

**INVENTORY OF VERNAL POOLS  
ALONG THE CONNECTICUT AND MASSACHUSETTS PORTIONS OF  
THE CONNECTICUT EXPANSION PROJECT**

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## **1.0 Introduction**

Tennessee Gas Pipeline Company (“TGP”), a subsidiary of Kinder Morgan (“KM”) and a major supplier of natural gas to utilities, distribution companies and power generators in the northeast, plans to construct, install, and operate the Connecticut Expansion Project (“the Project”) to increase pipeline capacity and provide additional firm natural gas transportation service into northeast markets. The Project includes the construction, installation, and operation of three pipeline looping segments, one Mainline Valve (“MLV”), minor tie-in piping, and relocating certain pigging facilities and includes components in Connecticut, Massachusetts and New York. TGP will construct, own, and operate the proposed Project facilities.

This report provides a summary of vernal pool habitat investigations conducted along the Connecticut and Massachusetts portions of the Project. These investigations provide data in support of TGP’s New England Division’s U.S. Army Corps of Engineers (USACE) Section 404 permit application, the Connecticut Department of Energy and Environmental Protection (CT DEEP) Section 401 Water Quality Certification application, the Massachusetts Department of Environmental Protection (MA DEP) Section 401 Water Quality Certification Application, as well as local wetland filings and other required permits.

The Massachusetts Loop is located in Sandisfield, Massachusetts and consists of approximately 3.8 miles of new 36-inch outside diameter (“OD”) pipe co-located within or adjacent to TGP’s existing 200 Line Mainline right-of-way (“ROW”). The loop segment commences near TGP’s existing Mainline Valve (“MLV”) 258 adjacent to Town Hill Road and extends southeast to an area southeast of South Beech Plain Road. The Connecticut Loop commences in Agawam, MA, in the yard of Compressor Station 261 and extends southward approximately 8.1 miles to the terminus in Suffield, CT. The relatively short segment of pipeline (0.11 miles) located in Agawam consists of 24-inch OD pipe co-located within or adjacent to TGP’s existing ROW, terminating at the Massachusetts and Connecticut state line.

On behalf of TGP, AECOM Environment (AECOM) conducted vernal habitat surveys on the subject ROWs, along which the proposed Project would be located. As part of the

surveys, AECOM surveyed the entire width of the ROWs, including the areas proposed for the location of the new pipeline facilities and the areas in the vicinity of the existing pipeline, where TGP performs routine vegetation management to promote herbaceous and scrub/shrub/sapling habitats consistent with natural gas pipeline operation.

The vernal pool field investigations were conducted in the spring of 2014. This report discusses the field methods used to identify vernal pool habitats and summarizes the findings of the surveys. Vernal Pool Habitat Data Forms for all pools, documenting the biological evidence which supports these determinations, are included in Attachment A. Representative photographs of vernal pool habitats are included in Attachment B. Mapping showing the locations for confirmed vernal pool habitats is included in Attachment C.

## **2.0 Vernal Pool Habitat Definitions**

State and federal agencies apply slightly different definitions to describe vernal pools. The following summarizes the definitions used by Connecticut, Massachusetts and the USACE.

The CT DEEP defines vernal pools as small bodies of standing fresh water found throughout the spring that typically result from various combinations of snowmelt, precipitation, and high water tables associated with the spring season. These depressions can be natural or man-made (CTDEEP, 2011). In most years, these areas become completely dry, losing water through infiltration and evapotranspiration. Vernal pools vary in many aspects including appearance, water source, hydroperiod, water quality and surrounding habitats. Field investigations must coincide with the amphibian breeding and/or larval development time periods to determine if an area is functioning as a vernal pool.

In Connecticut, to meet the definition of a vernal pool, the following four criteria must be met:

- Contains water for approximately two months during the growing season;
- Occurs within a confined depression or basin that lacks a permanent outlet stream;
- Lacks any fish populations; and
- Dries out most years, usually by late summer.

The Massachusetts Wetlands Protection Act (310 CMR 10.00) defines vernal pool habitat as “confined basin depressions, which, at least in most years, hold water for a minimum of two continuous months during the spring and/or summer, and which are free of adult fish populations. These areas are essential breeding habitat, and provide other extremely important wildlife habitat functions during the non-breeding season as well, for a variety of amphibian species such as wood frogs (*Lithobates sylvatica*) and the spotted salamander (*Ambystoma maculatum*) and are important habitat for other wildlife species.”

Many organisms critically rely upon vernal pool habitat for reproductive success. These species are referred to as obligate vernal pool species. According to the CT DEEP (2011), obligate vernal pool species that may have ranges within the Project area include the following:

- wood frog (*Lithobates sylvatica*)
- Eastern spadefoot toad (*Scaphiopus holbrookii*)
- spotted salamander (*Ambystoma maculatum*)
- Jefferson salamander (*Ambystoma jeffersonianum*)
- marbled salamander (*Ambystoma opacum*)
- fairy shrimp (*Branchiopoda anostraca*)

The Eastern spadefoot toad and Jefferson salamander are listed by Connecticut as State-endangered and Species of Special Concern, respectively. During the vernal pool

surveys, neither of these species were observed on the Project ROWs. In addition, Project specific consultations with the Connecticut Natural Diversity Database (CT NDDDB) did not result in the identification of the potential occurrence of any rare amphibians in relation to the Project.

Facultative vernal pool species are fauna that utilize, but do not necessarily require, vernal pools for reproductive success. Examples of facultative species include spring peeper (*Pseudacris crucifer*), spotted turtle (*Clemmys guttata*), red-spotted newt (*Notophthalmus viridescens viridescens*), green frog (*Rana clamitans*) and bull frog (*Rana catesbeiana*). Facultative species such as those mentioned above can utilize vernal pool habitats. However, these species can also breed successfully in the margins of permanent water bodies including streams, rivers, and lakes.

The USACE's Programmatic General Permit (PGP) for the State of Connecticut defines vernal pools as: an often temporary body of water occurring in a shallow depression of natural or human origin that fills during spring rains and snow melt and typically dries up during summer months. Vernal pools support populations of species specially adapted to reproducing in these habitats. Such species may include wood frogs, mole salamanders (*Ambystoma* sp.), fairy shrimp, fingernail clams (*Sphaeriidae*), and other amphibians, reptiles and invertebrates. Vernal pools lack breeding populations of fish. It is noted in the PGP that the USACE will determine on a case-by-case basis which vernal pools are within their jurisdiction and that all vernal pools are subject to the jurisdiction of the CT DEEP under Connecticut Water Quality Standards.

Wetland areas associated with the Project ROWs were surveyed to identify the presence or absence of obligate vernal pool species (presence/absence surveys). Where obligate species were observed, the area was further investigated to identify whether the state and federal vernal pool criteria had been satisfied. Observed facultative species were noted on the Vernal Pool Data Forms (Attachment A), but these species were not used to identify an area as a vernal pool.

For the purposes of the ROW investigations and this report, a vernal pool was defined as an area that held obligate species in the 2014 breeding season and that met the majority of the state and federal vernal pool criteria discussed above. Given access

constraints to off ROW areas and the temporally limited nature of the observations, it was not possible to be sure every aspect of the criteria was being met in all cases.

In addition, obligate vernal pool species were sometimes observed breeding in perennial water bodies. Areas where this occurred were not identified as a vernal pool due to the presence of a fish population. In cases where large wetland systems exhibited expansive flooded areas within which obligate vernal pool species were documented as breeding, the breeding evidence was recorded and, if appropriate based upon the observed vernal pool criteria, the areas were identified as a vernal pool. These types of areas are typically referred to as “cryptic vernal pools” and, as their name suggests, may be easily overlooked. Such determinations were made by field biologists during the 2014 surveys.

### **3.0 Field Investigations**

AECOM conducted the vernal pool surveys in April and early May of 2014. These survey periods correspond to the appropriate times of the year to identify areas that may function as vernal pools based on the presence of egg masses and developing larvae.

All wetland areas associated with the Project corridor were investigated to determine if breeding amphibians, both obligate and facultative, were present in an effort to identify vernal pools. To facilitate the surveys, biologists were provided with Project specific wetland mapping, dip nets and digital cameras.

The surveys were done after the first significant rainfall events in the spring, when evening low temperatures remained in the 40s (° Fahrenheit). These weather conditions facilitate inward migration of amphibians to the pools for the purpose of breeding. Biologists conducted visual surveys and used dip nets to sweep the water column to assist in determining the presence or absence of amphibians and other vernal pool species. Choruses of breeding frogs were noted when audible.

Representative photographs of the wetlands and observed species were taken at the majority of the identified vernal pool habitats (Attachment B). Evidence of amphibian breeding, including but not limited to wood frog chorusing, mole salamander

spermatophores, egg masses and amphibian larvae, was recorded on Vernal Pool Data Forms that are included in this report as Attachment A. Additional data recorded on the data forms included the approximate size and depth of the observed breeding pool(s), substrate type and general comments, if any.

Lastly, the biologists then sketched the extent of the documented vernal pool habitat onto field mapping and/or used a global positioning system (GPS) data collection device to locate the boundaries or center of pool where possible. Field sketches and GPS data were then digitized onto updated Project mapping. Identified vernal pools are presented on mapping in Attachment C.

Life history information for amphibian and reptile species observed during the course of the surveys is presented below.

### **Wood Frog**

In New England, the wood frog is among the first species to arrive at the breeding pools and begin their loud, duck like mating call. Wood frogs have been documented as breeding in open and closed canopy wetlands (Werner and Glennemeier, 1999). The timing of their movement varies annually, depending on climatic conditions but in general terms they immigrate to breeding sites in most years during late February to early April. The large scale migration to the breeding pools generally occurs at night during the first few heavy downpours which are accompanied by warmer air temperatures.

Except for the brief period spent at breeding habitats, wood frogs are mainly terrestrial. They utilize all types of forests and woodlands, including maritime, deciduous, and coniferous (Klemens, 1993); as well as a variety of other types of habitats. During the coldest months wood frogs hibernate under leaf litter, rotting logs, stumps, rocks, and moss. Wood frogs have perfected the cryogenic freezing process. In the winter, as much as 35-45% of the frog's body may freeze, and turn to ice. Ice crystals form beneath the skin and become interspersed among the body's skeletal muscles. During the freeze the frog's breathing, blood flow, and heartbeat cease. Freezing is made possible by specialized proteins and glucose, which prevent intracellular freezing and dehydration.

