## **ASTM E1527.00**

# PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

R&C and C&R Realty Trust Property
Former Bird Property
Marshall and Prentice Streets
Holliston, Massachusetts

May 2, 2005

Prepared for:

Greenview Realty, LLC 189 Hartford Avenue Suite 2-1 Bellingham, Massachusetts 02019-3001

Prepared by:



101 Accord Park Drive Norwell, Massachusetts 02061 (781) 982-5400

**Project No. 11-1113.12** 

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- 5. Resident Sampling, DEP, May & August 1990
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- 9. Groundwater Sampling Results Letter, EMCON, March 1999
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#### 1.0 INTRODUCTION

Coler & Colantonio, Inc. was retained by Greenview Realty, LLC to conduct an ASTM Phase I Environmental Site Assessment (ESA) for the R&C and C&R Realty Trust Property (previously referred to as the Bird Property) located off of Marshall and Prentice Streets in Holliston, Massachusetts (the Site or Property). See Figure 1-Locus Map for a map showing the location of the 53 acre property. Our investigation included a review of the site history, a site reconnaissance, and a review of municipal and state files pertaining to the Site and surrounding area. The file review revealed that various assessment and removal actions have occurred at the Site over the past 20 years due to landfilling conducted prior to 1980 and the enactment of MGL c. 21E in 1984.

Included in this Phase I ESA are excerpts from numerous environmental assessment documents that have been prepared for the property. These complete documents were reviewed and are available for review at the Massachusetts Department of Environmental Protection (DEP) and the Holliston Public Library. Coler & Colantonio, Inc. has reviewed all relevant and readily available documents pertaining to this property. The focus of this report was to evaluate the environmental history of the Site as it pertains to oil and hazardous materials. Due to the complexity of the Site, Coler & Colantonio, Inc. has divided the Site into five areas of investigation and eight areas of concern which are developed within the body of this report.

#### 1.1 Purpose

This Phase I Environmental Site Assessment was conducted to evaluate the Site for evidence of the potential for contamination of the soil, groundwater, surface water, or sediments with oil or hazardous materials, as defined by Massachusetts Oil and Hazardous Material Release Prevention and Response Act [MGL c. 21E], and the Massachusetts Contingency Plan (MCP) [310 CMR 40.0000].

This assessment was conducted in accordance with the American Society for Testing Materials (ASTM) Standard E1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, adopted for the purpose of providing a standard investigative approach that would be sufficient to provide "appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice." This study does not satisfy the requirements of a Phase I Initial Site Investigation as defined by the MCP. Other MCP Comprehensive reports from preliminary investigations to a Draft RAO have been prepared by others for the Site and are referenced in Section 3.4, summarized throughout this Report, and/or included in Appendix E of this ASTM Phase I Report.

This ASTM Phase I ESA was conducted by Coler & Colantonio, Inc. in conjunction with an ASTM Phase II Report in order to increase the timeliness, efficiency and thoroughness of the site investigation related to appropriate due diligence for review of potential investors, buyers, lenders, or other persons interested in the Site. Sampling of soil, groundwater, sediment and surface water at the Site has been

conducted under the ASTM Phase II to address the recognized Environmental Conditions identified within this report. This sampling and analytical data completed to determine if contaminants are present in various media are presented within the accompanying ASTM Phase II Report.

#### 1.2 **Limitations and Exceptions**

The ASTM standard states that "all obvious uses of the property shall be identified from the present, back to the property's obvious first developed use, or back to 1940, whichever is earlier". The site inspection and reconnaissance included the inspection of the property for evidence of recognized environmental conditions (RECs) as defined by the ASTM Standard. The Property inspection included observations of the area included within the property line. A Site Plan of the property is included as Figure 2 of this report.

The findings of this investigation are based, in part, on information provided by third parties. Coler & Colantonio, Inc. provides no warranties regarding the accuracy of information provided by third parties. This investigation is subject to the Standard Limitations of our contract (Appendix A).

#### 2.0 **SITE DESCRIPTION**

The following description of current Property characteristics is based on information provided by municipal agencies, review of the 1987 Medfield, Massachusetts USGS 7.5 minute topographic map and observations made by Coler & Colantonio, Inc. during the Property inspections on October 5, October 6, November 29, December 1, and December 2, 2004. Photographs taken at the Property are attached to this report.

#### 2.1 Site and Vicinity Characteristics

The approximately 53 acre Property is located to the west of Marshall Street and to the South of Prentice Street in Holliston, Massachusetts. Although the Property is quite large, only a portion is abutted by public roads. The Property fronts Prentice Street for approximately 250 feet and Marshall Street for approximately 850 feet. The remaining property line is abutted by residential and forested land. Approximately 1,600 feet of the northwestern property line is town line between Holliston and Hopkinton, Massachusetts. Based on the Site Interview conducted by Coler & Colantonio, Inc. the Property is currently owned by R&C and C&R Realty Trust which has owned the property since 1986. Prior to that time, Charles and Ruth Bird owned the property. The Birds originally purchased the property in 1962. Usage prior to 1962 is uncertain, but aerial photographs taken prior to 1962, see Appendix B, show some activity on the Property which appears to be limited farming and forestry. The approximate geographic coordinates of the northeastern corner of the Property are 42.2049° North and 71.4766° West. See Figure 2 for a plan of the Site.

Based on the online MADEP Priority Resource Map of the area, the property is partially located in an NHESP Estimated Habitat of Rare Wildlife in a Wetland Area and a Zone II area of contribution. Refer to Figure 3 - MADEP *Priority Resource Map* for the locations of these areas on the property.

#### 2.2 Site Description

The Property consists of varying wetlands and uplands. In order to simplify the description of the property, Coler & Colantonio, Inc. has broken the Property down into five areas of interest utilized to increase the clarity of the site description. These five areas (the Eastern Pond, the Drumlin, the Southern Uplands, the Access Road Loop Area, and the Western Wetlands) are shown on Figure 2 and are named based on the significant natural or man-made features within that area of the property.

The Property is intersected by an approximately 3,300 foot access road which stretches from Marshall Street at the northeastern corner of the Property, along the eastern property line for approximately 700 feet, and then west through the wetlands to the Holliston-Hopkinton town line. A second, approximately 1,500 foot long access road, splits from the main road and circles an elevated fill area on the western portion of the property before reconnecting with the main road, approximately 400 feet west of the point at which they originally split. The western most portion of the Property consists of hummocky wetlands, which cover approximately one third of the property. Except for the elevated fill area, which is covered in tall grasses, the remaining eastern two thirds of the Property is forested. The highest point on-site, at 366 feet above sea level, is located at the northern most point of the property that lies along the Holliston-Hopkinton town line. This peak is the top of an elongated hill (a drumlin) running north to south which according to reports prepared by Wehran, is the location of a surface and groundwater divide. The land surface to the west of the drumlin slopes directly towards the western wetlands and with a sharper angle than the surface to the east. On the northeastern portion of the Property, to the northwest of the access road, lies a small pond.

Two sheds, a garage, and a residence currently exist on the property. All four of these structures have been vacated for approximately ten years and are located on the northeastern portion of the property. Details regarding these structures are located in Section 4.0 Site Reconnaissance (specifically Subsection 4.1 Eastern Pond Area).

#### 2.3 Site Utilities

The residence located on the Property is serviced by telephone and electricity, however no utilities were operational during our inspection. The house has a heating oil aboveground storage tank (AST) and a propane AST tank that appear to have previously serviced the residence, for heating and cooking respectively. The residence at 708 Prentice Street was connected to the municipal water supply between November 1990 and May 1992. The residence has an on-site septic system.

## 2.4 Site Topography and Drainage

The Property, containing multiple wetlands and uplands, varies approximately 105 feet in elevation. According to the USGS Map Holliston Quadrangle, the highest point on-site, at 366 feet above sea level, is located at the northern most point of the property which lies along the Holliston-Hopkinton town line. This peak is the top of an elongated hill (a glacial drumlin) which slopes to the southwest, dropping approximately 86 feet to an elevation of 280 feet above sea level over an approximate distance of 525 feet. The lower elevation land consists of hummocky wetlands with glacial eskers traversing a large percent of the wetlands which cover the western third of the property. The southern slope of the drumlin drops approximately 56 feet to an elevation of 310 feet above sea level over a distance of 50 feet before becoming an undulating surface varying in elevation between 290 and 310 feet above sea level. Boulders, ranging in size from two feet to twenty feet in height, are scattered about the southern portion of the property, as well as along the eastern slope of the drumlin. The eastern slope of the drumlin drops approximately 76 feet to 290 feet above sea level over a distance of 500 feet. The eastern portion of the Property varies in elevation from 260 to 280 feet above sea level. A large percentage of the eastern portion of the Property shows evidence of mining as a result of prior excavation for aggregate, resulting in sharp irregular changes in elevation.

According to reports prepared by Wehran, the drumlin is the location of a surface and groundwater divide. Surface and groundwater to the west of the drumlin flow into the on-site wetlands. Surface and groundwater to the east of the drumlin flow to Cedar Swamp, located approximately 1,000 feet southeast of the Site. In addition to the western wetlands, a small pond approximately 100 by 150 feet located to the northwest of the access road, exists on eastern portion of the Property.

#### 3.0 SITE HISTORY

The Property was originally an undeveloped wooded and wetland area which began being used for farming and residential purposes in 1955. A gravel mining permit was granted for the property to Charles Bird in April of 1966 and gravel mining operations were conducted at the Property from the mid 1960's through the late 1970's. Large-scale filling of the former mined areas with commercial solid waste, building debris, and tire stockpiling occurred at the Property from the late 1960's through the early 1980's. A portion of the property near the intersection of Marshall and Prentice Streets was used as a mink farm in the mid 1960's.

Filling and tire stockpiling was discovered in 1983 when the Holliston Fire Department responded to a fire at the Property caused by open burning of some of these materials. Department of Environmental Quality Engineering (DEQE) issued a Notice of Responsibility at this time and has overseen or conducted its own response actions since then. These actions include multiple subsurface investigations and the removal of drums from the Site.

## 3.1 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps of the Site were not available.

#### 3.2 Aerial Photographs

Aerial photographs of the Property were available from 1935, 1957, 1978, and 2001. These photographs have been included in this ESA as Appendix B. The 1935 photograph shows the Property covered in vegetation; no structures nor the pond which exists today or existed during Bird's ownership can be seen on this photograph. However, the scale of this photograph does not provide much detail.

By the time that the 1957 aerial photograph was taken, the northeastern corner of the Property had been developed. The house and garage which still exist today can be seen in this photograph. In addition, four linear structures believed to be associated with the former mink farm are located to the south of the garage. Trees have been cleared to the south and east of these structures. The only disturbance of the vegetation located on the western portion of the Property appears to be a few small meandering paths.

By the 1970's, extensive gravel mining operations had been conducted in the northeastern portion of the Property. The access road had been constructed to facilitate further mining operations in the western wetlands and on the western slope of the drumlin. The pond which currently exists in the northeastern portion of the Property was created during this time period, apparently as a result of the mined area filling in with water. In addition, it appears that selective cutting of the trees had been conducted along the southern and eastern slopes of the drumlin and three of the linear structures formerly located in the northeastern portion of the Property had been destroyed. The 1978 aerial photograph shows extended gravel mining operations on the western slope of the drumlin and on the western property line.

