propane) and refueling (diesel and gasoline) site equipment. Three of the ASTs were decommissioned prior to the Site Visit.

Vehicle access to the Subject Property is from Old Worcester Road via L Turner Drive. L Turner Drive enters the Subject Property from the south and provides access to the site buildings.

2.4 Buildings and Other Improvements

The Subject Property consists of an area of approximately 94.6 acres developed with 12 buildings. A description of each building is provided below. Refer to Figure 3 for the locations of the buildings on the Subject Property.

- **Building 1:** Residence, 44 Old Worcester Road: the residence was built in 1950 with an area of 1,384 ft². Building 1 has a concrete block foundation, wood frame, drywall interior, vinyl exterior and an asphalt shingle roof. The residence is heated with fuel oil and forced hot air. The AST containing the fuel oil is located in the basement of the residence. The residence is connected to a private water supply well. Building 1 is currently unoccupied and used for storage.
- **Building 2:** Residence, 7 L Turner Road: the residence was built in 2007 with an area of 2,614 ft². Building 2 has a concrete foundation, wood frame, plaster interior, vinyl exterior and asphalt shingle roof. The residence is heated with fuel oil and hydro air. The AST containing the fuel oil is located in the basement of the residence. The residence is connected to a separate private water supply well. Building 2 is currently occupied by the Benjamin Family.

- **Building 3:** Storage Building: the storage building was constructed in 2016 with an area of approximately 1,500 ft². Building 3 has a concrete slab foundation, vinyl exterior, and corrugated metal roof. No utilities currently service Building 3. The Benjamin Family currently stores personal equipment in the shed. The storage shed occupies the same building footprint as the former winery barn which burned down in the 2015 fire.
- **Building 4:** Orchard Store: the orchard store was constructed in 1967 with an area of approximately 3,100 ft². Building 4 has a concrete floor, wood frame, and asphalt shingle roof. In addition the orchard store has a walk-in cold storage room equipped with compressors and evaporators. The orchard store is heated with propane provided by an AST located along the north wall of the store. At the time of the Site Visit, the store was used for storage.
- **Building 5:** Concrete Vault: the concrete vault has an area of approximately 90 ft² and provides containment for three 275-gallon ASTs utilized for refueling farming equipment. Building 5 has a concrete floor and partial walls, a wood frame, and corrugated metal roof. The date of construction of Building 5 was post-1998.
- **Building 6:** Pesticide Storage Shed: the pesticide storage shed has an area of approximately 115 ft² and contains all the pesticides, herbicides and fertilizers used in the farming activities. Building 6 sits on concrete blocks, has a wood frame, plywood walls and a corrugated metal roof. The date of construction of Building 6 was post-1998.
- **Building 7:** Garage: the garage was constructed in the 1980's with an area of approximately 2,500 ft². Building 7 has a concrete slab and partial dirt floor, wood frame, plywood walls and corrugated metal roof. A well house for the 7 L Turner Drive private supply well is off of the southwest corner of the garage. The garage houses the apple sorting equipment; however now it functions as a work shop for equipment maintenance. Equipment located in Building 7 included welding gear, a drill press, space heaters and other hand tools.
- **Building 8:** Barn: the barn was constructed in 2010 with an approximate area of 1,800 ft². The barn is constructed of a steel frame, polyethylene sheeting, and dirt floor. The barn houses three horses owned by the Benjamin Family. At the time of the Site Visit, a tractor and hydraulic lift were stored in the barn.
- **Buildings 9, 10 and 11:** Greenhouses: the greenhouses have an area ranging from 2,000 to 2,700 ft². They are constructed of wood frame and plastic sheeting with a dirt floor. The greenhouses are equipped with wood and/or oil furnaces. At the time of the Site Visit, one greenhouse was growing crops and two were storing hay. The date of construction of Buildings 9, 10 and 11 was after 1998.
- **Building 12:** Former Outhouse: the former outhouse has an area of approximately 180 ft². The outhouse was utilized by customers that came to the orchard. The date of construction of Building 12 was after 1998.

2.5 Current Use of the Adjoining Properties

The adjoining properties in relation to the Subject Property are described below:

- **North:** Worcester Road (Route 20) followed by 253 Worcester Road commercial development (Whitewater Inc., Insituform Technologies, Wyoming Millwork Co., Proshaper, Valley Green Inc., Meacham Propane, R.H. White Construction) and Charlton Landscape and Nursery Supply (259 Worcester Road). A potential aggregate quarry may be located beyond Worcester Road and to the northwest of the Subject Property.
- **East:** Undeveloped/Forested and residential dwellings.
- **West:** Undeveloped/Forested and residential dwellings.
- **South:** Old Worcester Road followed by residential dwellings.

3.0 USER PROVIDED INFORMATION

The ASTM Standard defines User as the party seeking to use Practice E 1527 to complete a Phase I ESA of the Subject Property. The ASTM Standard requires the User to provide certain information to the environmental professional. Golder provided a User Questionnaire to Mr. Nathan Benjamin to facilitate the transfer of this information to Golder. Mr. Benjamin, property owner and Charlton Orchard representative, completed the User questionnaire and his responses are provided in the following sections. A copy of the User Questionnaire is provided in Appendix E.

3.1 Environmental Cleanup Liens

Golder representatives asked the User if a search of recorded land title records or judicial records identified any environmental cleanup liens against the Subject Property.

The User responded that there are not any liens against the property.

3.2 Activity and Use Limitations

Golder representatives asked the User about their knowledge of activity and use limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place on the Subject Property or have that been filed or recorded in a registry under federal, tribal, state or local law.

The User responded that he is not aware of any AULs at the Subject Property.

3.3 Relationship of the Purchase Price to the Fair Market Value

Golder representatives asked the User if the purchase price being paid for this property reasonably reflects the fair market value of the property.

The User responded that no contamination is known or believed to impact the value of the property.

3.4 Specialized Knowledge

Golder representatives asked the User if they had any specialized knowledge or experience about the Subject Property that would assist the environmental professional in identifying conditions indicative of releases or threatened release.

The User responded that he had no special knowledge or experience about the Subject Property that would suggest environmental contamination.

3.5 Commonly Known or Reasonably Ascertainable Information

Golder representatives asked the User if they were aware of commonly known or reasonably ascertainable information about the Subject Property that would assist the environmental professional in identifying conditions indicative of releases or threatened releases. Golder representatives asked the following questions:

- a) Do you know the past uses of the Subject Property?

The User responded saying that the site has been used for agricultural purposes since before 1907.

- b) Do you know of specific chemicals that are present or once were present at the Subject Property?

The User responded that he has an inventory of pesticides, herbicides, fertilizers, and fuel oil.

- c) Do you know of spills or other chemical releases that have taken place at the Subject Property?

The User responded that he has not had any spills or chemical releases that have taken place at the Subject Property.

- d) Do you know of any environmental cleanups that have taken place at the Subject Property?

The User responded that he has not had any environmental cleanup activity at the Subject Property with the exception of asbestos abatement after the fire in 2015.

3.6 The Degree of Obviousness or the Presence of Contamination

Golder representatives asked the User if, based on User's knowledge and experience related to the Subject Property, there are any obvious indicators that point to the presence or likely presence of releases at the Subject Property.

The User responded that he is not aware of any indicators that point to the presence of contamination at the Subject Property."

3.7 Reason for Conducting Phase I ESA

The User indicated that this Phase I ESA is being performed in support of Emerald's potential procurement of the Subject Property.