Compared to other amphibian species that utilize vernal pools for breeding in southern New England, the wood frog is one of the only species that truly can be considered obligate to vernal pools. Wood frogs successfully breed in pools with shorter hydroperiods than any other amphibian in this region, with tadpole metamorphosis often complete by mid-July. Therefore, ponds that dry by August still provide perfectly suitable breeding habitat, whereas it takes much longer for the young of most other species to complete metamorphosis.

Wood frog egg masses are often deposited near the edge of a breeding pool on the water's surface where water temperatures are typically highest. They are usually attached to submerged woody debris and/or herbaceous vegetation. Wood frog egg masses can easily be distinguished from those of the spotted salamander by the lack of an outer gelatinous sheath.

Newly hatched larvae feed on their egg masses and associated algae, as wood frog tadpoles are microphagous filter-feeders with a largely herbivorous diet. Larger tadpoles use their specialized mouth parts to feed on algae and various microorganisms scraped from aquatic vegetation, decaying plants and some animal matter. Adult wood frogs feed on a variety of invertebrates including flies, beetles, spiders, earthworms, moth larva, slugs, snails, and annelids (Klemens, 1993).

### **Spotted Salamander**

In New England, the spotted salamander is a very common and widespread mole salamander. Collectively, the mole salamanders are a secretive group of salamanders that are primarily active at night. These animals are rarely seen except during their nocturnal migrations to and from their breeding pools during their brief early spring breeding season. Often, spotted salamanders can be observed migrating to vernal pools in conjunction with wood frogs. Within a few days after mating, eggs are deposited in firm spherical or kidney-shaped masses and in most cases are attached to submerged objects such as woody debris or other organic material.

Once hatched, larvae feed predominantly on very small aquatic invertebrates. Larger individuals feed on snails, clams, oligochaete worms, small aquatic insects and their

larvae and other invertebrates (Kenney and Burne, 2001). In general, zooplankton is the dietary staple of larvae of all size classes. As adults, spotted salamanders are generalized carnivores that forage in upland habitats for a variety of invertebrates including earthworms, snails, slugs, insects and larvae, spiders, and beetles (DeGraaf and Yamasaki, 2001).

While breeding and larval development takes place in aquatic habitats, during most of the year, spotted salamanders reside in upland forests away from breeding pools. Adults typically reside up to 200 meters from breeding pools but have been documented moving greater distances. Spotted salamanders typically live in burrows created by small mammals such as the short-tail shrew (*Blarina brevicauda*). They appear to be habitat generalists, and have been documented in forest habitats including deciduous, coniferous and mixed forest. However, they are most abundant in mature deciduous or mixed deciduous woodlands.

### **Marbled Salamander**

The marbled salamander is an unusual mole salamander in that in Connecticut, it is the only species that breeds in the late summer and early fall, has eggs that hatch in November after pools fill with water, and has larvae that overwinter in vernal pools. All other species breed in the spring (Klemens, 1993). Marbled salamanders tend to prefer large, undisturbed tracts of forest, although they can also occur in distinct, large forested tracts of land (Paton and Egan, 2001). Klemens (1993) also found marbled salamanders were more prevalent in rural areas of Connecticut. However, he also collected some individuals in suburban and urban areas.

In Connecticut, marbled salamanders typically breed in pools found in mixed deciduous or coniferous forest stands. This species appears to prefer dry, friable soils including sand and gravel deposits, as well as rocky slopes, although they are sometimes found in low-lying swampy areas (Klemens, 1993). Marbled salamanders are thought to inhabit somewhat drier areas than other species of *Ambystoma* (DeGraaf and Yamasaki, 2001).

In New England, adults start to immigrate to breeding ponds around the 1<sup>st</sup> of August. Adults are generally only active on rainy nights. The majority of adults are at breeding



pools by the 26<sup>th</sup> of August, with some stragglers arriving as late as the 10<sup>th</sup> of September (Paton and Crouch, 2002). Klemens (1993) documented peak breeding in Connecticut from mid-September to early October. Eggs are oviposited in a dry pool area, singly, in small depressions usually beneath a sheltering object such as logs, bark, leaf mold, or other organic debris. Eggs hatch in early November as ponds refill and eggs are flooded. The larvae then overwinter in the pools.

Marbled salamander larvae eat small aquatic insects, crustaceans, and other small invertebrates. They are also cannibalistic. Once wood frog eggs hatch in the spring, marbled salamander larvae readily feed on larval wood frogs and spotted salamanders (Klemens, 1993). Adult marbled salamanders feed on adult and larval insects and crustaceans. They also take earthworms and mollusks (DeGraaf and Yamasaki, 2001).

### **Spring Peeper**

Spring peepers are among the most common frog species in southern New England. However, their diminutive size and cryptic coloration prevent most people from ever noticing them. Ironically, almost everyone has heard their springtime mating calls but fail to recognize the source. When not at breeding pools/ponds, peepers are habitat generalists and utilize habitats which range from mature forests to old field habitats. Although they are most commonly found in or near moist deciduous woodlands they also can be found in coniferous forests, grassy meadows, shrubby fields, gardens, sandy coastal dune habitats, as well as pine barrens (Klemens, 1993).

In southern New England (Rhode Island), spring peepers are found at breeding pools/ponds from mid-March through May (Paton et al., 2000). Once there, males establish territories from which they actively call to attract females. After pairing up, females deposit eggs on the pool/pond bottom under organic debris such as dead leaves. Upon hatching, larvae tend to congregate in the warm shallows of ponds, in areas with dense vegetation where they are usually "inactive and benthic" - a strategy used as an anti-predator defense (Lawler, 1989).

Spring peeper larvae feed on small aquatic organisms such as diatoms and algae found on submerged organic debris. Adult peepers feed on a variety of small invertebrates,

and thus, are beneficial to the environment by acting as natural pest control agents. Spiders account for the bulk of their diet (48%), although they also gorge themselves on mites, sowbugs, leafhoppers, ants, harvestmen, nematode worms, and lepidoptera (moth and butterfly) larvae (Gilhen, 1984).

### **Spotted Turtle**

The spotted turtle is a small turtle (3.5 to 5.5 inch carapace) which favors clean, shallow, slow moving bodies of water with muddy or mucky bottoms. They reside in marshy meadows, forested wetlands, boggy areas and beaver ponds. This turtle has yellow spots on the head, neck, legs, and upper shell or carapace. Background coloration is black. The number and arrangement of spots is extremely variable and changes with age. Hatchling turtles usually have one spot on each plate. Older individuals can be well sprinkled with 100 or more spots but occasionally all black specimens are observed.

Spotted turtles are active from March to October and may be seen singly or in groups basking in the sun. Diet consists of amphibian eggs and larvae, snails, leeches, worms, slugs, spiders and carrion. Diurnal activity is dependent on the time of year and temperature. Early and late in their activity period, daylight activities are spent hunting and basking in the sun. In the evening, spotted turtles submerge and spend the night in the substrate of their wetland habitats or spend the night under vegetation. In summer, when surface waters are limited, spotted turtles may aestivate (be dormant) for extended periods.

Spotted turtles reach sexual maturity at about 7-10 years of age. Mating occurs from March to May and usually takes place in the water. An open site with good sun exposure, such as a field or the edges of roads is most often chosen for nesting. However, spotted turtles may also deposit their eggs in vegetation such as tussock sedge (*Carex stricta*). The female uses her hind legs and feet to dig a hole that is about 2 to 2.5 inches deep and 2 inches wide. She then lays 3-6 oval shaped eggs that have thin, flexible shells and then covers the eggs.

## **4.0 Results**

As summarized in Table 1, based on the 2014 breeding season field surveys, 32 wetlands located along the Project corridor were determined to contain vernal pools for obligate species. Several larger wetlands were found to contain multiple vernal pools. As a result, a total of 50 vernal pools were identified along the Project corridor and ROWs.

Digital aerial mapping, provided in 1"=200' Mapsheets in Attachment C, identifies the delineated wetlands and vernal pools along the ROWs for Massachusetts and Connecticut. For wetlands that encompass vernal pools, the vernal pools depicted represent the areas that could be successfully utilized by obligate vernal pool species. Distinct areas within the overall vernal pool where specific data was collected are known as the data collection areas. The size of the data collection areas, as well as the overall vernal pool dimensions, represent data collected during the spring season of 2014 and can be expected to vary from year-to-year based upon seasonal fluctuations in the water table caused by annual variations in the amount and timing of precipitation. These hydrologic variations could in turn affect where exactly amphibians would deposit egg masses in a given year.



**Table 1: Vernal Pool Habitat Identified Along the Proposed Project ROWs**

Municipality	Vernal Pool Number <sup>1</sup>	Associated Wetland <sup>2</sup>	Adjacent Milepost <sup>3</sup>	Mapsheet Number <sup>4</sup>	Species Observed and/or Heard	Existing Cover Type
<b>Connecticut 8.1 Mile Loop Mapsheets 1 through 8</b>						
Agawam, MA	VP WMA01A	WMA-01A	0.0	1 of 8	>1,000 wood frog tadpoles	PFO
Suffield	VP WCT5	WCT-5	1.0-1.5	2 of 8	2 spotted salamander egg masses	PFO
Suffield	VP WCT6-1	WCT-6	1.0-1.5	2 of 8	>200 wood frog tadpoles, 6 spotted salamander egg masses	PFO
Suffield	VP WCT6-2	WCT-6	1.0-1.5	2 of 8	50-100 wood frog tadpoles	PFO
Suffield	VP WCT7	WCT-7	1.0-1.5	2 of 8	7 spotted salamander egg masses	PEM
Suffield	WCTVP-2	Unidentified	1.0-1.5	2 of 8	3 spotted salamander egg masses	PFO
Suffield	VP WCT9	WCT-09	1.0-1.5	2 of 8	2 spotted salamander egg masses	PFO
Suffield	VP WCT11	WCT-11	1.5	2 of 8	>100 wood frog tadpoles, 5 spotted salamander egg masses	PFO/PSS
Suffield	WCT13-VP1	WCT-13	2.0	3 of 8	Numerous wood frog tadpoles	PFO
Suffield	WCT18-VP1	WCT-18	2.5-3.0	4 of 8	Numerous wood frog tadpoles, 2 spotted salamander egg masses	PFO
Suffield	WCT32-VP1	WCT-32	4.5-5.0	5 of 8	Numerous wood frog tadpoles, 7 spotted salamander egg masses, numerous fairy shrimp	PFO
Suffield	WCT32-VP2	WCT-32	4.5-5.0	5 of 8	Many wood frog tadpoles, 5 wood frog egg masses	PFO
Suffield	WCT-VP1	unidentified	4.5-5.0	5 of 8	Many wood frog tadpoles, 5 wood frog egg masses	PFO
Suffield	WCT33-VP1	WCT-33	5.0-5.5	5 of 8	85 wood frog egg masses, 9 spotted salamander egg masses	PFO

