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Green Brook Flood Risk Management Project Middlesex County, New Jersey

Vernal Pool Investigation - Phase 2 Final Report

October 19, 2021

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Attachments

- Attachment A NJDEP Vernal Pool Protocol
- Attachment B Photo Log
- Attachment C Data Sheets
- Attachment D September 14, 2021 NJDEP Meeting Minutes

1. Introduction

The Green Brook Sub Basin is located within the Raritan River Basin in north-central New Jersey in the counties of Middlesex, Somerset, and Union. It encompasses 13 municipalities and drains approximately 65 square miles of primarily urban and industrialized area. These municipalities have been subjected to substantial flooding over the years, the most recent damaging floods of record resulted from an August 2, 1973 storm, Tropical Storm Floyd, on September 16, 1999, and the April 15-17, 2007 Nor'easter. Eight deaths were attributed to these floods. The Final General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS), dated May 1997, recommended flood protection for the Lower Basin and Stony Brook Basin, and is supported by the project sponsor, the New Jersey Department of Environmental Protection (NJDEP). As per the recommendations of the aforementioned documents, the United States Army Corps of Engineers (USACE) is designing a robust flood control structure within the project area. In support of this design, this vernal pool investigation was performed in order to identify potential impacts to vernal habitat. The Green Brook Flood Risk Management Project Area has been divided into segments, several of which have already been constructed.

This report summarizes the Phase 2 vernal pool study conducted in April through September of 2020 and mid-February through April 2021. The survey area was based on the preliminary vernal pool investigations conducted in September 2018 (Phase 1). Phase 2 consists of surveys conducted on two floodplain parcels referred to as Segment C5 and Segment H.

A. Site Background

The project area, located in Middlesex Borough and the Township of Green Brook (**Figure 1**), is an irregularly shaped, somewhat linear area encompassing the forested riparian floodplain surrounding the Bound Brook and Green Brook, that can be characterized as shallow, meandering watercourses. The project area is bordered primarily by suburban development in addition to Middlesex High School to the northeast. Soils of the area are typically from red parent materials and may be disturbed due to development over the last century. Vegetation in many areas reflects some level of previous disturbance, and invasive species, typical of disturbed areas, are common.

Both Segments C5 and H are relatively flat with little variation in elevation; although, the slight ridges and shallow depressions of historic banks and water courses are visible. The only slopes of note are the edges of the floodplain and artificial slopes created by adjacent roads, which in some cases are several feet in height. The segments receive hydrologic input from several sources including direct precipitation, surface runoff from offsite areas, and floodplain inundation from the Bound Brook and Green Brook. A wetland delineation completed in 2018, identified wetlands and floodplains throughout the project area (**Figure 2**).

Both Segments C-5 and H border on residential neighborhoods and contain species that may prey on vernal pool species. This is especially acute in Segment C5 where predatory populations, especially mammals, benefit from anthropogenic actions. Predatory fauna in C5 include, but are not limited to: snapping turtles, waterfowl, wading birds, raccoons, foxes, skunks, snakes, and cats. Other predators (e.g., rats etc.,) are too likely present, but have not been observed. Regarding cats, a feral cat colony maintained by a local group exists near the perimeter of C5 adjacent to a soccer field. The colony consists of approximately one dozen plastic bins that have been altered to provide the cats shelter; the group also feeds the cats. Domestic and feral cats are known to have decimated localized bird, mammal and reptile and amphibian populations (Woods, M., et. al, 2003; Loss et. al, 2013).

B. Scope of Work

Phase 1 - As part of the wetland delineations, in September 2018, the survey team conducted a cursory evaluation within the wetland delineation survey limit for potential vernal habitat in the locations indicated by the NJDEP environmental resource database. These are identified as green circles in **Figure 3** and are located in Segment C5 and Segment H of the project area. Within those circles approximately 33 acres of project area in Segment H and C5 were surveyed. The survey team concluded during the cursory evaluation that additional investigations are necessary to verify the presence/absence of vernal habitat at eight locations at Segment C5 and five locations at Segment H. Results of the initial evaluation are detailed in the October 2018 in the *Green Brook Vernal Pool Investigation Report*.

Phase 2 – A scope of work was issued on April 7, 2020 to conduct a vernal habitat survey in accordance with the NJDEP Vernal Habitat Survey Protocols within Segment C5 at the eight previously identified areas. A modification to the task order was issued on June 15, 2020 to expand the effort to include five potential vernal habitat locations in Segment H. Furthermore, on July 22, 2020, a second modification to the original scope was made to expand the efforts to include more detailed amphibian and reptile surveys via on-site searches and use of game cameras. The results of the Phase 2 investigations are provided herein.









Figure 3: NJDEP GeoWeb Image of Potential Vernal Pool Habitat Areas within the Project Area



2. Vernal Pool Overview

Vernal pools are confined wetland depressions, either natural or man-made, that hold water for at least two consecutive months out of the year and are devoid of breeding fish populations. These unique ecosystems provide habitat to many species of amphibians, insects, reptiles, plants, and other wildlife. Amphibians that are dependent upon vernal pools are known as "obligate vernal pool breeders." In New Jersey there are seven species - two frogs and five salamanders - that fit this category. Another 14 of New Jersey's amphibians also use vernal pools for breeding, but unlike the 'obligate' species, these species can successfully reproduce in habitats that contain fish. These species are known as "facultative vernal pool breeders." See below for a list of Obligate and Facultative Vernal Pool species including New Jersey protected status (e.g., endangered, threatened, etc.).

Obligate Vernal Pool Breeding Amphibians:

- Eastern tiger salamander (Ambystoma t. tigrinum) Endangered
- Marbled salamander (A. opacum) Special Concern
- Spotted salamander (A. maculatum)
- Jefferson salamander (A. jeffersonianum) Special Concern
- Blue-spotted salamander (A. laterale) Endangered
- Wood frog (*Rana sylvatica*)
- Eastern spadefoot toad (Scaphiopus holbrookii)

Facultative Vernal Pool Breeding Amphibians:

- Green frog (*Rana clamitans melanota*)
- Bullfrog (*R. catesbiana*)
- Pickerel frog (*R. palustris*)
- Southern leopard frog (*R. utricularia*)
- Carpenter frog (*R.virgatipes*) Special Concern
- Northern cricket frog (*Acris crepitans*)
- Northern spring peeper (*Psuedacris crucifer*)
- New Jersey chorus frog (*P. triseriata kalmii*)
- Upland chorus frog (*P. triseriata ferarium*)
- Northern gray treefrog (*Hyla versicolor*)
- Southern gray treefrog (*H. chrysocelis*) Endangered
- Pine Barrens treefrog (H. andersonii) Threatened
- Four-toed salamander (*Hemidactylium scutatum*)
- Long-tailed salamander (Eurycea l. longicauda) Threatened
- American toad (Bufo americanus)
- Fowler's Toad (B. fowlerii) Special Concern

In addition to amphibians, there are several reptiles that inhabit vernal pools on a seasonal basis, primarily to eat the eggs and larvae of amphibians:

- Wood turtle (*Glyptemys insculpta*) Threatened
- Spotted turtle (*Clemmys guttata*) Special Concern
- Mud turtle (*Kinosternon subrubrum*)
- Eastern painted turtle (*Chrysemys picta picta*)
- Common snapping turtle (Chelydra serpentina serpentina)

NJDEP Division of Land Use Regulation (DLUR) has developed Freshwater Wetlands Vernal Habitat Survey Protocol (**Attachment A**). Potential vernal pool habitat is evaluated to determine whether they meet the following four determining criteria:

1. Occurs in a confined basin depression without a permanent flowing outlet:

2. Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions:

3. Maintains ponded water for at least two continuous months between March and September of a normal rainfall year; and

4. Is free of fish throughout the year or dries up at some time during the year.¹

3. Survey Methods

During the first week of the survey, a team of two scientists visited the previously identified eight potential vernal pool locations in the Phase 1 survey. The team also identified an additional four more potential vernal pool locations, in Segment C5. Together, these twelve locations were surveyed weekly from the end of April in 2020 through the end of September and mid-February through April 2021. The locations of each pool are presented in **Figures 4, 4A**, and **4B**.