4.0 RECORDS REVIEW

4.1 Standard Environmental Record Sources, Federal and State

Golder retained Environmental Data Resources Inc. (EDR) to perform an environmental regulatory database search of the general area of the Subject Property. The result of EDR's database search is presented in Appendix C. In accordance with the search requirements of the ASTM E-1527-13 Standard, Golder representatives reviewed the federal and state regulatory agency records listed below to identify the use, generation, storage, treatment or disposal of hazardous substances or petroleum products, or release incidents of such materials that might impact the Subject Property. A summary of significant listings (i.e., the Subject Property and any adjacent properties within the search distance considered to represent a potential impact to the Subject Property) presented in the environmental regulatory database report is summarized in the tables below. A summary of the key acronyms associated with select state and federal data bases searched by EDR is presented below:

- **National Priorities List (NPL):** inventory of sites classified as requiring Federal Superfund Cleanup actions.
- **Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS):** database of facilities and/or locations that are or have been investigated by the U.S. Environmental Protection Agency (US EPA) or associated State environmental agencies to ascertain the presence of potential or existing contamination. ASTM requires a 0.5-mile radius search.
- **No Further Remedial Action Planned Sites (NFRAP):** facilities and/or locations, which have been removed from the CERCLIS database. Such facilities may be locations where either no contamination was found, contamination was removed quickly without need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. ASTM requires the site and adjacent properties to be searched.
- **Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS) Sites:** facilities and/or locations that are currently conducting or have conducted corrective actions under RCRA.
- **RCRA – Treatment, Storage and Disposal (TSD) Facilities:** permitted facilities and/or locations, which treat, store, or dispose of hazardous wastes.

- **RCRA – Large-Quantity Generators (LQGs) and Small-Quantity Generators (SQGs):** LQG facilities and/or locations generate over 1,000 kilograms (kg) of hazardous waste per month. SQG facilities and/or locations generate less than 1,000 kg but more than 100 kg of hazardous waste per month. ASTM requires generators on or adjacent to the site to be identified.
- **Emergency Response Notification System (ERNS):** database of information on reported releases of oil and hazardous substances. The list identifies those facilities and/or locations that have been reported to federal agencies, including the Coast Guard, the US Environmental Protection Agency (EPA) or Department of Transportation.
- **Registered Aboveground and Underground Storage Tank Data Listing: (AST/UST):** contains information pertaining to all registered active and inactive USTs located within the State. ASTM requires ASTs and USTs on or adjacent to the site to be identified.
- **State Spills or State Hazardous Waste Site (SHWS):** These are releases of oil and/or hazardous materials that have been reported to the appropriate state agency.
- **Leaking Underground Storage Tanks (LUSTs) or Leaking Aboveground Storage Tanks (LASTs):** These data bases lists USTs or ASTs that have leaked. In a majority of cases this overlaps with the SHWS and state spills data bases.

The following is a listing of databases reviewed during the Phase I ESA

Federal ASTM Standard Databases

Database	Approximate Minimum Search Distance
Federal NPL (National Priorities List)	1.0 mile
Federal delisted NPL site list	1.0 mile
Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) site list	0.5 mile
Federal CERCLIS-No Further Remedial Action Planned (NFRAP) site list	0.5 mile
Federal Resource Conservation and Recovery Act (RCRA) CORRACTS (Corrective Action Report) facilities list	1.0 mile
Federal RCRA non-CORRACTS Treatment Storage and Disposal (TSD) facilities list	0.5 mile
Federal RCRA Generators list	0.25 mile
Federal Institutional Control/Engineering Control Registries	0.5 mile
Federal Emergency Response Notification System (ERNS) list	Subject Property

State and Tribal ASTM Standard Databases

Database	Approximate Minimum Search Distance
State and tribal hazardous waste sites identified for investigation or remediation: NPL – equivalent sites	1.0 mile
State and tribal hazardous waste sites identified for investigation or remediation: CERCLIS – equivalent sites	0.5 mile
State and tribal landfill and/or solid waste disposal site list	0.5 mile
State and tribal leaking storage tank lists	0.5 mile
State and tribal registered storage tank lists	0.25 mile
State and tribal Institutional Control/Engineering Control Registries	0.5 mile

Database	Approximate Minimum Search Distance
State and tribal voluntary cleanup sites	0.5 mile
State and tribal Brownfield sites	0.5 mile

Additional Environmental Records

Database	Approximate Minimum Search Distance
RCRA-Non Generators/ No Longer Regulated (RCRA NonGen/LR)	0.25 mile
Facility Index System/ Facility Registration System (FINDS)	Subject Property
Enforcement and Compliance History Information (ECHO)	Subject Property
List of Massachusetts Hazardous Waste Generators (HW GEN)	0.25 mile
Tier 2 Information Listing (TIER 2)	Subject Property
Asbestos Notification Listing (ASBESTOS)	Subject Property

4.1.1 Subject Property Database Listings

The Subject Property is listed in the following databases searched by EDR:

Site Name: Fire Damage

Databases: ASBESTOS

EDR Map ID: A1, A2

The Subject Property was reported in the ASBESTOS database for the removal of approximately 2,400 square feet of asbestos containing material (ACM). On October 6, 2015, Top Notch Abatement removed the ACM from

the Subject Property after a fire had damaged one of the buildings. The ACM abatement was assigned notification ID 100230198.

Summary of Subject Property Database Listings

After a fire in 2015, ACM was removed from the Subject Property. The fire at the Subject Property represents a De minimis condition since residual burnt materials are likely to present in surficial soils. Based on conversations with the property owner, the State coordinated the asbestos abatement and was very conservative with the classification of asbestos. The residence located at 44 Old Worcester Road was built in 1950 during which ACM was still utilized in construction. The possibility exists that ACM may exist within the residence and an asbestos survey should be implemented prior to demolition. The removal of asbestos at the Subject Property does not pose a potential environmental threat to the Subject Property.

4.1.2 Off-Site Properties Database Listings

Golder conducted an evaluation of the surrounding properties and reviewed their potential to impact the Subject Property. A discussion of sites within a 0.25-mile radius is presented below. The discussions below include a brief overview of the reported releases and/or conditions that may have the potential to impact the Subject Property.

Site Name: K&P Trucking

Databases: RELEASE, SHWS

Address: 262 Worcester Road, Charlton, MA 01507

EDR Map ID: B3

Distance: Adjacent

Elevation: Lower than Subject Property

Direction: North-northeast

Comments: K&P Trucking is listed in the RELEASE and SHWS databases with Release Tracking Number (RTN) of 2-13287. To achieve a greater understanding of the release, Golder obtained a copy of the Response Action Outcome (RAO), titled "Class A-2 RAO, K&P Transportation", submitted to the Massachusetts Department of Environmental Protection (MassDEP) by Corporate Environmental Advisors, Inc. (CEA) from the MassDEP Waste Site & Reportable Releases (WSRR) database. On May 14, 2000, approximately 100-gallons of #2 fuel oil was released to the dirt parking lot during the fueling of a tractor trailer. The release triggered an immediate response action resulting in the excavation of 86.91 tons of impacted soil. CEA collected soil samples for analytical analysis and volatile headspace readings. The headspace readings ranged from non-detect to 10.8 parts per million by volume (ppm) and the soil samples were below the MCP Method 1 soil category (S-1/GW-1) standards. CEA filed a Class A-2 RAO Statement, dated July 14, 2000, which indicated a Permanent Solution was achieved for RTN 2-13287. A copy of the RAO is provided in Appendix G.

Based upon the higher elevation of the Subject Property in relation to its surrounding properties and the closure of RTN 2-13287, the site is unlikely to pose a potential environmental threat to the Subject Property.

Site Name: Insituform Technologies

Databases: RELEASE, SHWS, HW GEN, RCRA-SQG

Address: 253 B Worcester Road, Charlton, MA 01507

EDR Map ID: 4, C11, C12

Distance: 300 ft

Elevation: Lower than Subject Property

Direction: North-northwest

Comments: Insituform Technologies, Inc. (Insituform) is listed in the RELEASE and SHWS databases with RTN 2-14323. To achieve a greater understanding of the release, Golder obtained a copy of the RAO, titled "RAO & Immediate Response Action Completion Report, RTN 2-14323", submitted to the MassDEP by CMG Environmental, Inc. (CMG) from the MassDEP WSRR database. A fire on May 26, 2002 resulted in the release of a large quantity of styrene monomer resin. Although the fire consumed a lot of the released resin, evidence of liquid monomer was observed leaving the facility. The fire suppression activities increased movement of the monomer due to the large amounts of water flushing across the site. The release triggered an immediate response action resulting in the excavation of approximately 655 tons of impacted soil. A holding tank was discovered and removed as part of the immediate response action. Groundwater was not encountered in any of the excavations. CMG collected soil samples for analytical analysis which were below the MCP Method 1 and Method 2 Risk Characterization standards. CMG filed a RAO Statement, dated March 13, 2003, which indicated a Permanent Solution was achieved for RTN 2-14323. A copy of the RAO is provided in Appendix G.

