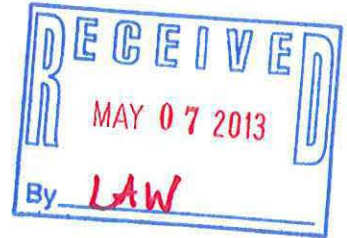


**Preliminary Engineering Report and Environmental Report
Windemere Mobile Home Park Water and Sewer System Improvements
169 Johnson Avenue, 16-101 Camel's Hump Road, 14-140 Mt. Mansfield Road, 8-115 Mt.
Sterling Avenue, Colchester, VT
Housing Foundation, Inc.
Community Water System, WSID #20551**

April 29, 2013



Project Description

The purpose of this project is to provide domestic and fire protection water and improved sanitary sewer collection to the existing mobile home park (MHP) to remedy the existing outdated and substandard water and sewer systems. The park consists of 83 mobile home sites of which 81 are currently occupied. The current census for the park is 207 residents. The water is supplied by the Champlain Water District to which the MHP connects to the existing 12" diameter water main in Johnson Avenue. The sewer runs to the recently improved municipal sewer collection system in Johnson Avenue which ultimately ends up at South Burlington's Airport Parkway Wastewater Treatment Facility.

Currently the park water is serviced by a 2" diameter polyethylene plastic and metal water main that runs beneath the units which has surpassed its serviceable design life. The park has a single water meter located in a manhole at the entrance which has documented leakage in excess of 15 gallons per minute. Periods of extremely low pressure have been experienced by all of the units, but most severely at those units at the extents of the existing system. New service connections with individual shut-off valves will be provided for each unit. The new system will retain the single meter configuration and a single connection to the existing main. The water system will be privately owned and maintained.

The park sewer collection system is predominantly 4" "Orangeburg" pipe and has been repaired with plastic/PVC of varying grades over the years. The Orangeburg has ongoing problems associated with reaching its design life and serviceability. The depth of portions of the sewer collection system and individual services is less than the four to five feet required by today's standards. Camera inspections of the lines depict multiple instances of crushed, sagging, leaking and insufficient grade throughout the system. The original installation of the system would not meet today's standards and rules. From the degradation seen and documented it is clear that it does not meet the standards of the Environmental Protection Rules or any applicable codes. Multiple (greater than ten) backups per year have been reported. Backups have resulted in surfacing of raw sewage.

The improvement of the water system will provide fire protection services with two new fire hydrants within the park to augment the existing two nearby hydrants on Johnson Avenue. The sewer will consist of a gravity system to a pump station that is required to accommodate the grades encountered in the park.

In accordance with the current Vermont Water Supply Rule, the estimated daily design flow for the MHP is as follows:

207 persons x 75gpd/person	= 15,525 gpd
83-2 bedroom units x 150 gpd/bedroom	= 24,900 gpd

Table 1(b) of the 9/29/07 Vermont Environmental Protection Rules:

83 units x 210 gpd/unit	= 17,430 gpd
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Construction is expected to take place in the summer of 2014 and completed in 6 months.

The Champlain Water District and Colchester Fire District No. 1 own the main to which the MHP will connect and will read the meter. The new water and sewer systems will be owned and maintained by Housing Foundation, Inc. (HFI).

Purpose and Need

The purpose of the project is to replace the existing distribution and service system that is leaking and experiences extreme low water pressure. Water pressure and “bucket” tests have been performed and have documented instances where pressures and flows are significantly below the 35 psi and 5 gpm respective minimum standards. The system has reached and surpassed its serviceable design life. The sub-standard pressures and flows, coupled with the close proximity of the water and sewer mains and services, cross contamination is a possibility. With the circumstances providing a threat to public health, the Owner is currently monitoring the water quality to assure that the water remains potable. Additionally, the extreme amount of leakage to the ground by the degraded water systems is metered water for which the Owner is responsible for the cost.