In Segment H, a total of five locations were surveyed weekly from late-June through the end of September in 2020 and mid-February through April 2021. See **Figures 4** and **4C** for survey locations.

The survey methodology initially consisted of techniques recommended in the NJDEP DLUR Freshwater Wetlands Vernal Habitat Protocol. However, adaptations to the survey methodology were made when it was determined that unusually hot and dry conditions² could be impacting survey results. Modifications consisted of the following activities:

- Intensive transect searches;
- Meandering searches between standard pool observations;
- Nocturnal survey component including audio observations, spot-light searches, and night vision observations; and

¹ As per 7:7A-1.3 it is stated that vernal pools are: "Is free of reproducing fish populations throughout the year or dries up at some time during a normal rainfall year". For this report, vernal pools were considered as pools free of fish, due to the fact that the only observation of fish occurred immediately after periods of extreme hydrology and no fish eggs, larvae and/or young-of-year fish were observed. Also, in 2020 all pools dried up; thus, precluding the long-term habitation of fish in the project area.

² It should be noted that each spring month in 2020 realized below-normal precipitation, resulting in the 2020 seasonal total of 10.10 inches being 1.99 inches below normal (Robinson, 2020a). Then New Jersey experienced its second-hottest summer on record. The 75.3-degree average was 2.9 degrees above the 1981–2010 normal. Additionally, July was the hottest month ever recorded in New Jersey; 3.2 degrees above normal. Rainfall averaged 15.93 inches across New Jersey during the June–August interval. This is 3.25 inches above average and ranked 26th wettest of the past 126 summers (Robinson, 2020b).

• Deployment of game cameras.

A summary of each survey method is described below.

A. Standard Pool Observations

Qualified scientists walked the perimeter of the potential vernal habitat area to confirm the absence of an inlet or outlet. Visual and auditory observations were made to identify presence of obligate or facultative species individuals, larvae, egg masses, or a breeding chorus. The area was visually scanned for the presence of any fish species and dip nets were used to determine the presence of amphibian larvae, fish, and aquatic insects. Notes and photos were taken to document pool characteristics and identify visual and audible species including audible "plops".

B. Intensive Transect and Modified Meandering Herp Search

On June 10th, a team of two scientists traversed transects established in Segments C5 and H and nearby riparian and upland areas. Approximate transect locations are shown in **Figure 5**. The field team rolled logs and searched vegetation and woody debris for a period of approximately eight hours documenting amphibians and reptiles uncovered. The field team was careful to return logs and debris to its original position. Following the intensive search, modified meandering searches were conducted between standard pool observations while traversing the site during surveys conducted in mid-June through July, 2020.

C. Nocturnal Survey

The nocturnal survey component followed the standard pool observations and commenced after sunset. During the surveys, scientists conducted audio observations, spot-light searches, and utilized night vision monocles to identify vernal pool species. The team of two scientists selected two locations at Segment C5 and one location at Segment H adjacent to previously identified potential vernal pools (Figure 5). The locations were selected as they were deemed to have the highest likelihood of vernal pool species presence and could be accessed safely during nighttime. The team would sit quietly for a minimum of 20 up to 60 minutes at each location listening for audio observations and intermittently using a spot-light and night vision monocle to search the area. When using the spotlight, the scientists rotated 360 degrees.

D. Game Camera Deployment

Scientist additionally installed two game cameras at each Segment within or directly adjacent to previously identified potential vernal pool locations from mid-July through September 2020 to augment the on-site amphibian and reptile searches (Figure 5).

Survey Date	Standard Pool Observations	Intensive Transect Search	Modified Meandering Search	Nocturnal Survey	Game Camera Deployment
April 28, 2020	C5	-	-	-	-
May 3, 2020	C5	-	-	-	-
May 9, 2020	C5	-	-	-	-
May 15, 2020	C5	-	-	-	-

Table 3-1: Survey Schedule

Survey Date	Standard Pool Observations	Intensive Transect Search	Modified Meandering Search	Nocturnal Survey	Game Camera Deployment
May 22, 2020	C5	-	-	-	-
May 30, 2020	C5	-	-	-	-
June 7, 2020	C5	-	-	-	-
June 10, 2020	-	С5, Н	-	-	-
June 13, 2020	C5	-	С5, Н	-	-
June 21, 2020	С5, Н	-	С5, Н	-	-
June 28, 2020	С5, Н	-	С5, Н	-	-
July 6, 2020	С5, Н	-	С5, Н	-	-
July 14, 2020	С5, Н	-	С5, Н	-	-
July 21, 2020	С5, Н	-	С5, Н	С5-1, С5-7, НЗ	С5, Н
July 27, 2020	С5, Н	-	С5, Н	С5-1, С5-7, НЗ	С5, Н
August 2, 2020	-	-	-	С5-1, С5-7, НЗ	С5, Н
August 10, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
August 17, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
August 25, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
September 2, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
September 9, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
September 16, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
September 24, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
September 30, 2020	С5, Н	-	-	С5-1, С5-7, НЗ	С5, Н
February 25, 2021	С5, Н	-	С5, Н	-	С5, Н
March 3, 2021	С5, Н	-	С5, Н	С5-1, С5-7, НЗ	С5, Н
March 11, 2021	С5, Н	-	С5, Н	С5-1, С5-7, НЗ	С5, Н
March 21, 2021	С5, Н	-	С5, Н	С5-1, С5-4, С5-7, НЗ	С5, Н
March 25, 2021	С5, Н	-	С5, Н	C5-2, C5-4, C5-7, H1, H2, H3	С5, Н
March 30, 2021	С5, Н	-	С5, Н	C5-2, C5-7, H1, H2, H3	С5, Н
April 10, 2021	С5, Н	-	С5, Н	C5-1, C5-4, C5-2, C5-7, H2, H3	С5, Н
April 16, 2021	С5, Н	-	С5, Н	С5-1, С5-7, Н1, Н2, Н3	С5, Н
April 18, 2021	С5, Н	-	С5, Н	-	С5, Н
April 22, 2021	С5, Н	-	С5, Н	С5-4, С5-7, НЗ	С5, Н
April 30, 2021	С5, Н	-	С5, Н	С5-1, С5-4, С5-7, НЗ	С5, Н

Figure 4 Potential Vernal Pool Habitat





Figure 4A Potential Vernal Pool Habitat within the Segment C5 Project Area

Confirmed Vernal Pool Habitat — Wetland Boundary

100 feet	10/15/2021	Sheet: 1 of 1	FIGURE 4A

1 inch +

Figure 4B Potential Vernal Pools Within the Segment C5 Project Area





Figure 4C Potential Vernal Pool Habitat within the Segment H Project Area



Cocument Path: D.Work/Green Brod Bavision date: 1130/2020

[October 2021]

Figure 5 Transects and Observation Points Within the Study Area



4. Results

The following provides results from vernal habitat investigations conducted from the end of April through the end of September 2020 and mid-February 2021 through April 2021.