Insituform is listed in the HW GEN and RCRA-SQG as a small quantity generator of hazardous wastes with EPA ID: MAR000505180. Hazardous waste generated by Insituform includes ignitable waste (D001), spent non-halogenated solvents (F003) and waste oil (MA01). Violations were reported for state statute or regulations, manifests, pre-transport and waste oil in 2009.

Based upon the higher elevation of the Subject Property in relation to its surrounding properties and the closure of RTN 2-14323, the site is unlikely to pose a potential environmental threat to the Subject Property.

Site Name: Charlton Landscape Supply

Databases: RELEASE, SHWS

Address: 259 Worcester Road, Charlton, MA 01507

EDR Map ID: B6

Distance: 164 ft

Elevation: Lower than Subject Property

Direction: North-northeast

Comments: Charlton Landscaping Supply is listed in the RELEASE and SHWS databases with RTN 2-18205. On May 25, 2011, approximately 60 gallons of diesel fuel was released from a fuel tank which resulted in an immediate response action. A RAO Statement was filed indicating a Permanent Solution was achieved for RTN 2-18205, however contamination was not reduced to background concentrations.

Based upon the higher elevation of the Subject Property in relation to its surrounding properties, the small quantity of diesel fuel released, and the closure of RTN 2-18205, the site is unlikely to pose a potential environmental threat to the Subject Property.

Site Name: Turskey Estate

Databases: SWF/LF

Address: 279 Worcester Road, Charlton, MA 01507

EDR Map ID: 7

Distance: 332 ft

Elevation: Lower than Subject Property

Direction: Northeast

Comments: Turskey Estate is listed in the SWL/LF database as solid waste facility or transfer station located on Parcel 36-B-2.5. The site was classified as land disposal with a waste disposed category of tires. Annual tons are not listed in the database since 1995. No additional information is provided.

Based upon the higher elevation of the Subject Property in relation to its surrounding properties and the site being located hydraulically cross-gradient, the site is unlikely to pose a potential environmental threat to the Subject Property.

Site Name: ADT Auto Services, Inc.

Databases: RELEASE, SHWS, LAST, HW GEN, RCRA-CESQG, FINDS, ECHO

Address: 293 Worcester Road, Charlton, MA 01507

EDR Map ID: D13, D14

Distance: 724 ft

Elevation: Lower than Subject Property

Direction: Northeast

Comments: ADT Auto Services, Inc. (ADT) is listed in the RELEASE, SHWS and LAST databases with RTN 2-13366 and the RELEASE and SHWS database with RTN 2-13543. To achieve a greater understanding of the releases, Golder obtained a copy of the RAO report, titled "Response Action Outcome Report, 2-13366 & 2-13543", submitted by Marin Environmental (Marin) to MassDEP from the MassDEP WSRR database. In June 2000, the Charlton Fire Department notified the MassDEP of a release and a threat of the release due to the presence and abandonment of multiple 55-gallon drums, a 275-gallon AST, a 2,000-gallon fuel oil delivery tanker, and a 1,500-gallon oil AST. ADT was notified as the responsible party. Staining around the base of the 1,500-gallon oil AST was assigned RTN 2-13366. During the immediate response action activities, polychlorinated biphenyl (PCB) contamination was determined to be above the imminent hazard threshold values. ADT notified the MassDEP of the PCB imminent hazard which was later assigned RTN 2-13543. Approximately 140 cubic yards of petroleum and PCB impacted soil and 737 gallons of waste oil from the drums and the onsite tanker were removed from the site. Marin filed a Class A-2 RAO with the MassDEP stating that a Permanent Solution was achieved for RTNs 2-13366 and 2-13543. A copy of the RAO is provided in Appendix G.

ADT is listed in the HW GEN and RCRA-CESQG as a small quantity generator of hazardous wastes with EPA ID: MAR000500264. Hazardous waste generated by ADT includes waste oil (MA01). One Violation was reported for state statute or regulations in 2011.

Based upon the higher elevation of the Subject Property in relation to its surrounding properties and the closure of RTNs 2-13366 and 2-13543, the site is unlikely to pose a potential environmental threat to the Subject Property.

Site Name: Charlton RT 20 Realty Inc.

Databases: SWF/LF

Address: 299 Worcester Road, Charlton, MA 01507

EDR Map ID: 15

Distance: 1,062 ft

Elevation: Lower than Subject Property

Direction: Northeast

Comments: Charlton RT 20 Realty Inc. is listed in the SWL/LF database as solid waste facility or transfer station. The site was classified as land disposal with a waste disposed category of tires. Annual tons are not listed in the database since 1995. No additional information is provided.

Based upon the higher elevation of the Subject Property in relation to its surrounding properties and the site being located hydraulically down-gradient, the site is unlikely to pose a potential environmental threat to the Subject Property.

Site Name: Lamountain Exxon

Databases: SHWS, LUST, RELEASE, ENF, HW GEN

Address: 142 Worcester Road, Charlton, MA 01507

EDR Map ID: E22

Distance: 0.742 miles

Elevation: Lower than Subject Property

Direction: West

Comments: Lamountain Exxon (ExxonMobil) is listed in the HW GEN as being registered as a small quantity generator and very small quantity generator with the following EPA IDs: MAR300007895, MV5082487717, MAD980913339, and MV5082489225. ExxonMobil is registered in the SHWS, LUST and RELEASE Databases for multiple releases. Provided in the embedded table below are all the release tracking numbers associated with the site.

Release Tracking Number	Notification Date	Release Details	Status	Associated RTNs
2-0815	12/6/1990	Leaking of Underground Storage Tanks: Benzene and MTBE	Phase IV Remediation (Monitored Natural Attenuation)	2-10433, 2-12567, 2-14844, 2-15422, 2-16280, 2-17263, 2-17373, 2-17457, 2-18024, 2-18049, 2-182150, 2-18464, 2-18496, 2-19323
2-15694	4/8/2005	Release of MTBE & BTEX	RAO: Class B-1 No Significant Risk	Not Applied

Release Tracking Number	Notification Date	Release Details	Status	Associated RTNs
2-15989	11/14/2005	Release of 10-gallons Hydraulic Oil	TIER 1: Responsible Party failed to provide a submittal to the MassDEP by specified deadline	Not Applied

Notes: BTEX = Benzene, Ethylbenzene, Toluene and Xylene, MTBE = Methyl Tertiary Butyl Ether

To achieve a greater understanding of RTN 2-0815, Golder obtained a copy of the 2017 status report, titled "Phase IV Status Report, RTN 2-0815", submitted to the MassDEP by Kleinfelder from the MassDEP WSRR database. According to the status report, the site was previously occupied by a retail petroleum gasoline station owned by ExxonMobil Corporation. The UST tank farm had a significant release and the site is currently undergoing Phase IV remediation and monitoring inclusive of monitored natural attenuation (MNA), point of entry treatment (POET) systems and private well sampling. The status report concluded that there is a stable or decreasing trend of petroleum hydrocarbons in groundwater samples collected from the site. A total of 69 out of 87 samples collected from private supply wells had petroleum concentrations below the laboratory reporting limits. A total of 18 samples had detections of petroleum hydrocarbons concentrations below the MCP Method 1 GW-1 standards and MassDEP drinking water guidelines. One private supply well was not sampled due to accessibility issues. ExxonMobil is in the process of connecting all impacted residences to municipal water systems.