In a letter from Don Haddox of the State of Vermont Water Supply Division dated 7/7/11 HFI was notified of “minor deficiencies” that needed to be corrected. This included the addition of flushing valves and providing adequate separation from the sewer collection system.

The Water System was issued a Temporary Permit to Operate (TOP) on June 30, 2009 that expires on July 1, 2013.

The sewer collection system has experienced blockages and back-ups associated with reaching its serviceable design life. Due to the age of its original design and construction it does not currently meet the standards outlined in the current State of Vermont Environmental Protection Rules.

Alternatives

1. The upgrade and replacement to the existing water distribution and sewer collection systems and services including fire protection.
2. The upgrade and replacement to the existing water distribution system and sewer collection systems and services NOT including fire protection.
3. “Slip-line” the existing sewer line.
4. Do nothing.

Alternative 1 is what is currently being considered and designed. The preliminary cost for the water construction is \$396,300 and for the sewer construction is \$375,050

Alternative 2 would require smaller water distribution piping and one fire hydrant. The preliminary cost for the water construction is \$323,600 and sewer would remain as with Alternative 1.

Alternative 3 is not viable due to the size and presumed pitch of the existing sewer mains and services. Slip-lining of a pipe would maintain the existing pitch and separations that are currently inadequate. It would result in reduced diameter.

Alternative 4 is not viable due to the condition of the system being substandard and the expiration of the TOP. Doing nothing would ultimately result in a public health problem and the park would be subject to enforcement actions by regulating authorities.

Impact of the Proposed Project on the Environment

Erosion Control – The project is expected to meet the conditions for Low Risk for erosion control and be able to be covered under Construction General Permit 3-9020.

Air Quality – There are no impacts to air quality anticipated. Construction procedures will be subject to erosion control standards that include dust control with water or calcium chloride as necessary.

Water Quality – The elimination of potable water leakage to the ground will result in lower groundwater table and provide for improved ability of the sandy soil at the site to infiltrate surface water and reduce site runoff from storm events. The proper separation of water and sewer systems will reduce the possibility of cross contamination. The repair of the leaking water and sewer mains and services will eliminate the infiltration/exfiltration of the systems to the groundwater.

