



Memorandum

To: James Cerkanowicz
Verogy
150 Trumbull Street, 4th Floor
Hartford, CT 06103

Date: May 6, 2024

ATTACHMENT 3
Project #: 43362.00

From: Sara Berryman, CSS, Jeffrey Shamas, CE,
CSS, SPWS, ENV SP

Re: Vernal Pool Investigation Memo
11 Castle Rock Road, Woodstock, Connecticut

Introduction

Vanasse Hangen Brustlin, Inc (VHB) prepared this Vernal Pool Memorandum on behalf of Verogy (the Client) a potential vernal pool was identified during VHB's October 2023 inland wetland and watercourse delineation effort on the Project site located at 11 Castle Rock Road, Woodstock, Connecticut (Figure 1). During VHB's October 2023 inland wetland and watercourse delineation for the Project site, one potential vernal pool was identified. On April 2, 2024, VHB conducted an on-site vernal pool investigation to verify the presence/absence of vernal pools. This memorandum provides a summary of site conditions, criteria for identifying vernal pools, and the findings of VHB's investigation.

Site Description

The ±36-acre property is bound to the north by a contiguous forest, to the east by Route 169 – Norwich Worcester Turnpike, to the south by Castle Rock Road, and to the west by agricultural fields. During VHB's October 2023 inland wetland and watercourse delineation effort, three wetland areas were delineated, one of which included one potential vernal pool. A brief description of this wetland (Wetland 1) is provided below, but a more detailed description can be found in VHB's Inland Wetlands and Watercourse Report, dated December 19, 2023.

Wetland 1

At ±1.7 acres, Wetland 1 is a palustrine forested (Cowardin USFWS: PFO) wetland that extends across the center of the site in a north-south orientation. In the southern portion of Wetland 1, the wetland is sloped to the north where topography levels out and the wetland becomes a depressional feature. A dilapidated pathway partially bisects Wetland 1, but an intermittent stream has overtopped the pathway and flows from the south to the north where Wetland 1 continues to the east. The potential vernal pool is located in the dilapidated pathway area, as shown Figure 2 and per VHB's 2023 delineation report.

Vernal Pool Identification Criteria

Although Connecticut's municipal inland wetlands agencies regulate vernal pools, the Connecticut Department of Energy and Environmental Protection (CTDEEP) does not provide a formal definition for vernal pools (CTDEEP 2020). The Connecticut Association of Wetland Scientists (CAWS) website notes that a CTDEEP Task Force developed the following vernal pool draft definition:

Vernal pool means a seasonal watercourse in a defined depression or basin, that lacks a fish population and supports or is capable of supporting breeding and development of amphibian or invertebrate species recognized as obligate to such watercourses. These species include spotted salamander, the Jefferson salamander complex, marbled salamander, wood frog, and fairy shrimp.

According to Calhoun and Klemens (2002) in their technical paper addressing vernal pool considerations for site development, vernal pools generally occupy less than 2 acres and include the following criteria also noted by Donahue (1996):

- › presence of one or more obligate species,
- › water for approximately 2 months during the growing season,
- › a confined depression that lacks a permanent outlet stream,
- › no fish, and
- › dries out in most years.

These criteria are similar, although the CTDEEP draft definition does not require the pool to dry in most years. The common and scientific names for Connecticut species considered by Calhoun and Klemens (2002) to be obligate biological indicators of vernal pool habitat are listed below in Table 1.

Table 1 Obligat Vernal Pool Species

Common Name	Scientific Name
Blue-spotted Salamander complex	<i>Ambystoma laterale</i>
Eastern Spadefoot Toad	<i>Scaphiopus holbrookii</i>
Fairy Shrimp	<i>Eubbranchipus spp.</i>
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>
Marbled Salamander	<i>Ambystoma opacum</i>
Spotted Salamander	<i>Ambystoma maculatum</i>
Wood Frog	<i>Lithobates sylvaticus</i>

Vernal Pool Investigation Methodology

VHB wetland scientists investigated the potential vernal pool that was observed during the October 2023 delineation effort. Upon arrival to the site, VHB scientists listened for wood frog calls and searched the pool for spermatophores and egg masses. A wading survey was conducted within the potential vernal pool while wearing polarized glasses. A dip net was used to sample for biological indicators within the potential vernal pool as well. Discretion was used during dipnet sweeps, such that small, shallow areas containing obligate vernal pool indicators were not substantially disrupted (i.e., silting up of areas containing egg masses or spermatophores). Upland habitat around the vernal pool was also evaluated, as upland terrestrial habitat is critical for supporting the adult life stages of most vernal pool obligate amphibians. For each vernal pool, the extent of development was assessed within the vernal pool envelope (the 100-foot (ft) radius from the perimeter of each vernal pool) and the critical terrestrial habitat (the 100 to 750-ft radius from the vernal pool envelope). The Vernal Pool Assessment Sheet provided by Calhoun and Klemens (2002) defines undeveloped upland as *open land largely free of roads, structures, and other infrastructure; it can be forested, partially forested, or open agricultural land*. Geographic information system (GIS) tools and aerial imagery were used to determine land use surrounding breeding areas and calculate percentages of functional habitat.

