

**Protocol for Assessment of Impacts of Proposed Development**

*Part I: General Site and Habitat Description*

The Krasnow parcel is located at the corner of One Mile Road and Mt. Philo Road in Charlotte (refer to **Map 1. Aerial**). The 88 acre parcel encompassing the proposed subdivision contains approximately 30 acres of open hayfields on the road corner considered prime and statewide agricultural land (refer to **Map 2. Agricultural Soils**). Kimball Brook and associated wetlands flowing through the fields to the north, are mapped as aquatic habitat (refer to **Map 3. Charlotte Wildlife Habitat Map**). Uphill of the hayfields is a mix of hardwood and softwood trees at different stages of succession due to past land use history (refer to **Map 4. Krasnow Land Use**). All of the Krasnow land was in agricultural use as hayfield or pasture when the Krasnows acquired it, including a 36 acre tract originally purchased nearly 40 years ago, and another 75 acres- 30+ years ago.

Areas #1 and 2 including Half Mile Road and the existing homesteads are mapped by Charlotte as linkage habitat and forest habitat. The hardwood area (Area#1) surrounding the three family residences is currently used by the Krasnows for firewood, livestock grazing, mountain biking, hunting and recreational use. A small portion of this hardwood forest (5 acres out of 40+ acres) is proposed for development of Lots 1 & 2 with single family homes. The rest will be incorporated into the existing homestead lots through boundary line adjustments on Lots A, B and C.

Area #2 contains thickets of young cedar, shrubby openings with invasive honeysuckle, and open pasture. It is mapped by Charlotte as linkage habitat. An unmapped seasonal drainage is located on the eastern most portion of the property, and flows to the north into Bingham Brook. This area was cleared and used as pasture less than 10 years ago. The proposed driveway for Lots 3 & 4 is located to the west of Half Mile Road as close to existing development as possible.

Area #3 contains a mix of white pines and cedar along the edges of the hayfield and flat portions of the land, with small patches of hemlocks present. Hardwoods start to dominate up the hillside and contain a mix of white birch, beech, poplar, maple, hophornbeam. The proposed driveway for Lots 5-8 runs along an existing farm road. This area was fenced in and used as pasture by the previous landowner 30 years ago. The Krasnows currently use it for firewood, and have cut trees to maintain views. This area is mapped as forest habitat, linkage habitat and aquatic habitat. A buffer along Lots 6, 7, and 8 and linkages to the surrounding hayfields will protect a wildlife and aquatic corridor.

Area #4 contains the 30 acres of existing hayfields along Mt. Philo Road. It is considered prime and statewide agricultural land, and will be maintained as such through deed restrictions. Lot 9 will contain one single family home nestled along the edge of the woods with access from the shared driveway to Lots 5-8.

Overall, the proposed development maintains over 43 acres of the open fields, wetlands and woodlands by restricting construction to specific building envelopes on each lot. Also, deed restrictions will limit future development on the tract, as no further subdivisions to create additional house lots will be allowed.

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## Part II: Site-Level Details

Confirmed wildlife reported on the enclosed Town of Charlotte Forest Habitat Report #6 for adjacent Mt. Philo State Park includes bobcat, deer, coyote, grouse, Carolina wren and winter wren. Also, the state has reported the uncommon DeKay's brownsnake on Mt. Philo, which uses woodland stream and wetland habitat. The Krasnow property contains habitat that could be used by these above-listed species. A species-level search was conducted on June 1 and June 30, 2015 by McCain Consulting, Inc. Special emphasis was placed on locating Dekay's brownsnakes, but none were found. Wildlife observations included red-back salamanders, wood frogs, American toad, turkey, deer, fox sign, song sparrow, robin, ovenbird, cardinal, red-winged blackbird, European starling.

20 rare plant species have been identified by the VT Natural Heritage Program on Mt. Philo (refer to **Map 5. Rare Species**). Half of these records are historic, from the early 1900s. Most of the rare species represent cliff dwelling plants, and would not have proper habitat on the subject parcel. The Krasnow property was surveyed for two species that could be found in woodland habitat on the property: *Panax quinquefolius* (American ginseng) and *Thelypteris hexagonoptera* (Broad beech fern). They were reported from the base of the Mt. Philo cliffs. These two species were not found on the Krasnow property during the species-level inventory conducted on June 1 and 30, 2015.