Environmentally Sensitive Areas

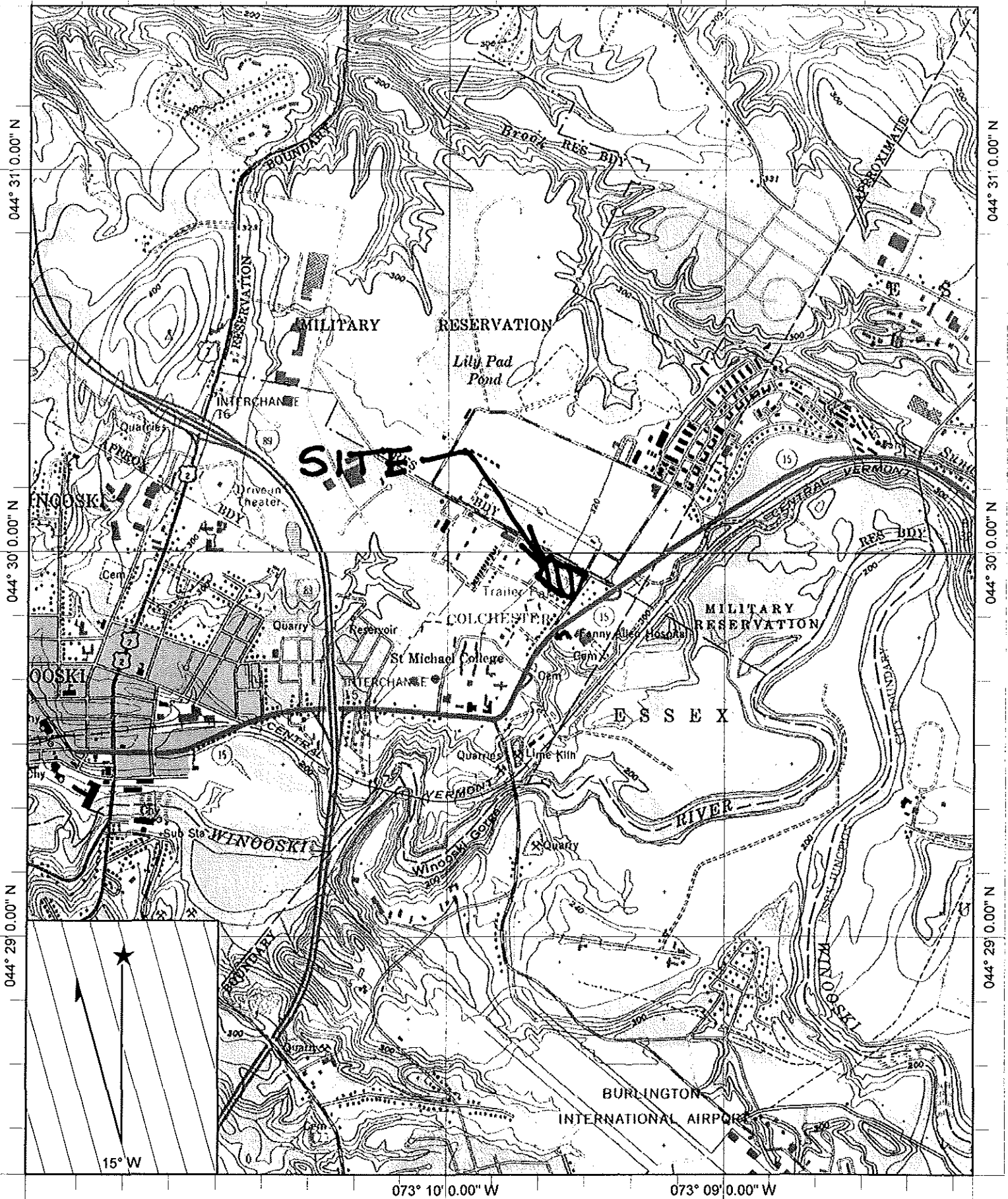
The site consists of a heavily developed and disturbed 6.5 acre site where the disturbance will be restricted to the existing roadways and some lawn areas for the installation of the pump station and valve pit. There will be no disturbance of natural areas or significant increase in impervious area as result of this project.

There are no wetlands, Rare Threatened or Endangered species on the subject parcel (as indicated by the ANR Environmental Interest Locator attached).

A drilled well is located on the adjacent property owned by the Vermont National Guard. The well has been sketched onto the Environmental Interest Locator map. Drilled bedrock wells are required to be located more than 50 feet from a sewer. This well is located greater than 200 meters from the property line and will therefore meet the setbacks from the proposed sewer system.