Vernal Pool Investigation Findings

VHB wetland scientists did not observe or identify any wood frog or spotted salamander egg masses, or spermatophores. No obligate species were observed. Table 1 summarizes the potential vernal pool’s compliance with the vernal pool criteria outlined above, and Table 2 summarizes indicator observations from the field investigation. A site photograph log depicts current conditions of the potential vernal pool (Attachment A).

Based on VHB’s April 2, 2024 investigation, this potential vernal pool is not a vernal pool. Future investigations may result in verified criteria. Due to the absence of obligate species and indicators, no field data sheets were prepared for this potential vernal pool.

Table 1 Potential Vernal Pool 1 Indicator Observations

Criteria Indicator	Present?	Comments
The presence of one or more obligate species	No	No obligate species were observed during VHB’s investigation
Water is present for ±2 months during the growing season	No	During the April 2, 2024 field visit, the pool was already beginning to dry out; water level has dropped considerably since October 2023 visit.
A confined depression that lacks a permanent outlet stream	Yes	The stream does not appear to be a continuous outlet, but during/after heavy rain events, the stream does overflow the potential vernal pool and is an outlet.
Fish observed	No	-
Dries out during the majority of the year	Yes	During the April 2, 2024 field visit, the pool was already beginning to dry out; water level has dropped considerably since October 2023 visit.

Table 2 Potential Vernal Pool 1 Obligate Species and Observations

Indicator Identified	Total Egg Mass Count	Individual Count	Comments
Blue-spotted Salamander complex	0	0	No indicators were observed during the April 2, 2024 investigation effort.
Eastern Spadefoot Toad	0	0	
Fairy Shrimp	0	0	
Jefferson Salamander	0	0	
Marbled Salamander	0	0	
Spotted Salamander	0	0	
Wood Frog	0	0	

Conclusions

Based on our vernal pool investigation for the Project site on April 2, 2024, VHB has documented the absence of vernal pool criteria and obligate species. Therefore, VHB has determined that the potential vernal pool identified during our October 2023 wetland delineation does not qualify as a verified vernal pool.