A. Standard Pool Observations

Observations confirmed that each of the potential pools were confined basins without permanently flowing outlets. However, due to the nature of the floodplain at Segment C5, following overtopping of the Bound Brook's banks during periods of heavy precipitation, several of the pools were interconnected during periods of high water. **Table 4-1** provides the dimensions at full capacity as recorded for each pool. The water level was recorded at each visit to determine how long the pools maintained ponded water (see **Tables 4-2 and 4-2a**). It was determined that all but pools C5-8, C5-11, C5-12, H1 and H4 maintained ponded water for a period of at least two months during the survey period. Additionally, fish were recorded at seven of 12 pools in Segment C5. However, this occurred following isolated overtopping events and was attributed to flooding and not due to reproduction in the pools. It was also determined that each of the pools dried completely during the course of the survey. One obligate vernal pool breeding amphibian (wood frog) was documented visually and/or audibly at pool C5-4 on several occasions (3/11, 3/21, and 3/25). One facultative vernal pool amphibian, the green frog, was documented visually and/or by a call at pools C5-1, 2, 3, 4, 5, 6, 7, H1, H2, and H3. Additionally, facultative reptiles including the snapping turtle (C5-2, 6, 7, and 9) and painted turtle (C5-9) were documented. Vernal pool invertebrates were also recorded including mosquito larvae, aquatic beetles, dragonfly larvae, and aquatic worms.

Photos are provided as **Attachment B** and data sheets are provided as **Attachment C**. **Tables 4-3** and **4-3a** provide the combine results of obligate and facultative herpetofauna observations from various methodologies and **Table 4-4** summarizes the criteria met for each of the potential pools.

Pool ID	Dimensions at Full Capacity					
C5-1	9 meters by 5 meters					
C5-2	25 meters by 6 meters					
C5-3	1.5 meters by 2.5 meters					
C5-4	20 meters by 3 meters					
C5-5	10 meters by 10 meters					
C5-6	10 meters by 10 meters					
C5-7	100 meters by 25 meters					
C5-8	25 meters by 25 meters					
C5-9	75 meters by 10 meters					
C5-10	5 meters by 2 meters					
C5-11	50 meters by 7 meters					
C5-12	5 meters by 3 meters					
H1	20 meters by 10 meters					
H2	60 meters by 15 meters					
H3	10 meters by 10 meters					
H4	10 meters by 4 meters					
H5	8 meters by 3 meters					

Table 4-1 Pool Dimensions at Full Capacity

Table 4-2 Observed Weekly Water Level Percent Capacity 2020

Pool ID	4/28/20	5/3/20	5/9/20	5/15/20	5/22/20	5/30/20	6/7/20	6/13/20	6/21/20	6/28/20	7/6/20	7/14/20	7/21/20	7/27/20	8/2/20	8/10/20	8/17/20	8/25/20	9/2/20	9/9/20	9/16/20	9/24/20	9/30/20
C5-1	Full	Full	<50	>50	Dry	Full	Full	Dry	Dry	Dry	Dry	Full	>50	Full	<50	Full	>50	<50	Dry	Dry	Dry	Dry	Full
C5-2	>50	<50	<50	Dry	Dry	<50	>50	Dry	Dry	Dry	Dry	Full	Dry	Full		>50	<50	Dry	Dry	Dry	Dry	Dry	Full
C5-3	Full	Full	>50	>50	<50	<50	Full	<50	<50	<50	Dry	Full	<50	>50		>50	<50	<50	<50	Dry	<50	Dry	Full
C5-4	Full	>50	<50	<50	Dry	Full	>50	Dry	Dry	Dry	Dry	Full	<40	Full		<50	>50	<50	Dry	Dry	Dry	Dry	Full
C5-5	<50	>50	<50	Dry	Dry	Dry	>50	Dry	Dry	Dry	Dry	>50	Dry	<50		<50	Dry	Dry	Dry	Dry	Dry	Dry	Full
C5-6	>50	>50	<50	>50	Dry	>50	Full	Dry	Dry	Dry	Dry	>50	Dry	>50		>50	>50	Dry	Dry	Dry	Dry	Dry	Full
C5-7	>50	>50	<50	<50	Dry	<50	>50	Dry	Dry	Dry	Dry	>50	Dry	>50	<50	>50	>50	Dry	Dry	Dry	Dry	Dry	Full
C5-8	>50	<50	<50	Dry	Dry	Dry	<50	Dry	Dry	Dry	Dry	Full	Dry	Full		>50	Dry	Dry	Dry	Dry	Dry	Dry	Full
C5-9	>50	>50	<50	Dry	Dry	<50	Full	Dry	Dry	Dry	Dry	>50	Dry	>50		>50	>50	Dry	Dry	Dry	<50	Dry	Full
C5-10	Full	>10	<50	Dry	Dry	<50	Full	Dry	Dry	Dry	Dry	Full	Dry	>50		<50	>50	Dry	Dry	Dry	Dry	Dry	Full
C5-11	>50	<50	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Full	Dry	Dry		Dry	>50	Dry	Dry	Dry	Dry	Dry	Dry
C5-12	>50	>50	Dry	Dry	Dry	Dry	Full	Dry	Dry	Dry	Dry	>50	Dry	Dry		Dry	>50	Dry	Dry	Dry	Dry	Dry	Full
H1									Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
H2									Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
H3									Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
H4									Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
H5									Dry	Dry	Dry	Dry		Dry		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Notes: G	Notes: Gray shading indicates surveys not conducted at these locations.																						

Table 4-2a Observed Weekly Water Level Percent Capacity 2021

Pool ID	2/25/21	3/3/21	3/11/21	3/21/21	3/25/21	3/30/21	4/10/21	4/16/21	4/18/21	4/22/21	4/30/21
C5-1	Full	Full	Full	>50	Full	>50	<50	Full	>50	<50	<50
C5-2	Full	Full	Full	<50	>50	Full	<50	Full	<50	<50	Dry
C5-3	Full	Full	Full	Full	Full	Full	<50	Full	>50	<50	<50
C5-4	Full	Full	Full	>50	Full	>50	>50	Full	>50	<50	<50
C5-5	Full	Full	Full	<50	Full	>50	<50	Full	>50	<50	Dry
C5-6	Full	Full	Full	>50	Full	>50	>50	Full	>50	<50	<50
C5-7	Full	Full	Full	>50	Full	>50	<50	Full	>50	<50	<50
C5-8	Full	Full	Full	<50	Full	Full	<50	<50	Dry	Dry	Dry
C5-9	Full	Full	Full	>50	Full	>50	<50	Full	<50	<50	<50
C5-10	Full	Full	Full	>50	Full	Full	<50	Full	>50	<50	Dry
C5-11	Full	Full	Full	<50	Full	>50	Dry	>50	<50	Dry	Dry
C5-12	Full	Full	Dry	<50	Full	>50	Dry	Dry	Dry	Dry	Dry
H1	Full	>50	Dry	Dry	<50	<50	Dry	Dry	Dry	Dry	Dry
H2	Full	>50	Full	>50	>50	>50	Full	Full	Full	<50	Dry
H3	Full	Full	Full	<50	>50	<50	>50	Full	>50	<50	<50
H4	Full	Full	<full< td=""><td><50</td><td>Full</td><td>>50</td><td>Dry</td><td>Full</td><td><50</td><td>Dry</td><td>Dry</td></full<>	<50	Full	>50	Dry	Full	<50	Dry	Dry
H5	Full	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Table 4-3 Obligate or Facultative Vernal Pool Herpetofauna Observations - 2020