Based on Water Sampling and Testing Reports, Kleinfelder recently sampled the private supply wells located on the Subject Property on May 4, 2016 (44 Old Worcester Road) and June 8, 2017 (7 L Turner Drive). The analytical results are provided below:

- **44 Old Worcester Road Private Supply Well:** non-detect for all analytes
- **7 L Turner Drive Private Supply Well:** MTBE 0.75 µg/L, all other analytes were non-detect.

Both private wells sample results are below the MassDEP drinking water guidelines and do not appear to be influenced by the ExxonMobil plume. Copies of the Kleinfelder 2017 Status Report, 2016 Water Sampling and Testing Report and 2017 Water Sampling and Testing Report are provided in Appendix G and F.

Both of the well located on the Subject Property are located on the eastern portion of the property. Impacts from the ExxonMobil plume may have impacted the western portion of the Subject Property or the plume may be located between the screened intervals of the two wells. The plume of petroleum constituents emanating from the ExxonMobil site currently does not pose an environmental threat to the Subject Property; however if a supply well were to be advanced on the western portion of the property impacts from the plume may be encountered.

4.1.3 Orphans Summary

A total of 21 facilities were listed in the EDR report as “orphan sites”. EDR designates an orphan site as one that has been unable to locate with adequate precision to determine whether the site is pertinent to the Phase I ESA of the Subject Property. Based information provided by EDR, Golder was able to determine that the orphan sites are unlikely to pose a potential environmental threats to the Subject Property.

4.2 Previous Reports

Golder obtained the following copies of private well sampling reports from the property owner:

- Kleinfelder, “Water Sampling and Testing Program, 44 Old Worcester Road (36-C-10), RTN:2-0815” dated June 6, 2016.
- Kleinfelder, “Water Sampling and Testing Program, 7 L Turner Drive (36-C-10.1), RTN:2-0815” dated July 17, 2018.

Details pertaining to these reports are discussed in section 4.1.2. Copies of these reports are provided in Appendix F.

4.3 Additional Environmental Record Sources

Golder obtained records from the Charlton Fire Department on May 11, 2018. The Charlton Fire Department provided the following applications and permits for the Subject Property:

- An application for a 250-gallon gasoline AST dated July 3, 1989. No record of the approval of the application was provided.
- The permit for the installation of one 100-lbs propane canister for cooking dated September 11, 2000.
- The permit for the installation of two 100-lbs propane canisters for cooking purposes dated December 20, 2007.
- A permit for agricultural burning dated March 15, 2007.

Based on no records of a release at the Subject Property, it is unlikely that these records pose an environmental threat to the Subject Property. Copies of the records obtained from the Charlton Fire Department are provided in Appendix G.

4.4 Physical Setting Sources

4.4.1 Sources Reviewed

The following sources were reviewed to obtain information on the physical setting of the Subject Property area:

- USGS 7.5-minute topographic maps dated 1889, 1892, 1908, 1918, 1921, 1937, 1941, 1943, 1953, 1969, 1979, 1983, and 2012 provided by EDR, April 17, 2018, Inquiry Number: 5262214.4.
- EDR Aerial Photo Decade Package, including Aerial Photographs dated 1938, 1952, 1960, 1966, 1974, 1985, 1995, 2006, 2010, and 2014 provided by EDR, April 17, 2018, Inquiry Number: 5262214.9.
- The EDR Radius Map Report, provided by EDR, April 18, 2018, Inquiry Number 5262214.2s.
- The EDR City Directory Image Report, including directories dated 1985, 1989, 1992, 1995, 2000, 2005, 2010, and 2014, provided by EDR, April 18, 2018, Inquiry Number 5262214.5.
- The EDR Certified Sanborn Map Report, provided by EDR, April 17, 2018, Inquiry Number 5262214.3.
- Site Visit

4.4.2 General Topographic Setting of the Area

The Subject Property is located on a hill which slopes towards Worcester Road to the north, undeveloped and residential properties to the east and west and Old Worcester Road to the South. The regional topographic gradient of the area is generally to the east-southeast. Based on the Geocheck® Physical Setting Source Summary provided by EDR, the Property's elevation is approximately 896 feet above mean sea level (feet-msl).

4.4.3 Geologic and Hydrogeologic Setting

According to EDR's GeoCheck® Physical Setting Source Summary, the general soil-type characteristic on the property upon which the Subject Property is located consists of Woodbridge fine sandy loam and Paxton fine sandy loam which are characterized as moderate to well drained soils with slow infiltration rates. Based on the United States Geological Survey (USGS) Bedrock Geological Map dated March 7, 1986, bedrock in the local vicinity of the Subject Property consists of Sularian aged Paxton Formation consisting of granofels and schist rock types.

4.4.4 Surface Water and Hydrologic Setting

A small unnamed waterbody is located in the center portion of the Subject Property to the west of the former outhouse. In addition, a small stream cuts through the western woodland portion of the Subject Property. Dodge Pond is approximately 0.25 miles to the south, Hultered Pond is approximately 0.43 miles to the northwest, and Putnam Pond is approximately 0.80 miles to the southeast of the Subject Property.

The MassDEP Bureau of Waste Site Cleanup Phase I Assessment Map (21e map) has identified freshwater wetlands located on the western portion of the Subject Property. In addition, two non-commercial supply wells (Well IDs: 2054070-01G and 2054064-01G) and interim water protection areas are located within 0.5 miles to the west and northwest of the Subject Property. Potential rare wetland life or habitats are located within 0.5 miles to the north and southeast of the Subject Property. A copy of the MassDEP 21e map is provided in Appendix G.

According to the groundwater contour map provided in the Kleinfelder Phase IV 2017 Status Report, regional groundwater flow direction in the overburden is toward the east-southeast.

4.5 Historical Use Information on the Subject Property

4.5.1 Subject Property Historical Use Summary

Based on information obtained from the review of the city directories, historical topographic maps, and site interview, the Property has been used for agricultural purposes since 1907. The Subject Property originally consisted of a single parcel of land. First signs of development were observed in 1892 with the evidence of a small building located at the end of a dirt road on the 1892 historical topographic map. The USDA became the owner of the Subject Property after a foreclosure in 1907. The USDA operated the Subject Property as a cattle ranch until they sold the property to Mr. Nelson Wheeler in 1949. Mr. Wheeler developed the Subject Property with a residence in 1950 and the orchard store in 1962. The 35 foot deep private supply well was installed in 1956 and serviced the residence at 44 Old Worcester Road. Brookfield Orchards purchased the Subject Property in 1972 and operated as a farm and orchard. Brookfield Orchards built the current garage in the 1980's.

Charlton Orchard purchased the Subject Property in 1998 and is the current owner of 44 Old Orchard Road. Charlton Orchards, owned by the Benjamin Family, constructed the former winery barn, concrete vault housing three ASTs, the pesticide storage shed, the former outhouse and the greenhouses upon purchasing the Subject Property. The 780 foot deep private supply well was installed in 1999. In 2007, the Benjamin Family split the existing single Subject Property parcel creating parcels 36-C-10 and 36-C-10.1. A new residence was built at 7 L Turner Road and the original residence was used for storage. In 2015, arson at the Subject Property resulted in a fire destroying the winery, vineyard and barn. Based on Mr. Benjamin's accounts, the Fire Department did not attempt to extinguish the fire and did not use any fire suppressants. The EDR identified a record of approximately 2,400 square feet of ACM removed from the Subject Property due to the fire damage. Charlton Orchards reduced their operations to a pick-your-own orchard and farm upon the destruction of the winery. The new storage building was constructed on the former footprint of the destroyed barn in 2016.