**Table 1: Vernal Pool Habitat Identified Along the Proposed Project ROWs**

Municipality	Vernal Pool Number <sup>1</sup>	Associated Wetland <sup>2</sup>	Adjacent Milepost <sup>3</sup>	Mapsheet Number <sup>4</sup>	Species Observed and/or Heard	Existing Cover Type
Suffield	WCT33-VP2	WCT-33	5.0-5.5	5 of 8	5 wood frog egg masses	PSS
Suffield	WCT33-VP3	WCT-33	5.0	5 of 8	2 wood frog egg masses	PSS
Suffield	WCT33-VP4	WCT-33	5.0	5 of 8	1 spotted salamander egg mass	PFO
Suffield	WCT33-VP5	WCT-33	5.0	5 of 8	1 wood frog egg mass, many wood frog tadpoles	PFO
Suffield	WCT33-VP6	WCT-33	5.0	5 of 8	2 wood frog egg masses, many wood frog tadpoles, 1 spotted salamander egg masses	PFO
Suffield	WCT34-VP1	WCT-34	5.0-5.5	5 of 8	3 wood frog egg masses, 2 spotted salamander egg masses	PFO
Suffield	WCT34-VP2	WCT-34	5.0-5.5	5 of 8	Many wood frog tadpoles, 34 spotted salamander egg masses	PFO
Suffield	WCT36-VP1	WCT-36	5.0-5.5	5 of 8	14 wood frog egg masses	PFO
Suffield	WCT39-VP1	WCT-39	6.0	6 of 8	20+ wood frog tadpoles	PEM
Suffield	WCT41-VP1	WCT-41	6.0-6.5	6 of 8	20+ wood frog tadpoles, 1 spotted salamander egg mass	PEM
Suffield	WCT41-VP2	WCT-41	6.0-6.5	6 of 8	1 wood frog egg mass	PFO
Suffield	WCT45-VP1	WCT-45	6.5	7 of 8	1 wood frog egg mass, many wood frog tadpoles, 7 spotted salamander egg masses	PFO
Suffield	WCT45-VP2	WCT-45	6.5	7 of 8	26+ spotted salamander egg masses	PFO
Suffield	WCT46-VP1	WCT-46	6.5-7.0	7 of 8	Many wood frog tadpoles, 3 spotted salamander egg masses	PFO
East Granby	WCT46-VP2	WCT-46	7.0	8 of 8	20+ spotted salamander egg masses	PFO

**Table 1: Vernal Pool Habitat Identified Along the Proposed Project ROWs**

<b>Municipality</b>	<b>Vernal Pool Number<sup>1</sup></b>	<b>Associated Wetland<sup>2</sup></b>	<b>Adjacent Milepost<sup>3</sup></b>	<b>Mapsheet Number<sup>4</sup></b>	<b>Species Observed and/or Heard</b>	<b>Existing Cover Type</b>
East Granby	WCT49-VP1	WCT-49	7.0-7.5	8 of 8	12+ spotted salamander egg masses	PSS
East Granby	WCT50B-VP1	WCT-50B	7.0-7.5	8 of 8	20+ wood frog tadpoles, 1 spotted salamander egg mass	PFO
East Granby	WCT50D-VP1	WCT-50D	7.0-7.5	8 of 8	Many wood frog tadpoles	PFO
East Granby	WCT51-VP1	WCT-51	7.0-7.5	8 of 8	9 spotted salamander egg masses	PFO
<b>Massachusetts 3.8 Mile Loop Mapsheets 1 through 5</b>						
Sandisfield	VP WMA-3-1	WMA-3	0.0	1 of 5	4 spotted salamander egg masses	PFO
Sandisfield	VP WMA-3-2	WMA-3	0.0	1 of 5	4 spotted salamander egg masses	PFO/PEM
Sandisfield	VP WMA-5-1	WMA-5	0.0-0.5	1 of 5	3 spotted salamander egg masses	PFO
Sandisfield	VP WMA-6-1	WMA-6	0.5	1 of 5	2 wood frog egg masses, 3 spotted salamander egg masses	PEM
Sandisfield	VP WMA-7-1	WMA-7	0.5-1.0	2 of 5	6 wood frog egg masses, 1 spotted salamander egg mass	PEM
Sandisfield	VP WMA-7-2	WMA-7	0.5-1.0	2 of 5	450-500 wood frog egg masses, 4 spotted salamander egg masses	PEM
Sandisfield	VP WMA-7-3	WMA-7	0.5-1.0	2 of 5	3 wood frog egg masses, 6 spotted salamander egg masses	PFO/PEM
Sandisfield	VP WMA-7-4	WMA-7	1.0	2 of 5	12 wood frog egg masses, 3 spotted salamander egg masses	PEM
Sandisfield	VP WMA-7-5	WMA-7	1.0-1.5	2 of 5	30-35 wood frog egg masses, 3 spotted salamander egg masses, 1 adult spotted salamander	PEM
Sandisfield	VP WMA-7-6	WMA-7	1.0-1.5	2 of 5	7 wood frog egg masses, 6 spotted salamander egg masses	PSS/PEM

**Table 1: Vernal Pool Habitat Identified Along the Proposed Project ROWs**

<b>Municipality</b>	<b>Vernal Pool Number<sup>1</sup></b>	<b>Associated Wetland<sup>2</sup></b>	<b>Adjacent Milepost<sup>3</sup></b>	<b>Mapsheet Number<sup>4</sup></b>	<b>Species Observed and/or Heard</b>	<b>Existing Cover Type</b>
Sandisfield	MA-CVP-1	None	1.0-1.5	3 of 5	1 wood frog egg mass, 4 spotted salamander egg masses	PFO
Sandisfield	VP WMA-12-1	WMA-12	1.5	3 of 5	6 wood frog egg masses, 2 spotted salamander egg masses	PEM
Sandisfield	VP WMA-13-1	WMA-13	1.5-2.0	3 of 5	40-45 wood frog egg masses, 3 spotted salamander egg masses	PEM
Sandisfield	VP WMA-18-1	WMA-18	2.5	4 of 5	10 wood frog egg masses	PEM
Sandisfield	VP WMA-16-1	WMA-16	2.5-3.0	4 of 5	200-250 wood frog egg masses	PFO
Sandisfield	VP WMA-23	WMA-23	3.5-3.8	5 of 5	50-60 wood frog egg masses	PEM
Sandisfield	VP WMA-24	WMA-24	3.8	5 of 5	80-1000 wood frog egg masses	PEM

1 – Vernal pool habitat number generated by AECOM for identification purposes.  
2 – Associated wetland number corresponds to the Project Wetland Identification number.  
3 – Refers to mileposts along the existing pipelines for Connecticut and Massachusetts.  
4 – See 1"=200' Vernal Pools Mapsheets for Connecticut and Massachusetts.



## **5.0 References**

- Calhoun, A.J.K. and M.W. Klemens. 2002 Best development practices: Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- Connecticut Department of Energy and Environmental Protection (CTDEEP). 2011. Vernal Pools. Accessed March 8, 2011. Available URL:  
[http://www.ct.gov/dep/cwp/view.asp?a=2720&q=325676&depNav\\_GID=1654](http://www.ct.gov/dep/cwp/view.asp?a=2720&q=325676&depNav_GID=1654)
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Fish and Wildlife Service Biological Report 79/31, Washington, D.C.
- Degraaf, R.M. and M. Yamasaki. 2001. New England Wildlife. Habitat, Natural History, and Distribution. University Press of New England, Hanover, New Hampshire.
- Durand, J., B. Windmiller, and F.P. Richards, "*In Press*", Vernal Pool Identification and Protection – Current and Future Permitting Implications, 8<sup>th</sup> International Symposium on Environmental Concerns and Rights-of-Way Management, Saratoga Springs, NY, September 2004.
- Gilhen, J. 1984. Amphibians and Reptiles of Nova Scotia. Bulletin of the Nova Scotia Museum, Halifax.
- Klemens, Michael W. 1993. Amphibians and Reptiles of Connecticut and Adjacent Regions. State Geological and Natural History Survey of Connecticut. Bulletin No. 112.
- Kenny, L.P. and M.R. Burne. 2001. A Field Guide to the Animals of Vernal Pools. Natural Heritage and Endangered Species Program, MA Division of Fisheries and Wildlife, Westborough, Massachusetts.

- Lawler, S.P. 1989. Behavioural Responses to Predators and Predation Risk in Four Species of Larval Anurans. *Animal Behavior* 38: 1039-1047.
- Paton, P.W.C. and W.B. Crouch III. 2002. Using Phenology of Pond-Breeding Amphibians to Develop Conservation Strategies. *Conservation Biology* 18:194-204.
- Paton, P.W.C. and S. Egan. 2001. Effects of Roads on Amphibian Community Structure at Breeding Ponds in Rhode Island. Unpublished Final Report to the Transportation Environmental Research Program (TERP) Federal Highway Administration.
- Paton, P.W.C., Sara Stevens, and Linda Longo. 2000. Seasonal Phenology of Amphibian Breeding and Recruitment at a Pond in Rhode Island. *Northeastern Naturalist* 7: 255-269.
- Werner, E.E. and K.S. Glennemeier. 1999. Influence of Forest Canopy Cover on the Breeding Pond Distributions of Several Amphibian Species. *Copeia* 1999: 1-12.

**Attachment A**

**2014 Vernal Pool Habitat Data Forms**







**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	5/5/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan	<b>CONDITIONS</b>	Partly Cloudy

CHARACTERISTICS			
<b>WETLAND #</b>	VP WCT6-1	<b>LENGTH &amp; WIDTH</b>	110x40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	200
<b>AVERAGE WATER DEPTH</b>	1' to > 4'	<b>COVER TYPE</b>	PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Acer rubrum, Betula alleghaniensis, Linder benzoin, Viburnum recognitum, Phalaris arundinacea, Symplocarpus foetidus*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	>200
	Spotted salamander	2	6
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Green frogs

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

         % PSS

60 % PFO

20 % PEM

20 % UF

         % ROW

         % OFS

         % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	5/5/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan	<b>CONDITIONS</b>	Partly Cloudy

CHARACTERISTICS			
<b>WETLAND #</b>	VP WCT6-2	<b>LENGTH &amp; WIDTH</b>	100x30'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	205
<b>AVERAGE WATER DEPTH</b>	6-20"	<b>COVER TYPE</b>	PFO PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Acer rubrum, Betula alleghaniensis, Sambucus canadensis,  
Rosa multiflora, Phalaris arundinacea, Symplocarpus foetidus,  
Phragmites australis*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	50-100
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs

Additional Species Observed: Green frogs

Photo Documentation: Yes

Conclusions / Comments: Significant accumulation of old solid waste dumped over many years.

