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PHASE I  
ENVIRONMENTAL SITE ASSESSMENT  
OF  
THE WOODLANDS AT AMHERST

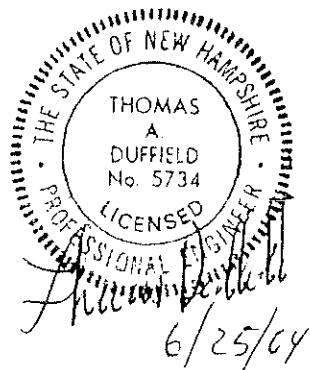
At  
24 Brook Road, Amherst, NH  
(Tax Map-Parcel #8-25, 19.17 acres; #10-26, 65.64 acres;  
#10-23-1, 9.5 acres; #7-65, 32.83 acres )

Prepared for:  
Horizon Land Development

Date:  
June 2004

Prepared by:  
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## QUALIFICATIONS AND CERTIFICATION STATEMENT

This Phase I Environmental Site Assessment was performed by a qualified environmental engineer through and as TFMoran Inc. (TFM). The individual(s) responsible for the preparation of this report meet the definition of an *Environmental Professional* as defined by Section 3.3.11 of the American Society for Testing and Materials (ASTM) Practice 1527-00.

TFMoran Inc. (TFM) hereby certifies that the information contained in the Phase I Environmental Site Assessment (ESA) Report for the subject site is true and accurate to the best of our knowledge. All conclusions drawn were based on TFM's review of available historical, regulatory, and site-specific information pertaining to this project. Recommendations were submitted based on TFM's knowledge, experience, and professional judgement concerning Phase I Environmental Site Assessments.

ESA Performed by:

Thomas A. Duffield, P.E., L.S.P.

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FIGURE 1: Site Location Map - USGS

FIGURE 2: Assessor's Map

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APPENDIX A: Site Photographs

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**PHASE I**  
**ENVIRONMENTAL SITE ASSESSMENT**  
**OF THE PROPERTY AT**  
**24 Brook Road**

**Amherst, New Hampshire**

## **1.0 INTRODUCTION**

At the request of Horizon Land Development, TFMoran Inc. (TFM) conducted a Phase I Environmental Site Assessment (ESA) at the 24 Brook Road, Amherst, NH (Figure 1) property, which hereinafter is referred to as the subject site. The subject site encompasses approximately 127.14 acres with four parcels of undeveloped residential property in Amherst, which consists of tax parcels #8-25, 19.17 acres; #10-26, 65.64 acres; #10-23-1, 9.5 acres; # 7-65, 32.83 acres, of which a seasonal camp is located on parcel #10-26 with access from Brook Road.. The subject site is shown on the USGS Topographic Map on Figure 1.

The purpose of this assessment was to identify recognized environmental conditions, as defined by the American Society for Testing and Materials (ASTM) Practice E 1527-00, associated with the subject site. The term *recognized environmental conditions* is defined by ASTM as the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment.

The Phase I ESA Report has been prepared by TFM to provide a general description of the subject site; any structures occurring thereon, and the site vicinity; discuss the current and historical usage of the property; and identify the presence or absence of recognized environmental conditions in connection with the subject site based upon the results of a historical and regulatory records review, interviews, and thorough site inspection.

## **2.0 SCOPE OF WORK**

The scope of work for this Phase I ESA consisted of a number of work elements including a review of the physical site setting, a historical review of the site, a site inspection, and a review of local state and federal regulatory records. Each work element is described in detail below.

### **2.1 SITE SETTING**

A description of the physical setting of the site, including geology, hydrogeology, topography, and surface water features was compiled by reviewing published information for the general vicinity of the site. Published sources reviewed included county soil surveys, topographic maps, and historical maps.

### **2.2 HISTORICAL LAND USE**

TFM has attempted to document the historical land use of the site through review of a number of records, such as:

- Site ownership and use
- State File review
- Site contact interviews
- Local government offices
- Historical maps

### **2.3 SITE INSPECTION**

An inspection of the site was performed to identify visible environmental concerns such as those listed below.