Pool ID	4/28/20	5/3/20	5/9/20	5/15/20	5/22/20	5/30/20	6/7/20	6/13/20	6/21/20	6/28/20	7/6/20	7/14/20	7/21/20	7/27/20	8/2/20	8/10/20	8/17/20	8/25/20	9/2/20	9/9/20	9/16/20	9/24/20	9/30/20
C5-1	-	-	-	-	-	F (R. c. m.)	-	-	-	-	-	-	-	-	F (R. c. m.)	-	F (R. c. m.)	-	-	-	-	-	-
C5-2	-	-	-	-	-	-	-	-	-	-	-	F (R. c. m.)	-	-	-	-	-	-	-	-	-	-	F (C. s. s.)
C5-3	-	-	-	F (R. c. m)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-4	-	-	-	-	-	-	-	-	-	-	-	-	-	F (R. c. m.)	-	F (R. c. m.)	-	-	-	-	-	-	-
C5-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	F (R. c. m.)	-	-	-	-	-	-	-
C5-6	-	-	-	F (R. c. m)	-	-	-	-	-	-	-	F (R. c. m.)	-	-	-	F (R. c. m.)	-	-	-	-	-	-	-
C5-7	-	F (C. s. s.)	-	F (C. s. s)	-	-	-	-	-	-	-	F (R. c. m.)	-	F (R. c. m.)	F (R. c. m.)	F (R. c. m.)	F (R. c. m.)	-	-	-	-	-	-
C5-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-9	-	F (C. p. p.)	-	-	-	-	-	-	-	-	-	-	-	F (C. s. s.)	-	-	-	-	-	-	-	-	-
C5-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H1									-	-	-	-		-	-	-	-	-	-	-	-	-	-
H2									-	-	-	-		-	-	-	-	-	-	-	-	-	-
H3									-	-	-	-		-	-	-	-	-	-	-	-	-	-
H4									-	-	-	-		-	-	-	-	-	-	-	-	-	-
H5									-	-	-	-		-	-	-	-	-	-	-	-	-	-
Notes: $(-)$ Indic F = Fac	Notes: Gray shading indicates surveys not conducted at these locations. (-) Indicates no obligate or facultative species observed. F = Facultative (R c m) = Rang clamitans melanota = Green frog																						

(R.c.m.) - Rana clamitans melanota – Green trog

(C.s.s.) - Chelydra serpentina serpentina – Common snapping turtle (C.p.p.) - Chrysemys picta picta – Eastern painted turtle

Pool ID	2/25/21	3/3/21	3/11/21	3/21/21	3/25/21	3/30/21	4/10/21	4/16/21	4/18/21	4/22/21	4/30/21
C5-1	-	-	-	-	-	-	-	-	-	-	-
C5-2	-	-	-	-	-	-	-	-	-	-	-
C5-3	-	-	-	-	-	-	-	-	-	-	-
C5-4	-	-	O (R.s.)	O (R.s.)	O (R.s.)	-	O (R.s.)	-	-	-	-
C5-5	-	-	-	-	-	-	-	-	-	-	-
C5-6		-			F (C. s. s.)		F (C. s. s.)				F (C. s. s.)
C5-7	-	-	-	-	-	F (C. s. s.)	F (C. s. s.)	-	-	-	-
C5-8	-	-	-	-	-	-	-	-	-	-	-
C5-9	-	-	-	-	-	-	F (C. s. s.)	-	-	-	-
C5-10	-	-	-	-	-	-	-	-	-	-	-
C5-11	-	-	-	-	-	-	-	-	-	-	-
C5-12			-	-			-	-	-		-
H1	-	-	-	-	F (R.c.m.)	-	-	-	-	-	-
H2	-	-	-	-	-	-	F (R.c.m.)	-	F (R.c.m.)		-
Н3	-	-	-	-	-	-	F (R.c.m.)	-	-	-	-
H4	-	-	-	-		-	-	-	-		
H5	-		-	-	-	-	-	-	-	-	-
Notes: (-) Indicates no obligate or facultative species observed. O = Obligate F = Facultative (<i>R.c.m.</i>) - <i>Rana clamitans melanota</i> – Green frog (<i>C.s.s.</i>) - <i>Chelydra serpenting serpenting</i> – Common snapping turtle.											

Table 4-3a Obligate or Facultative Vernal Pool Herpetofauna Observations - 2021

(R.s.) - Rana sylvatica – Wood frog

Table 4-4 Summary of Vernal Pool Criteria

Pool ID	Confined Basin without Permanent Flowing Outlet	Evidence of Breeding by Obligate Species	Maintains Ponded Water for At Least Two Continuous Months	Is Free of Fish Throughout the Year / Dries Up at Some Time During the Year
C5-1	Yes	No	Yes	No/Yes
C5-2	Yes	No	Yes	No/Yes
C5-3	Yes	No	Yes	No/Yes
C5-4	Yes	Yes*	Yes	Yes/Yes
C5-5	Yes	No	Yes	Yes/Yes
C5-6	Yes	No	Yes	No/Yes
C5-7	Yes	No	Yes	No/Yes

C5-8	Yes	No	No	No/Yes	
C5-9	Yes	No	Yes	No/Yes	
C5-10	Yes	No	Yes	Yes/Yes	
C5-11	Yes	No	No	Yes/Yes	
C5-12	Yes	No	No	Yes/Yes	
H1	Yes	No	No	Yes/Yes	
H2	Yes	No	Yes	Yes/Yes	
Н3	Yes	No	Yes	Yes/Yes	
H4	Yes	No	No	Yes/Yes	
H5	Yes	No	Yes	Yes/Yes	
Notes: * Se	everal wood frogs w	vere observed and	l heard calling.		

B. Intensive Transect and Modified Meandering Herp Search

On June 10th, 2020 a team of two scientists walked transects within Segments C5 and H in wetland and adjacent upland and riparian forest. Whilst traversing the transects the scientists rolled logs, debris and searched vegetation to document the presence of vernal species. One unidentified toad, a box turtle, and a garter snake were the extent of the herptiles recorded during the effort. Additional, meandering searches were conducted while transiting pools during standard pool observations during mid-June through July 2020 and mid-February through April 2021. No additional herpetofauna were documented during these efforts. These searches were not concluded in August through September 2020 as the scientists determined that due to the density of vegetation and the physical efforts required to traverse through the site, many of the cryptic species likely would flee unnoticed before the scientist could visualize them in the densely vegetated areas that surrounded the pools.