The 2001 photograph indicates that gravel mining operations were no longer being conducted on the Property. Vegetation can be seen covering the areas which were formerly mined. Based on observations made by Coler & Colantonio, Inc. during the 2004 site visits, the condition and features of the Property in the 2001 aerial photograph appear much as they do today.

#### 3.3 Historical USGS Maps

Two historical USGS maps of the area from 1893 and 1942 were reviewed at the University of New Hampshire Web-Site (<a href="http://docs.unh.edu/towns/MiltonMassachusettsMapList.htm">http://docs.unh.edu/towns/MiltonMassachusettsMapList.htm</a>). These maps show that the Site was undeveloped in 1893 and 1942. These maps have been included in this report as Appendix C.

## 3.4 Release History

Coler & Colantonio, Inc.'s Investigation of the Property included a review of municipal and state files pertaining to the Property. The file review revealed that a wide array of assessment and removal actions due to landfilling have occurred at the Property over the past 20 years. Numerous environmental assessment documents regarding the Property were reviewed by Coler & Colantonio, Inc. and are available for review at the DEP Central Regional Office and the Holliston Public Library. Coler & Colantonio, Inc. has been diligent in its attempt to review all documents pertaining to this property; nonetheless, certain documents may have been unavailable during our reviews and several of the documents reviewed were missing pages and attachments. Pertinent information obtained from the file review has been summarized and is attached to this report as Appendix D. Copies of several of these reports can be found in Appendix E and a table outlining all of the documents reviewed by Coler & Colantonio, Inc. follows below.

Date	Document	Prepared By
10-Nov-83	Letter to Mr. Bird ordering the cessation of burning and disposal at the Site	DEQE
Dec-84	Investigation of Landfill Impacts	Goldberg-Zoino and Associates
12-Mar-86	Residential Well Sampling	DEQE
Oct-86	Proposal for the DEQE Hazardous Waste Site Public Education Grant Program	Lincoln Filene Center for Citizenship and Public Affairs
1987	A Case Study of the Hazardous Waste Site at Prentice and Marshall Streets in Holliston, MA	Tufts University
1-Sep-87	Phase II Site Investigation Report	Wehran Engineering Corporation
25-Jan-88	Letter to Mrs. Bird as notification of the filing of a lien on the property	DEQE
Sep-89	Draft Public Involvement Plan	DEP
Mar-90	Residential Well Sampling	DEP
27-Jun-91	Letter to the Holliston Board of Health summarizing December 1990 test pitting activities	DEP
29-Aug-91	Drum Consolidation Memo	Jan Leung - DEP
2-Mar-92	Drum Removal Operation Letter to Jan Leung - DEP	Clean Harbors
Jun-92	Phase II Comprehensive Site Assessment	Wehran Engineering Corporation
31-Jul-92	Letter to the DEP commenting on the Phase II Comprehensive Site Assessment Report	Town of Holliston - Board of Health
1-Jul-94	Indoor Air Testing Tables for Nearby Residences	Wehran EMCON Northeast
Dec-94	Phase II Risk Assessment	Wehran EMCON Northeast
Aug-96	Removal Program Memo	EPA
12-Sep-96	Request for Removal Action Memo	EPA
20-Sep-96	Memo: Drum Sampling at the Charles Bird Site on 31 July 1996	Roy F. Weston, Inc.
1997	Interim Summary Report (Drum Removal)	Roy F. Weston, Inc.
19-Mar-99	Groundwater Sampling Results Letter to DEP	EMCON
12-Jul-01	Groundwater Sampling Results Letter to DEP	IT Group
15-Mar-03	Draft Phase III Remedial Action Plan	IT Corporation
15-Mar-03	Draft Class C Response Action Outcome Statement	IT Corporation

The DEQE/DEP<sup>1</sup> has been involved with the Property since the Holliston Fire Department responded to a fire caused by open burning of demolition materials at the Property in 1983. Following this incident, the DEP conducted an inspection of the property and found a large number of stockpiled used

<sup>&</sup>lt;sup>1</sup> The DEP was formerly known as the DEQE. This organization will be referred to as the DEP for the remainder of this report.

tires and demolition debris at the Site. The Holliston Board of Health had never granted a permit for this use of the property as a tire storage and disposal facility.

In early 1984 the DEP issued a Notice of Responsibility (NOR) to the former owner of the property, Mr. Charles Bird, based on an aerial photo evaluation of the Property, statements received regarding site activities, and private well sampling in the vicinity of the Site. As a result, Mr. Bird retained Goldberg-Zoino and Associates (GZA) to perform an investigation of the landfill impacts. This investigation was completed in December 1984 and concluded that: landfill material had been buried at the Site; there was a surface and groundwater divide located approximately at the center of the Site; groundwater contamination in the western part of the Site was not a present concern, and; tests on surface and groundwater in the eastern part of the Property indicated the presence of trichloroethylene (TCE) and 1, 2 dichloroethylene (DCE). The DEP notified Mr. Bird in February 1985 that additional investigation was required.

In 1985, after Mr. Bird failed to conduct additional investigation, the DEP initiated an investigation of the Property by contracting Wehran Engineering Corporation (Wehran) of Andover, Massachusetts. Wehran completed a Phase II Site Investigation Report in September 1987 and Phase II Comprehensive Site Assessment in 1992. During this period, Wehran completed a variety of assessment activities which included: the excavation of 45 test pits, the advancement of 42 soil borings, the installation of 42 monitoring wells, the excavation and removal of 144 drums, a topographic survey of all sampling locations, soil gas surveys, geophysical surveys, hydraulic conductivity measurements, on-site groundwater sampling, off-site sampling of domestic wells, surface water sampling, and sediment sampling. During the Phase II process it was determined that multiple residential drinking water wells were impacted by the chlorinated solvents. A public water supply was extended to these properties in November of 1990 and all but one of the residences with contaminated wells were connected to the public water supply by May of 1992.

Wehran's Phase II Comprehensive Site Assessment, completed in June of 1992, determined that no single source of contamination, including the landfilling, had been determined for the chlorinated solvents (primarily consisting of TCE) in the groundwater. These solvents were present in soil gas, groundwater, surface water, and sediment at the Property. The TCE contamination in overburden groundwater was found to extend from northwest of the on-site pond to the southeast at the edge of Cedar Swamp. The TCE detected in bedrock groundwater followed the same general distribution except for a wider area northeast of the source area. The Wehran Phase II Comprehensive Site Assessment also stated that the landfilling of tires and construction debris throughout the Site may pose a risk to public health and safety through the potential for fire and as a breeding ground for mosquitoes and vermin, however, at this time these materials do not appear to have caused adverse impacts to the groundwater quality of the Site.

Additional work conducted by Wehran included a Phase II Risk Assessment prepared in December of 1994. According to the Risk Assessment, no risks to public safety were present at the Property at that time, due to the 1992 removal of approximately 210,000 tires from the Site. However, the Risk

Assessment stated that a significant risk of harm to public welfare existed at the Property as a result of oil and hazardous materials released into the subsurface. This conclusion was based solely upon the observation that; "the local community experienced adverse effects in the form of use restrictions imposed on the property including nuisance conditions, loss of property values, use restrictions imposed on property, and any costs, monetary or not, that may have resulted from the degradation of the public or private resources that are directly attributable to release of oil and hazardous materials from the Property."

On July 31, 1996 three representatives of the United States Environmental Protection Agency (EPA), two representatives of the DEP, and two members of the Roy F. Weston Inc. Superfund Technical Assessment and Response Team (START) met at the Property to conduct a Removal Program preliminary assessment/site investigation (PA/SI) in order to determine if removal activities would be warranted at the Property. During their investigation well over 200 full, partially full, and empty drums were encountered on or protruding from the hillside leading down into the wetland on the western portion of the Property. Black asphaltic type tar, mostly solidified but minor quantities remaining in a liquid state, was observed in and around the drums. Samples collected from this area detected concentrations of several semi-volatile compounds (SVOCs). A total of 11 dump trailer loads of drums, soil, and debris were removed from the Property in November of 1996.

Following the 1996 drum and soil removal, response actions consisted mainly of additional site assessment and monitoring. Groundwater sampling was conducted in February of 1999 by EMCON (formerly known as Wehran Engineering Corporation) and in May and June of 2001 by IT Corporation (formerly known as Wehran Engineering Corporation and Emcon). In addition, IT Corporation prepared a Draft Phase III Remedial Action Plan in March of 2002 which selected Monitored Natural Attenuation as its proposed Permanent Solution for the low level chlorinated solvents in the groundwater. A Draft Class C Response Action Outcome (RAO) Statement for the solvents in the groundwater in the eastern portion of the property was also prepared by IT Corporation in March of 2002. Coler & Colantonio, Inc. has not encountered either a "final" Phase III Report or "final" RAO Statement.

The Property has been assigned the Release Tracking Number (RTN) 2-60 by the DEP and has been designated a Public Involvement Plan (PIP) site. Limited environmental assessment or remediation has occurred since 2002. However, Coler & Colantonio, Inc. has begun assessment of the property for due diligence purposes and is preparing an ASTM type Phase II Report to complement this Phase I ESA.

#### 4.0 SITE RECONNAISANCE

During the October 5, October 6, November 29, December 1, December 2, 2004, and January 5, 2005 site visits, the property and surrounding areas were inspected for evidence indicating a release, or threat of release, of oil or hazardous materials (OHM) to soil or groundwater at the Property. The site reconnaissance consisted of a general traverse of the Property which included several passes of the property on foot at approximately 100 foot intervals. The inspection was conducted in the fall to utilize the increased visibility provided by fallen foliage. Some areas remained inaccessible because of thick brush or wetlands; however, Coler & Colantonio, Inc. believes that enough of the Property has been visually inspected to properly understand potential environmental concerns. Certain areas of debris and landfilling on the Site as discussed below represent a public safety issue, due to potential hazards associated with partially buried tires, assorted steel materials, and construction material, but do not represent a public health concern. The findings of the site reconnaissance relative to the five designated areas of interest are described below.

#### 4.1 Eastern Pond Area

The eastern portion of the Property will be referred to as the Eastern Pond Area. This region is mostly forested and varies in elevation from 260 to 280 feet above sea level. All existing structures are located on the property are found in this area. A large percentage of the Eastern Pond Area shows evidence of reworking of the land as a result of prior excavation for aggregate mining, resulting in sharp irregular changes in elevation. Evidence of reworking is most prominent along Marshall Street to the south of the access road and in the western most quarter of the Eastern Pond Area. No evidence of recent OHM impact or stressed vegetation was observed within the Eastern Pond Area. A small pond, which apparently was created or enlarged from reworking of the soils, is located to the northwest of the access road and is approximately 100 by 150 feet in size.

The one story residence, whose address is 708 Prentice Street, occupies approximately 940 square feet and is located approximately 50 feet to the south of Prentice Street. The house was built in 1955 and includes a full basement with concrete floor and walls. A basement garage is attached to the residence with a porch over the garage area off the kitchen. The residence is constructed with wood siding, asphalt roof, drywall interior walls, the majority of the floor in the residence is hardwood, however the kitchen and porch have nine inch x nine inch tile floors that may be asbestos containing materials. A 275-gallon heating oil tank was observed to be in good condition in the basement. A propane tank was observed on the exterior of the structure that apparently was used for the kitchen stove. Otherwise, only very small quantities of oil or hazardous materials (OHMs) – specifically paints and household cleaning materials were observed in the residence. A concrete discharge galley, apparently the septic discharge from the residence was observed approximately 100 feet east of the residence. The residence was abandoned approximately ten years ago however it appears to be in somewhat good condition.