- Fuel oil and hazardous materials storage
- Aged electrical transformers and switchgear
- Stressed vegetation
- Stained soils/surfaces
- Chemical odors
- Neighboring land use
- Vicinity of wells to existing underground and/or aboveground tanks
- Visual evidence of improper disposal of waste
- Site topography/regional geology/hydrology
- Potable/wastewater distribution systems
- Lead paint potential
- Suspect asbestos-containing building materials

## 2.4 REGULATORY RECORD SEARCH

A review of local, state, and federal records was performed to identify the presence or occurrence of solid waste, hazardous waste, or petroleum products on the subject site and on properties within specified search radii of the site. The following records were reviewed:

- Federal NPL list (1.00 mile)
- Federal CORRACTS RCRA Corrective Actions list (1.0 mile)
- Federal CERCLIS list (0.75 mile)
- Federal NFRAP (0.75 mile)
- Federal RCRA TSD list (0.75 mile)
- Federal RCRA LgGen Waste Generator list (0.375 mile)
- Federal RCRA SmGen Waste Generator list (0.375 mile)
- Federal ERNS list (0.375 mile)
- State SCL Priority Sites list (1.0 mile)
- State SWLF list of Solid Waste Facilities (0.75 mile)
- State SWLF list of Active Incinerator Facilities (0.75 mile)
- State Hazardous Waste List for site and abutting properties
- State/Local UST registry of underground storage tank registry (0.5 mile)
- State/Local AST registry of aboveground storage tank registry (0.5 mile)
- State spills summary report (0.375 mile)

## **3.0 SITE DESCRIPTION**

### **3.1 GENERAL**

The subject site consists of four separate tax parcels that comprise some 127 acres. The only portion that has been developed is approximately 2 acres on the east side of Joe English Brook. The development and land use consists of a seasonal cabin, on-site septic system and well, a driveway, overhead power line and a dilapidated shed. A log bridge has been constructed over the brook that provides access for foot traffic and all terrain vehicles to the bulk of the property.

The bulk of the property is wooded and slopes downward to the east, where Joe English Brook flows north to south in the eastern portion of the property. The subject site includes the assimilation of a number of parcels from different owners. The largest parcel, Map 10 Lot 26 comprising 65 acres, was conveyed through inheritance from the Estate of Edna M. Phylis.

### **3.2 NEIGHBORING PROPERTIES**

The abutting properties consist of residential tracts along Brook Road, Town of Amherst Conservation Commission Land to the west and south of the property and several wooded, undeveloped tracts to the north. The NHDES web site did not have any listings for environmentally impacted sites for the subject site or abutting properties.

### **3.3 SITE GEOLOGY AND HYDROLOGY**

#### **Geology**

Metamorphic and igneous rocks underlie the soils of the site area. The metamorphic rocks are of the Littleton Formation, which is composed of gray mica schist, and of the Merrimack Group, which is composed of pinkish brown granulite and gray phyllite.

Several areas of granite, quartz monzonite, and granodiorite in the central and southeastern parts of the survey area have been forcibly injected up through the metamorphic rocks. The largest area of these granite like rocks is the Fitchburg pluton, which is about 7 miles wide and 25 miles long. It extends from Brookline through Milford, Amherst, and Bedford and to beyond Manchester.

The soils of the survey area formed in glacial deposits, which rest on bedrock. About 14,000 years ago, a glacier covered all of Hillsborough County. The ice sheet started forming in southern

Canada, and as the climate grew cooler, it advanced southward. At its peak, the ice sheet was up to 1 mile thick. The ice sheet scraped the surface of the ground and picked up, crushed, and mixed stones and boulders. In many places the glacier rounded off the tops of hills and mountains.

When the climate started warming, the glacier started melting and dropped the debris that it was carrying over the landscape. This debris, called glacial till, now forms a blanket of soil about 30 feet thick over most of the upland parts of the survey area. In places, the bedrock is exposed. In river valleys, the water from the melting glaciers picked up sand or gravel and carried it along in streams.