Small-scale habitats and features observed during site visits include Kimball Brook, seasonal seeps/drainages, and associated wetlands (**refer to Map 6. Streams & Wetlands**). These features are located on Lots 2, 8 & 9. Streams, wetlands, and seasonal drainages will be protected by buffers during design and construction of the project. Other small-scale habitats observed on the property include large snags, woodpecker cavities, sugar maples and hickory trees over 16" dbh. The property does not contain vernal pools, rare species, late successional forest, raptor nests, dens, caves, ledges or outcrops.

## Part III: Ecological Principles Involved

### 1. Core Habitat

A portion of the forest on the Krasnow property is included in an area mapped as "Core Habitat" by the Town of Charlotte (see **Map 3**). This mapping unit is based on the proximity of land to human development; specifically land located 100 meters from a zone of human disturbance. Human disturbance is defined as land that is developed as industrial, residential, agricultural or roads. The mapping unit attempts to define areas that would experience less anthropogenic edge effects (or human disturbance). Lots 6 & 7 are located on the edge of the mapped core habitat. Small building envelopes have been designated for these lots to maintain the woodlands in this area. The length and width of the shared access road and driveways have been minimized to the extent possible. As shown on the site plan, much of this core habitat area is designated as open space and a corridor has been protected.

### 2. Priority Species Habitat

Priority species listed in the 2006 Vermont Wildlife Action Plan have been observed on Mt. Philo or on adjacent property according to the Town of Charlotte Forest Habitat Report #6

(enclosed). Priority species include bobcat, upland sandpiper, and brownsnake. As mentioned above, the habitat types used by these species extend on the Krasnow property and include open meadows, woodlands, streams & wetlands. A species level assessment was conducted on the property to determine whether bobcats, sandpipers or brownsnakes are using the Krasnow land. These species were not observed during the species-level inventory on June 1 and 30<sup>th</sup>, 2015. The project has been designed to minimize impacts to habitats including streams, wetlands, and meadows.

3. Rare Landscape Features

Rare, significant and exemplary natural communities and aquatic features are not mapped on the Krasnow property or any surrounding parcels.

4. Connectivity

Two areas of the Krasnow property are mapped as linkage habitat by the Town of Charlotte, however no database reports are provided for the habitat. One linkage area is located on the west side of the property, generally following the seasonal drainages to Kimball Brook and adjacent wetlands and hayfields. Another linkage area is mapped along Half Mile Road, where the 3 existing Krasnow houses are located. It appears this linkage connects to drainages, hayfields and wetlands associated with Bingham Brook (see **Map 3**). Common backyard wildlife, as well as priority species on Mt. Philo, could be using these linkages. A species-level assessment was conducted on the property, and observations in this area included turkey, deer, red-backed salamanders, American toad, and common birds. Appropriate project layout will limit human impacts in the habitat, such that the linkages will continue to be available.

5. Ecological Processes

Documented ecological processes located on the Krasnow property include a portion of the Source Protection Area for the Champlain Water District, and small seasonal drainages that flow to Bingham Brook and Kimball Brook (refer to **Map 7. Champlain Water District Source Protection Area**). Processes are also present in the succession of the woodlands and hayfields on the property. The proposed development will be designed to protect surface and ground water, and to prevent stormwater runoff. Woodlands will be protected to the extent possible by minimizing building envelopes and associated infrastructure. Hayfields will remain in agricultural use or as open meadows.

6. Rare Species Protection

Rare species have not been observed on the Krasnow property. Twenty rare plant species have been identified by the VT Natural Heritage Program on nearby Mt. Philo (see **Map 5**). Half of these records are historic. Species observed in the past 20 years are listed below. These species represent mostly cliff dwelling plants, and would not have proper habitat on the subject parcel.

Species	Conservation Status	Last Observed
Rock-cress	Rare	2006
Nodding stickseed	State threatened	2012
Rattlesnake hawkweed	Rare	2000
Sprout muhly	Rare	2006

American ginseng	Uncommon	2006
Douglas Knotweed	State endangered	2011
Rock spikemoss	Uncommon	2011
Broad beech-fern	Rare	1993
Tall cinquefoil	Uncommon	2011

During the species-level inventory on June 1 and 30, 2015 a search for broad beech-fern and American ginseng were included. These plants were originally located at the base of the Mt. Philo cliffs in 1993 and 2006 respectively. They were not found on the Krasnow property during the recent inventory.