C. Nocturnal Survey

Nocturnal surveys were conducted weekly July 21st through September 30th, 2020 adjacent to pools C5-1, C5-7, and H3 and from February 25th through April 30th, 2021 adjacent to C5-1, C5-2, C5-4, C5-7, H1, H2, and H3. A summary of observations are as follows:

- In 2020, Green frog vocalizations were documented August 2nd, 25th, and September 30th at C5-1. Green frog vocalizations were also documented on August 2nd and 25th at C5-7. No other vocalizations or evidence of herpetofauna usage was recorded during the nocturnal surveys.
- In 2021, wood frog vocalizations were documented March 21st and March 25th at pool C5-4. The field team captured, photographed and released one wood frog during the nocturnal spotlight search at C5-4 on March 25th. Additionally, on April 10th one wood frog was observed during nocturnal survey spotlight search at C5-4. One green frog was documented in the vicinity of H1 on March 25th and several green frogs (at least 5) were documented at H2 and one green frog at H3 during the April 10th nocturnal survey.

D. Game Camera Deployment

Four game cameras were installed from mid-July through September 2020 and mid-February through the end of April 2021 at pool locations in Segment C5 and Segment H to augment the amphibian and reptile search efforts. A total of 2,641 images in 2020 and 1,512 images in 2021 were recorded. No amphibians or reptiles were recorded by the camera traps at either segment. Species that were captured included white-tailed deer, raccoon, red fox, eastern gray squirrel, opossum, eastern cottontail, groundhog, and various bird species.

- E. Observed Obligate Species And Facultative Species
 - 1. Obligate Species Wood Frogs

Wood frogs were observed in one pool (C5-4) on three occasions. Sing males were audibly observed on two consecutive studies in late March.

Wood frogs inhabit a wide variety of habitats in North America varying from thickets to wet meadows and bogs to both coniferous and deciduous forests (Redmer and Trauth, 2005). In New Jersey they are found throughout the state; although, they are uncommon in the core of the Pinelands (NJDEP, 2002).

Wood frogs breed in fish-free permanent or semi-permanent bodies of water. Wood frogs breed early, often arriving just as ponds become free of ice; in fact, snow may still be present (Waldman 1982 *as cited in* Muths et. al, 2005). Breeding periods for wood frogs have been observed to occur for only one to two weeks (Hammerson 1999 and Stebbins, 1985 *as cited in* Muths et. al, 2005). Wood frogs will migrate from their primary habitat to breed as the species often seeks out terrestrial locations with ample cover to hibernate. Forests used by wood frogs for hibernation are characterized by fallen trees, branches, roots, mucky depressions from uprooted trees, leaf litter, and/or herbaceous understory (Bellis 1961a, Bagdonas 1968, Roberts and Lewin 1979 *as cited in* Muths et. al, 2005).

The hibernation locations may or may not be near a breeding pond (Redmer and Trauth, 2005); however, as reported in Berven and Grudzien (1990), wood frogs observed had a high incidence of site fidelity, with 82 percent of adults breeding in their natal pond, and breeding adults were 100 percent faithful to the pond in which they first bred.

Adult wood frogs have many predators including larger frogs, garter snakes, ribbon snakes, water snakes, herons, raccoons, skunks, and mink. Tadpoles are preyed upon by diving beetles, water bugs, and Ambystoma salamander larvae. Leeches, eastern newts, and aquatic insects may eat wood frog eggs (Redmer and Trauth, 2005).

As identified earlier, the wood frogs' breeding season is a short period of time, generally shortly after ponds become suitable for breeding. This would be consistent with the climatic conditions experienced in northern New Jersey during the winter of 2021. The lack of observations of the species at othertimes of the year, could be explained that the wood frog migrated to nearby wooded areas and was not present in vernal pool search areas. The audible observation of breeding males would suggest that breeding occurred in Pool C5-4; however, no proximal cause is evident for the lack of observations of egg masses (assuming egg laying occurred in the pool). One suggestion is the number of predators present in the Segment C-5 project area. As identified earlier, numerous predators were observed in Segment C-5; moreover, these predator populations are likely inflated due to anthropogenic influences.

2. Facultative Species – Green Frog, Painted Turtle, and Snapping Turtle

Facultative species were observed sporadically in Segments C-5 and H. Facultative species sightings corresponded to when pools held water and/or were ice free. No facultative species were recorded in Pools C5-8, C5-10, C5-11, C5-12 and H-4 and H5.

The study did not record any observations of mating or breeding of facultative species (e.g., courtship, egg masses, pregnant females with eggs, hatchlings or tadpoles). This could suggest breeding occurs outside of the pools and that the pools are part of a larger home range and not used for facultative species breeding.

5. Conclusions

Vernal pools investigations were conducted from May through September 2020 and mid-February through April 2021 in segments C5 and H. The surveys were conducted in accordance with the NJDEP *Freshwater Wetlands Vernal Habitat Survey Protocol*. In addition, the protocols survey methods were supplemented with additional efforts, namely game cameras, nocturnal surveys, and adjacent area searches.

Per the NJDEP's vernal pool criteria (identified in Chapter 2) only one pool (C5-4) meets the NJDEP protocols. The pool is in a confined basin with no outflow, the pool was documented to dry up during the year, maintained water for two consecutive months, and an obligate species, the wood frog, had two or more individuals engaged in a breeding chorus (continuous calling) on two nights in March 2021. Therefore, per the NJDEP protocols Pool 4 would qualify as a vernal pool as a breeding chorus of an obligate species was observed on two occasions in March.

6. Post Survey Coordination With NJDEP

At the conclusion of the survey in Spring of 2021 the results were presented to the NJDEP. On September 14, 2021, a meeting was held between the USACE and the NJDEP to discuss the survey's results. In that meeting (see Attachment D for meeting notes), the NJDEP did confirm that only pool C5-4 would be considered as a confirmed vernal pool. The NJDEP did also indicate that compensatory mitigation at a 2:1 ratio will be required for any direct or indirect impacts; moreover, on site mitigation is preferable. Pools C5-10, 11 and 12 were not observed to hold fish in either 2020 or 2021 so these areas could potentially serve as a compensatory mitigation location through enhancement (e.g., topographical modifications, installation of artificial cover, etc.). The selection of mitigation areas whether on site and/or in nearby locations would be subject to future hydrologic and field investigations.

7. Qualifications of Preparers

John Rollino MS, MA, BA, of AECOM, has over 25 years of experience performing hundreds of wetland delineations, vernal pool surveys, and ecological investigations. Mr. Rollino has performed wetland delineations, vernal pool surveys, and other ecological investigations throughout the state of New Jersey, along the east coast of the U.S., in the Caribbean, and in the South Pacific Islands. He has conducted wetland delineations in a variety of habitats and locations that range from rare habitats to Superfund Sites and urban areas where contamination and soil disturbance require the wetlands to be delineated under the "atypical conditions" method. Relevant to this project, Mr. Rollino has conducted many ecological investigations and habitat restoration efforts in the Raritan River Valley with areas dominated by red parent material. In fact, Mr. Rollino served as the project manager for the wetland delineations of Segments C1-C5, QA/QC officer for the wetland delineations for Segments C6 and C7, and the initial vernal pool surveys in 2018. Mr. Rollino is also a certified wetland delineator in the state of Minnesota, Certified Ecologist, and is a Certified Arborist. Mr. Rollino also routinely prepares habitat restoration plans.