The sand and gravel was deposited in the form of terraces as the glacier melted. The glacier completely melted about 12,000 years ago.

The general site area is in two physiographic regions. The western half is in the New England Upland, and the eastern half is in the New England Seaboard.

The New England Upland consists of hills and low mountains underlain by schist, granite, and gneiss. Between some of the hills are lakes and ponds, such as Baboosick Lake in Amherst and Joe English Pond in New Boston. The Souhegan and Piscataquog Rivers flow through the New England Upland. Elevation in the New England Upland ranges from about 500 feet above sea level to 1,324 feet above sea level on the summit of North Uncanoonuc Mountain in Goffstown.

The New England Seaboard is in the eastern part of the survey area, east of Hollis, Amherst, Bedford, and Goffstown. It is at elevations of about 400 to 500 feet above sea level, and it slopes southeasterly toward the Atlantic Ocean. The bedrock underlying this part of the survey area is mostly schist, phyllite, and granite. The Merrimack River valley is in a depression in the Seaboard physiographic region.

## Hydrology

All of the survey area drains into the Merrimack River, which originates north of the survey area in the White Mountains and flows south through New Hampshire and Massachusetts to the Atlantic Ocean. Several rivers and streams flow into the Merrimack River, including the Piscataquog, Souhegan, and Nashua Rivers and Baboosic and Beaver Brooks.

Surface and ground water sources provide water to the communities in the survey area. In Manchester and Nashua, water supplies are obtained from a system consisting of a series of lakes and ponds surrounded by several thousand acres of protective forests. In Merrimack, Milford, Amherst, and Hudson, water is obtained from wells in saturated sand and gravel deposits.

The subject site is located outside the area of Bedford, serviced by municipal water and sewer systems. The site is within the Riddle Brook watershed, which is a tributary to the Merrimack River some three miles to the east.

### **3.4 SITE TOPOGRAPHY**

The USGS Topographic Map, Pinardville Quadrangle shows the subject property at an elevation of approximately 660 feet above sea level at its highest point and 280 feet above sea level at its lowest point as shown on Figure 1. The topography slopes downward towards the east.

### **3.5 WETLANDS**

The site did appear to have jurisdictional wetlands as defined by the Army Corps of Engineers Manual, however delineation of wetlands is outside the scope of work for this assessment and report. Wetland delineation is normally conducted as a part of the land planning process.

### **3.6 RADON GAS POTENTIAL**

The listings at NHDES, for radon gas in Amherst, have a range from 0.3 to 80.2 picocuries per liter. There was no radon gas measurement for the subject site.

## **4.0 SITE HISTORY**

### **4.1 SITE OWNERSHIP AND USE**

The Amherst Planning Department was contacted and the assistant (Brenda) responded and stated that the so-called David Frazier property was undeveloped, outside the existing cabin, and had not had any history of environmental concerns, petroleum/hazardous material releases and was known for being ledgy, containing wetlands and being wooded. The site is in 'current use', except for the acreage around the cabin.

### **4.2 FIRE DEPARTMENT**

A message was left (6/25/04) with Chief DeSilva requesting information on any spill or release in the vicinity of the subject site. Chief DeSilva responded, stating that there are no known chemical spills at the subject site.

### **4.3 TAX DEPARTMENT**

A message was left on the Town Clerk's voice mail requesting any information regarding environmental concerns at the subject site. The Town Clerk responded, referring inquiry to Brenda at the Planning Department.

### **4.4 PREVIOUS ENVIRONMENTAL INVESTIGATIONS**

No known environmental site assessments have been conducted on the subject site.

## **5.0 SITE INSPECTION**

### **5.1 FUEL OIL AND HAZARDOUS MATERIAL STORAGE FACILITIES AND CONTAINERS**

#### **5.1.1 Tanks**

There were no observed tanks containing petroleum or hazardous materials observed at the site.

#### **5.1.2 Hazardous Materials Storage Facilities and Containers**

There were no observed chemicals or hazardous materials storage facilities or containers observed at the time of the site inspection.