Rare animal species found on Mt. Philo or adjacent land include upland sandpiper, and Dekay's brownsnake. These animals have not been reported on the Krasnow property, and a species-level inventory did not locate them on the parcel. The proposed project includes protection of the hayfields, wetlands, streams, and seasonal drainages on the property which will help protect suitable habitat for these animals. Impacts to the woodland will also be minimized by designating small building envelopes.

#### 7. Representation

“Poorly represented land types” as described in the Town of Charlotte “Protocol for Assessment of Impacts” are associated with certain soil types. Some of these soil types are found on the Krasnow property including Vergennes, Georgia, and Stockbridge soils (refer to **Map 8. Soil Types**). Other than direct impacts from buildings, roads and lawns, the natural and semi-natural vegetation will remain undisturbed and 35+ acres of the property will be protected as open space to include meadows, wetlands, streams, and woodlands.



# Map 1. Aerial

Vermont Agency of Natural Resources

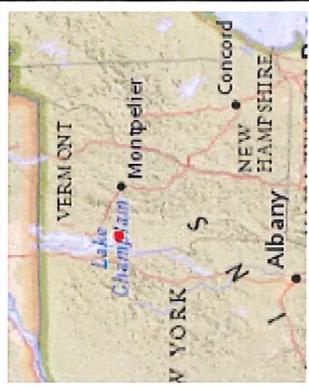
vermont.gov



1: 19,202  
May 18, 2015

975.0 0 488.00 975.0 Meters  
1" = 1600 Ft. 1cm = 192 Meters  
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### LEGEND

- Waterbody
- Stream
- Town Boundary

### NOTES

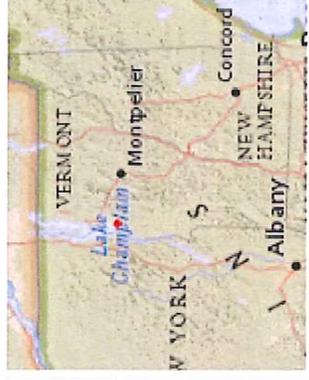
Map created using ANR's Natural Resources Atlas