- Leeches
- Pickerel Frog

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS 40 % PFO        % PEM

60 % UF        % ROW        % OFS

       % Other / define:



**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	5/5/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan	<b>CONDITIONS</b>	Partly Cloudy

CHARACTERISTICS			
<b>WETLAND #</b>	VP WCT7	<b>LENGTH &amp; WIDTH</b>	100x50'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	301
<b>AVERAGE WATER DEPTH</b>	6-12"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Acer rubrum, Betula alleghaniensis, Sambucus canadensis, Rosa multiflora, Phalaris arundinacea, Symplocarpus foetidus, Osmunda cinnamomea*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	7
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs

Additional Species Observed:

Photo Documentation: Yes

Conclusions / Comments: Series of small interconnected pools

- Leeches
- Pickerel Frog

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS 30 % PFO        % PEM

70 % UF        % ROW        % OFS

       % Other / define:







**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 5, 2014	<b>WEATHER</b>	Clear and Sunny, 67°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT13	<b>LENGTH &amp; WIDTH</b>	130'X50'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#304
<b>AVERAGE WATER DEPTH</b>	18" (Max 3')	<b>COVER TYPE</b>	PEM <b>PSS</b> PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                                  |                        |
|----------------------------------|------------------------|
| <i>Cephalanthus occidentalis</i> | <i>Acer rubrum</i>     |
| <i>Vaccinium corymbosum</i>      | <i>Nyssa sylvatica</i> |
| <i>Onoclea sensibilis</i>        | <i>Carex stricta</i>   |

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	(numerous)
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**

None

**Photo Documentation:**

None

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                      10 % PFO                             % PEM

35 % UF                      20 % ROW                      25 % OFS

10 % Other / define: Open Water

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 5, 2014	<b>WEATHER</b>	Clear and Sunny, 67°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT18	<b>LENGTH &amp; WIDTH</b>	90'X75'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#307
<b>AVERAGE WATER DEPTH</b>	12" (Max 2')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Salix alba*
- Vaccinium corymbosum*
- Rosa multiflora*
- Acer rubrum*
- Quercus palustris*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	(numerous)
	Spotted salamander	2	2
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
None

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      20 % PFO                             % PEM

15 % UF                             % ROW                      65 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT32-VP1	<b>LENGTH &amp; WIDTH</b>	60'X54'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#314-319
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Nyssa sylvatica*
- Vaccinium corymbosum*
- Acer rubrum*
- Betula allaghaniensis*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	numerous
	Spotted salamander	2	7
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp	5	numerous

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking E of Pool  
Spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

         % PSS                      60 % PFO                               % PEM  
25 % UF                        10 % ROW                               % OFS  
5 % Other / define: Another vernal pool

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT32-VP2	<b>LENGTH &amp; WIDTH</b>	60'X54'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#308-312
<b>AVERAGE WATER DEPTH</b>	30" (Max 3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Nyssa sylvatica*
- Vaccinium corymbosum*
- Acer rubrum*
- Quercus bicolor*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2/3	5/many
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking NE of Pool  
Wood frog egg mass and tadpoles

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

         % PSS                      60 % PFO                               % PEM  
20 % UF                         15 % ROW                               % OFS  
5 % Other / define: Another vernal pool



**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT33-VP1	<b>LENGTH &amp; WIDTH</b>	90'X40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#206-213
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Tsuga canadensis*
- Vaccinium corymbosum*
- Pinus strobus*
- Acer rubrum*
- Fagus sylvatica*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	85
	Spotted salamander	2	9
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking E of Pool  
Wood frog and spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

         % PSS                      25 % PFO                               % PEM  
60 % UF                          10 % ROW                                   % OFS  
5 % Other / define: WCT33-VP2

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT33-VP2	<b>LENGTH &amp; WIDTH</b>	90'X40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#215-219
<b>AVERAGE WATER DEPTH</b>	14" (Max 2')	<b>COVER TYPE</b>	PEM <b>PSS</b> PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                             |                           |
|-----------------------------|---------------------------|
| <i>Tsuga canadensis</i>     | <i>Acer rubrum</i>        |
| <i>Vaccinium corymbosum</i> | <i>Fraxinus americana</i> |
| <i>Pinus strobus</i>        | <i>Ilex verticillata</i>  |

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	5
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking N of Pool  
Wood frog egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      60 % PFO                             % PEM

25 % UF                        10 % ROW                             % OFS

5 % Other / define: WCT33-VP1

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT33-VP3	<b>LENGTH &amp; WIDTH</b>	50'X60'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#415
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM <b>PSS</b> PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                             |                                  |
|-----------------------------|----------------------------------|
| <i>Alnus rugosa</i>         | <i>Acer rubrum</i>               |
| <i>Vaccinium corymbosum</i> | <i>Cephalanthus occidentalis</i> |
| <i>Lemna minor</i>          | <i>Ilex verticillata</i>         |

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	2
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**

None

**Photo Documentation:**

View Looking E of Pool  
Wood frog egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                      95 % PFO                             % PEM

       % UF                             % ROW                             % OFS

5 % Other / define: WCT33-VP4

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT33-VP4	<b>LENGTH &amp; WIDTH</b>	100'X25'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#415
<b>AVERAGE WATER DEPTH</b>	24" (Max 3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                             |                          |
|-----------------------------|--------------------------|
| <i>Nyssa sylvatica</i>      | <i>Acer rubrum</i>       |
| <i>Vaccinium corymbosum</i> | <i>Tsuga canadensis</i>  |
| <i>Betula allaganiensis</i> | <i>Ilex verticillata</i> |

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	1
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking E of Pool  
Spotted Salamander egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

\_\_\_\_\_ % PSS                      95 % PFO                      \_\_\_\_\_ % PEM

\_\_\_\_\_ % UF                      \_\_\_\_\_ % ROW                      \_\_\_\_\_ % OFS

5 % Other / define: WCT33-VP3

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT33-VP5	<b>LENGTH &amp; WIDTH</b>	30'X40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#403
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                                  |                          |
|----------------------------------|--------------------------|
| <i>Nyssa sylvatica</i>           | <i>Acer rubrum</i>       |
| <i>Vaccinium corymbosum</i>      | <i>Tsuga canadensis</i>  |
| <i>Cephalanthus occidentalis</i> | <i>Ilex verticillata</i> |

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2/3	1/many
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking N of Pool  
Wood frog tadpoles

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      90 % PFO                             % PEM  
5 % UF                              5 % ROW                                     % OFS  
       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT33-VP6	<b>LENGTH &amp; WIDTH</b>	30'X40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#405
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Nyssa sylvatica*
- Vaccinium corymbosum*
- Acer rubrum*
- Betula allaghaniensis*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2/3	2/many
	Spotted salamander	2	1
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking NE of Pool  
Spotted Salamander egg mass

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

10 % PSS                      90 % PFO                      \_\_\_\_\_ % PEM  
 \_\_\_\_\_ % UF                      \_\_\_\_\_ % ROW                      \_\_\_\_\_ % OFS  
 \_\_\_\_\_ % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT34-VP1	<b>LENGTH &amp; WIDTH</b>	40'X35'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#102 & 205-206
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Tsuga canadensis*
- Vaccinium corymbosum*
- Acer rubrum*
- Betula allaghaniensis*
- Sphagnum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	3
	Spotted salamander	2	2
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking E of Pool  
Spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

         % PSS                      35 % PFO                               % PEM  
60 % UF                                   % ROW                               % OFS  
5 % Other / define: WCT34-VP2

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT34-VP2	<b>LENGTH &amp; WIDTH</b>	90'X45'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#104-110
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Tsuga canadensis*                      *Acer rubrum*  
*Vaccinium corymbosum*                *Nyssa sylvatica*

  0   % of pool w/in maintained ROW    100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	many
	Spotted salamander	2	34
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking NW of Pool  
Spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                       25  % PFO                             % PEM

 60  % UF                       10  % ROW                             % OFS

  5   % Other / define: WCT34-VP1



**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	WCT36-VP1	<b>LENGTH &amp; WIDTH</b>	30'X45'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#108
<b>AVERAGE WATER DEPTH</b>	18" (Max 3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Osmunda cinnamomea*
- Vaccinium corymbosum*
- Acer rubrum*
- Betula allaghaniensis*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	14
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking E of Pool  
Wood frog egg mass

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

\_\_\_\_\_ % PSS                      99 % PFO                      \_\_\_\_\_ % PEM  
 \_\_\_\_\_ % UF                      1 % ROW                      \_\_\_\_\_ % OFS  
 \_\_\_\_\_ % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT39-VP1	<b>LENGTH &amp; WIDTH</b>	100'X40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#106-110
<b>AVERAGE WATER DEPTH</b>	18" (Max 3')	<b>COVER TYPE</b>	<input checked="" type="checkbox"/> PEM <input type="checkbox"/> PSS <input type="checkbox"/> PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                             |                          |
|-----------------------------|--------------------------|
| <i>Onoclea sensibilis</i>   | <i>Acer rubrum</i>       |
| <i>Vaccinium corymbosum</i> | <i>Scirpus cyperinus</i> |
| <i>Carex stricta</i>        | <i>Cornus amomum</i>     |

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	20+
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed:  
None

Photo Documentation:  
View Looking S of Pool

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

\_\_\_\_\_ % PSS                      2 % PFO                      \_\_\_\_\_ % PEM  
63 % UF                              10 % ROW                              25 % OFS  
 \_\_\_\_\_ % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT41-VP1	<b>LENGTH &amp; WIDTH</b>	70'X40'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#201
<b>AVERAGE WATER DEPTH</b>	12" (Max 2')	<b>COVER TYPE</b>	<input checked="" type="checkbox"/> PEM <input type="checkbox"/> PSS <input type="checkbox"/> PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Onoclea sensibilis*
- Alnus rugosa*
- Scirpus cyperinus*
- Acer rubrum*
- Juncus effusus*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	20+
	Spotted salamander	2	1
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**