A dilapidated garage approximately 160 square feet exists approximately 50 feet to the southeast of the residence. The garage has a partial crawlspace however much of the formerly flat asphalt roof has collapsed into the structure, making access difficult. The garage is divided into three sections, with the southern two sections being slab on grade concrete and the northern portion being constructed over a stone crawl space. Portions of a vehicle are present in the rear portion of the garage. No significant quantity of OHMs were observed in the garage.

Both of the sheds are dilapidated and complete entry was not practical for safety reasons, however a visual inspection was possible of the interiors of these sheds. One shed is located within a few feet of the south of the garage. The Shed is set on grade with no significant foundation. This shed has a wood floor with a tin roof. The shed is approximately twelve feet square with what appears to be "transite" type siding — presumed asbestos containing material. No other significant quantity of OHMs were observed within this shed. The second shed is located along the southern side of the access road, approximately 250 feet west of Marshall Street and 500 feet south of Prentice Street. The Shed is set on grade with no significant foundation. The shed is approximately twelve feet by eight feet with what appears to be "transite" type siding which may be asbestos containing material. No other significant quantity of OHMs were observed within this shed.

Debris was observed in several locations within the Eastern Pond Area. General debris including metal, brick, tires, and wood was scattered to either side of the access road. A pile of shredded tires approximately ten feet in height was located about 150 feet to the southwest of the pond. Approximately a dozen empty drums were observed to the north of the access road, about 100 feet to the northeast of the pond. A large debris area which stretches approximately 500 feet in length is located 20 feet to the west of Marshall Street, in the region where the land has been reworked. Debris deposited in this area includes empty steel tanks, compressed gas cylinders, brick, cages, wood, pipes, and half a dozen rusty 55 gallon drums containing such items as electrical parts and scrap metal. In addition to the debris which was observed in the Eastern Pond Area by Coler & Colantonio, Inc., as discussed in Section 3, previous environmental assessment documents state that drums have been removed from this region. Of the numerous drums still present in the Eastern Pond Area during the 2004 site reconnaissance, all were empty, crushed, or filled with scrap metal.

#### 4.2 Drumlin Area

The Drumlin Area refers to the northern central region of the Site which consists of a forested elongated hill (a glacial drumlin). According to the USGS Map Holliston Quadrangle, the peak of the drumlin is at 366 feet above sea level with a base of 290 feet above sea level. Boulders (erratics), ranging in size from two feet to twenty feet in height, are scattered along the eastern slope of the drumlin. No evidence of reworking, recent OHM impact, or stressed vegetation has been observed in the Drumlin Area and only minor debris has been observed along the access road. The majority of debris included wire cages, presumably from the former farm.

#### 4.3 Southern Uplands Area

The forested area located to the south of the access road in the southeastern corner of the Property is referred to as the Southern Uplands Area. The Southern Uplands Area consists of an undulating surface varying in elevation between 290 and 310 feet above sea level. Erratics, ranging in size from two feet to twenty feet in height, are scattered about the region. No evidence of reworking, recent OHM impact, or stressed vegetation has been observed in the Southern Uplands Area and only minor surface debris or construction debris has been observed along the access road.

#### 4.4 Access Road Loop Area

The area encircled by and immediately surrounding the secondary access road is referred to as the Access Road Loop Area. According to reports prepared by Wehran, much of this area has been utilized for landfilling purposes. A visual inspection of this area by Coler & Colantonio, Inc. appears to confirm this historical filling. The area has a broad plateau (approximately 80 to 100 feet wide) that steeply drops toward the wetlands to west. Visually the length of the former landfilling is approximately 400 feet. Large tanks, scrap metal, compressed gas cylinders, wood, pipes, tires, and other debris were observed to the northwest and northeast of the access road loop during Coler & Colantonio, Inc.'s site visits. Various surface debris was observed throughout the remaining portions of the Access Road Loop Area. Unlike all other portions of the Site, which are covered by trees, the Access Road Loop Area is covered by tall grass with very few intermittent trees. Previous documents state that over 200 full, partially full, or empty drums have been removed from this area. These documents also suggest that the area has been covered with six inches to one foot of soil and has been hydroseeded. Crushed empty drums were observed during the 2004 site inspection, but no full or leaking drums were noted.

#### 4.5 Western Wetlands Area

The western lower elevation land consists of hummocky wetlands and is referred to as the Western Wetlands Area. Glacial eskers traverse the wetlands which cover the western third of the property. The eskers run in a general north/south directions with elevations that rise 10 to 20 feet above the wetlands. Debris was frequently noted within 50 feet of either side of the access road. This landfilling extended as far as 200 feet to the south of the road in two locations. These areas of landfilling are located along the northwest property line and approximately half way between the property line and the Access Road Loop Area. A pile of empty crushed automobile gasoline tanks was encountered to the south of the Access Road Loop Area, approximately 100 feet from the access road. No evidence of recent OHM impact or stressed vegetation was observed within the Western Wetlands Area.

#### 5.0 ADJACENT LAND USE

The Property is located in an area used primarily for residential uses.

Northwest: Vacant Forested Land
North: Residences and Prentice Street
East: Marshall Street and Residences

South: Vacant Forested LandSouthwest: Powerline Easement

#### 6.0 STANDARD ENVIRONMENTAL RECORDS REVIEW

A review of standard federal, state, and local environmental record sources pertaining to the Property and surrounding area was conducted. The findings of this review are summarized below.

#### **6.1 EPA Region I and Massachusetts**

Reviews of standard state and federal environmental record sources pertaining to the Property and surrounding areas was conducted electronically through FirstSearch Technology Corporation (FirstSearch) on December 1, 2004. The minimum search distances suggested in the ASTM guidance document were used in order to assess the likelihood of off-site migration of oil or hazardous materials onto the Site. A copy of the FirstSearch report is included in Appendix F. Coler & Colantonio, Inc. provides no warranties on, and conducted no independent investigations to verify information provided by third parties.

The FirstSearch report did not identify any NPL, RCRA TSD, RCRA COR, RCRA GEN, registered UST/AST, or ERNS sites within a 0.5-mile radius of the Site. One solid waste landfill, the Holliston Landfill, is located 0.07 miles to the southeast of the Property. This landfill is classified as a municipal solid waste landfill and is capped, but unlined. According to the FirstSearch report, the landfill was closed in 1980. Based on the direction of groundwater flow, potential contaminants associated with the landfill are unlikely to impact the Property.

The Property itself is listed as a CERCLIS site, a State Site, and State Spill Sites. Details regarding the CERCLIS status of the property state that: "The MA DEP has recommended that this site be assigned a state lead code. A site-specific letter of recommendation will be forwarded to the EPA later this year" (apparently 1997). And that the EPA Fund-Financed was "cleaned up" in 1997, however given that the site was or remains a CERLIS site. Additional correspondence regarding this status is warranted. The detail regarding the status of the state sites indicates that the Site became a Tier 1A on October 1, 1993. Both State Sites reference the same Release Tracking Number (RTN 2-60).

Coler & Colantonio, Inc. has had multiple conversations with Denise Child at the MADEP Central Regional Office regarding RTN 2-60. Presently the Site remains in a Tier 1A status and the MADEP is aware of the assessment work currently being conducted by Coler & Colantonio, Inc. Additional information regarding historic environmental assessment of the Property is provided in Section 3.4.

#### **6.2** Municipal Records

Coler & Colantonio, Inc. contacted the Holliston Fire Department via telephone on December 30, 2004. Fire Chief Michael Cassidy did not possess any additional information regarding the Property which has not already been covered within this report. The Holliston Building Department and Board of Health were also contacted by Coler & Colantonio, Inc. Multiple records were on file at the Board of Health the tire removal as well as other prior activities conducted on-site which have already been documented within this report. No records regarding OHMs at the Property were on file at the Building Department.

## **6.3** Physical Setting Sources

Inspection of the 1987 Medfield, Massachusetts 7.5-minute topographic map indicates that the Property elevation is approximately 260 - 355 feet above sea level relative to the 1929 NGVD. The highest on-site elevation occurs at the central drumlin which slopes to the eastern, western, and southern corners of the Property.

The Massachusetts GIS Water Supply Protection Area (<a href="http://maps.massgis.state.ma.us/WSPA/viewer.htm">http://maps.massgis.state.ma.us/WSPA/viewer.htm</a>) indicates the Property is not located in a public water supply, a non-community water supply, Interim Wellhead Protection Area, or Zone A of a Class A Surface Water Body. The eastern edge of the Property, however, is located within a DEP-Approved Zone II area.

The MADEP *Priority Resource Map* for Holliston (<a href="http://maps.massgis.state.ma.us/21e/">http://maps.massgis.state.ma.us/21e/</a> viewer.htm), included as Figure 3 of this report, indicates that the Property is not located within 0.5 miles of an Area of Critical Environmental Concern (ACEC), saltwater wetlands, or flats/shoals. However, the Site is located within wetlands and an NHESP Estimated Habitat of Rare Wildlife in a Wetland Area. Protected openspace is located within 500 feet of the Property.

#### 7.0 FINDINGS

Coler & Colantonio, Inc. has completed a Phase I Environmental Site Assessment of the Property located off of Prentice Street and Marshall Street in Holliston, Massachusetts. The purpose of the investigation was to identify evidence of recognized environmental conditions or hazards in connection with the Site. The findings of the investigation are summarized below:

Former Bird Property

- 1. The Property consists of approximately 53 acres of land. The western third of the property is covered by wetlands. Except for the elevated Access Road Loop Area, which is covered in tall grasses, the remaining eastern two thirds of the Property is forested. Two sheds, a garage, and a residence currently exist on the property. All four of these structures, as well as a small pond, are located on the northeastern portion of the property.
- 2. A portion of the property near the intersection of Marshall and Prentice Streets was used as a mink or fur farm in the mid 1960's. It is uncertain when this usage was initiated, however based on the aerial photograph from 1957 four elongated structures, presumably associated with the former mink farm, are present. No structures are present in the 1935 photograph and the property appears to be mostly forested land.
- 3. Gravel mining (aggregate) operations were conducted at the Property from the mid 1960's through the late 1970's. Many of the areas that were excavated during the mining were apparently then filled with assorted construction debris, drums, tanks and tires from the late 1960's through the early 1980's.
- 4. Un-permitted land filling was discovered by regulatory agencies in 1983 when the Holliston Fire Department responded to a fire at the Property caused by open burning of demolition materials. The Massachusetts Department of Environmental Protection (DEP) has been involved with the Property performing various response actions since that time. Release Tracking Number 2-60 has been assigned to the Site.
- 5. Prior environmental assessments, and removal of drums and tires has occurred at the site under the direction of federal, state, and local regulatory agencies. The vast majority of drums contained a viscous asphalt type material. Approximately 140 drums were excavated, stockpiled, and removed from the Property by Clean Harbors in January of 1991. Over 200 additional drums were removed from the Property in November of 1996. Approximately 210,000 tires were also removed from the Property in 1992.
- 6. A variety of assessment activities have evaluated soil, groundwater, surface water, sediments, and soil gas for oil and hazardous materials (OHMs). Assessment typically focused on impact of chlorinated solvents to drinking water wells of residences on Prentice and Marshall Streets. A report entitled *Investigation of Landfill Impacts* and prepared by Goldberg-Zoino and Associates (GZA) in December of 1984 indicated that trichloroethylene (TCE) and 1, 2 dichloroethylene (DCE) were present on the eastern part of the Site. TCE and DCE were detected in wells downgradient from the Property, including abutting residential drinking water wells.
- 7. A Draft Phase III Remedial Action Plan recommended Monitored Natural Attenuation as the most feasible remedial action for the Site. The Draft Phase III was coupled with a Draft Class