### **5.2 POLYCHLORINATED BIPHENYLS (PCBs)**

There were no transformers or electrical switchgear observed at the subject site.

### **5.3 STRESSED VEGETATION**

No distressed areas were noted at the time of the site inspection.

### **5.4 STAINED SOIL AND SURFACES**

No stained soils were observed at the time of the site inspection on 6/15/04.

### **5.5 CHEMICAL ODORS**

Chemical odors were not detected at the subject site during the time of the site inspection 6/15/04.

### **5.6 LOCATION OF WATER WELLS RELATIVE TO STORAGE TANKS**

This area is served by on-site individual water supply wells and there were no storage tanks on the subject site at the time of the site inspection on 6/15/04.

### **5.7 VISUAL EVIDENCE OF IMPROPER WASTE DISPOSAL**

Evidence of improper waste disposal was not observed on the subject site at the time of the site inspection on 6/15/04.

### **5.8 WATER AND WASTEWATER DISTRIBUTION SYSTEMS**

Currently, this area is served by on-site water and septic systems.

## **5.9 LEAD PAINT POTENTIAL**

The site buildings (cabin and dilapidated shed) are of an age that lead paint may be present; however there was no testing conducted as part of this ESA Report. The cabin appeared to have a stain coating on the wood exterior and the shed, which has a collapsed roof, was constructed of sheet steel and appeared to be pre-painted prior to construction on site.

## **5.10 SUSPECT ASBESTOS-CONTAINING BUILDING MATERIALS**

The site inspection revealed no suspect asbestos-containing building insulation materials, however this site assessment did not include any testing for Asbestos materials.

## **5.11 AIR EMISSIONS**

No air emissions were observed being released from the subject site during the inspection.

## **6.0 ENVIRONMENTAL REGULATORY REVIEW**

Environmental regulatory records were searched using state and local databases accessed and summarized in the following paragraphs. Agencies with environmental jurisdiction over the subject site include the United States Environmental Protection Agency, and the New Hampshire Department of Environmental Services (NHDES) and the Town of Amherst.

### **6.1 USEPA COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY INFORMATION SYSTEM (CERCLIS) AND NATIONAL PRIORITY LIST (NPL) LISTS**

The property investigated for this report does not appear on the USEPA CERCLIS list of potential hazardous waste sites (April 2003), and does not appear on the USEPA NPL list of hazardous waste sites (April 2003). According to these lists, there are no CERCLIS or NPL sites located within specified radii of the subject site.

### **6.2 HAZARDOUS WASTE TREATMENT STORAGE AND DISPOSAL FACILITIES**

Review of the USEPA Resource Conservation and Recovery Information System (RCRIS) list of Treatment, Storage and Disposal (TSD) Facilities report (June 2004) indicated that no such facilities (corrective action or non-corrective action) exist on or within the specified radii of the subject site.

### **6.3 HAZARDOUS WASTE GENERATORS**

Review of the USEPA RCRIS list of small (SQG) and large quantity (LQG) hazardous waste generators (June 2004) indicates that the subject property is not a listed generator.

### **6.4 NEW HAMPSHIRE STATE PRIORITY HAZARDOUS WASTE SITES LIST**

The subject property is not on the State priority hazardous waste site list and no abutting properties are listed.

## **6.5 AMHERST & NEW HAMPSHIRE STATE UNDERGROUND STORAGE TANK REGISTRY**

A review of the NHDES and Town of Amherst registry of active and inactive (December 2003) underground storage tanks (USTs), and reported (December 2003) leaking underground storage tanks (LUSTs) indicated that there are no mapped active petroleum storage tanks registered to the subject site and properties within  $\frac{1}{4}$  mile.