4.6 Historical Use Summary

Golder representatives obtained historical aerial photographs, topographic maps, and city directories from EDR. Sanborn fire insurance maps were not available for the Subject Property or surrounding area. The historical aerial photographs, topographic maps, city directories, and Sanborn fire insurance "no coverage" letter are provided in Appendix C. A summary of the historical information is provided in the following table.

Date (Year)	Source of Historical Information	Description of Historical Land Use
1889	Topographic Maps	The Subject Property and adjacent properties appear to be undeveloped. Development is observed along current day North Main Street and Main Street. The Subject Property is bound to the north and south by roadways. A stream is illustrated on the western portion of the Subject Property.
1892	Topographic Maps	A dirt road bisects the eastern portion of the Subject Property. A small building has been developed off that road on the Subject Property. Scattered dwellings are observed to the north, east, and west of the Subject Property.
1908, 1918, 1921	Topographic Maps	The Subject Property and adjacent properties remain unchanged. A possible railroad appears to be leading to the Subject Property. The rail road is not depicted on the 1918 and 1921 Topographic Maps.
1931, 1941, 1943	Topographic Maps	The former building on the Subject Property is no longer visible. The western portion of the Subject Property consists of wetlands. The Subject Property is bound by Route 20 to the north and Masonic Home Road to the south. A new building is located adjacent to the southeast corner of the Subject Property. Dwellings are scattered to the north, east, west and south. No structures are depicted on the Subject Property or adjacent properties on the 1943 Topographic Map.
1938	Aerial Photograph	Land uses appear to be for agricultural purposes on the eastern and central portion of the Subject Property. A building is located adjacent to the southeast corner boundary of the Subject Property. Potential construction of a residence is located on the eastern portion of the Subject Property. Current day L Turner Road is evident providing access onto the Subject Property. A stream is observed on the western portion of the Subject Property. The Subject Property is bound by Worcester Road to the North and Old Worcester Road to the south. Residential development is adjacent to the southeast. The land beyond Old Worcester Road and Worcester Road is predominantly undeveloped.
1952, 1960	Aerial Photograph	The eastern portion of the Subject Property is utilized as an orchard. A small building is located on the east portion of the Subject Property. Small buildings were developed adjacent to the northwest corner of the Subject Property. The remaining features appear to be similar to the 1938 Aerial Photograph.

Date (Year)	Source of Historical Information	Description of Historical Land Use
1953, 1969	Topographic Maps	The original building off the dirt road is illustrated on the Subject Property. The road adjacent to the south of the Subject Property has been renamed as Old Worcester Road. A small building is located adjacent to the north of the Subject Property. Continued development is evident along current day North Main Street and Main Street.
1966, 1974	Aerial Photograph	The Subject Property is developed with three buildings, one residential and two associated with farming activities. The Subject Property is predominantly used for cultivation of multiple crops. Residential units have been constructed to the southwest of the Subject Property.
1979	Topographic Maps	Two additional building appear to have been constructed on the eastern portion of the Subject Property. All other structures appear to be similar to the 1953 Topographic Map.
1983	Topographic Maps	Another building was constructed on the eastern portion of the Subject Property. The building adjacent to the southeast corner of the Subject Property is no longer visible. Increased development is evident along Old Worcester Road and Worcester Road.
1985	Aerial Photographs	The Subject Property appears to be similar to the 1966 Aerial Photograph with the exception of small structures or items, possibly hay bales, across the Subject Property. Commercial development appears to be located adjacent to the northwest of the Subject Property. The remaining site features are similar to the 1966 Aerial Photograph.
1992	City Directory	<u>Old Worcester Road</u> 8 to 181- Residential, except: 169 – Elliot Construction Services
1995	Aerial Photographs	The Subject Property remains unchanged. Residential development is observed along Old Worcester Road. The Commercial Development (253 Worcester Road) has been developed with six buildings. The property located at 259 Worcester Road has been developed with one building. Land adjacent to the northeast corner of the Subject Property has been clear and appears to be bare soil. A building has been developed adjacent to the north of the Subject Property. The remaining features appear to be similar to the 1985 Aerial Photograph.
1995	City Directory	<u>Old Worcester Road</u> 8 to 181- Residential

Date (Year)	Source of Historical Information	Description of Historical Land Use
2000	City Directory	<p><u>Old Worcester Road</u> 11 – Heirwaves Inc. 22 – Ed Haglund Trucking, Inc. 44 – Charlton Orchards 135 – Apex Site Management, Inc. 169 – P&E Construction, Inc.</p>
2005	City Directory	<p><u>Old Worcester Road</u> 5 to 188- Residential, except: 19 – Dons Mobile Unit, Inc. 44 – Charlton Orchard Group LLC, Nathan R. Benjamin 45 – Bold Expressions 94 – Darcric Sons Trucking, Co. 98 – Gessner & Sons Carpentry LLC 129 – Cat & Fiddle Family Childcare 135 – Spectrasite Building Group 169 – P&E Construction, P&E Equipment 188 – Sisters of Carmelite</p>
2006	Aerial Photographs	<p>The Subject Property appears to have constructed a rain shelter for customers at the orchard and one green house. Equipment has been scattered around the buildings on the Subject Property. Land clearing is evident beyond Worcester Road to the northwest of the Subject Property. Due to the photograph's resolution, it is difficult to identify small structures. The pesticide storage shed, concrete vault shelter containing the current day ASTs and former outhouse may be present on the Subject Property. All other features are similar to the 1995 Aerial Photograph.</p>
2010	City Directory	<p><u>Old Worcester Road</u> 5 to 188- Residential, except: 16 – Triton Pools, Inc. 19 – Dons Mobile Unit, Inc., Moonstruck Café 44 – Charlton Orchard Group LLC, Nathan R. Benjamin 45 – Bold Expressions 94 – Darcric Sons Trucking, Co. 104 – OSHA Safety Services Inc. 129 – Cat & Fiddle Family Childcare 138 – E&J Contracting 142 – Breezy Corner LLC 169 – P&E Construction, P&E Equipment 171 – Little Einsteins Childcare 188 – Sisters of Carmelite</p>

Date (Year)	Source of Historical Information	Description of Historical Land Use
2010	Aerial Photograph	The residence and pool located at 7 L Turner Road is evident on the Subject Property. The remaining features are similar to the 2006 Aerial Photograph.
2014	City Directory	<p><u>Old Worcester Road</u> 5 to 188- Residential, except: 44 – Charlton Orchard Group LLC, Nathan R. Benjamin 129 – Cat & Fiddle Family Childcare 142 – Lamountains Snack Shop 152 – After Fall Role Playing Inc. 169 – P&E Equipment 171 – Little Einsteins Childcare 175 – Miller Robert J. Funeral Home 188 – Sisters of Carmelite</p>
2014	Aerial Photograph	The barn and additional greenhouse have been constructed on the Subject Property. The remaining features are similar to the 2010 Aerial Photograph.
2012, 2015	Topographic Maps	The Property and adjacent property features are not depicted on the topographic map. L Turner Road is observed on the Subject Property in the location of the former dirt road. All roadways reflect current day configurations.

4.6.1 Property Tax Files

Property Tax Files were not obtained and are not included within the scope of this Phase I ESA.

4.6.2 Recorded Land Title Records/Environmental Lien Search

A land title records and an environmental lien search were not included within the scope of this Phase I ESA. Golder obtained the Assessor's Card for the Subject Property from the Charlton Town Hall which indicated that 7 L Turner Drive is owned by Nathan R Benjamin, Jr. and Catherine Benjamin T/E and 44 Old Worcester Road is owned by Charlton Orchards Group, LLC. The property owner indicated that the Subject Property originally was one parcel and was divided in 2007, creating Parcel IDs: 36-C-10 and 36-C-10.1. Copies of the Assessor Property cards are provided in Appendix A.

4.6.3 Building Inspectional Services Records

Golder contacted the Building Inspectional Services Records at the Charlton Town Hall on May 8, 2018. The Building Inspectional Services department indicated that they do not have any records pertaining to the installation of ASTs, USTs and/or any other environmentally pertinent information pertaining to the Subject Property.