View Looking NE of Pool  
Wood frog tadpoles and spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

\_\_\_\_\_ % PSS                      90 % PFO                      \_\_\_\_\_ % PEM

\_\_\_\_\_ % UF                      10 % ROW                      \_\_\_\_\_ % OFS

\_\_\_\_\_ % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT41-VP2	<b>LENGTH &amp; WIDTH</b>	60'X50'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#193-196
<b>AVERAGE WATER DEPTH</b>	14" (Max 3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Onoclea sensibilis*
- Ilex verticillata*
- Quercus palustris*
- Acer rubrum*
- Equisetum sp.*
- Carex sp.*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	1
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking E of Pool

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      80 % PFO                             % PEM

       % UF                      0 % ROW                      10 % OFS

10 % Other / define: Dirt access/farm road

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT45-VP1	<b>LENGTH &amp; WIDTH</b>	175'X30'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#402-405
<b>AVERAGE WATER DEPTH</b>	12" (Max 2')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Symplocarpus foetidus*
- Carex stricta*
- Rhododendron viscosum*
- Acer rubrum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2/3	1/many
	Spotted salamander	2	7
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking NW of Pool  
*Spotted salamander egg masses*

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      85 % PFO                             % PEM  
15 % UF                        0 % ROW                               % OFS  
       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT45-VP2	<b>LENGTH &amp; WIDTH</b>	100'X55'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#202-214
<b>AVERAGE WATER DEPTH</b>	18" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Symplocarpus foetidus*
- Carex stricta*
- Rhododendron viscosum*
- Acer rubrum*
- Vaccinium corymbosum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	26+
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking W of Pool  
Spotted salamander egg masses

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      40 % PFO                             % PEM  
57 % UF                        3 % ROW                               % OFS  
       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT46-VP1	<b>LENGTH &amp; WIDTH</b>	100'X55'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#404-405
<b>AVERAGE WATER DEPTH</b>	12" (Max 30")	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Symplocarpus foetidus*
- Quercus palustris*
- Acer rubrum*
- Vaccinium corymbosum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	Many
	Spotted salamander	2	3
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking W of Pool

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      96 % PFO                             % PEM

4 % UF                                     % ROW                                     % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT46-VP2	<b>LENGTH &amp; WIDTH</b>	120'X90'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#225-231
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Symplocarpus foetidus*
- Ilex verticillata*
- Acer rubrum*
- Vaccinium corymbosum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	20+
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View Looking W of Pool  
Spotted salamander egg masses

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      35 % PFO                             % PEM  
50 % UF                        15 % ROW                             % OFS  
       % Other / define:



**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT49-VP1	<b>LENGTH &amp; WIDTH</b>	80'X80'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#400-412
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM <u>PSS</u> PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Cephalanthus occidentalis*
- Ilex verticillata*
- Acer rubrum*
- Vaccinium corymbosum*

20 % of pool w/in maintained ROW 80 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	12+
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**

Ribbon Snake

**Photo Documentation:**

View Looking SE of Pool  
Spotted salamander egg masses

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS        % PFO        % PEM

23 % UF 15 % ROW 50 % OFS

12 % Other / define: Access Road, gravel/paved

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT50B-VP1	<b>LENGTH &amp; WIDTH</b>	60'X60'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#307
<b>AVERAGE WATER DEPTH</b>	18" (Max 3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- |                           |                             |
|---------------------------|-----------------------------|
| <i>Fagus grandifolia</i>  | <i>Acer rubrum</i>          |
| <i>Ilex verticillata</i>  | <i>Vaccinium corymbosum</i> |
| <i>Fraxinus americana</i> | <i>Osmunda cinnamomea</i>   |

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	20+
	Spotted salamander	2	1
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**

None

**Photo Documentation:**

View Looking NE of Pool  
Spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                      60 % PFO                             % PEM

10 % UF                             % ROW                      30 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT50D-VP1	<b>LENGTH &amp; WIDTH</b>	60'X60'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#300-304
<b>AVERAGE WATER DEPTH</b>	24" (Max >3')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Nyssa sylvatica*
- Ilex verticillata*
- Acer rubrum*
- Vaccinium corymbosum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	3	many
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**

None

**Photo Documentation:**

View Looking S of Pool

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                      10 % PFO                             % PEM

15 % UF                             % ROW                      75 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	May 1, 2014	<b>WEATHER</b>	Raining, (0.89"), Overcast,
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	69°F

CHARACTERISTICS			
<b>WETLAND #</b>	WCT51-VP1	<b>LENGTH &amp; WIDTH</b>	80'X30'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#104-107
<b>AVERAGE WATER DEPTH</b>	12" (Max 18")	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Cornus amomum*
- Ilex verticillata*
- Fraxinus americana*
- Acer rubrum*
- Vaccinium corymbosum*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	9
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Fingernail clams
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**

None

**Photo Documentation:**

View Looking SE of Pool  
Spotted salamander egg mass

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

     % PSS                      15 % PFO                           % PEM

40 % UF                      13 % ROW                      10 % OFS

22 % Other / define: PEM/Open Ag Field

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	April 30, 2014	<b>WEATHER</b>	Raining (1.94"), 45°F
<b>OBSERVERS</b>	S. Egan, B. Morrill	<b>CONDITIONS</b>	

CHARACTERISTICS			
<b>WETLAND #</b>	Near WCT32	<b>LENGTH &amp; WIDTH</b>	46'X50'
<b>TOWN</b>	Suffield, CT	<b>CLOSEST WETLAND FLAG</b>	#300
<b>AVERAGE WATER DEPTH</b>	24" (Max 3.5')	<b>COVER TYPE</b>	PEM PSS <b>PFO</b>

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

- Nyssa sylvatica*
- Vaccinium corymbosum*
- Acer rubrum*
- Quercus bicolor*

45 % of pool w/in maintained ROW 55 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2/3	9/many
	Spotted salamander	2	6
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams	5	many
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed:**  
None

**Photo Documentation:**  
View NE of Pool  
Spotted salamander egg masses

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**  
(within 100-feet of pool edge)

       % PSS                      39 % PFO                             % PEM  
39 % UF                         20 % ROW                                % OFS  
2 % Other / define: WCT32-VP2

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	45° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA3-1	<b>LENGTH &amp; WIDTH</b>	8x30'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	416
<b>AVERAGE WATER DEPTH</b>	8-10"	<b>COVER TYPE</b>	PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Tsuga canadensis, Acer rubrum, Oncolea sensibilis, Sambucus candensis, Typha latifolia*

  0   % of pool w/in maintained ROW  100  % of pool within forested area

**Breeding Criteria Codes**

<b>1</b>	Breeding chorus
<b>2</b>	Egg masses
<b>3</b>	Frog tadpoles
<b>4</b>	Salamander larvae
<b>5</b>	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	4
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: None

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS

  50   % PFO

       % PEM

  20   % UF

       % ROW

       % OFS

  30   % Other / define: Town Hill Road and above ground gas line facility

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

PROJECT	Connecticut Expansion		
DATE	4/21/14	WEATHER	45° F
OBSERVERS	O'Sullivan/Stearns	CONDITIONS	Full Sun

CHARACTERISTICS			
WETLAND #	VP WMA3-2	LENGTH & WIDTH	10x50'
TOWN	Sandisfield, MA	CLOSEST WETLAND FLAG	406
AVERAGE WATER DEPTH	8-14"	COVER TYPE	PFO PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Tsuga canadensis, Acer rubrum, Oncolea sensibilis, Sambucus candensis, Typha latifolia, Carex spp.*

30 % of pool w/in maintained ROW 70 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog		
	Spotted salamander	2	4
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: None

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

         % PSS                              30 % PFO                              10 % PEM

20 % UF                                               % ROW                              20 % OFS

20 % Other / define: Above ground gas line facility





**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	50° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA6-1	<b>LENGTH &amp; WIDTH</b>	10x40'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	312
<b>AVERAGE WATER DEPTH</b>	6-8"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Phragmites australis, Carex spp., Spiraea latifolia, Spiraea tomentosa, Oncolea sensibilis,*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	2
	Spotted salamander	2	3
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: None

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                                      20 % PFO                                      20 % PEM

20 % UF                                                     % ROW                                              40 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	55° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA7-1	<b>LENGTH &amp; WIDTH</b>	10x15'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	123
<b>AVERAGE WATER DEPTH</b>	6-8"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Carex spp.* Pool mostly un-vegetated

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	6
	Spotted salamander	2	1
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Water striders

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS

20 % PFO

40 % PEM

20 % UF

       % ROW

20 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	60° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA7-2	<b>LENGTH &amp; WIDTH</b>	700x10-100'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	104
<b>AVERAGE WATER DEPTH</b>	8-20"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Typha latifolia, Phragmites australis, Carex spp., Sphagnum sp., Juncus effusus, Vaccinium corymbosum*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	450-500
	Spotted salamander	2	6
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Water striders

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

         % PSS                                  60 % PFO                                  20 % PEM  
10 % UF                                                   % ROW                                  10 % OFS  
         % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	60° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA7-3	<b>LENGTH &amp; WIDTH</b>	30x60'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	276
<b>AVERAGE WATER DEPTH</b>	8-12"	<b>COVER TYPE</b>	PFO/PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Tsuga canadensis, Acer rubrum, Carex spp.,  
Sphagnum sp., Juncus effusus, Vaccinium corymbosum*

70 % of pool w/in maintained ROW 30 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	3
	Spotted salamander	2	4
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Water striders

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS

50 % PFO

30 % PEM

20 % UF

       % ROW

       % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA7-4	<b>LENGTH &amp; WIDTH</b>	100x20'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	274
<b>AVERAGE WATER DEPTH</b>	6-8"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Carex spp., Alisma plantago, Sphagnum sp., Juncus effusus*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	12
	Spotted salamander	2	3
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Water striders

Photo Documentation: Yes

Conclusions / Comments: 15-20 Spermatophores observed.

Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS

40 % PFO

10 % PEM

40 % UF

       % ROW

10 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA7-5	<b>LENGTH &amp; WIDTH</b>	60x30'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	267
<b>AVERAGE WATER DEPTH</b>	8-14"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Carex spp., Alisma plantago, Sphagnum sp., Juncus effusus*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	30-35
	Spotted salamander	2/5	3/1
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Water striders

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS

30 % PFO

20 % PEM

40 % UF

       % ROW

10 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA7-6	<b>LENGTH &amp; WIDTH</b>	150x35'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	258
<b>AVERAGE WATER DEPTH</b>	6-18"	<b>COVER TYPE</b>	PSS PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Pinus strobus, Tsuga Canadensis, Vaccinium corymbosum, Alisma plantago, Typha latifolia, Sphagnum sp., Juncus effusus*

10 % of pool w/in maintained ROW 90 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	7
	Spotted salamander	2	6
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: Water striders  
Finger nail clams

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS 30 % PFO 10 % PEM

50 % UF        % ROW 10 % OFS

       % Other / define:

**VERNAL POOL FIELD DATA SHEET  
2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/21/14	<b>WEATHER</b>	65° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Full Sun

CHARACTERISTICS			
<b>WETLAND #</b>	MA CVP 1	<b>LENGTH &amp; WIDTH</b>	20x40'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	Area not flagged as wetland
<b>AVERAGE WATER DEPTH</b>	24-36"	<b>COVER TYPE</b>	PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

Pool un-vegetated with boulders and upland soil

  0   % of pool w/in maintained ROW  100  % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	1
	Spotted salamander	2	4
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs

Additional Species Observed:

Photo Documentation: Yes

**Conclusions / Comments:** Area formed due to grading from initial pipeline construction and is manmade. No hydric soil or wetland plant community present.

- Leeches
- Pickerel Frog

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

         % PSS          % PFO          % PEM

  80   % UF          % ROW   20   % OFS

         % Other / define:



**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/23/14	<b>WEATHER</b>	45° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Cloudy

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA12-1	<b>LENGTH &amp; WIDTH</b>	10x4'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	205
<b>AVERAGE WATER DEPTH</b>	6-10"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Phragmites australis, Solidago sp., Ilex verticillata, Salix spp., Onoclea sensibilis, Carex spp., Sphagnum sp., Juncus effusus*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	6
	Spotted salamander	2	2
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
  
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: 150-200 spermatophores observed

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

\_\_\_\_\_ % PSS                      70 % PFO                      30 % PEM  
 \_\_\_\_\_ % UF                      \_\_\_\_\_ % ROW                      \_\_\_\_\_ % OFS  
 \_\_\_\_\_ % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/23/14	<b>WEATHER</b>	45° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Cloudy

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA13-1	<b>LENGTH &amp; WIDTH</b>	70x10'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	402
<b>AVERAGE WATER DEPTH</b>	6-8"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Phragmites australis, Solidago sp., Ilex verticillata, Salix spp., Onoclea sensibilis, Carex spp., Sphagnum sp., Juncus effusus*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

<b>1</b>	Breeding chorus
<b>2</b>	Egg masses
<b>3</b>	Frog tadpoles
<b>4</b>	Salamander larvae
<b>5</b>	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	40-45
	Spotted salamander	2	3
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
  
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Additional Species Observed: 200-250 spermatophores observed**

**Photo Documentation: Yes**

**Conclusions / Comments:**

- Vernal Pool
- Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

\_\_\_\_\_ % PSS                      70 % PFO                      15 % PEM  
 \_\_\_\_\_ % UF                      \_\_\_\_\_ % ROW                      15 % OFS  
 \_\_\_\_\_ % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

PROJECT	Connecticut Expansion		
DATE	4/23/14	WEATHER	45° F
OBSERVERS	O'Sullivan/Stearns	CONDITIONS	Cloudy

CHARACTERISTICS			
WETLAND #	VP WMA16-1	LENGTH & WIDTH	120x20'
TOWN	Sandisfield, MA	CLOSEST WETLAND FLAG	328
AVERAGE WATER DEPTH	12-24"	COVER TYPE	PFO

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Acer rubrum, Spiraea latifolia, Salix discolor, Ilex verticillata, Salix spp., Onoclea sensibilis, Carex spp., Sphagnum sp., Juncus effusus*

0 % of pool w/in maintained ROW 100 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	200-250
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles

**Additional Species Observed: 150-200 spermatophores observed.**

- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

**Photo Documentation: Yes**

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

     % PSS                                  40 % PFO                                       % PEM  
40 % UF                                           % ROW                                           % OFS  
20 % Other / define: Cold Spring Road

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/23/14	<b>WEATHER</b>	45° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Cloudy

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA18-1	<b>LENGTH &amp; WIDTH</b>	20x25'
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	105
<b>AVERAGE WATER DEPTH</b>	10-12"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:**

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

**DOMINANT VEGETATION WITHIN POOL:**

*Phragmites australis, Solidago sp., Ilex verticillata, Salix spp.,  
 Onoclea sensibilis, Carex spp., Sphagnum sp., Juncus effusus*

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	10
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: 20-  
 25 spermatophores observed.

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                                      60 % PFO                                      10 % PEM  
20 % UF                                                     % ROW                                      10 % OFS  
       % Other / define:

**VERNAL POOL FIELD DATA SHEET**  
**2014 FIELD SEASON**

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/17/14	<b>WEATHER</b>	50° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Partly Sunny

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA23	<b>LENGTH &amp; WIDTH</b>	~30' in diameter
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	309
<b>AVERAGE WATER DEPTH</b>	12-18"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:** DOMINANT VEGETATION WITHIN POOL: Pool un-vegetated. Shallow pond dug for livestock water source. Likely dries out. No fish observed. Entire surrounding area is a pasture.

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	50-60
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: None

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

     % PSS                      20 % PFO                      60 % PEM

     % UF                           % ROW                           % OFS

20 % Other / define: Upland meadow/pasture

**VERNAL POOL FIELD DATA SHEET**  
2014 FIELD SEASON

<b>PROJECT</b>	Connecticut Expansion		
<b>DATE</b>	4/17/14	<b>WEATHER</b>	50° F
<b>OBSERVERS</b>	O'Sullivan/Stearns	<b>CONDITIONS</b>	Partly Sunny

CHARACTERISTICS			
<b>WETLAND #</b>	VP WMA24	<b>LENGTH &amp; WIDTH</b>	~30' in diameter
<b>TOWN</b>	Sandisfield, MA	<b>CLOSEST WETLAND FLAG</b>	308
<b>AVERAGE WATER DEPTH</b>	11-15"	<b>COVER TYPE</b>	PEM

**SUBSTRATE:** DOMINANT VEGETATION WITHIN POOL: *Typha latifolia*. Shallow pond dug for livestock water source. Likely dries out. No fish observed. Entire surrounding area is a pasture.

- Peat
- Leaf Litter
- Sand
- Gravel
- Cobble
- Mud/Muck

100 % of pool w/in maintained ROW 0 % of pool within forested area

**Breeding Criteria Codes**

1	Breeding chorus
2	Egg masses
3	Frog tadpoles
4	Salamander larvae
5	Presence of adults

	OBLIGATE SPECIES	CODE	QUANTITY
	Wood frog	2	80-100
	Spotted salamander		
	Jefferson salamander		
	Blue-spotted salamander		
	Spadefoot toad		
	Fingernail clams		
	Marbled salamander		
	Unidentified mole salamander		
	Fairy shrimp		

**FACULTATIVE SPECIES:**

- Red-spotted newt adults
- Spotted turtles
- Blanding's turtles
- Painted turtles
- Snapping turtles
- Predacious diving beetles
- Dragonfly nymphs
- Amphibious snails
- Spring peepers
- American toads
- Fowler's Toad
- Caddis fly case/larvae
- Dragonfly nymphs
- Damselfly nymphs
- Leeches
- Pickerel Frog

Additional Species Observed: None

Photo Documentation: Yes

**Conclusions / Comments:**

- Vernal Pool     Amphibian Breeding Habitat

**CHARACTERISTICS OF ADJACENT VEGETATION:**

(within 100-feet of pool edge)

       % PSS                      75 % PFO                      25 % PEM

       % UF                             % ROW                             % OFS

       % Other / define:

**Attachment B**

**2014 Vernal Pool Representative Site Photographs**



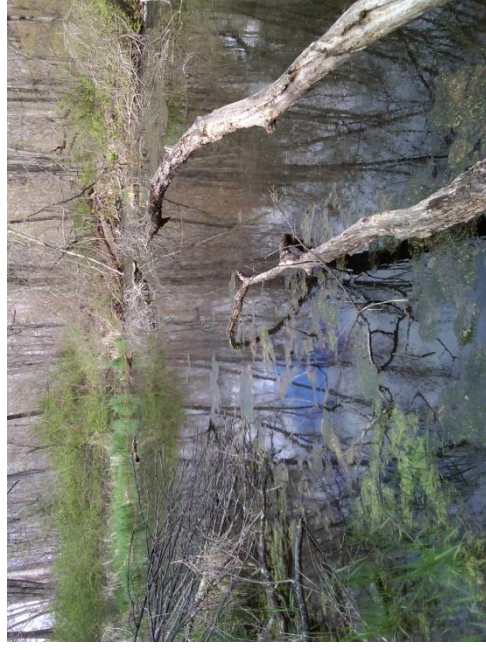




VP WMA01A



VP WCT5



VP WCT6-1



VP WCT6-2





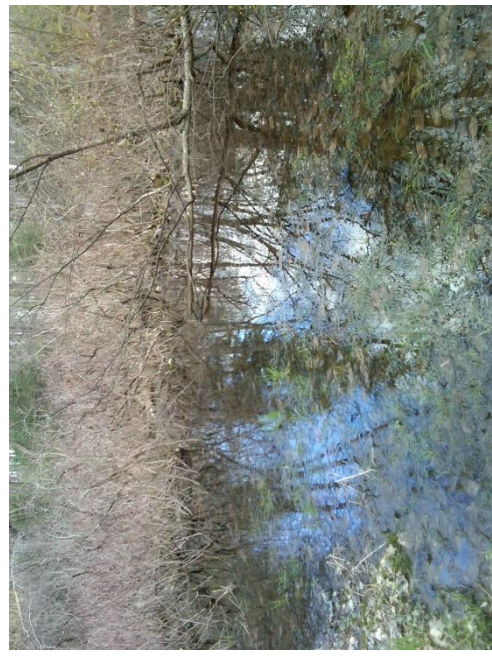
VP WCT-7



WCTCP-2



VP WCT-9



VP WCT-11





WCT-VP1



WCT-VP2



WCT-VP1



WCT33-VP1



WCT33-VP2



WCT33-VP3



WCT33-VP5



WCT-VP5 (Wood frog egg mass)