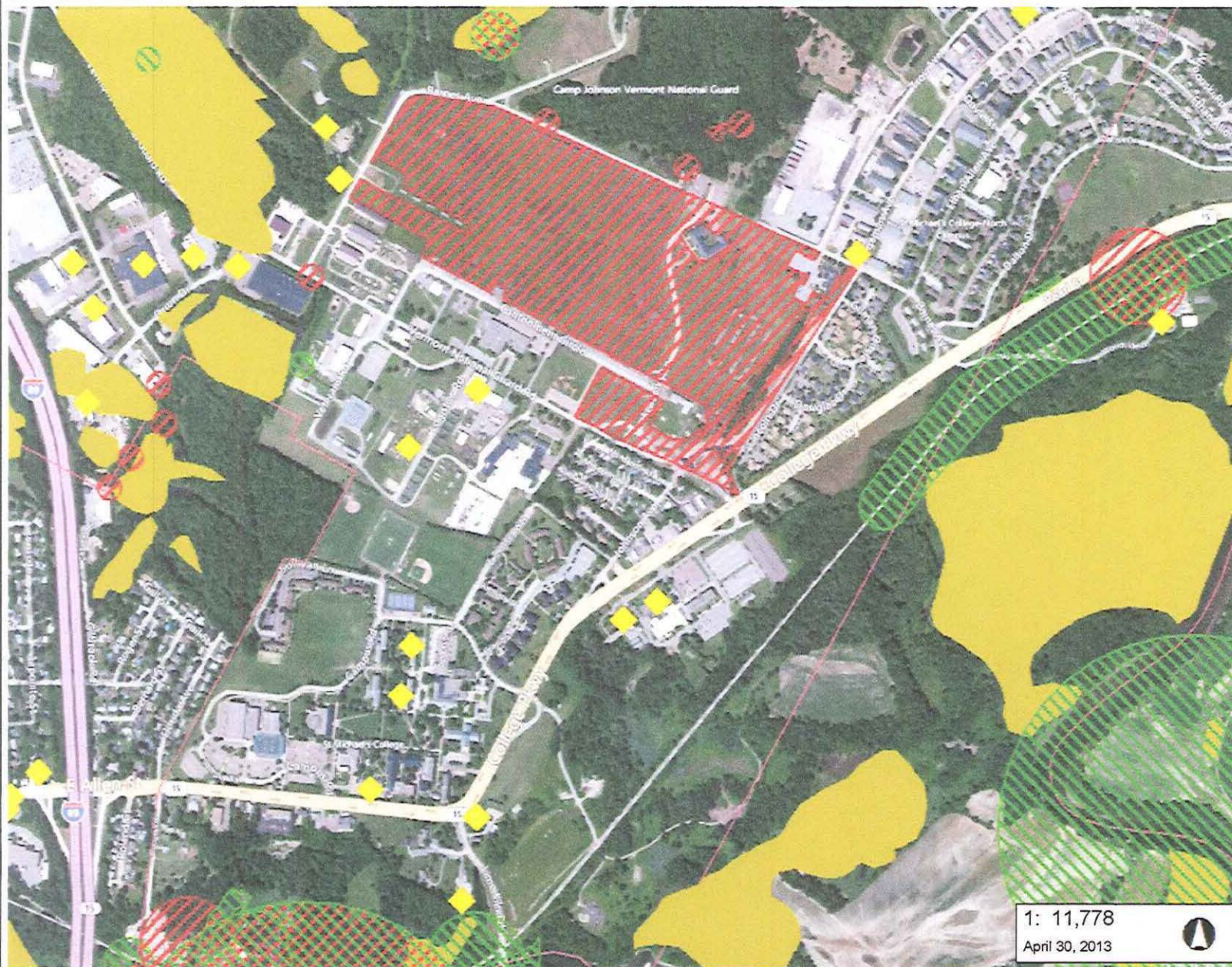
073° 10' 0.00" W

073° 09' 0.00" W



Name: BURLINGTON
 Date: 5/6/2013
 Scale: 1 inch equals 2000 feet

Location: 044° 29' 54.3" N 073° 09' 48.2" W
 Caption: -Windemere Mobile Home Park



LEGEND

- ◆ Hazardous Waste Site
- ▨ Rare Threatened Endangered
- ▨ Threatened or Endangered
- ▨ Rare
- Wetlands - VSWI**
- Class 1 Wetland
- Class 2 Wetland
- SurfaceWaterSPA
- GroundWaterSPA**
- ACTIVE
- PROPOSED
- Town Boundary