- C Response Action Outcome Statement that determined that no further remedial action with monitoring was a Temporary Solution. Presently the Site remains in a Tier 1A Status, the permit was issued in October of 1993 and is expired with the MA DEP. The property also remains a CERCLIS site with the US EPA. A Draft Public Involvement Plan (PIP) Petition was reviewed by Coler & Colantonio, Inc., but no additional evidence of the PIP, including the PIP Petition and the PIP Plan, was encountered during the records review.
- 8. The MADEP supplied the nine residences whose private water supply wells were impacted by chlorinated solvents with drinking water, individual treatment systems and municipal water to mitigate exposure from the chlorinated solvents. Of the nine residents impacted only the resident at 30 Marshall Street was not connected to the municipal water supply as of May 1992. However in September 1991, the resident at 30 Marshall Street assumed responsibility for the domestic groundwater supply and treatment system.
- 9. A significant volume of fill (principally construction debris) material is estimated to currently exist at the property. The majority of material is located in the Access Road Loop Area; however, significant volumes of fill have also been documented in the Western Wetlands and the Eastern Pond areas. Landfilling extended as far as 200 feet to the south of the road in two locations within the Western Wetlands. Surface debris was observed along either side of the access road and at several additional locations throughout the Property.
- 10. Reviews of standard state and federal environmental record database sources by FirstSearch Technology Corporation pertaining to the Site identified one solid waste landfill, the Holliston Landfill, 0.07 miles to the southeast of the Site. Based on the direction of groundwater flow, potential contaminants associated with the landfill are unlikely to leach into the groundwater of the Property. All state site list the same release tracking number, RTN 2-60.
- 11. The Site is partially located within a DEP-Approved Zone II area, wetlands, and an NHESP Estimated Habitat of Rare Wildlife in a Wetland Area.
- 12. The Property itself is listed as a CERLIS site, a state site, and two state spill sites. The review of FirstSearch database suggests that the CERCLIS status of the site may have been closed, and that the Property became a state lead site (MA DEP is adequately regulating the site) however this is not conclusive. This status maybe associated with the funding from the EPA for response actions. Nonetheless the site was or remains a CERCLIS site and therefore additional correspondence and documentation regarding the present status of the property is certainly warranted.

#### 8.0 CONCLUSIONS & RECOMENDATIONS

Several recognized environmental conditions are present at the subject property. Many historic concerns have been addressed by regulatory agencies, and response actions have been conducted to mitigate exposures, however the MA DEP regulatory requirements were not resolved. The Draft RAO did not "close" the Release Tracking Number nor does it address all recognized environmental conditions at the property.

Assessment and response activities have been conducted at the Property from 1984 to 2003. At least seven major reports, as well as several memos and letters, have been submitted for the Property. The majority of the assessments were focused on the nature and extent of chlorinated solvents (VOCs) and the source of the chlorinated solvents impacting the private water supply wells. Soil, groundwater and some sediment samples were also analyzed for a variety of metals including: arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, selenium, and zinc. Limited assessment has been completed regarding additional potential contaminants such as PolyChlorinated Biphenyls (PCBs) and Semi-Volatile Compounds (SVOCs). The sampling of additional parameters identified a number of compounds and metals that exceeded regulatory standards.

Other than the VOC impacted groundwater in the Eastern Pond Area, historic assessments were conducted to evaluate the potential risks to human health; and not for regulatory requirements, due diligence or "closure" purposes. Although historic data is useful for understanding these conditions additional assessment is necessary to resolve or better understand these conditions. Based on the observations made during various site visits, historic research, and interviews, Coler & Colantonio, Inc. has subdivided the property into eight Areas of Concern (AOCs) for clarity purposes. The location of each AOC is shown on Figure 4 (Site Plan – Areas of Concerns). The concerns, whether real or perceived, associated with each of these AOCs are discussed below and additional assessment is necessary for each AOC.

Due to the limited parameters analyzed at the site to date and the unknown origin and nature of debris or fill material at the Site; Coler & Colantonio, Inc. concludes that sampling for a wide variety of potential contaminants is required. These parameters should include metals, cyanide, pesticides, herbicides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and extractable petroleum hydrocarbons (EPHs) with target analytes. Sampling is required at various locations and media throughout the Property including the sampling of shallow soil and siding material for asbestos, where applicable. In conjunction with this ASTM Phase I ESA Coler & Colantonio, Inc. has been conducting a variety of sampling and test pitting activities that will be documented in an ASTM Phase II Report.

In addition to the specific AOC discussed below, Coler & Colantonio, Inc. concludes that groundwater sampling be completed from select wells throughout the property and for a variety of the more soluble

parameters. Wells have been selected for analysis based on historic data spatial concerns in order to better determine the nature and extent of groundwater impact by a variety of potential contaminants.

#### **AOC-1** Eastern Groundwater

Multiple rounds of historical groundwater, surface water, and sediment sampling has documented the presence of trichloroethylene (TCE) and 1, 2-dichloroethylene (DCE) on the eastern part of the Property. The results of both the passive and real time soil gas surveys conducted in this area by Wehran suggested the presence of TCE and tetrachloroethylene (PCE) in soil gas. TCE and DCE have also been detected in wells downgradient from the Property, including abutting residential water supply wells. Shallow and deep wells have been sampled in this area and the extent of the chlorinated solvents in both shallow and deep groundwater were estimated in the Phase II Comprehensive Site Assessment that was prepared by Wehran in June of 1992. The Draft Phase III Remedial Action Plan and the Draft Class C Response Action Outcome Statement determined that no further remedial action with monitoring alternative as a Temporary Solution for a Class C RAO was the most applicable approach to this area of concern. Nonetheless, the "Draft" status of these reports, the duration of time since groundwater sampling was last conducted coupled with the potential development of the property require that this Area of Concern be addressed.

Coler & Colantonio, Inc. concludes that several of the wells on the eastern portion of the Property should be sampled for VOCs. This data should be compared to historic data to determine if the concentrations of chlorinated compounds continue to decrease. Since analysis of metals in this area has historically detected concentrations of RCRA 8 metals above regulatory standards additional metals analysis should be completed on select groundwater samples. Furthermore, given the unknown nature of the fill material in this area some additional analysis should be performed for a wide variety of parameters in order to more thoroughly document if other risks are present.

The Draft Phase III and Draft RAO prepared for RTN 2-60 primarily address this AOC. The "draft" nature of these documents and the current Tier 1A classification and historic CERCLIS status require that additional regulatory requirements be completed to mitigate potential regulatory liabilities. It should be understood that, these draft documents only address the presence of chlorinated solvents in the groundwater and do not respond to any of the other recognized environmental concerns located on the Property.

#### **AOC-2** Access Road Loop Area

The entire Access Road Loop Area represents an AOC. Large empty metal tanks, scrap metal, compressed gas cylinders, wood, pipes, tires, crushed empty drums, and other debris were observed throughout the Access Road Loop Area during Coler & Colantonio, Inc.'s site visits. Historic documents identify prior landfilling of over 40,000 cubic yards of materials in this area. The drum removal completed by the MA DEP and US EPA also focused on this area.

northwest of the on-site pond. No VOCs were detected in the upgradient wells and no observable source material was encountered during the site reconnaissance. Discharge of groundwater in the area of suspected TCE release to Cedar Swamp was predicted to occur in approximately 4.5 years based on estimates of average linear flow velocities for the horizontal component of groundwater flow in the water table aquifer were 0.6 per day for the west side and 1.4 feet per day for the east side. Minor contamination of groundwater by dissolved metals was also detected in the water table aquifer in monitoring wells located downgradient of the landfill debris. Continuous qualitative air monitoring indicates that the Site is not a source of release for air quality contamination.

#### V. DEQE Letter: January 25, 1988

A letter addressed to Mrs. Ruth Bird and dated January 25, 1988 was issued by the DEQE Office of General Counsel to notify Mrs. Bird that a lien had been placed on the Property. The lien stated that any owner or operator of the Site was liable for an amount up to three times all present and future costs of assessment, containment, and removal of oil and hazardous material plus all damages to natural resources with a 12 percent per annum interest rate. No dollar amount was stated for the lien.

#### VI. Public Involvement Petition: June 1989

According to the June 1992 Phase II Comprehensive Site Assessment prepared by Wehran, the DEP received a petition requesting that the Property site be designated a Public Involvement Plan (PIP) site. The Phase II Report also stated that the Site was so designated in July 1989. Neither the PIP Petition or PIP Plan were available for review by Coler & Colantonio, Inc; however, a Draft PIP Plan dated September 1989 was available. According to the Draft PIP, the purpose of the PIP was to ensure that the public is both informed of and involved in the DEP's planning for cleanup.

#### VII. Resident Sampling: May & August 1990

Sampling of 22 residential wells in the vicinity of the Property was conducted by the DEP in May and August of 1990. During this time period, TCE was detected in wells located at 719 and 735 Prentice Street and in wells at 14, 30, 46, 64, 76, and 84 Marshall Street. Concentrations of TCE present in these wells ranged from 1.1 ppb to 110. DCE was detected from 1.6 to 1.9 ppb at 76 Marshall Street and at 74 to 95 ppb at 46 Marshall Street.

#### VIII. Clean Harbors Letter: March 2, 1992

A letter addressed to Ms. Jana Leung of the DEP and dated March 2, 1992 was issued by the Clean Harbors of Kingston, Inc. to document the excavation, stockpiling, and removal of approximately 140 drums. Excavation and disposal of the drums was begun by Wehran in December 1990, but was suspended when a drum containing oil was ruptured. Excavation of the drums was commenced in January 1991 by Clean Harbors. The excavated drums included one drum of oil; one 30 gallon drum of white, clayey material; one drum of red paint or pigment; and approximately 120 drums of tar-like material. Samples of the various materials were obtained and submitted to Clean Harbors Analytical Services for analysis. The results of these analyses are attached to the letter.

Historic limited analysis detected trace levels of VOCs, elevated levels of SVOCs and low levels of metals. Coler & Colantonio, Inc. concludes that an extensive subsurface investigation in this area should be conducted to better understand the nature and extent of materials that were used to fill this area. The investigation should include test pitting, sampling of the landfill soils, as well as surface water and sediment sampling in the adjacent Western Wetlands Area.