# Map 2. Agricultural Soils

Vermont Agency of Natural Resources

vermont.gov



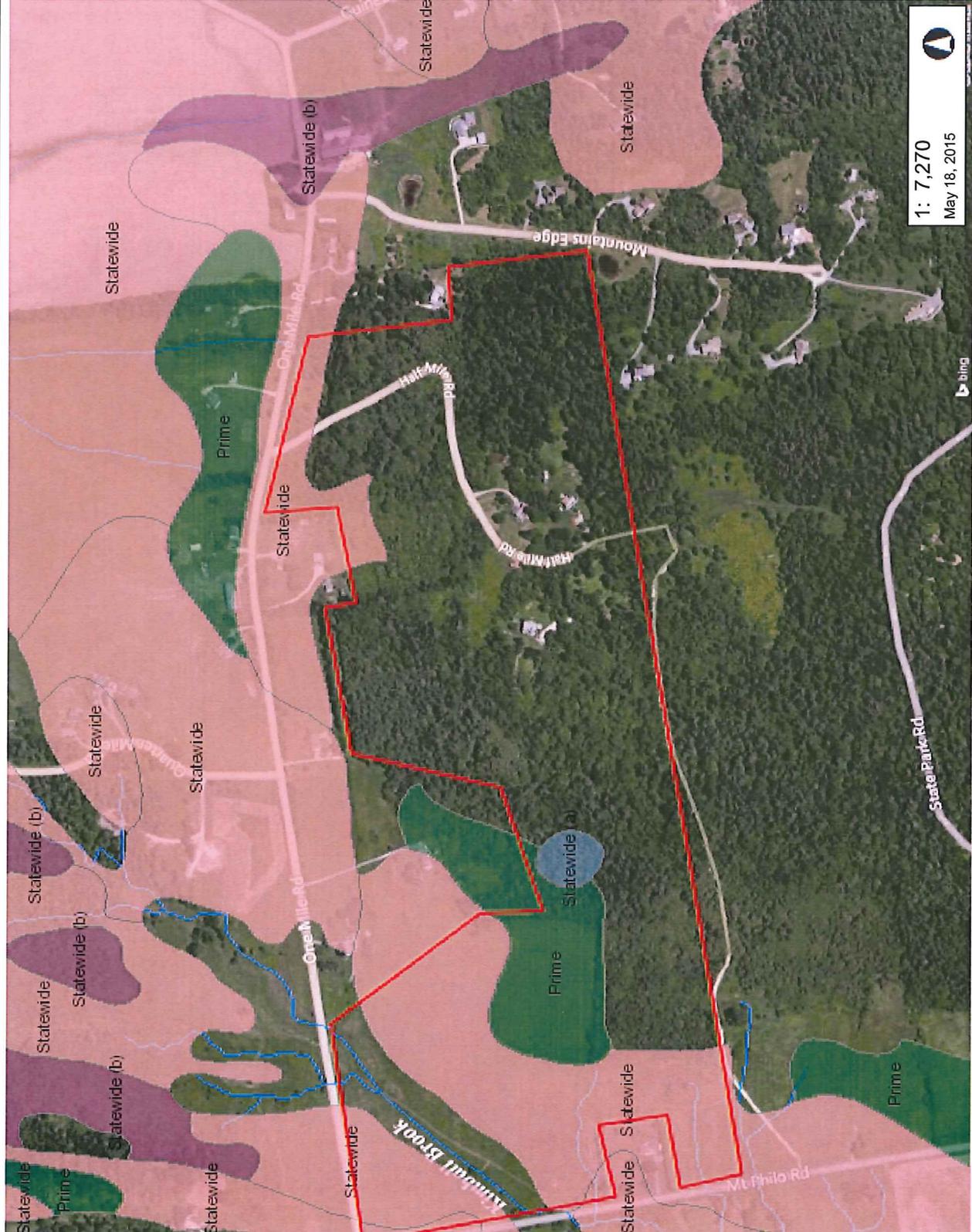
### LEGEND

Soils - Prime Agricultural

- Local
- Local (b)
- Not rated
- Prime
- Prime (b)
- Prime (f)
- Statewide
- Statewide (a)
- Statewide (b)
- Statewide (c)
- Stream

### NOTES

Map created using ANR's Natural Resources Atlas



1: 7,270  
May 18, 2015

369.0 0 184.00 369.0 Meters

1" = 606 Ft. 1cm = 73 Meters

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

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# Map 3. Charlotte Wildlife Habitat



May 18, 2015

- Forest Habitat
- Aquatic Habitat
- Linkage Habitat
- Charlotte Parcel - 2014 Data
- StreamCenterline
- TownBoundary
- FerrisburghParcel
- Core Habitats
- WaterBody

Charlotte Conservation Commission  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

FOR PLANNING PURPOSES ONLY



# Map 4. Krasnow Land Use

Vermont Agency of Natural Resources

vermont.gov



## LEGEND

- Waterbody
- Stream

## NOTES

Map created using ANR's Natural Resources Atlas



1: 7,270  
May 18, 2015



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1" = 606 Ft. 1cm = 73 Meters  
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# Map 6. Streams & Wetlands

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**LEGEND**

Wetlands - VSWI

- Class 1 Wetland
- Class 2 Wetland

Wetlands Advisory Layer

- Waterbody
- Stream

**NOTES**

Map created using ANR's Natural Resources Atlas



1: 6,398  
May 18, 2015

325.0 0 162.00 325.0 Meters

1" = 533 Ft. 1cm = 64 Meters

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# Map 7. Champlain Water District SPA