1: 11,778

April 30, 2013



NOTES

Map created using ANR's Natural Resources Atlas

598.0 0 299.00 598.0 Meters

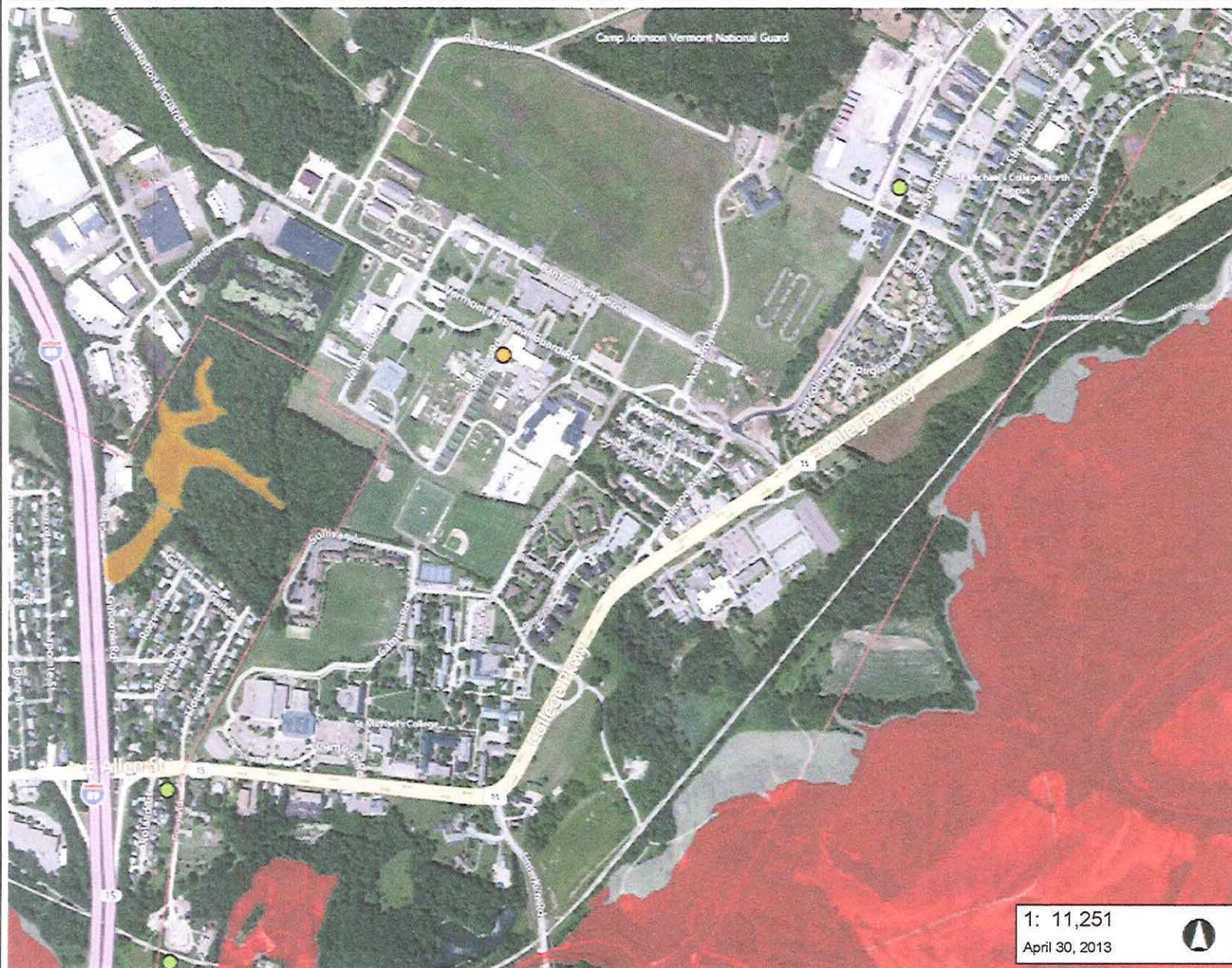
WGS_1984_Web_Mercator_Auxiliary_Sphere

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1" = 982 Ft. 1cm = 118 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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LEGEND

Special Flood Hazard Areas (A Counties)

- AE (1-percent annual chance flood)
- A (1-percent annual chance floodpl)
- AO (1-percent annual chance zone feet)
- 0.2-percent annual chance flood ha

Private Wells

- GPS Location; Field Located with G
- Screen Digitized
- E911 Address
- Unknown
- Welldriller/Clarion

Town Boundary

1: 11,251

April 30, 2013



572.0 0 286.00 572.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

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1" = 938 Ft

1cm = 113 Meters

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NOTES

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