#### **AOC-3** Debris Field - Marshall Street

A debris field stretches approximately 500 feet in length is located 20 feet to the west of Marshall Street. The surface grade in is area varies significantly across this area. Debris deposited in this area includes empty steel tanks, compressed gas cylinders, brick, cages, wood, pipes, and half a dozen rusty 55 gallon drums containing such items as electrical parts and scrap metal. Historic investigations in this area have focused on chlorinated compounds (VOCs) and metals in the groundwater. Although these investigations identified chlorinated compounds in the groundwater minimal other concerns were documented.

Test pits previously excavated in this area encountered construction and demolition debris to varying depths, based on the nature of this material Coler & Colantonio, Inc. concludes that additional soil and groundwater samples be collected and analyzed for a wide variety of parameters.

#### **AOC-4** Western Wetlands Debris Field

A debris field principally consisting of construction and demolition debris and general refuse extends as far as 200 feet to the south of the access road was observed along the northwest property line in the Western Wetlands Area. Virtually no previous assessments have addressed this area. Therefore, Coler & Colantonio, Inc. concludes that several soil samples be collected from this area for a variety of analytical parameters, to determine if contaminants are present in the fill. If contaminants are present at reportable levels additional sampling of different media may be advised.

#### AOC-5 Central Wetlands Fill

North of the access road are wetlands that are typically less than two feet in depth. During Coler & Colantonio, Inc.'s site visit construction debris was observed approximately 100 feet south of the access road. Some surficial debris was noted to the north of the access road. Coler & Colantonio, Inc. concludes that soil, sediment, and surface water in this area be sampled for a variety of parameters. A limited number of groundwater, soil (test pits), sediments and surface water sampling have been conducted. These samples were analyzed for metals and VOCs with low levels detected.

Coler & Colantonio, Inc. recommends that several of the wells in AOC-5 be sampled for a variety of parameters including VOCs. Given the unknown nature of the fill material in this

wetlands area some additional analysis should be performed on sediments and surface water for a wide variety of parameters in order to more thoroughly document if other risks are present.

#### **AOC-6** Access Road

Debris was frequently noted within 50 feet of either side of the access road. The nature of the debris varies significantly and appears to be consistent with the material historically discarded at the property. Historic assessments along the access road have been conducted however not all recognized environmental conditions have been investigated nor have all potential contaminants been analyzed. Coler & Colantonio, Inc. concludes that test pitting should be conducted and soil samples should be collected from areas where extensive filling has been observed. In addition groundwater samples proximal to the road should be sampled. Samples should be analyzed for a variety of parameters dependent upon the nature of material encountered.

#### **AOC-7** Eastern Pond Area Drums

Approximately a dozen empty steel drums were observed to the north of the access road, about 100 feet to the northeast of the pond. These drums appear to have been placed at this location during prior removal actions. Coler & Colantonio, Inc. concludes that soil samples be collected from this area, and analyzed for a minimum petroleum and PCB type parameters.

#### **AOC-8** Automobile Gasoline Tanks

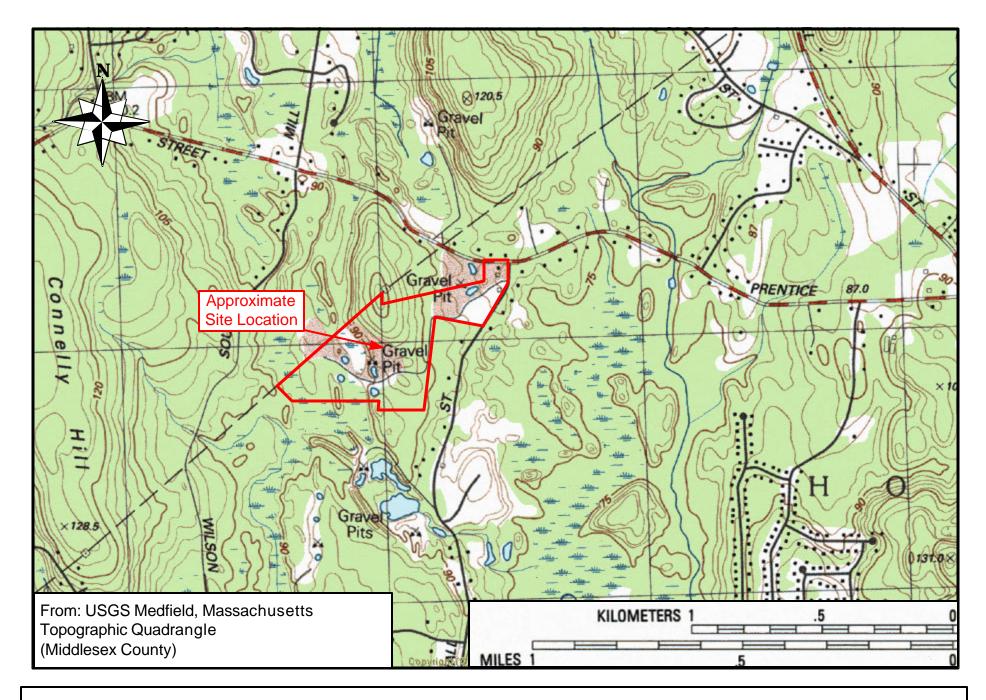
A pile of empty crushed automobile gasoline tanks was encountered amongst a rock pile. These tanks are approximately 100 feet from the access road bordering the wetlands to the south of the Access Road Loop Area. Coler & Colantonio, Inc. concludes that soil samples be collected from this area. Samples should be submitted for analysis of petroleum type constituents, specifically gasoline (VOCs).

In addition the Site RTN 2-60 is out of compliance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000 and remains listed as a CERCLIS site. Additional regulatory reports will be necessary to address the various concerns at the property, however discussions with the MA DEP suggest that a variety of alternative regulatory approaches are feasible at the property. Compliance fees are outstanding and liens by the MADEP have been issued for the property.

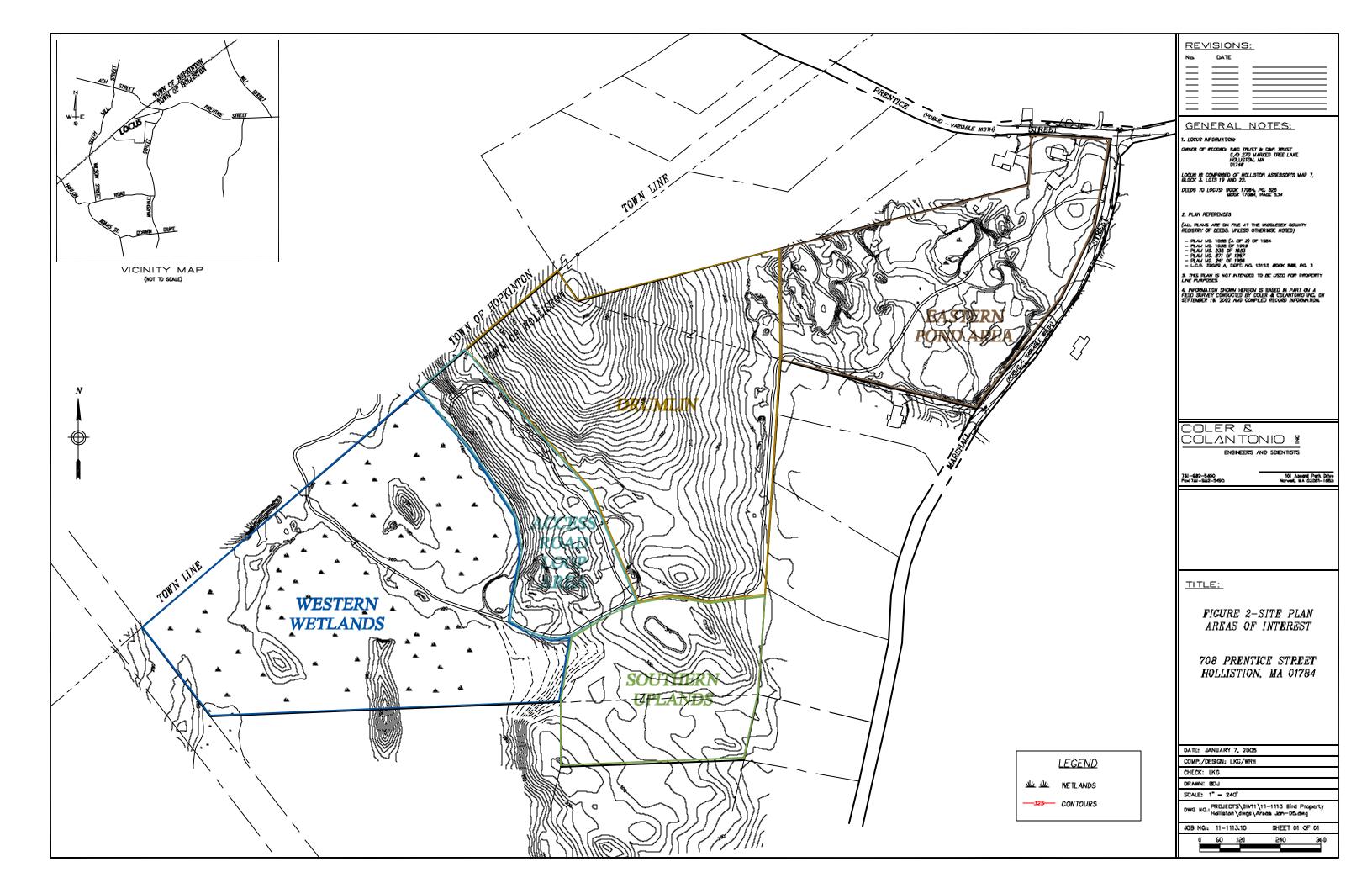
The review of FirstSearch database suggests that the CERCLIS status of the site may have been closed, and that the Property became a state lead site (MA DEP is adequately regulating the site) however this is not conclusive. This status maybe associated with the funding from the EPA for response actions. Nonetheless the site was or remains a CERCLIS site and therefore additional correspondence and documentation regarding the present status of the property is certainly warranted. It is not within the scope of this Phase I to address these compliance issues other than identifying their presence as recognized environmental concerns.

# **FIGURES**

Figure 1	Locus Map
Figure 2	Site Plan – Areas of Interest
Figure 3	MADEP Priority Resource Map
Figure 4	Site Plan – Areas of Concern







#### DEP MCP 21e Map Legend Hydrography WATER RESERVOIR CHADWICKWAY WETLANDS SALTWATER WETLANDS FLATS, SHOALS BLOODS POND HE DRIVE Rivers and Streams Protected Openspace COUNTRY ROAD PERENNIAL INTERMITTENT NHESP Estimated Habitat PANIL STRAN SHORELINE HOPKINTON MAN MADE SHORE Certified Vernal Pools 2003 NHESP AQUEDUCT MHD Roads LIMITED ACCESS HIGHWAY PRENTICE STREET MULTILANE HWY, NOT LIMITED ACCESS OTHER NUMBERED HWY MAJOR ROAD - COLLECTOR MINOR STREET OR ROAD. BEN ER BROOK COMMUNITY PUBLIC WATER SUPPLY - GROUNDWATER COMMUNITY PUBLIC WATER SUPPLY - SURFACE WATER CONNELLY HILL Tracks and Trails MHD HOLLISTON NON COMMUNITY PUBLIC WATER SUPPLY TRACK **Approximate** TRAIL Site Location BEATRICE STREET Transmission Lines PIPELINE MORTON STREET POWERLINE RIDGE ROAD TRAIN GORWIN DRIVE CHAMBERLAIN STREET Map created with ArcIMS - Copyright (C) 1992-2001 ESRI Inc.