## **6.6 FEDERAL EMERGENCY RESPONSE NOTIFICATION SYSTEM NEW HAMPSHIRE STATE SPILL SITE SUMMARY REPORT**

A review of the Emergency Response Notification System (ERNS) database (through January 2004) indicated that there have been no recorded sudden and/or accidental releases of hazardous substances into the environment within the specified distance (0.25-mile) of the subject site

## **6.7 NEW HAMPSHIRE SOLID WASTE AND INCINERATOR FACILITIES LISTS**

Review of the NH-DES Solid Waste Facilities List (June 2004) for; 1) active mixed municipal solid waste land disposal sites; 2) inactive incinerator facilities; 3) municipal solid waste incinerator facilities, and; 4) solid waste collection, storage, and transfer facilities, indicated that the subject site is not a listed solid waste facility.

## **6.8 NEW HAMPSHIRE ABOVE GROUND STORAGE TANK FACILITIES LIST**

Review of the NHDES Aboveground Storage Tank (AST) List (December 2003) indicated that the subject site has no registered ASTs.

## **7.0 SUMMARY & CONCLUSIONS/RECOMMENDATIONS**

Based upon TFM's site observations and the review of available regulatory and historical information concerning the site and surrounding areas, TFM has established the following summary of conditions and conclusions/recommendations.

### **7.1 SUMMARY OF CONDITIONS**

- a) The subject site encompasses approximately 127 acres of land, currently containing only a seasonal cabin with on-site septic system and water supply.
- b) The subject site is located within a rural residential area. No industrial or manufacturing facilities were noted within the vicinity of the subject site. The observed uses of the neighboring properties are not expected to have adversely affected the environmental status of the subject site. These uses are residential homes and a Town park with conservation uses.
- c) The geology of the subject site consists of sediments of stratified sand and silt overlying medium to coarse-grained granite, monzonite, and graniorite bedrock. Groundwater is assumed to flow in a eastern direction toward Joe English Brook. The small area around the cabin flows westward toward Joe English Brook, which flows north to south through the eastern portion of the property.
- d) Elevation of the property varies from approximately 280 feet to 660 feet above sea level. There is an area associated with the 100 year flood plain along each side of the Joe English Brook.
- e) The average radon level for the area of the subject site is predicted to be below the federal recommended continuous exposure level.
- f) Based on the historical research performed as part of this ESA, the subject site appears to have only been used for the existing cabin and generally recreational uses as undeveloped woodlands.
- g) Based on TFM's review of federal and state databases, the subject site is not listed as a hazardous waste site, hazardous waste generator, transporter, or disposal facility, solid waste landfill, registered tank location, spill location, or toxic chemical release site.
- h) Based on TFM's regulatory review for the area surrounding the subject site, it has been determined that there are no inactive hazardous waste sites, generators, TSD facilities, TRIS facilities, registered tank facilities, and/or spills located within the vicinity of the subject site.

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## 7.2 CONCLUSIONS / RECOMMENDATIONS

TFM has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-00. Any exceptions to, or deletions from, these practices are described in Section 2.0 of this report. This assessment discovered no evidence of recognized environmental conditions at the subject site.

## 8.0 RESOURCE SUMMARY

In compiling the report summarizing this investigation, the following persons/agencies were interviewed and/or contacted and resources checked.

Topographical Map of Pinardville, NH (NE/4 Milford 15' Quadrangle) USGS, 1968  
photorevised 1985

Amherst Zoning Assistant – Brenda, 6/25/04

Amherst Fire Department 6/25/04

NH-DES, Environmental Regulatory Database, 6/21/04

Site Contact / Owner Representative / TFM staff – conducting test pits & percolation tests

## **9.0 LIMITATIONS**

The conclusions presented in this report are based on information gathered in accordance with the Scope of Services defined in Section 2.0 of the report. This report is not intended to assess the condition of the subsurface environment at the site. All conclusions reflect observable conditions existing at the time of the site inspection (June 15, 2004). Information provided by the resources referenced in Section 8.0 was utilized in assessing the site. The accuracy of the conclusions drawn from this investigation is, therefore, dependent upon the accuracy of information provided.