4.6.4 Board of Health Records

Golder completed a review of the Building Department Records at the Town of Charlton on May 8, 2018. No environmentally pertinent information was identified in the building records. The Board of Health indicated that the properties in the vicinity of the Subject Property are connected to private water supply wells.

4.6.5 Zoning and Land Use Records

Golder obtained the Assessor's Card for the Subject Property from the Charlton Town Hall. The Subject Property comprises Parcels 36-C-10 and 36-C-10.1 which are zoned as agricultural (A). Copies of the Assessor Property cards are provided in Appendix A.

4.6.6 Other Historical Records

Golder obtained the following reports from the MassDEP Waste Site & Reportable Releases database (<https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>):

- Marin Environmental, "Response Action Outcome Report, RTN 2-13366 & 2-13543, ADT Auto, 293 Worcester Road, Charlton, Massachusetts" dated January 28, 2002.
- CMG Environmental, Inc., "Response Action Outcome & Immediate Response Action Completion Report, RTN 2-14323, Insituform Technologies, Inc., 253 B Worcester Road (Route 20), Charlton, Massachusetts" dated March 13, 2003.
- Corporate Environmental Advisors, Inc., "Class A-2 Response Action Outcome, K&P Transportation, 262 Worcester Road, Charlton, Massachusetts 01507, RTN 2-13287" dated July 14, 2000.
- Kleinfelder, "Phase IV Status Report, 142 Worcester Road, Charlton, Massachusetts, RTN 2-0815" dated December 28, 2017.

The Subject Property was not listed as a disposal site. A discussion of each report is provided in section 4.1.2. Copies of the database search for the Subject Property and obtained reports are included in Appendix G.

4.7 Historical Use Information on Adjoining Properties

The following is a summary of historical use information for adjacent properties based on information obtained from the Subject Property inspection, a review of historical aerial photographs, topographic maps, and city directories for the Subject Property:

- **North:** The Subject Property has been bound by Worcester Road (Route 20) since before 1889. Small buildings, potentially commercial, were observed to the northwest in 1952. A small building is observed to the north of the Subject Property in 1995. The commercial development at 253 and 259 Worcester Road occurred between 1985 and 1995.
- **East:** Predominantly undeveloped. Residential development beyond the woodland portion of the Subject Property occurred prior to 1985.
- **West:** Predominantly undeveloped. Residential development beyond the woodland portion of the Subject Property occurred prior to 1960.
- **South:** Old Worcester Road has bound the Subject Property to the south since before 1889. Residential development is evident to the southwest and southeast from 1938 to 1966.

5.0 SITE VISIT

Golder representatives Mr. Josh Fontaine and Mr. Mark Haney performed a visual inspection of the Subject Property to identify potential sources of chemical and petroleum contamination such as ASTs, USTs, and potential sources of PCBs, chemicals, and hazardous materials on April 27, 2018. The Golder representatives also assessed surficial evidence of potential RECs. Photographs recorded during the site assessment are presented in Appendix D. The Subject Property Plan is illustrated on Figure 3.

5.1 Methodology and Limiting Conditions

The Golder representatives were accompanied during inspections of the Subject Property containing improvements by Mr. Nathan Benjamin Jr., the property owner and representative of Charlton Orchards. Golder conducted a tour of the interior areas of the buildings and exterior areas of the Subject Property. The weather was 40°F with scattered rain showers at the time of the Subject Property inspection. Following the walkover of the exterior areas of the Subject Property, Golder representatives met with Mr. Benjamin to discuss a previously-provided questionnaire and pose follow up questions. Information provided in the following sections are based on conversations with the property owner.

5.2 General Site Setting

The Subject Property is located in an area that contains residential, commercial, and/or undeveloped land. The Subject Property consists of two parcels with addresses 44 Old Worcester Road and 7 L Turner Drive.

5.2.1 Current Use of the Subject Property

Refer to section 2.3 for a description of the current Subject Property operations.

5.2.2 Past Use of the Subject Property

Refer to section 4.5.1 for a description of the history of the Subject Property.

Historical environmental activities of concern include the storage and spraying of pesticides, herbicides, and fungicides and the application of fertilizers, all consistent with standard agricultural/horticultural practices, and the storage and use of other oil and hazardous materials, including fuel oil, gasoline, diesel fuel, and lubricating oils.

5.2.3 General Description of Structures

Refer to section 2.4 for a description of property structures.

5.2.4 Roads

Access to the Subject Property is provided from Old Worcester Road via L Turner Drive.

5.2.5 Potable Water Supply

Potable water is supplied to the site by two onsite private supply wells. Details concerning these wells is provided in section 5.3.

5.2.6 Sewage Disposal System

Sanitary waste from both residences is discharged to onsite septic systems.

5.3 Interior and Exterior Observations

Golder identified current or past uses likely to involve the use, treatment, storage, disposal or generation of hazardous substances or petroleum products, to the extent they were visually and/or physically observed during the Site Visit or identified from the interviews or the records review. The substances and approximate quantities, types of containers (if any) and storage conditions are discussed in the following table.

Observation	No	Yes	Comments
Storage Tanks		X	<p>At the time of the Site Visit, the following ASTs were observed at the Subject Property:</p> <ul style="list-style-type: none"> ■ One diesel 275-gallon AST was located in the concrete vault and used for the refueling of farm equipment. This AST was installed in 2010 as a replacement of the former diesel AST. The former AST was drained and scrapped by Southbridge Tire of Southbridge, MA. ■ Two gasoline 275-gallon ASTs were located in the concrete vault and used for the refueling of farm equipment. The ASTs were purchased from an auction in 2002. ■ Two residential heating oil ASTs, each located in the basement of both residences. The capacities of each were not determined as Golder was unable to visually inspect these ASTs at the time of the Site Visit. Each AST was installed upon construction of the residence (1950 and 2007). ■ One propane AST of unknown capacity was observed on the exterior north wall of the orchard store. The date of installation was not reported. ■ Two empty 275-gallon ASTs were observed on the exterior of the southernmost greenhouse. These ASTs were purchased from an auction in 2007. ■ One empty 275-gallon AST was observed along the south wall of the northernmost greenhouse. The purchase or installation dates were not provided. No evidence of heavy staining was observed below any of the ASTs. The concrete vault which houses three of the ASTs was in good condition with no evidence of cracking. The three ASTs located on the exteriors of the greenhouses were located on the bare ground with no secondary containment.
Odors	X		None observed.

Observation	No	Yes	Comments
Pools of Liquid		X	Puddles of water were forming at the Subject Property during the Site Visit due to rain. A sheen was observed on a puddle in the northeast portion of the Subject Property. No source of release was observed and the sheen was likely from minor leaks of farm equipment at the Subject Property.
Drums		X	<p>Multiple empty, food grade, plastic drums were observed near Building 1. According to the property owner, these drums never contained oil and/or other hazardous materials.</p> <p>One partially full 55-gallon, steel drum was observed next to the concrete vault containing the three fuel ASTs. Based on conversations with the property owner, the drum contained sludge waste from the former diesel AST. Off disposal</p>
Hazardous Substances and Petroleum Product Containers		X	<p>Multiple pesticides, herbicides, and fertilizers were observed in the pesticide storage shed. Mr. Benjamin provided his inventory of pesticides, herbicides, and fertilizers from 2015 to 2017. Based on observations and conversations during the Site Visit, it appears the pesticides, herbicides and fertilizers were used in accordance with their intended purpose. The building where the chemicals were stored was locked and the bags/containers of product were labeled and there were no indications of significant spills. The majority of the 35 acres used for agriculture is sprayed with the pesticides, herbicides and fertilizers. Copies of the 2015 to 2017 pesticide, herbicide, and fertilizer inventories are provided in Appendix F.</p> <p>Various chemical containers including WD40, paint, motor oil, gasoline, cutting fluid, rust prevention, dry gas, hydraulic fluid, brake fluid, and diesel engine fluid ranging in size from less than one gallon to five gallons were scattered throughout the garage.</p> <p>Acetylene canisters associated with the welding equipment were scattered in the garage.</p> <p>Multiple propane canisters were observed to the exterior of the buildings on the Subject Property.</p> <p>Waste oil is reportedly stored in five gallon buckets in the garage and awaiting disposal. At the time of the Site Visit, the methods of disposal of the waste oil was still being determined.</p>