Melissa Zentai BS, PWS of AECOM, has 15+ years of experience performing wetland and wildlife assessments primarily in New Jersey, New York, and Pennsylvania. Ms. Zentai has experience conducting environmental surveys and preparing environmental assessments and permit applications. Ms. Zentai has conducted, designed, and managed numerous field studies including wildlife studies, wetland delineations, wetland mitigation monitoring, threatened and endangered species investigations, and vegetation surveys. Ms. Zentai is a certified Professional Wetland Scientist recognized by the Society of Wetland Scientists. Ms. Zentai also performed wetland delineations in Segments C1-C7, D, and H of the Greenbrook Flood Control Project and has a strong knowledge of the project area.

Steven Glenn BS, of AECOM, is an accomplished botanist with over 25 years performing botanical field studies, wetland delineations and vernal pool surveys, and environmental oversight/inspections in the eastern United States. Prior to joining AECOM, Mr. Glenn worked as a Research Associate for the Science Department at the Brooklyn Botanic Garden (BBG) in New York City. At the BBG, he served as a Project Manager of the New York Metropolitan Flora Project where he was a lead field botanist, database manager, and web site content generator for the regional floristic survey that encompassed over 7,600 square miles in the New York, New Jersey, and Connecticut tristate area. His expertise includes field botany, invasive plant species, regional floristics, and oversight of environmental projects. Mr. Glenn also performed wetland delineations in Segments C1-C7, D, and H of the Greenbrook flood control project and has a strong knowledge of the project area.

Jennifer Reed BS, of AECOM, has 12 years of experience performing wildlife assessments and wetland surveys primarily in New Jersey and New York. Ms. Reed has participated in threatened and endangered species investigations, marine surveys, wetland delineations, and vegetation surveys. Ms. Reed assisted in conducting the initial vernal pool project survey in 2018.

Justin Keil BS, of AECOM, is a junior biologist with experience in endangered species surveys, avian surveys, wetland delineations, cultural resource surveys, and vegetation management. He is familiar with floral and faunal identification (including birds) and threatened/ endangered species, as well as data collection and analysis.

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Attachment A NJDEP Vernal Pool Protocol

Attachment A NJDEP Vernal Pool Protocol



State of New Jersey

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Land Use Regulation Program Freshwater Wetlands Vernal Habitat Protocol (updated: 05/17/02)

Purpose:1

Item 1: "Occurs in a confined basin depression without a permanent flowing outlet".	2
reproduce in ephemeral aquatic conditions"	2
Item 3: "Maintains ponded water for at least two continuous months between March	and
September of a normal rainfall year"	2
Item 4: "Is free of fish throughout the year, or dries up at some time during the year"	3
Required Field Observations for Certifying a Vernal Habitat	3
Documenting The Location Of A Vernal Habitat	4
Use Of This Protocol In The Freshwater Wetlands Permit Program:	5

Purpose:

This protocol will be used by the Land Use Regulation Program to determine whether an area meets the definition of a "vernal habitat" in N.J.A.C. 7:7A-1.4. If the application of this protocol results in a Department determination that an area meets the definition of a vernal habitat, the area will be placed on the list of certified vernal habitats, maintained by the Department. The Department will also develop digital mapping to show the locations of certified vernal habitats.

The definition of a vernal habitat includes four criteria that must be satisfied. Item 1 requires that the area occur in a confined basin depression without a permanently flowing outlet. Item 2 requires the documentation of obligate or facultative vernal habitat species (these species are identified in N.J.A.C. 7:7A, Appendix 1). Item 3 requires that the area maintain ponded water for at least two continuous months between March and September of a normal rainfall year. Item 4 requires that the area is free of fish populations throughout the year, or dries up at some time during a normal rainfall year. The elements required to satisfy each item are discussed below.

Bradley M. Campbell Commissioner

Item 1: "Occurs in a confined basin depression without a permanent flowing outlet"

The area must be a depression in the surrounding ground, confined by areas of higher upland or wetland ground. It must not have a permanently flowing outlet but may have a periodic outlet through which water flows during periods of heavy rain events, flooding or seasonally high water tables.

Item 2: "Features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions"

The area must feature evidence of breeding by vernal habitat species. These species are listed in N.J.A.C. 7:7A, Appendix 1, and are divided into obligate and facultative species. An obligate vernal habitat species is one for which vernal habitats are the only type of habitat used for breeding. A facultative species will use vernal habitat for various activities, for example breeding or foraging, but can also use other types of habitats.

<u>Obligate species:</u> For the purposes of item 2 of the definition of vernal habitat, the following will constitute evidence of breeding by a species listed as an obligate species at N.J.A.C. 7:7A, Appendix 1:

- a. The following types of evidence of breeding adults:
 - i. Frog breeding chorus;
 - ii. Mated pairs of frogs;
 - iii. Salamander courting individuals; and/or
 - iv. Salamander spermatophores;
- b. Two or more egg masses of any obligate species;
- c. Frog tadpoles;
- d. Mole salamander larvae; and/or
- e. The following types of evidence of transforming juveniles:
 - i. Wood frogs with tail stubs evident; and/or
 - ii. Salamanders with gill remnants evident.

<u>Facultative species</u>: For the purposes of item 2 of the definition of vernal habitat, evidence of the presence of one or more members of the species within the area of the habitat listed as facultative species at N.J.A.C. 7:7A, Appendix 1 shall constitute evidence of breeding or foraging by that species.

Item 3: "Maintains ponded water for at least two continuous months between March and September of a normal rainfall year"

If an area satisfies item 2 by showing evidence of breeding by obligate species, the criteria in items 3 and 4 are presumed to be satisfied. (See flow chart below for an illustration of this.) This presumption does not apply if an area satisfies item 2 solely by showing evidence of breeding by facultative species. This application of the presumption reflects the fact that the species listed as obligate depend almost exclusively on vernal habitat for breeding, and cannot breed in other types of habitat. They must breed in an area that maintains water for certain time periods, and in which there are no fish to eat their eggs. Obligate species also tend to be site tenacious, meaning that succeeding generations of the species frequently return to their natal pond for breeding purposes. Therefore, if an area shows evidence of breeding by an obligate species, the area must meet the criteria in items 3 and 4.

However, the species listed as facultative do not depend exclusively on vernal habitat, although they do regularly use vernal habitats. These species also use other similar types of habitat that would not meet the definition of a vernal habitat. Therefore, the presumption that an area is ponded for at least two months and is free of fish populations (i.e., that the criteria in items 3 and 4 are met) does not apply where only facultative species have been found. In those cases, the ponding of water (Item 3) and the drying up or lack of fish populations (Item 4) must be independently demonstrated in accordance with this protocol.

To satisfy Item 3, an area that is not subject to the presumption discussed above (i.e., an area with evidence of facultative species only) must maintain ponded water continuously for at least two contiguous months (60 days) between March 1st and September 30th of a normal rainfall year.

Item 4: "Is free of fish throughout the year, or dries up at some time during the year"

As discussed above under Item 3, if an area satisfies item 2 by showing evidence of breeding by obligate species, the criteria in items 3 and 4 are presumed to be satisfied. (See flow chart below for an illustration of this.)

To satisfy Item 4, an area that is not subject to the presumption discussed above (i.e., an area with evidence of facultative species only) must be free of fish populations throughout the year, or dry up at some time during the year. Meeting either one of these criteria is sufficient to satisfy Item 4.