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## LEGEND

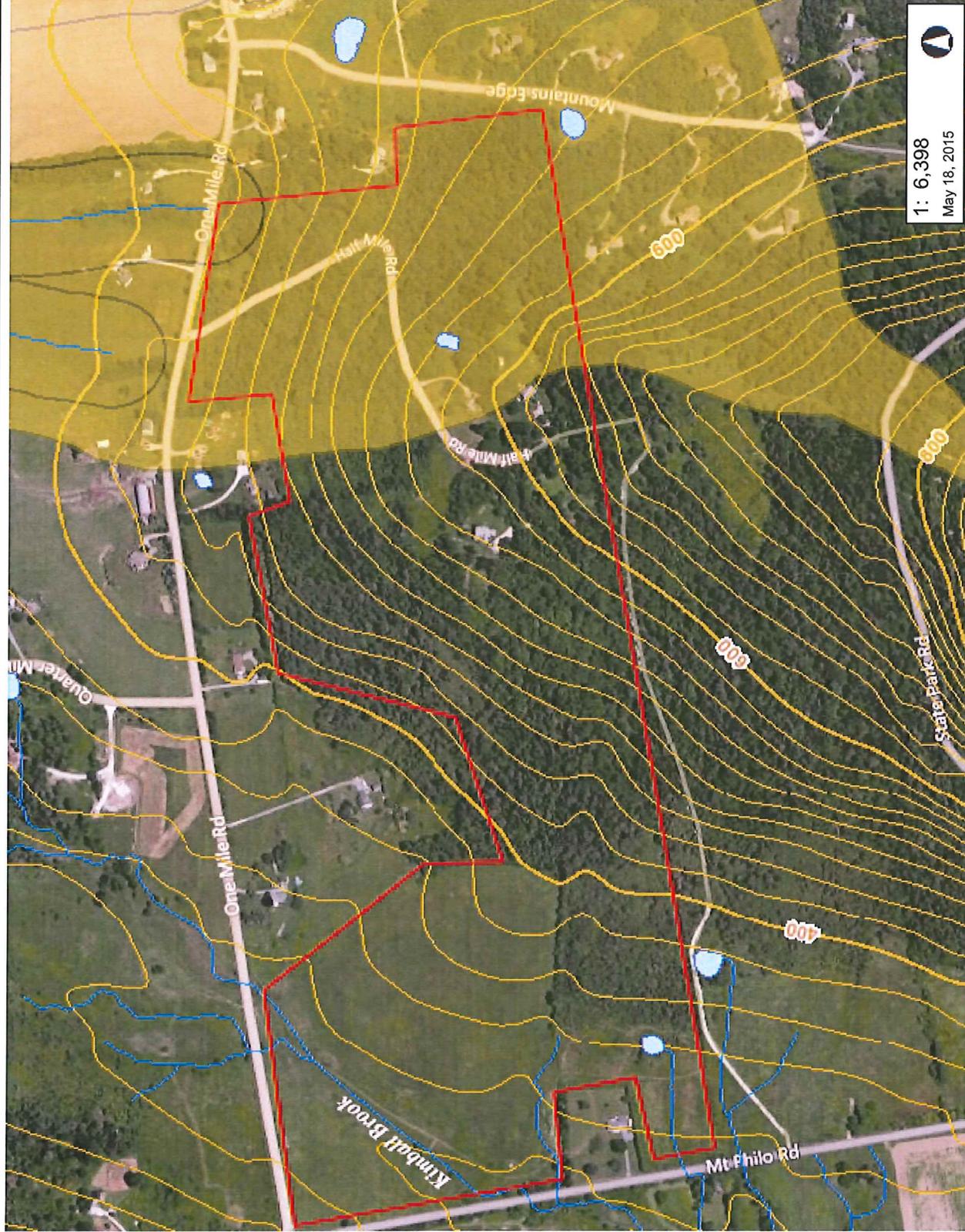
### Surface Water SPA

- Active
- Inactive

### Ground Water SPA

- Active
- Proposed
- Inactive

- Waterbody
- Stream



1: 6,398  
May 18, 2015

325.0 0 162.00 325.0 Meters

1" = 533 Ft. 1cm = 64 Meters

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## NOTES

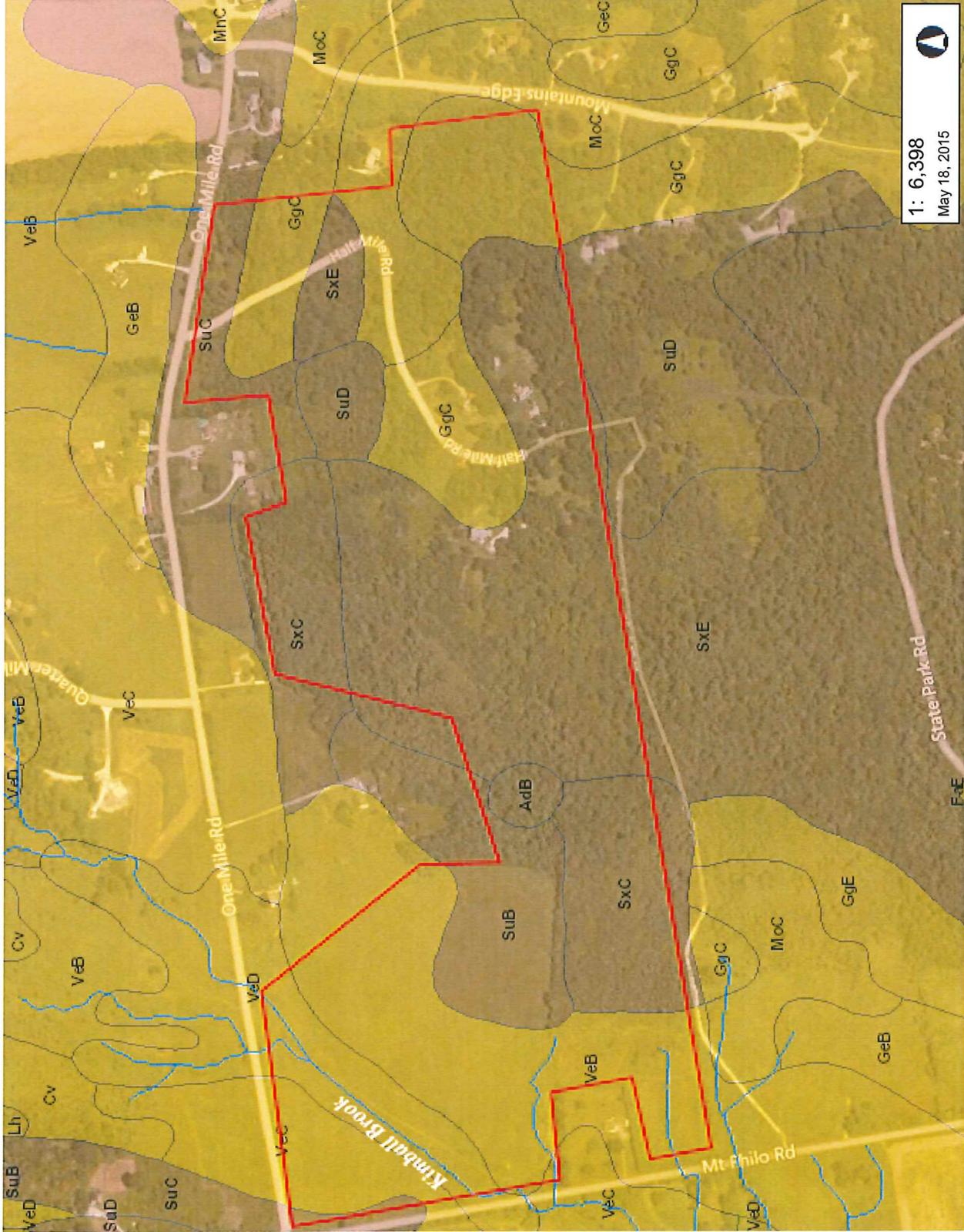
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# Map 8. Soil Types

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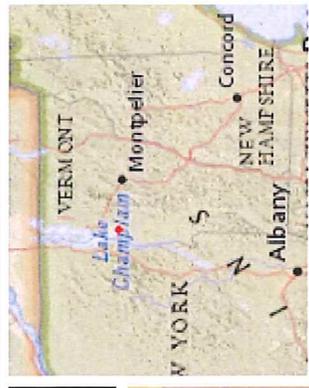
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May 18, 2015

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WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere 1" = 533 Ft. 1cm = 64 Meters

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### LEGEND

**Soils**

- MUKIND <all other values>
- Association
- Consociation
- Undifferentiated group
- Complex
- Stream