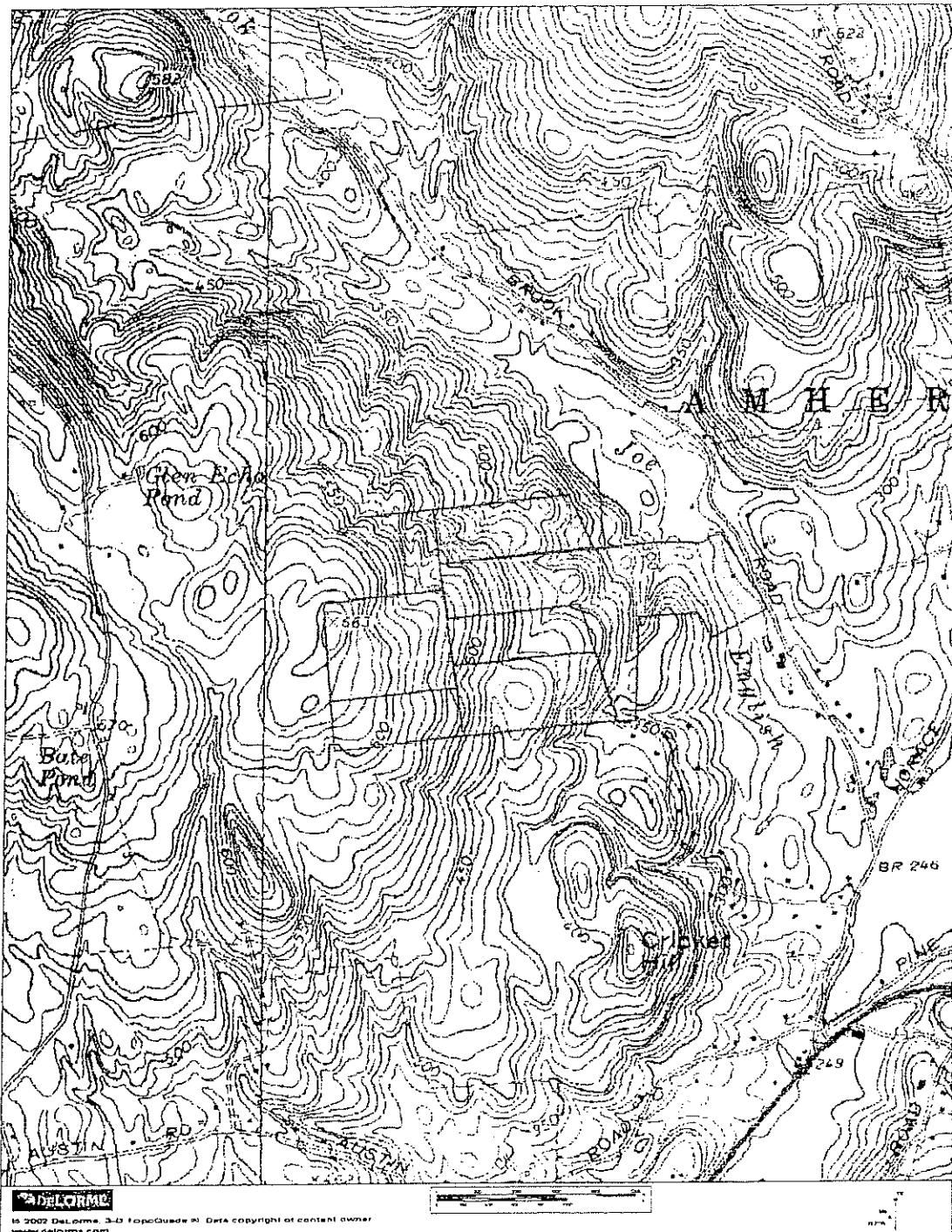
**APPENDIX A**  
**SITE PHOTOGRAPHS**







Figure 1



Site Location  
TFM # 76455.00 - Horizon

**TFM**

Engineers  
Structural Engineers  
Traffic Engineers  
Land Surveyors  
Land Planners  
Landscape Architects

Figure 2 – Amherst, NH Tax Maps