Required Field Observations for Certifying a Vernal Habitat

- A. Item 1: Clear photographs are required to document that an area is a confined basin depression without a permanent flowing outlet. The photographs must be taken from several angles, and must be sufficient to clearly display the area's complete or intermittent hydric isolation.
- B. Item 2: At least one of the following types of evidence is required to document each observation of a vernal habitat species:

- 1. Photograph(s). <u>This is the preferred method</u>. Prints, slides, or digital photographs are acceptable. The location, date of observation, and observer's name must be provided;
- 2. Videotape recording. The location, date, and recorder's name must be provided;
- 3. Taped audio recording of a frog breeding chorus. The location, date, and recorder's name must be provided; and/or
- 4. Detailed written description(s) of species observed, including a discussion of the criteria that were used to identify the species involved. Field notes, and/or a drawing of the animal, may be submitted as part of the description. It is preferred that the description and field notes be prepared by a biologist competent in animal identification.
- C. Item 3: The following evidence is required to support observations that an area maintains ponded water for at least two contiguous months between March and September:
 - 1. A logbook containing a record of observations, made approximately weekly, of the presence or absence of standing water in the area. For each observation date, the logbook shall state the approximate depth and dimensions of the area covered by standing water; and/or
 - 2. A list of one or more amphibian and reptile species that were observed using the area for breeding purposes (including dates).
- D. Item 4: At least one of the following types of evidence is required to demonstrate that an area is free of fish populations throughout the year, or dries up at some time during the year:
 - 1. Clear photograph(s) and/or statement of direct observation, including date of observation, showing the area to be dried up; or
 - 2. Scientific evidence sufficient to conclude that the area is free of fish populations.

Documenting The Location Of A Vernal Habitat

The following documentation is required to identify the location of a vernal habitat:

- 1. One or more of the items at i through iii below:
 - i. Metes and bounds description. Compass bearings and measured distances (the distances should be 1000 feet or less) of the habitat from at least two permanent landmarks, and the locations of landmarks. The compass bearings must account for the appropriate declination. The locations of the landmarks and the vernal habitat must be shown on the municipal tax map required in 2 below;
 - ii. Aerial photographs. The vernal habitat must be clearly visible on the aerial photograph; or
 - iii. Professional survey or GPS coordinates; and
- A photocopy of an 8.5" by 11" section of the appropriate United States Geological Survey quadrangle map with the approximate site of the vernal habitat clearly marked should also be included (USGS quad maps are available from the Department's Office of Maps and Publications at (609) 777-1038); and
- 3. It is recommended that a sketch map and/or detailed description of features in the immediate vicinity (within 1000 feet) of the vernal habitat also be provided.

Use Of This Protocol In The Freshwater Wetlands Permit Program:

- 1. The Department will develop a list of certified vernal habitats. After the list is developed, the Department will develop digital GIS maps showing the locations of certified vernal habitats.
- 2. When an application for a freshwater wetlands permit is submitted, the Department will review the list of certified vernal habitats to determine if the site may contain a vernal habitat.
- 3. If the site contains a certified vernal habitat, the Department will inform the applicant of this fact.
- 4. For each permit application, LUR accepts public comment during the period of application review, in accordance with N.J.A.C. 7:7A-12.3. If the Department receives information indicating that an area may be a vernal habitat during the public comment period (whether the information is submitted by the public, discovered by staff during a site investigation, or obtained in some other way), the Department will evaluate this information. If the information is sufficient to certify the area as a vernal habitat in accordance with this protocol, the Department will do so. Alternatively, the Department may delay a final decision on the application in order to obtain further information. The Department's action in these cases will vary on a case by case basis depending upon the quality of information available to the Department and/or the credentials of the person providing the information.
- 5. If the Department does not receive or discover any information indicating that an area is a vernal habitat prior to the Department's final decision on the application, the area shall not be considered a vernal habitat for purposes of the final decision on that application.
- 6. An applicant may contest the certification of an area as a vernal habitat. In order to contest a certification, an applicant must demonstrate that the area no longer meets the criteria in items 1, 2, 3, or 4 of the definition of vernal habitat. If such a demonstration includes a survey for vernal habitat species, the survey must be conducted over a minimum of two normal rainfall years, and must show no evidence of the presence of any vernal habitat species during the survey period.

Attachment B Photo Log

Figure 6: Photo Location Map





2020 Surveys




































Photo 36 – Eastern painted turtle Location: C5-9 Date: May 3, 2020



Date: July 27, 2020





Photo 42 – Dragonfly nymph Location: C5-4 Date: May 15, 2020



2021 Surveys



Date: February 25, 2021



Photo 45 Location: C5-1 Date: March 21, 2021



Location: C5-1 Date: April 10, 2021





Photo 51 Location: C5-2 Date: March 3, 2021



Photo 53 Location: C5-2 Date: March 25, 2021



Location: C5-2 Date: April 18, 2021



Photo 57 Location: C5-3 Date: February 25, 2021





Location: C5-4 Date: March 11, 2021



Location: C5-4 Date: March 21, 2021



Location: C5-4 Date: March 25, 2021





Photo 69 - Wood frog Location: C5-4 Date: April 10, 2021






Location: C5-6 Date: March 3, 2021



Photo 77 – Snapping turtle Location: C5-6 Date: April 10, 2021



Location: C5-7 Date: March 3, 2021



Location: C5-7 Date: April 18, 2021



Location: C5-8 Date: March 30, 2021



Location: C5-9 Date: March 11, 2021



Location: C5-9 Date: April 18, 2021







Location: C5-11 Date: March 25, 2021



Location: C5-11 Date: April 30, 2021



Location: C5-12 Date: March 25, 2021





Date: March 25, 2021







Location: H3 Date: March 25, 2021



Date: March 3, 2021





Photo 112 – Whitetail deer Location: C5-2 Date: March 31, 2021



Photo 113 – Great blue heron Location: H4 Date: April 1, 2021



Photo 114 – Raccoons Location: H2 Date: April 9, 2021



Location: H2 Date: April 28, 2021 Contract Number: W912DS-18-D-0006: IDC 212 Green Brook Flood Risk Management Project Vernal Pool Investigation – Phase 2

Attachment C Data Sheets





GENERAL INFO	
SITE NAME: H-5	OBSERVER: M. Zentai / J. Reed
ORGANIZATION: AECOM	DATE: 2/25/21 COUNTY: Middlesex
MUNICIPALITY: Gran Brook	TOPO QUAD:
DIRECTIONS TO SITE:	A Gale
	Chan Wetter the FIL
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/d	lepressionexcavated pit/ditchimpoundment
WATER LEVEL (check):	50%full<50%fulldry
FCOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):clear	tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN,	/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating	g vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/C	VERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that ap	oply):upland forestforested wetlands
emergent/scrub-shrub wetlandagric	ultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100	Im OF POOL:
GENERAL NOTES/COMMENTS: 3"L	sater

M. Zernei) J. Reed AELOM -Hiddlesex 2/25/21 - Green Bruck

any landstan XX and blacked was

Natural Swald/depression Rull Clear water 26" 8-10"