WCT33-VP6



WCT34-VP1



WCT34-VP2



WCT36-VP1





WCT39-VP1



WCT41-VP1



WCT41-VP2



WCT45-VP1





WCT45-VP2



WCT46-VP1



WCT46-VP2

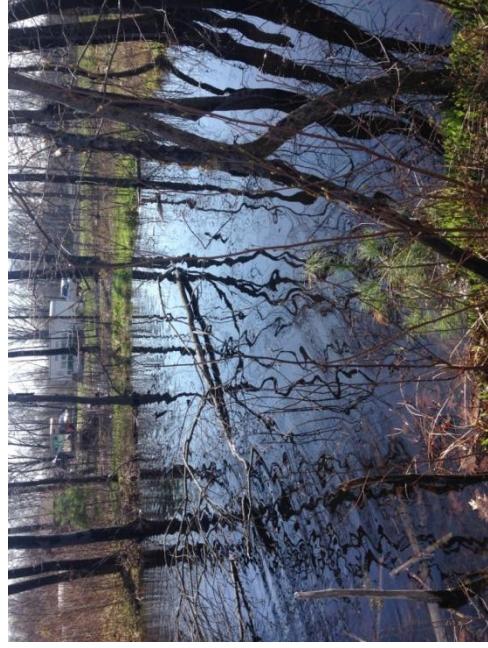


WCT49-VP1





WCT50B-VP1



WCT50D-VP1



WCT51-VP1



VP WMA-3-1





VP WMA-3-2



VP WMA-5-1



VP WMA-6-1



VP WMA-7-1





VP WMA-7-2



VP WMA-7-3



VP WMA-7-4



VP WMA-7-5





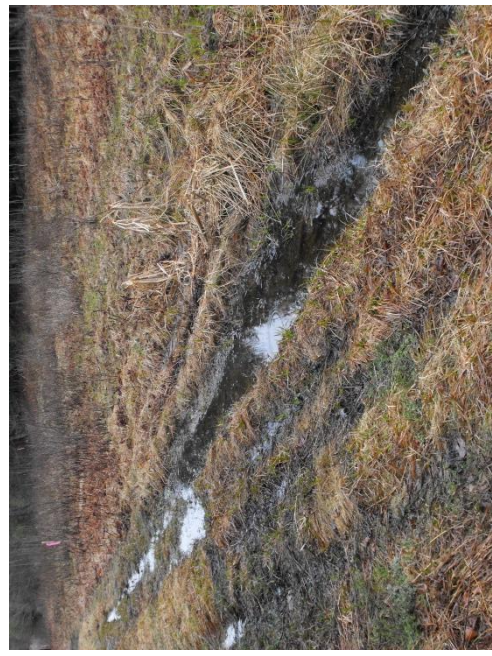
VP WMA-7-6



MA-CVP-1



VP WMA-12-1

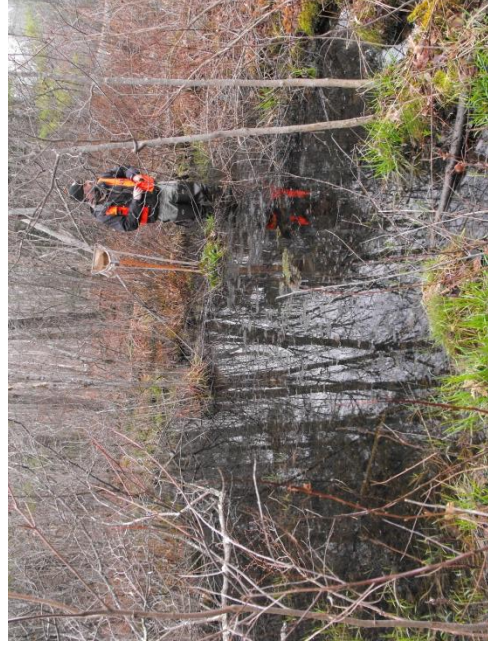


VP WMA-13-1





VP WMA-18-1



VP WMA-A6-1



VP WMA-23

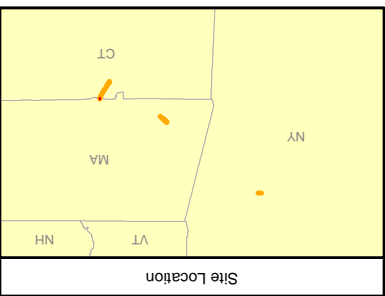


VP WMA-24

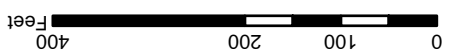
**Attachment C**  
**2014 Vernal Pool Mapping**





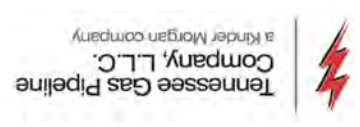


- Legend**
- Vernal Pools
  - Proposed Project Centerline
  - Wetland Lines
  - Streams
  - Waterbodies
  - Wetlands
  - County Boundary
  - Town Boundary

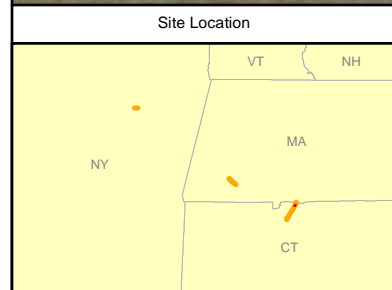
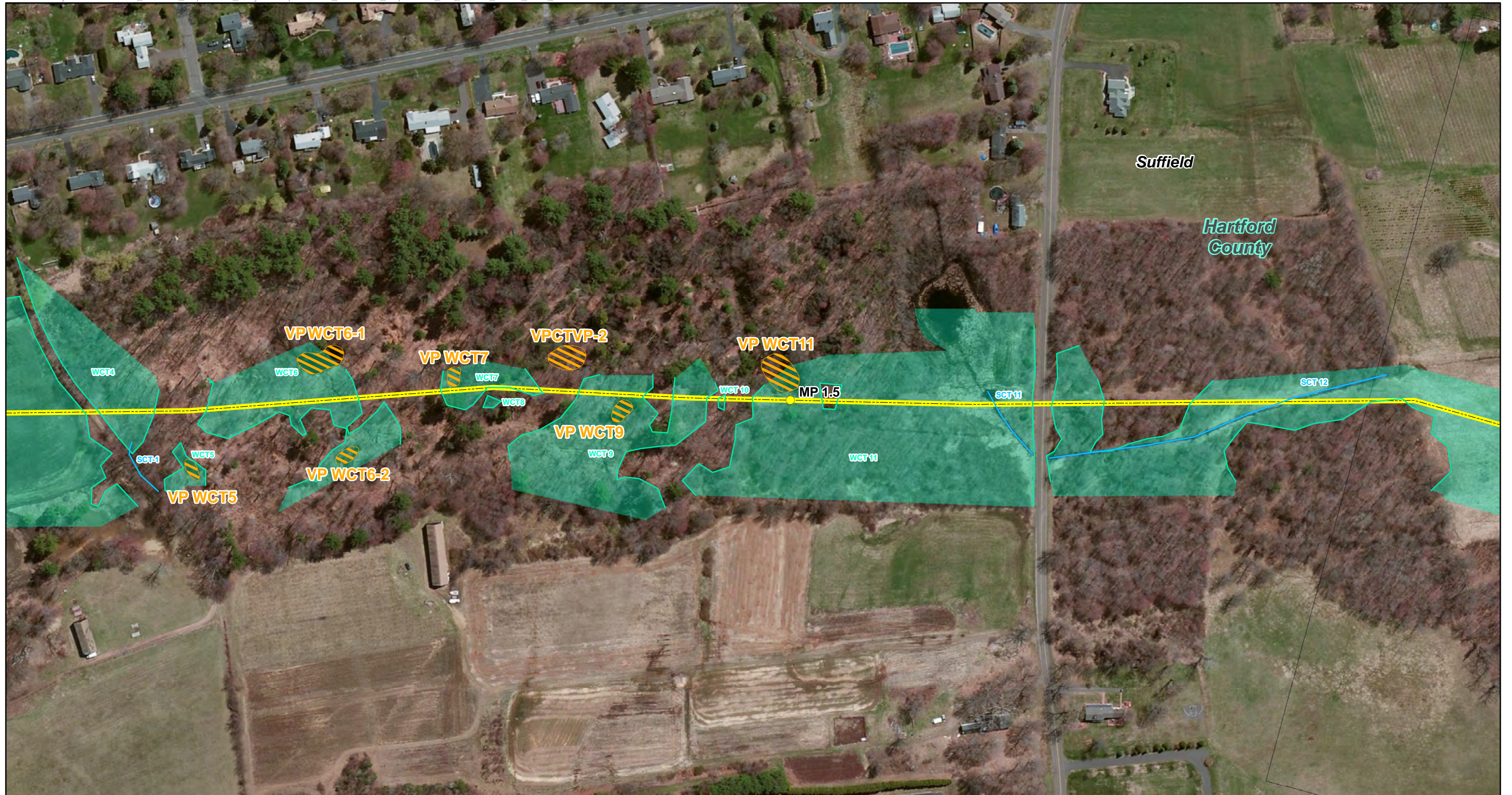


1 inch = 200 feet

Tennessee Gas Pipeline Company  
 CT Expansion Project  
 Connecticut Vernal Pools

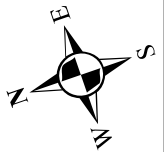






**Legend**

- Streams
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- Vernal Pools
- Waterbodies
- Wetlands
- County Boundary
- Town Boundary



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 CT Expansion Project  
 Connecticut Vernal Pools

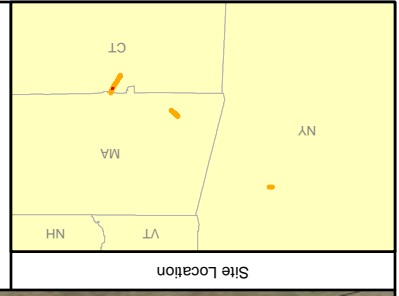
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1 inch = 200 feet

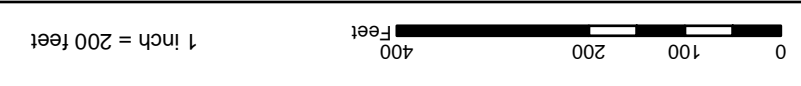
Tennessee Gas Pipeline Company, L.L.C.  
 a Kinder Morgan company