Figures

Figure 1 – USGS Site Location Map

Figure 2 – Wetlands and Watercourse Delineation Sketch

Attachments

Attachment A – Site Photograph Log

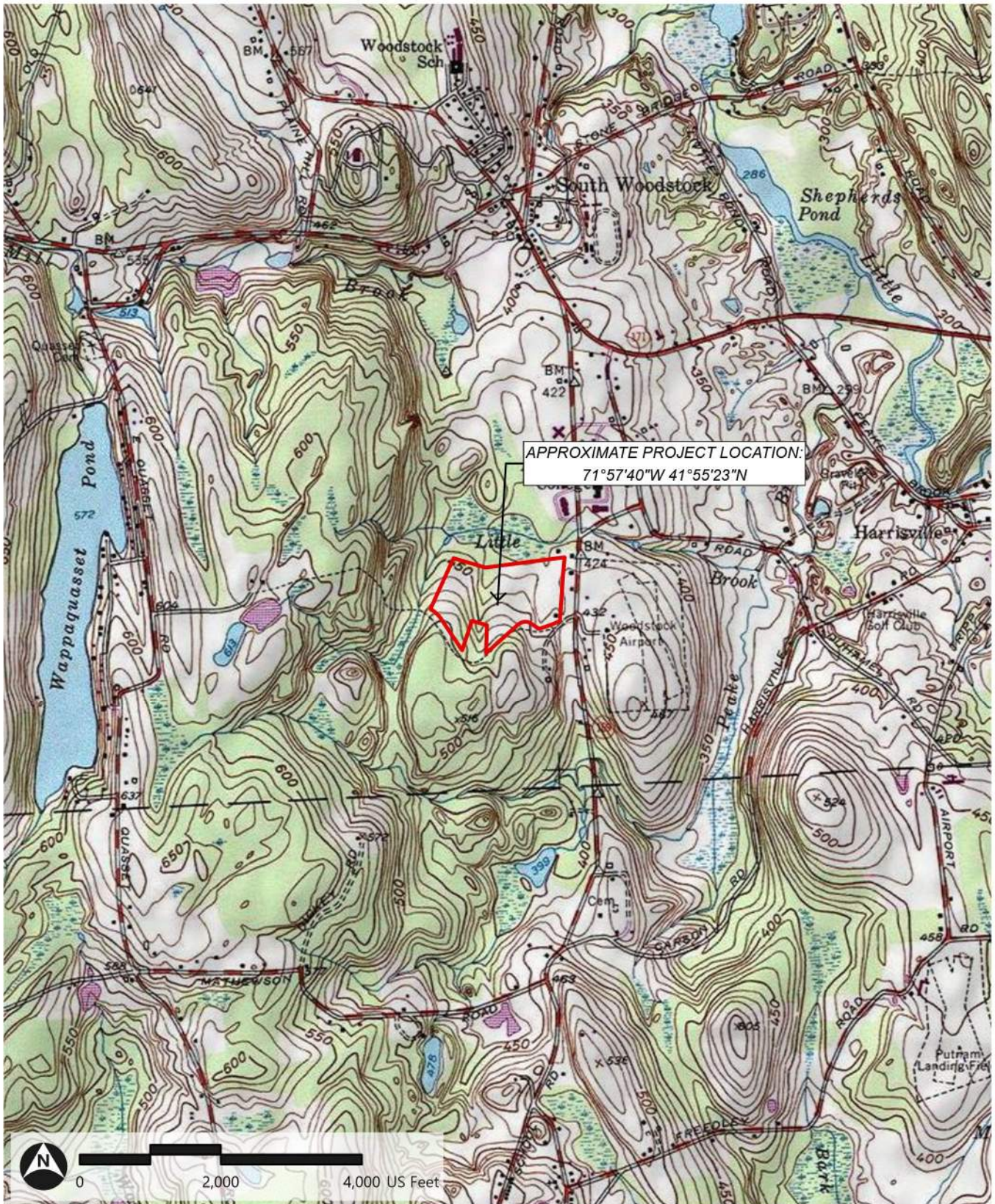
References

- 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 Association of Wetland Scientists (CAWS). 2020. Vernal Pool Monitoring webpage: <http://www.ctwetlands.org/vpmonitoring.html>; last accessed 4/23/2020.
- Connecticut Department of Energy and Environmental Protection (CT DEEP). 2020. Vernal Pools webpage: <https://portal.ct.gov/DEEP/Water/Wetlands/Vernal-Pools>; last accessed 4/23/2020.
- Donahue, D. F. 1996. A guide to the identification and protection of vernal pool wetlands in Connecticut. University of Connecticut Cooperative Extension Program.
- Klemens, M. W. 1993. Amphibians and reptiles of Connecticut and adjacent regions. State Geological and Natural History Survey of Connecticut, Bulletin No. 112, Connecticut Department of Environmental Protection, Hartford, CT.