### NOTES

Map created using ANR's Natural Resources Atlas



**Map 9. Steep Slopes**  
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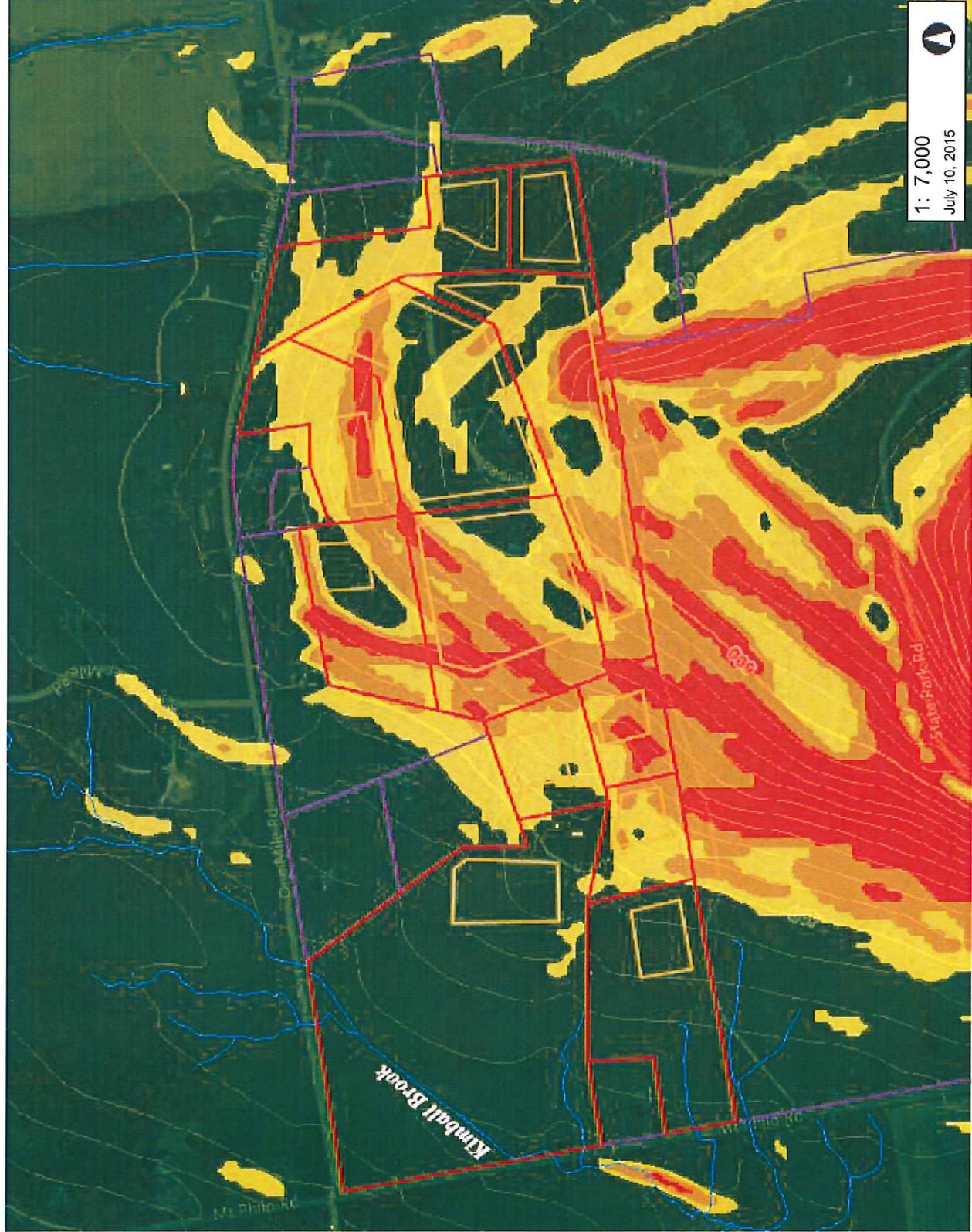


**LEGEND**

- Stream
- Town Boundary
- Slope
  - <15%
  - 15-20%
  - 20-25%
  - >25%

**NOTES**

Map created using ANR's Natural Resources Atlas



1: 7,000  
July 10, 2015

356.0 0 178.00 356.0 Meters  
1" = 583 Ft. 1cm = 70 Meters  
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