Zone IIs

**IWPAs** 

Zone A

**ACECs** 

Sole Source Aquifers

Solid Waste Sites

of Rare Wildlife in

Mass Major Basins

County Boundaries

Wetland Areas

Subbasins

DEP Region

Town Arcs

Public Water Supplies

Aquifers, By Yield

HIGH YIELD

Non Potential Drinking

HIGH YIELD

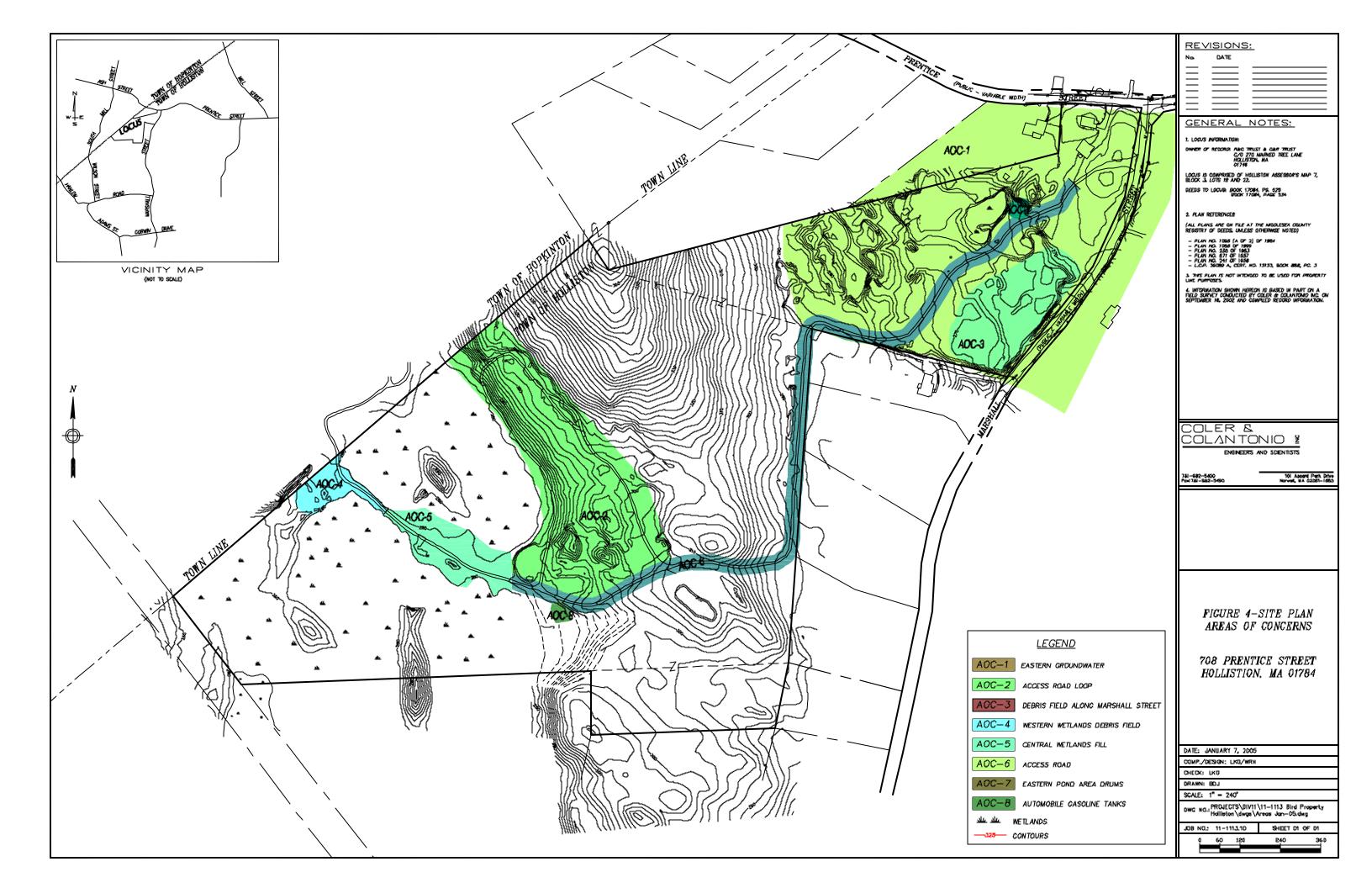
MEDIUM YIELD

100 YEAR FLOODPLAIN

Water Source Area

FEMA Floodplains

MEDIUM YIELD



# **PHOTOGRAPHS**



Drumlin Area



Wetlands



Access Road





101 Accord Park Drive, Suite One Norwell MA 02061-1685



Eastern Pond



Disposal Area



Reworked Landscape in Eastern Pond Area





101 Accord Park Drive, Suite One Norwell MA 02061-1685



General Debris in Debris Field to the West of Marshall Street

Pile of Empty Automobile Gasoline Tanks to the South of the Disposal Area



Drums in the Eastern Pond Area to the Northeast of the Pond

Bird Property Marshall & Prentice Streets Holliston, MA



101 Accord Park Drive, Suite One Norwell MA 02061-1685

4	
APPEND	NIX A
	IIA

Statement of Limitations

#### STATEMENT OF LIMITATIONS

The observations described in this report were made under the conditions and dates stated herein. The conclusions presented in the report were based solely upon the services described herein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the Client. The work described in this report was carried out in accordance with the Terms & Conditions of Engagement.

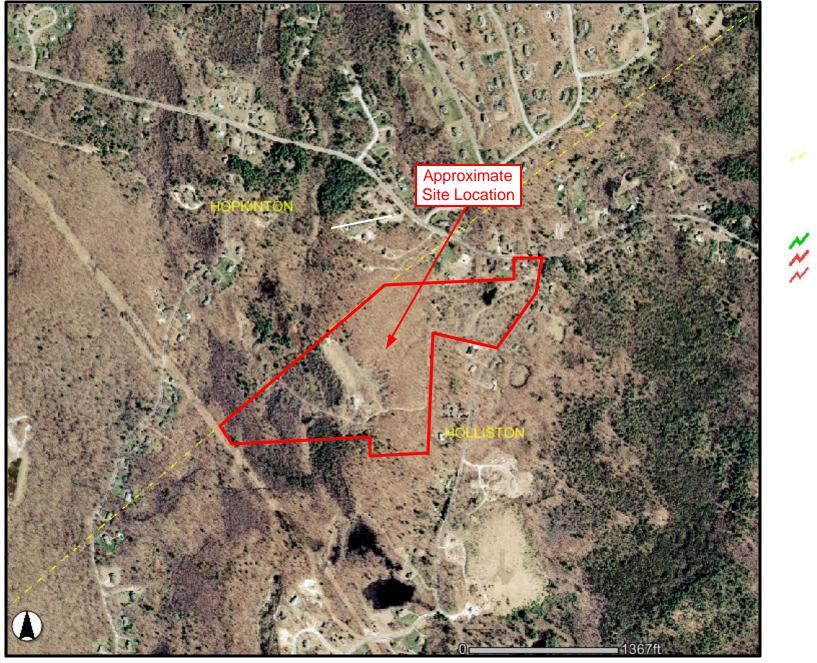
Coler & Colantonio, Inc. has relied on information available at federal, state, and municipal agencies, and provided by other parties referenced herein. Coler & Colantonio, Inc. provides no warranties on the accuracy or completeness of information provided by third parties.

Observations were made of the site and of structures on the site only on the date indicated within this report. Where visual observation of the ground surface was obscured by pavement, and where access to portions of the site or to structures on the site was unavailable or limited, Coler & Colantonio, Inc. renders no opinion as to the presence of hazardous material or oil, or to the presence of indirect evidence relating to hazardous material or oil, in that portion of the site or structure. In addition, Coler & Colantonio, Inc. renders no opinion as to the presence of hazardous material or oil, or to the presence of indirect evidence relating to hazardous material or oil, where direct observation of the interior walls, floor, or ceiling of a structure on a site was obstructed by objects or coverings on or over these surfaces.

Unless otherwise specified in the Scope of Work, Coler & Colantonio, Inc. did not perform testing or analyses to determine the presence or concentration of, lead-based paint, or lead in drinking water at the site.

The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous material or oil, as defined within the general laws and statutes of the particular state. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