Observation	No	Yes	Comments
Unidentified Substance Containers	X		None observed.
Evidence of Polychlorinated Biphenyls (PCBs)	X		No evidence of transformers was observed at the Subject Property during the Site Visit.
Heating and Cooling		X	The residences are heated by heating oil and forced hot hair. The greenhouses are heated by wood burning furnaces and/or oil burning furnaces.
Staining		X	Minor staining was observed below the ASTs located in the concrete vault. Additional minor staining was observed on the concrete and dirt floor of the garage.
Drains and Sumps	X		No drains and sumps were observed during the Site Visit.
Pits, Ponds, or Lagoons		X	Refer to section 4.4.4 for details pertaining to the pond, wetlands and stream located on the Subject Property.
Stressed Vegetation	X		None observed.
Solid Waste Disposal		X	Approximately 14 cubic yards per month of domestic, office and nonhazardous waste is generated at the Subject Property. The waste is placed in garbage bags for offsite disposal. Details of the removal of the solid waste was not provided.
Wastewater		X	Sanitary wastewater is discharged to onsite septic systems.

Observation	No	Yes	Comments
Wells		X	<p>Two private water supply wells are located at the Subject Property. The water supply wells provide drinking water to the residences.</p> <p>44 Old Worcester Road Supply Well:</p> <ul style="list-style-type: none"> ■ Installed in 1956 ■ Approximately 35 feet deep <p>7 L Turner Drive Supply Well:</p> <ul style="list-style-type: none"> ■ Installed October 6, 1999 ■ Advanced by air rotary methods ■ 6-inch casing was installed to 155 feet ■ Bedrock located approximately 144 feet below ground surface ■ Total depth of approximately 760 feet below ground surface <p>On October 6, 1999 the static water level at the 7 L Turner Drive well was approximately 80 feet below ground surface. A pumping testing conducted on the well in 1999 indicated that the water level was drawn down to 750 feet after pumping the well at a rate of 80 gallons per minute for one hour. The well required 10 hours to return to the static water level. A copy of the well record is provided in Appendix F.</p> <p>As discussed in section 4.2, recent groundwater sampling from these wells indicate that petroleum compound concentrations are below the MassDEP Drinking Water Guidelines.</p>
Septic Systems		X	Both residences are connected to onsite septic systems.

5.3.1 Other Interior and Exterior Observations

The following additional observations were noted during the Site Visit:

- An easement for the Kinder Morgan Natural Gas Line bisects the eastern portion of the Subject Property from Old Worcester Road to Worcester Road.
- Large quantities of unused equipment, scrap metal and other debris is littered across the Subject Property.
- Two gasoline emergency generators (9,000 and 3,000 Watt) are located on the Subject Property.

5.4 Off-Site Observations

The following two sections discuss off-site observations, to the extent that the current uses of the adjoining properties were observable during the Subject Property inspection, and were likely to indicate a possible REC in connection with the adjoining properties or the Subject Property.

5.4.1 Adjoining Properties

Adjoining properties are described in Sections 2.5, 4.1.2 and 4.3.2 of this report.

5.4.2 Other Surrounding Properties

The release of petroleum compounds from the former ExxonMobil Site located at 142 Worcester Road has the potential to impact the western portion of the Subject Property. Currently groundwater impacts are not observed in the onsite private supply wells.

6.0 INTERVIEWS

6.1 Overview

The purpose of interviews with past and present owners and occupants is to obtain information to assist in identifying any RECs in connection with the Subject Property. Information obtained through these interviews is discussed in relevant sections of this Report.

6.2 Interviews with Owners, Past Owners, Past Operators and Past Occupants

Golder interviewed Mr. Nathan Benjamin, property owner and representative of Charlton Orchard Group, LLC. Information obtained from conversations with Mr. Benjamin is provided in relevant sections of this report.

6.3 Interview with Site Manager

No Interviews with any Site Managers were conducted.

6.4 Interview with Occupants

Interviews with Occupants were not conducted.

6.5 Interview with Local Government Officials

Interviews with local government officials were not conducted.

6.6 Interviews with State and Federal Government Officials

Golder searched public files located at the Charlton Town Hall and the Charlton Fire Department. Information obtained from these websites is discussed in Section 4.3. Copies of pertinent information from records obtained are included in Appendix G.

6.7 Interviews with Others

No interviews with other representatives were conducted.

7.0 VAPOR ENCROACHMENT SCREENING

The purpose of a vapor encroachment screen (VES) is to identify, to the extent feasible, a Vapor Encroachment Condition (VEC) in connection with the Subject Property pursuant to the Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions - ASTM E 2600-10 (the VE Standard). The VE Standard defines a process that is used to quickly evaluate properties and screen out those with a low risk of vapor encroachment concerns as the data justify. Tiers 1 and 2 of the process can be used to determine whether a VEC exists. The scope of this project is limited to a Tier 1 Screening as defined in Section 8.0 of the VE Standard.

Golder used a screening tool provided by EDR to conduct a Tier 1 screen using Phase I ESA information to determine if a VEC exists. Information obtained from this Phase I ESA was applied using the EDR screening tool and a report was generated using those inputs. The resulting EDR Vapor Encroachment Screen (VES) report is included in Appendix B.

Based on the Tier 1 VES tool provided by EDR, a review of the surrounding properties by Golder, and the nature of the Subject Property, no sites were identified that would likely represent a VEC or potential VEC in connection with the Subject Property. If further migration of the ExxonMobil plume from the property at 142 Worcester Road continues, a VEC may be introduced to the Subject Property due to the migration of petroleum constituents.

8.0 NON-SCOPE CONSIDERATIONS

8.1 Asbestos Containing Materials

The manufacture of friable asbestos-containing materials (ACMs) was banned by the U.S. EPA in June 1978. Based on the date of construction (1950), ACM is may be present in the residence with the address of 44 Old Worcester Road. Approximately 2,400 square feet of ACM was removed from the Subject Property in 2015 after a fire burned down the winery, vineyard and barn. An asbestos survey was not conducted as part of this Phase I ESA.

8.2 Lead-based Paint

Based on the date of construction (1950), lead in paint may be present at the residence with the address of 44 Old Worcester Road. A lead-based paint survey was not conducted as part of this Phase I ESA.

8.3 Mold

No evidence of water damage was observed during the Site Visit. A mold survey was not conducted as part of this Phase I ESA.

8.4 Wetlands

Based on the MassDEP 21e map, freshwater wetlands are located in the woodland area on the western portion of the Subject Property. Potential rare wetland life and habitats are located within 0.5 miles north and southeast of the Subject Property. A copy of the MassDEP 21e map is provided in Appendix G. A wetland survey was not conducted as part of this Phase I ESA.

9.0 LIMITED SUBSURFACE INVESTIGATION

9.1 Soil Sampling

Golder sampled three separate locations on May 8, 2018 to investigate the potential for residual pesticide contamination in the subsurface soil located at the Subject Property. The sample locations are illustrated on Figure 4 and described as:

- SB-01: Oldest apple orchard near the location of the 7 L Turner Drive residence located on the southeastern portion of the Subject Property,
- SB-02: Blueberry patch located on the northeastern portion of the Subject Property, and
- SB-03: Newer apple orchard located on the northeastern portion of the Subject Property.

Each location was sampled with a stainless steel hand auger advanced to two depth intervals, surface soils (0-1') and the interval below that (2-2.5'). The areas sampled are actively used for growing agricultural produce for human consumption. As an active farming operation, pesticides/herbicides are still routinely used in these areas and according to Mr. Benjamin the last time these areas were sprayed was approximately a week before sampling.