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 Page 2 of 8

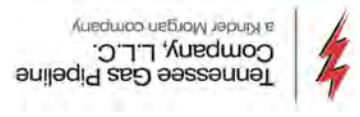




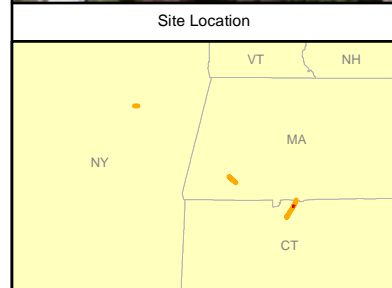
- Legend**
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CT Expansion Project  
Connecticut Vernal Pools

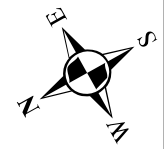






**Legend**


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CT Expansion Project  
Connecticut Vernal Pools

0    100    200    400  
Feet

1 inch = 200 feet



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a Kinder Morgan company

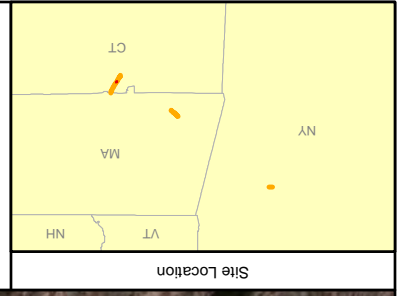
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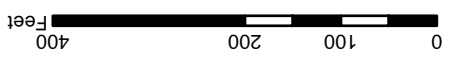
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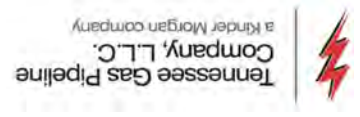


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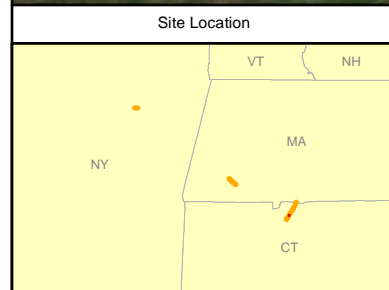


1 inch = 200 feet

Tennessee Gas Pipeline Company  
CT Expansion Project  
Connecticut Vernal Pools

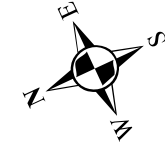






**Legend**

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Tennessee Gas Pipeline Company  
 CT Expansion Project  
 Connecticut Vernal Pools

0 100 200 400 Feet

1 inch = 200 feet

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 a Kinder Morgan company

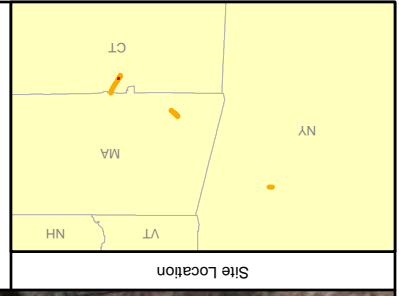
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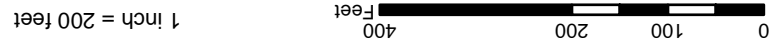
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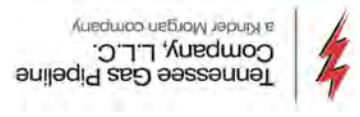




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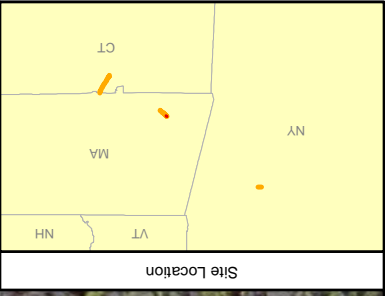
Tennessee Gas Pipeline Company  
CT Expansion Project  
Connecticut Vernal Pools



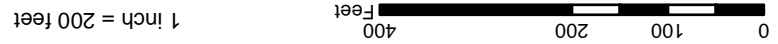






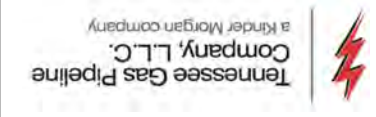


- Legend**
- Vernal Pools
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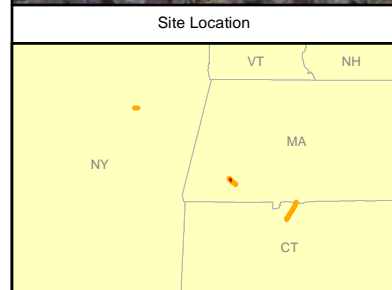


1 inch = 200 feet

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CT Expansion Project  
Massachusetts Vernal Pools





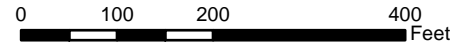


**Legend**

- Streams
- Wetland Lines
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- Vernal Pools
- Waterbodies
- Wetlands
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- Town Boundary



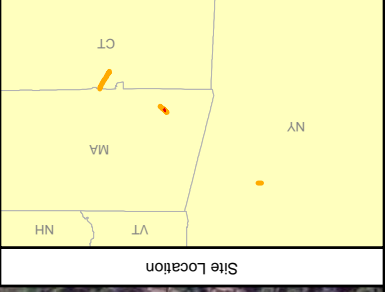
Tennessee Gas Pipeline Company  
 CT Expansion Project  
 Massachusetts Vernal Pools



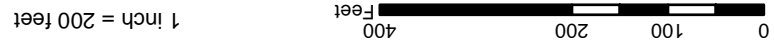
1 inch = 200 feet



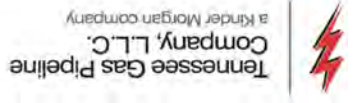




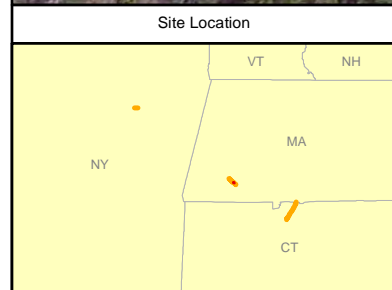
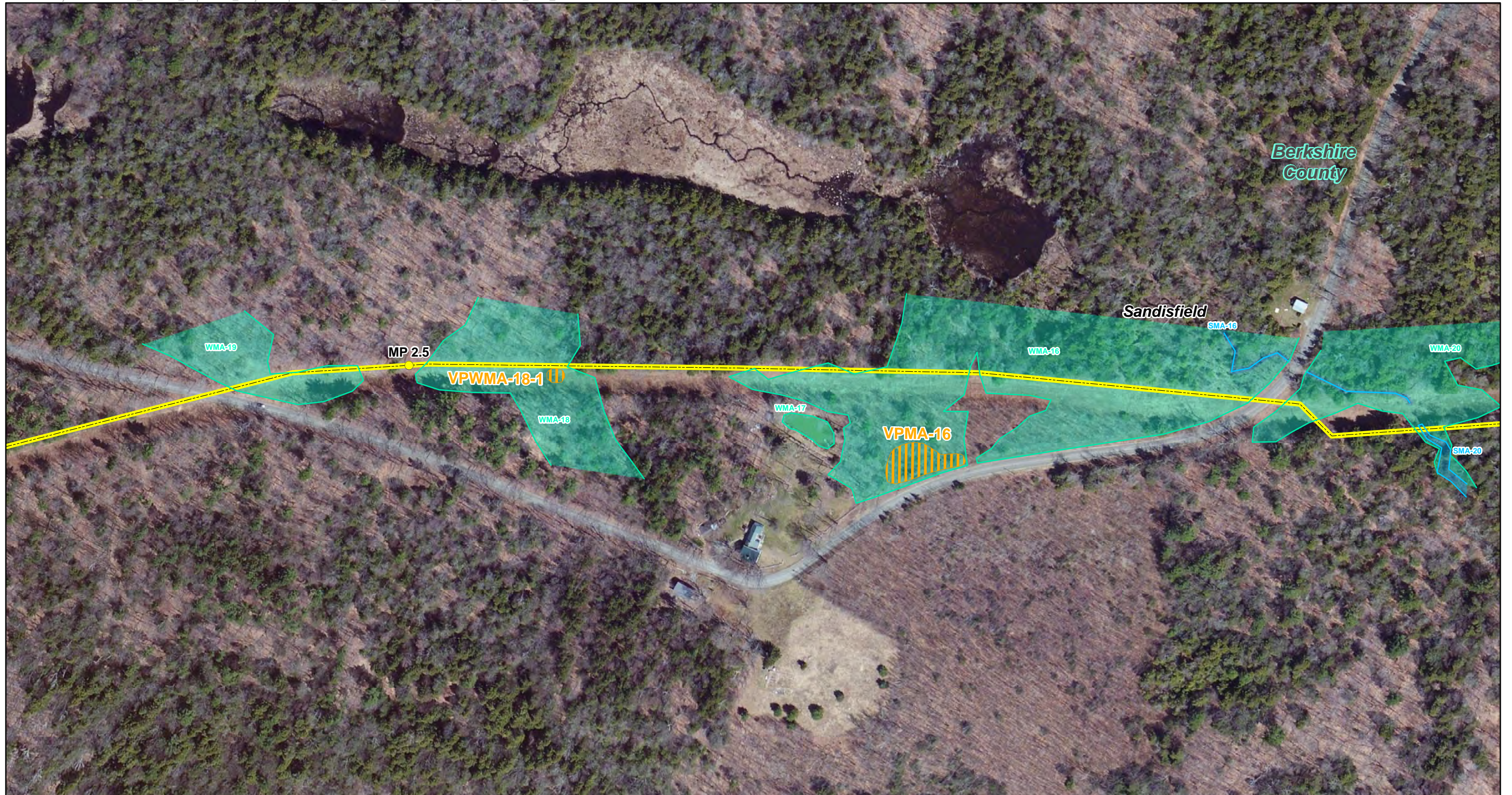
- Legend**
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Tennessee Gas Pipeline Company  
CT Expansion Project  
Massachusetts Vernal Pools







**Legend**

- Streams
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 CT Expansion Project  
 Massachusetts Vernal Pools

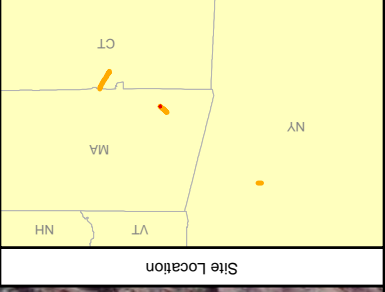
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1 inch = 200 feet

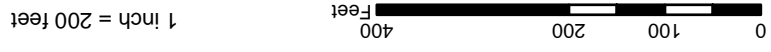
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- Legend**
- Vernal Pools
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Tennessee Gas Pipeline Company  
CT Expansion Project  
Massachusetts Vernal Pools