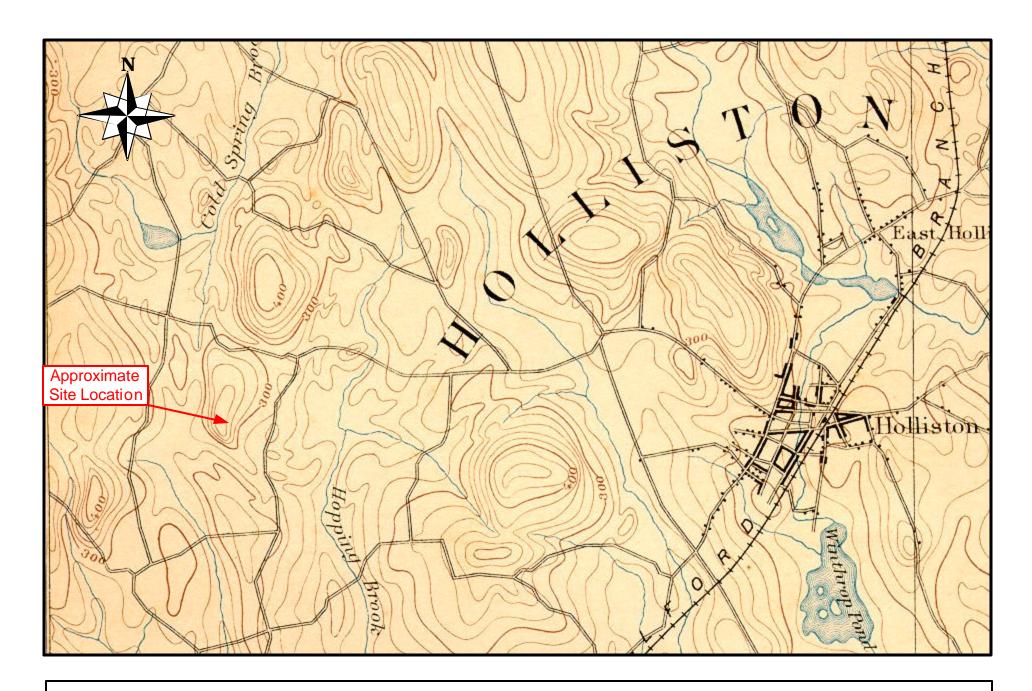
Aerial Photographs



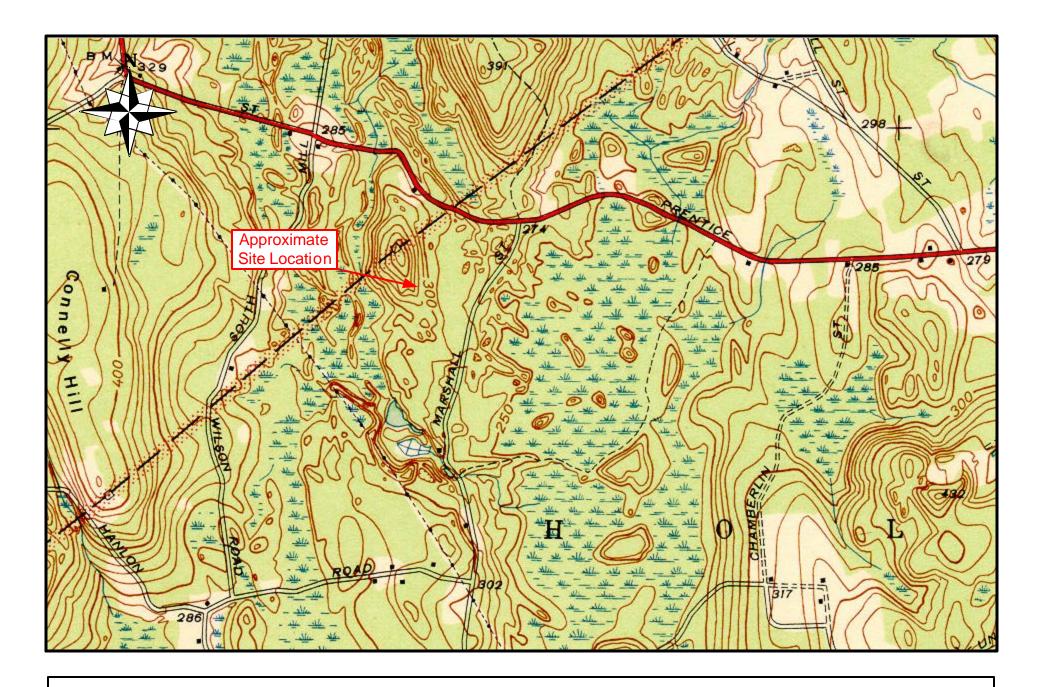


Bird Property Marshall and Prentice Streets Holliston, Massachusetts

APPENDIX C	
Historic Topographic Maps	









APPENDIX D	
APPENDIX D  Summary of Historic Reports	

#### I. DEQE Letter: November 10, 1983

A letter addressed to Mr. Charles Bird and dated November 10, 1983 was issued by the Department of Environmental Quality Engineering<sup>1</sup> (DEQE) Central Regional Office regarding the violation of several regulations at the Property, specifically unpermitted burning and landfilling. The letter ordered Mr. Bird to cease violation of Section 7.07(1) and 7.07(4) of the Regulations for the Control of Air Pollution in the Metropolitan Boston Air Pollution Control District and 310 CM 19.00 for the Disposal of Solid Wastes by Sanitary Landfill, and to take all necessary actions to abate the violations. Specific orders included the immediate cessation of any further open burning at the Site, the immediate cessation of any further disposal of demolition material or tires at the Property, and the submittal of a plan to dispose of the unpermitted solid waste in accordance with applicable Laws and Regulations.

#### II. Investigation of Landfill Impacts: December 1984

A report entitled *Investigation of Landfill Impacts* was prepared for Charles Bird by Goldberg-Zoino and Associates (GZA) in December of 1984. This report concluded:

- Surface water and groundwater drains to the west and east from a divide approximately at the center of the Site,
- Surface water and groundwater from the western part of the Site flow to a drainage basin which ultimately drains into Cedar Swamp,
- Surface and groundwater from the eastern part of the Site flow easterly toward Marshall Street and ultimately drain into Cedar Swamp
- Landfill materials have been used as fill at the Site.
- Surface/shallow groundwater sampling in the swamp (western part of the Site) indicated the presence of acetone,
- Other volatile organic compounds (VOCs) were present in trace amounts,
- Groundwater contamination in the western part of the Site was not deemed to be a present concern,
- Trichloroethylene (TCE) and 1, 2-dichloroethylene (DCE) were detected in surface water, shallow groundwater, and bedrock groundwater samples collected from the eastern part of the Site,
- TCE and DCE were detected in wells downgradient from the Site,
- The area affected by TCE and DCE appeared to extend from Prentice Street southward about 2,300 feet, and
- TCE and DCE were not found in Cedar Swamp downgradient of either drainage area from the Site or downgradient of the old town landfill.

#### III. Resident Sampling: February 1984 – January 1985

Sampling of 40 residential wells in the vicinity of the Property was conducted by the DEQE from February 1984 through January 1985 and was summarized in March of 1986. During this time period, TCE was detected in wells located at 724 and 735 Prentice Street and in wells at 14, 30, 46, 64, 76, and 84 Marshall Street. Concentrations of TCE present in these wells ranged from less than one part

<sup>&</sup>lt;sup>1</sup> The DEQE is the former name of the DEP

per billion (ppb) to 23 ppb except in the wells at 46 and 64 Marshall Street where it reached concentrations ranging from 130 through 160 ppb in September of 1984. Prior sampling of the wells at 46 and 64 Marshall Street in February and April of 1984 detected maximum TCE levels of 45 ppb. DCE was also detected from 2.8 to 63 ppb in the wells at 46 and 64 Marshall Street. Acetone and methyl ethyl ketone (MEK) were detected at 735 Prentice Street and chloroform was detected at less than 1 ppb at 654 Prentice Street.

#### IV. Phase II Site Investigation Report: September 1987

A Phase II Site Investigation Report was prepared by Wehran Engineering Corporation<sup>2</sup> (Wehran) in September of 1987. Wehran had been contracted by the DEQE in July of 1985 to initiate investigation activities. The Phase II Investigation consisted of a hydrogeological investigation which included a site inspection, the excavation of 25 test pits with subsequent installation of five shallow piezometers, the completion of 18 test borings, the installation of 18 monitoring wells, in-situ permeability testing in all 18 monitoring wells and ten off-site domestic wells, surface water sampling from eight locations, sediment sampling from three on-site locations, soil sampling from test pits and test borings, and continuous qualitative air monitoring.

The Phase II investigation confirmed the illegal disposal of solid wastes beginning around 1970. Solid waste material encountered consisted primarily of demolition debris, scrap metal, wood scraps, and tires. An area of approximately two acres of buried debris was encountered near the eastern property boundary. An area of approximately five acres of buried debris and an area of approximately two acres of surface debris was encountered on the west side of the Site. In addition a large pile of tires, estimated at 400,000 tires, covered approximately 3 acres of the Site at the time the Phase II Investigation was written. Crushed drums, empty fuel oil tanks, and empty automotive gas tanks were common in surface debris and test pit excavations.

Samples were submitted for analysis of the following parameters: purgeable volatile organics, extractable organics, priority pollutant metals, cyanide, phenols, pesticides/PCBs, iron manganese, chloride, chemical oxygen demand (COD), and total dissolved solids (TDS). Elevated levels of lead at 1,500 parts per million (ppm), of volatile organics at 6,532 ppm, and of phenols at 1.5 ppm were detected in three test pits. TCE at 53 ppb and trans-DCE at 13 ppb were detected in surface water samples collected from the on-site pond on the eastern portion of the property. Iron was detected in six of the eight locations where surface water was sampled at concentrations ranging from 2.6 to 18 ppm while lead was detected in five of the eight locations ranging from 0.057 to 0.13 ppm. Arsenic, copper, iron, manganese, mercury, and zinc were detected in sediment samples; however, the concentrations of these metals were all within the observed ranges based on the compared Background Soil Quality in the Eastern United States as reported by the U.S.G.S. (1984). Volatile organic compounds (VOCs) were detected in the groundwater within the water table aquifer on the east side of the Site only. The highest level of TCE, 3,800 ppb, was detected in monitoring well WE-4S which is located immediately to the

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<sup>&</sup>lt;sup>2</sup> Wehran Engineering Corporation, Wehran EMCON Northeast, EMCON, IT Group, and IT Corporation merged or conglomerated during this period,

Due to the poor condition of the drums and the fact that many drums were only partially full, Clean Harbors brought all the materials to a central staging area on-site and consolidated the drum contents. The consolidation consisted of breaking open the drums and stockpiling the drum contents on poly. A total of 140 drums were emptied, crushed, and stockpiled separately on poly. On December 5, 1991 a front end loader was used to load the consolidated soils and empty drums into dump trailers while drums which contained waste products were loaded into a box truck. All waste was removed from the Site to disposal facilities in New York and Massachusetts.

#### IX. Phase II Comprehensive Site Assessment: June 1992

A Phase II Comprehensive Site Assessment was prepared by Wehran in June of 1992. The Phase II activities included conducting soil gas surveys, geophysical surveys, test pit excavations, and drum excavation/content evaluations to identify potential contamination sources. In addition, soil borings and well installation, water and sediment sample collection and analyses, and residential well sampling were conducted to evaluate the type and extent of contamination in groundwater and to evaluate contaminant migration transport mechanisms and pathways. Although over 100 drums were encountered and removed during test pit excavations, evaluation of their contents and surrounding soils eliminated the drums as a contaminant source.

VOCs were detected in several samples collected from both on-site and off-site locations. The results of both the passive and real time soil gas surveys conducted at the Site suggested the presence of TCE and tetrachloroethylene (PCE) in soil gas. The highest TCE flux/concentrations were detected in the vicinity of the northwest and southwest side of the on-site pond while the highest TCE concentrations in both groundwater and sediments were detected in samples collected from the pond. Metal concentrations in both surface water and sediment samples from the on-site pond and the northwest edge of Cedar Swamp were generally low, with slightly higher concentrations and greater numbers of metals detected Cedar Swamp.

Six VOCs (vinyl chloride, methylene chloride, trans-DCE, TCE, PCE, and acetone) were detected in groundwater at various times and concentrations. TCE and trans-DCE were the most commonly detected VOCs with the highest concentrations of 3,800 ppm and 64 ppm respectively and with most of the TCE concentrations exceeded drinking water standards. The highest TCE concentrations were detected in the overburden groundwater northwest and west of the on-site pond and in bedrock groundwater downgradient of the pond near Marshall Street. Only low metal concentrations were detected in groundwater. Groundwater samples were also collected from the ten overburden monitoring wells located in Cedar Swamp between the Site and the Town of Holliston Municipal Supply Wells three and four, located approximately two miles downgradient of the Property. No VOCs were detected in any of the samples collected from the ten off-site monitoring wells in May of 1991. Residential supply wells in the vicinity of the Site were sampled for VOCs and metals periodically since 1984. TCE was detected in water supply wells at 11 residences and trans-DCE was detected in the water supply wells at six residences. Groundwater quality of the Site did not appear to be impacted by the landfilling of construction debris and tires.

This report describes response actions taken by the DEP to mitigate exposure to drinking water wells, these response actions included: supplying bottled water, upgrading water filtration systems, the installation, and water mains from the town water main were extended to the area and "most" of the residences were connected to the municipal water supply in November 1990. The Phase II report further states:

"Of the nine residents with impacted wells, only the resident at 30 Marshall Street was not connected to the municipal supply as of May 1992. In September 1991, the resident at 30 Marshall Street purchased the filtration unit installed by the DEP and assumed responsibility for maintenance and testing of the domestic groundwater supply".