The samples were collected for analysis of MCP Pesticides and Herbicides and MCP Total Metals. The MCP pesticide and herbicide list that these samples were analyzed for include the following compounds:

MCP Chlorinated Herbicides

- MCPP
- MCPA
- Dalapon
- Dicamba
- Dichloroprop
- 2,4-D
- 2,4-DB
- 2,4,5-T
- 2,4,5-TP (Silvex)

MCP Organochlorine Pesticides

- Dinoseb
- Delta-BHC
- Lindane
- Alpha-BHC
- Beta-BHC
- Heptachlor
- Aldrin
- Heptachlor epoxide
- Endrin
- Endrin ketone
- Dieldrin
- 4,4'-DDE
- 4,4'-DDD
- 4,4'-DDT
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Methoxychlor
- Chlordane
- Hexachlorobenzene

Golder field personnel screened each soil samples collected for the presence of volatile organic compounds (VOCs) using a MiniRAE 2000 photo-ionization detector (PID) equipped with a 10.6 electron volt (eV) lamp. Golder calibrated the PID in accordance with the manufacturer's specifications utilizing a 100 ppm isobutylene span gas. The soil samples were placed in glass jars and allowed to equilibrate to approximately 55 degrees Fahrenheit to permit volatilization of VOCs, if present. Golder then measured VOC headspace concentrations using the PID. The headspace PID readings were below the instruments detection limits.

Soil samples were placed on ice and delivered to Alpha Analytical, Inc. (Alpha) of Westborough, MA under chain of custody protocol.

9.2 Soil Sampling Results

The laboratory results are provided in Table 1. The soil samples were compared to the residential MCP Reporting Standards (RCS-1).

The MCP has an exemption for the use of pesticides and herbicides as stated in 310 CMR 40.0317:

“Notwithstanding the provisions of 310 CMR 40.0311 through 40.0315, the following releases and threats of release of oil and/or hazardous materials are exempt from the notification requirements set forth in 310 CMR 40.0300:

(8c) resulting from the application of pesticides in a manner consistent with their labelling.”

The results indicate there were no herbicides detected. Nine pesticides and six metals were detected in at least one location or more. Except for arsenic, no compounds were detected above RCS-1 Standards. The detection of arsenic, slightly above the RCS-1 Standard is not reportable. Historically arsenic was commonly used as a

component in pesticides and therefore the elevated arsenic concentrations meets the MCP criteria for a reporting exemption.

Regarding the distribution of the compounds detected, no discernible difference between the two depth intervals were observed. Regarding location, the samples collected at SB-01 show the highest concentrations when compared to the other locations (SB-02 and SB-03), which is a reasonable given SB-01 was collected in the oldest orchard area of the three sampled where pesticides and herbicides have been applied.

10.0 FINDINGS AND CONCLUSIONS

This section identifies the known or suspect RECs, controlled RECs, historical RECs and de minimis conditions identified during Golder's Phase I ESA.

10.1 Findings and Opinions

10.1.1 Recognized Environmental Conditions

A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment.

No RECs were identified for the Subject Property.

10.1.2 Controlled Recognized Environmental Conditions

A CREC is a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The identification of a CREC does not imply that Golder has evaluated or confirmed the adequacy, implementation, or continued effectiveness of the required control(s).

The following CREC was identified for the Subject Property:

- **CREC1:** The petroleum release from the upgradient ExxonMobil gas station (142 Worcester Road), located approximately 3,400 feet upgradient of the western edge of Charlton Orchards, is likely to have impacted the groundwater beneath the western portion of Charlton Orchards based on the detection of petroleum impacts in residential wells located at properties adjacent to the Subject Property.

Golder recommends that Emerald Ventures not install any production wells on the western portion of the property since groundwater located on the western portion of the property may be impacted by the release from ExxonMobil. Under the current conditions the Subject Property will not be subject to remediation or further regulatory response actions by the MassDEP due to the level of cleanup and controls currently in place on the Exxon Mobil Property (source area). Placement of a production well on the western portion of the property may draw the upgradient contaminated groundwater plume from the ExxonMobil station towards the Charlton Orchards property, thereby degrading the environmental quality of the groundwater at Charlton Orchards.

10.1.3 Historical Recognized Environmental Conditions

An HREC is an environmental condition which, in the past, would have been considered an REC, but which may or may not be considered an REC currently. Golder's rationale for considering these environmental conditions as HRECs is based solely on the information stated herein. Designation as an HREC however, does not preclude the potential for the condition to affect the Subject Property.

No Historical REC (HREC) were identified for the Subject Property.

10.1.4 De Minimis Conditions

De minimis conditions are not RECs. De minimis conditions generally do not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The following de minimis conditions were observed at the Subject Property:

- **2015 Fire:** In 2015, a fire destroyed the winery, vineyard and barn on the eastern portion of the Site. Residual burnt materials are likely to present in the subsurface portions of the property impacted by the fire.
- **Pesticides and herbicides:** Pesticides and herbicides were historically used at the property. Based on a preliminary review of records and the Site Visit, it appears the pesticides and herbicides were used in accordance with their intended purpose and thus meet the requirement for a MCP reporting exemption (310 CMR 40.0317 (8c)). The subsurface investigation results indicated that all detections of all pesticides, herbicides and metals were below the MCP reportable concentration (RCS-1) with the exception of arsenic. Arsenic is a historical component of certain pesticides and is included in the pesticide reporting exemption.

If the soil remains in place or if it is relocated within the property boundaries, the historical and current use of pesticides and herbicides should not present a concern for industrial/commercial redevelopment of the property. However, this property is not appropriate for future residential use without further evaluation. Also, any soil intended for excavation and disposal outside the property boundaries should be evaluated by an MCP Licensed Site Professional (LSP) prior to off-site disposal.

- **Solid Waste:** there are several locations where unused farm machinery, small power equipment and oil tanks formerly used for heating greenhouses is present on the Subject Property. This material should be removed prior to redevelopment.
- **Special Waste** includes residual waste oil that is stored on the Subject Property, residual gasoline and diesel fuel that remains in bulk tanks, and unused quantities of pesticides, herbicides and fertilizers. This waste should be removed prior to redevelopment.
- **Wetlands:** Wetlands are present on the western portions of the Subject Property and these Wetlands may hamper redevelopment of locations within 100 feet. Golder recommends that Emerald Ventures retain a qualified wetlands scientist to assist with the permitting associated with this matter.

10.2 Data Gaps

A Data Failure occurs when all of the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the objectives have not been met. Some Data Failures may comprise Data Gaps. A Data Gap is defined as the lack of or inability to obtain information required by the ASTM Standard despite good faith efforts by the EP to gather such information. A significant data gap occurs when a data gap impacts the ability of the EP to identify RECs. Golder did not identify any significant data gaps.

10.3 Conclusions

Golder performed a Phase I ESA of the Subject Property, in conformance with the scope and limitations of the ASTM Standard. Any deviations or deletions from the ASTM Standard are described in the appropriate sections of

this Report. This Phase I ESA identified one CREC and no RECs or HRECs associated with the Subject Property.

11.0 ADDITIONAL INVESTIGATION

It is Golder's opinion that no additional investigation of the Subject Property is warranted at this time.

12.0 REFERENCES

The Report's author annotated the reference sources relied upon in preparing the Phase I ESA in the relevant sections of this Report.

13.0 QUALIFICATIONS AND SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Mr. Josh Fontaine, with 6 years of professional experience, conducted the site visit and prepared this report. Mr. Mark Haney, with over 30 years of professional experience, served as Senior Reviewer of the Report. Resumes for members of the project team are included in Appendix H.

"We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312.

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Golder Associates Inc.



Josh Fontaine
Project Environmental Scientist



Mark Haney
Principal and Program Leader

JTF/MAH

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