FIGURES

Figure 1: USGS Site Location Map
Verogy Woodstock | Woodstock, CT



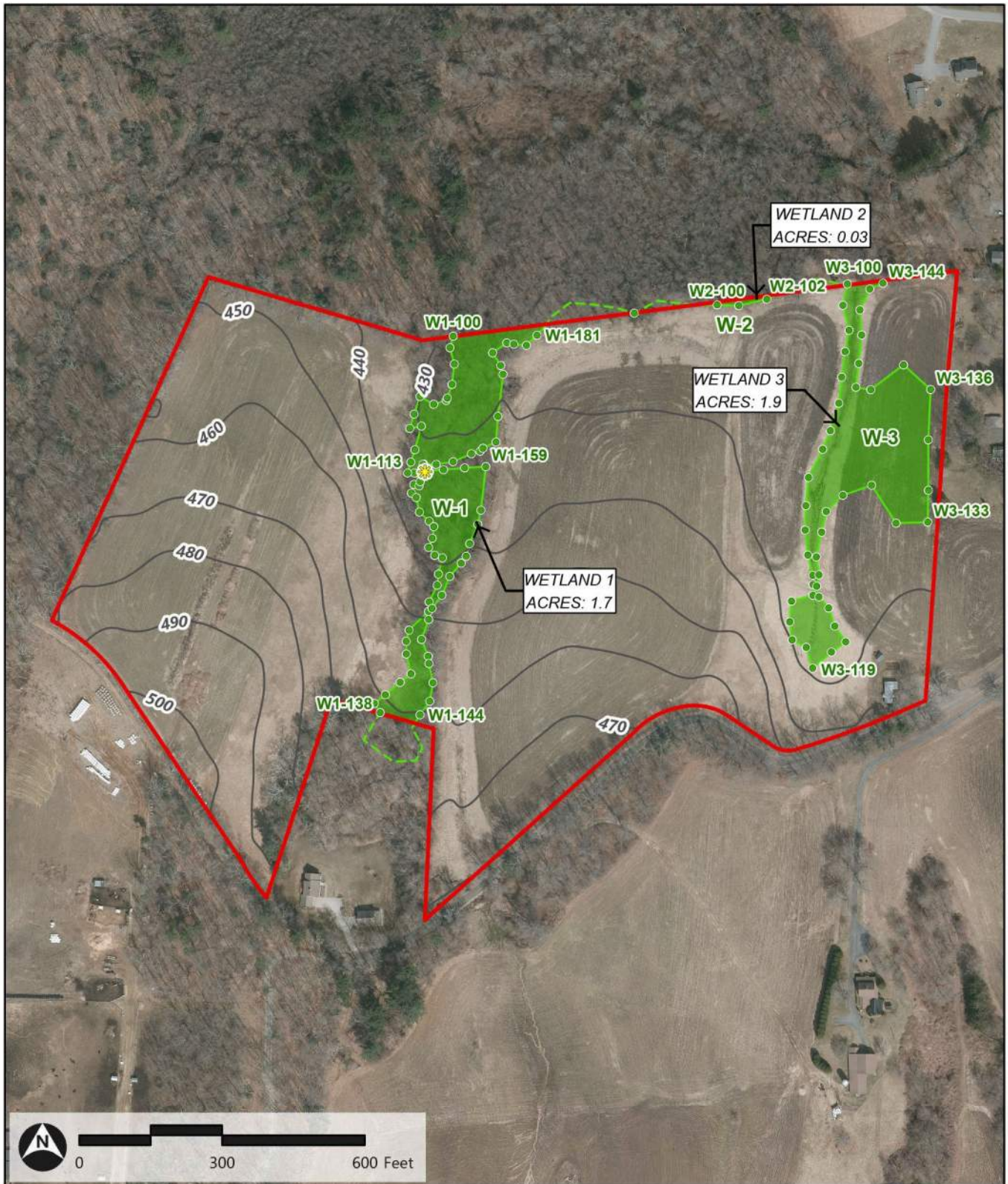
 Project Site

Source: USGS, VHB

Path: \\vhb.com\gis\proj\Wetherfield\43362.00 Verogy Woodstock\Project\Verogy Woodstock 43362\Verogy Woodstock 43362.aprx [sberryman, 12/18/2023]

Figure 2: Wetlands and Watercourse Delineation Sketch

Verogy Woodstock | Woodstock, CT





Path: \\vnb.com\gis\proj\Wethersfield\43362.00 Verogy Woodstock\Project\Verogy Woodstock 43362.aprx (arao, 12/19/2023)

- Project Site
- ★ Potential Vernal Pool
- 10' Contour
- Wetland Delineation Flag
- Delineated Wetland Edge
- Estimated Offsite Wetlands
- Delineated Wetland

Source: CTDEEP, VHB



ATTACHMENT A
SITE PHOTOGRAPH LOG

 vhb Engineers Scientists Planners Designers		PHOTOGRAPHIC LOG	
Client Name: Verogy		Site Location: Woodstock, CT	Project No: 43362.00
Photo No.: 1	Date: 10/10/2023		
Description: Photo of potential vernal pool in Wetland 1 (W1), taken during wetland delineation efforts, looking south from the northern edge of pool.			

 vhb Engineers Scientists Planners Designers		PHOTOGRAPHIC LOG	
Client Name: Verogy		Site Location: Woodstock, CT	Project No: 43362.00
Photo No.: 2	Date: 04/02/2024		
Description: Photo of potential vernal pool in W1, taken during vernal pool assessment, looking south from the northern edge of pool. No evidence of breeding amphibians was observed.			

Client Name: Verogy

Site Location: Woodstock, CT

Project No: 43362.00

Photo No.: 3

Date: 04/02/2024

Description: Photo of potential vernal pool in W1, taken during vernal pool assessment, looking southwest from the northeastern edge of pool. No evidence of breeding amphibians was observed.