"In November 1990, the Town of Holliston passed an amendment to its private water supply regulators that required abandonment, filling and capping of any water supply well in which contaminants concentrations above drinking water standards were confirmed to be present."... "As of May 1992, half the residences in the vicinity of the site that were connected to the municipal supply reportedly complied with this regulation."

#### X. Phase II Risk Assessment: December 1994

A Phase II Risk Assessment was prepared by Wehran EMCON Northeast<sup>2</sup> (Wehran EMCON) in December of 1994. The Risk Assessment concluded that the Property required remediation based on potential public health concerns as evidenced by exceedances of applicable drinking water standards by TCE and cadmium, exceedances of the Cumulative Cancer Risk Limit of 1 x 10<sup>-5</sup>, and exceedances of the Cumulative Hazard Index of 1.0. The Risk Assessment also concluded that a significant risk of harm to public welfare existed at the Site as a result of oil or hazardous materials released from the Property, based solely upon the observation that the local community experienced adverse effects in the form of use restrictions imposed on the property. No risks to public safety were present at the Site following the 1992 removal of "approximately two million tires" (according to Town Officials in February 2005, the actual number was closer to 210,000) from the Site. A Stage I Environmental Screening to evaluate the environmental risk posed by the Site showed that no apparent environmental harm existed at the Site. The hazardous materials of concern which were characterized in the Stage I Screening included trans, 1, 2-dichloroethene and trichloroethene in the surface water and sediment, and acetone, benzene, ethylbenzene, tetrachloroethene, toluene, trichloroethene, and xylenes in the surficial soils.

#### XI. Interim Summary Report: 1997

An Interim Summary Report was prepared by Roy F. Weston, Inc. (Weston) in 1997 to document the removal activities conducted at the Property from November 12 through November 22, 1996. During this time the United States Environmental Protection Agency (EPA) and representatives of the Weston

<sup>&</sup>lt;sup>2</sup> Wehran Engineering Corporation, Wehran EMCON Northeast, EMCON, IT Group, and IT Corporation merged or conglomerated during this period.

Superfund Technical Assessment and Response Team (START) and the Region I Emergency Response Cleanup Services (ERCS) contractor, OHM Remediation Services, Inc. (OHM Services) conducted removal activities on at the Site consisting of the construction of an erosion control barrier along the edge of an adjacent wetland; the construction of an access road to the proximity of the work area; the excavation, loading, and off-site disposal of drums, contaminated soil, and debris; and the excavation of exploratory test pits. A total of 11 dump trailer loads of drums, soil, and miscellaneous debris were removed from the Site. Future removal activities cited in the Interim Summary Report included the off-site disposal of two remaining drums and three compressed gas cylinders, the stablilization of the sloped embankment work area by regarding the steep hillside to prevent any erosion into the wetland, placing a temporary cap of six inches to one foot of lean soil over the known contaminated soil in the excavation/landfill area, and hyrdoseeding the new cover.

#### XII. Groundwater Sampling Results Letter: March 19, 1999

A letter addressed to Mr. Joe Bellino of the DEP and dated March 19, 1999 was issued by EMCON<sup>2</sup> to summarize the groundwater sample collection and analytical results completed at the Property in February of 1999. Groundwater samples were collected from 13 existing on-site monitoring wells and one residential well on February 11, 1999. Each sample was analyzed for VOCs in accordance with USEPA Method 624, except the sample from the residential well located at 30 Marshall Street which was analyzed by USEPA Method 524. TCE was the only contaminant detected in the monitoring wells and was detected in eight of the 13 monitoring wells ranging from 2.5 to 1,200 ppb. TCE was also the only compound detected in the residential well at a concentration of 1.3 ppb.

#### XIII. Groundwater Sampling Results Letter: July 12, 2001

A letter addressed to Ms. Denise Child of the DEP and dated July 12, 2001 was issued by the IT Group<sup>2</sup> to summarize the groundwater sample collection and analytical results completed at the Property in May and June of 2001. Groundwater samples were collected from 15 existing on-site monitoring wells, one residential well, and one surface water location. Each sample was analyzed for VOCs in accordance with USEPA Method 8260, except the samples from the residential well located at 30 Marshall Street and the surface water sample which were analyzed by USEPA Method 524.2. TCE, cis-DCE, vinyl chloride, and acetone were the only contaminants detected in the monitoring wells. Concentrations of TCE were detected in ten of the 15 wells ranging from 2.2 to 767 ppb. TCE was detected in the residential well at a concentration of 1.8 ppb. TCE and cis-DCE were the only compounds detected in the surface water sample at concentrations of 1.4 ppb and 4.5 ppb respectively.

#### XIV. Draft Phase III Remedial Action Plan: March 15, 2002

A Draft Phase III Remedial Action Plan was prepared by IT Corporation<sup>2</sup> in March of 2002. The Remedial Action Plan evaluated three remedial action alternatives: no further remedial action with monitoring, in situ chemical oxidation, and groundwater pump and treat. These alternatives were

<sup>&</sup>lt;sup>2</sup> Wehran Engineering Corporation, Wehran EMCON Northeast, EMCON, IT Group, and IT Corporation merged or conglomerated during this period,

evaluated based on effectiveness, reliability, implementability, costs, risks, benefits, timeliness, and nopecuniary interests. IT Corporation selected the no further remedial action with monitoring alternative as a Temporary Solution primarily due to the fact that groundwater pump and treat is not reliable for attaining drinking water standards and the costs for the in situ chemical oxidation alternative are substantial relative to the risk posed by the Site.

#### XV. Draft Class C Response Action Outcome Statement: March 15, 2002

A Draft Class C Response Action Outcome (RAO) Statement was prepared by IT Corporation in March of 2002 to support the achievement of a Class C RAO for the Site in accordance with the MCP. The RAO Statement states that a number of Permanent Solutions were identified for groundwater, but these alternatives were not considered feasible, primarily because the incremental costs of implementing the alternatives do not outweigh the incremental benefits to be realized. The report concluded that determining whether monitored natural attenuation could be classified as a Permanent Solution would need to be evaluated in a Periodic Evaluation involving post RAO monitoring activities. No figures or appendices were attached to the Draft Class C RAO; therefore, the area of the "Site" or RAO is not known. However, based on the verbage of the report, the area of the RAO is limited to the northeastern portion of the property, proximal to the intersection of Marshall and Prentice Streets.

### **APPENDIX E**

### Historic Reports Partial

- 1. Investigation of Landfill Impacts, Goldberg-Zoino and Associates, December 1984
- 2. Resident Sampling, Department of Environmental Quality Engineering, February 1984 January 1985
- 3. Phase II Site Investigation Report, Wehran Engineering Corporation, September 1987
- 4. Draft Public Involvement Plan, June 1989
- 5. Resident Sampling, Department of Environmental Protection, May & August 1990
- 6. Phase II Comprehensive Site Assessment, Wehran Engineering Corporation, June 1992
- 7. Phase II Risk Assessment, Wehran EMCON Northeast, December 1994
- 8. Interim Summary Report, Roy F. Weston, Inc., 1997
- 9. Groundwater Sampling Results Letter, EMCON, March 1999
- 10. Groundwater Sampling Results Letter, IT Group, July 2001
- 11. Draft Phase III Remedial Action Plan, IT Corporation, March 2002
- 12. Draft Class C Response Action Outcome Statement, IT Corporation, March 2002

# Investigation of Landfill Impacts

Goldberg-Zoino and Associates, December 1984

- -Conclusions
- -Recommendations
- -Location Plan

2.	Resident Sampling
Department of Environment	ntal Quality Engineering, Feb. 1984 – Jan. 1985
	-Entire Report

### Phase II Site Investigation Report

Wehran Engineering Corporation, September 1987

- -Figure 2-1: Location of Test Pits, Piezometers, Monitoring Wells, Sampling Locations, & Hydrogeoligic Transects
- -Table 2-1: Summary of Wehran Test Pit Information
- -Table 2-2: Monitoring Well Construction Details & Water Level Measurements

# Draft Public Involvement Plan

June 1989

- -Introduction
- -Background

Resident Sampling

Department of Environmental Protection, May & August 1990

-Entire Report

### 6. Phase II Comprehensive Site Assessment

Wehran Engineering Corporation, June 1992

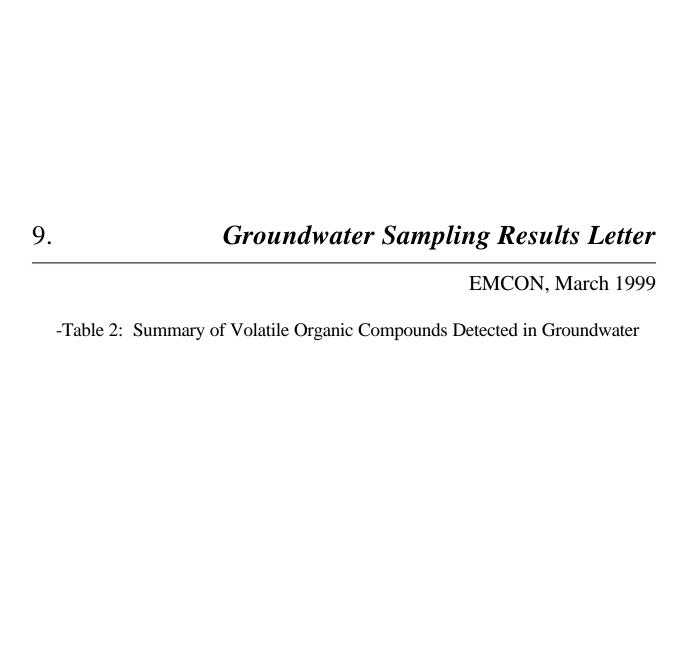
- -Body of Report
- -Passive Soil Gas Report
- -Soil Boring Logs/Monitoring Well Construction Diagrams

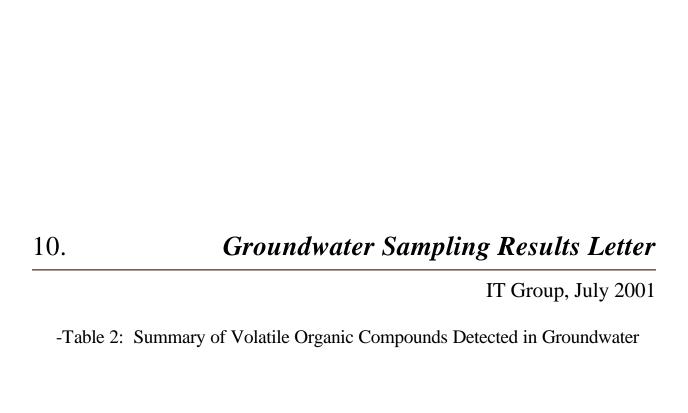
Phase II Risk Assessment 7. Wehran EMCON Northeast, December 1994 -Summary, Conclusions, & Recommendations

## Interim Summary Report

Roy F. Weston, Inc., 1997

- -Executive Summary/Introduction
- -Site Location & Description
- -Site Background
- -Site Diagram





## 11. Draft Phase II Remedial Action Plan

IT Corporation, March 2002

- -Body of Report
- -Limitations
- -References
- -Tables
- -Figure 1: Site Location Map

## 12. Draft Class C Response Action Outcome Statement

IT Corporation, March 2002

- -Body of Report
- -References
- -Limitations

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