Vig: trees 30% cover

Grester methand

17-4

95% frozen

* Carrera Sot





SITE NAME: H-3	OBSERVER: M. Zentai / J. Reed
ORGANIZATION: AELOM	DATE: 2/25/21 COUNTY: Middleron
MUNICIPALITY: Coreen Brack	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/de	pressionexcavated pit/ditch impoundment
WATER LEVEL (check):full>50	l%full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):te	a-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/C	VERHANGING POOL (ESTIMATE % COVER)
treesscrub/shrubfloating	vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OV	ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply	/):upland forest /_forested wetlands
emergent/scrub-shrub wetlandagricult	ural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:
GENERAL NOTES/COMMENTS: for	- estimator 6" deptin



GENERAL INFO



VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME: H-2	OBSERVER: M. Zenta: 1J. Reed
ORGANIZATION: PELOM	DATE: 225/21 COUNTY: Middleson
MUNICIPALITY: Geen Book	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Anatural swale/c	depressionexcavated pit/ditch impoundment
WATER LEVEL (check):full>	50%full<50%full drv
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):	tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN,	OVERHANGING POOL (ESTIMATE % COVER):
<u></u>	vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/O	VERHANGING POOL (optional):
ANDSCAPE CONTEXT (check all that app	bly):upland forestforested wetlands
emergent/scrub-shrub wetlandagricu	Itural field/grasslandsuburban
TRUCTURE OF HABITAT WITHIN 100n	n OF POOL:
ENERAL NOTES/COMMENTS: 6 wa	ter 30% caver of ice/snow
	X Annera con
	Course 704





SITE NAME: H-1	OBSERVE	R: M. Zonta; /J. Reed
ORGANIZATION: NE any	DATE: 0125121	COUNTY: Middleser
MUNICIPALITY: Green Brook	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check):natural swale/dep	pressionexcavated pit/di	itch impoundment
WATER LEVEL (check): / full _>50	%full<50%full	drv
POOL DIMENSIONS (at max capacity):	m xm	
WATER QUALITY (check):cleartea	a-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/O	VERHANGING POOL (ESTI	MATE % COVER):
treesscrub/shrubfloating v	egetationemergent ve	getation
DOMINANT PLANT SPECIES WITHIN/OVE	RHANGING POOL (optiona	al):
LANDSCAPE CONTEXT (check all that apply):upland forest _foreste</td <td>ed wetlands</td>	ed wetlands
emergent/scrub-shrub wetlandagricultu	ural field/grasslandsubu	ırban
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:	
De herps/invertr.	sen water / mostly	Show Come 6"wate





SITE NAME: CS-12	OBSERVER: M. Zantai /J. Reed
ORGANIZATION: AECOM	DATE: 2)2521 COUNTY: Widdlesex
MUNICIPALITY: Middlesex	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/de	epressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50	0%full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):	ea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/	OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating	vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OV	'ERHANGING POOL (optional):
emergent/scrub shrub water all that appl	y):upland forest
	tural field/grasslandsuburban
THOUSE OF HABITAT WITHIN 100m	OF POOL:
GENERAL NOTES/COMMENTS	
	- Cover, le Woterdeptin





SITE NAME:	OBSERVER: M. Zenta; J. Reed
ORGANIZATION: Middlesez AELON	DATE: 2)25/21 COUNTY: Middle see
MUNICIPALITY: Middleson	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): /_natural swale/depre	ssionexcavated pit/ditch impoundment
WATER LEVEL (check):full>50%f	ull<50%full drv
OOL DIMENSIONS (at max capacity):	m xm
NATER QUALITY (check): /cleartea-c	oloredalgae-green
TRUCTURE OF VEGETATION WITHIN/OVE	RHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating veg	etationemergent vegetation
OMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):
ANDSCAPE CONTEXT (check all that apply):	
_emergent/scrub-shrub wetland agricultura	upland forest Vrorested wetlands
TRUCTURE OF HABITAT WITHIN 100m OF	POOL:
ENERAL NOTES/COMMENTS: Ju LOW	er. Ostinated (o" dat
	- septra





GENERAL INFO	<u>Ge</u>	NER	AL I	N	0
--------------	-----------	-----	------	---	---

SITE NAME: <u>C5-10</u>	OBSERVER: M. Zenta; /J. Reed
ORGANIZATION: AECOM	DATE: 2/25/21 COUNTY: Middlesa
MUNICIPALITY: Middle sex	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depre	essionexcavated pit/ditchimpoundment
WATER LEVEL (check):	full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):	coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVI	ERHANGING POOL (ESTIMATE % COVER):
	getationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):
EANDSCAPE CONTEXT (check all that apply):	upland forest vetlands
STRUCTURE OF HARTAT WITHIN 100	al field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:
GENERAL NOTES/COMMENTS:	- towing into cine of works - annin a
	of the a water - sometice love-





SITE NAME: CS-C	
ORGANIZATION: AFLORA	_ OBSERVER: M. Zentai / J. Read
MUNICIPALITY: Mid alocan	DATE: 2/05/21 COUNTY: Hiddlesen
	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depression	excavated pit/ditchimpoundment
WATER LEVEL (check): / full>50%full	<50%fulldry
POOL DIMENSIONS (at max capacity):m >	<m< td=""></m<>
WATER QUALITY (check):	dalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHA	NGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation	onemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANG	GING POOL (optional):
ANDSCAPE CONTEXT (check all that apply):up	land forest
_emergent/scrub-shrub wetlandagricultural field	l/grasslandsuburban
TRUCTURE OF HABITAT WITHIN 100m OF POC	DL:
ENERAL NOTES/COMMENTS:	- Water 3" 1/2
Currently tion	ng into river





SITE NAME:
ORGANIZATION: DELOM DATE: DATE: DATE: DATE: DATE: DEST COUNTY: Middle MUNICIPALITY: MiddleSex TOPO QUAD: MUNICIPALITY: MiddleSex TOPO QUAD: DIRECTIONS TO SITE: POOL CHARACTERISTICS POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):n WATER LEVEL (check):m WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): ttreesfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
MUNICIPALITY: MuddleSex TOPO QUAD: DIRECTIONS TO SITE:
DIRECTIONS TO SITE: POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%fulldry POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): ttreesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%fulldry POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%fulldry
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%fulldry POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
WATER LEVEL (check):full>50%full<50%fulldry POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check): /clear _tea-colored _algae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): //treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
WATER QUALITY (check): clear algae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): within/overhanging pool (ESTIMATE % COVER): DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
emergent/scrub shrub wath a l
STRUCTURE OF HARTAT WITH 199
OF POOL:
GENERAL NOTES/COMMENTS: 40% ODer also (4)
1010 (for water (thaved) 12 + depth





GENERAL INFO	rand Nongame Species Program
SITE NAME: C5-7	OBSERVER: M. Zentaj / J. Reed
ORGANIZATION: AEUM	DATE: 2/25/21 COUNTY: MIDDLESON
MUNICIPALITY: Middle sex	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Anatural swale/depres	sionexcavated pit/ditchimpoundment
WATER LEVEL (check): / full _>50%fu	ili<50%fulldry
POOL DIMENSIONS (at max capacity):	_m xm
WATER QUALITY (check):	loredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVER	RHANGING POOL (ESTIMATE % COVER)
	tationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POOL (optional):
ANDSCAPE CONTEXT (check all that apply): _	upland forest
emergent/scrub-shrub wetlandagricultural	field/grasslandsuburban
TRUCTURE OF HABITAT WITHIN 100m OF	POOL:

GENERAL NOTES/COMMENTS: Frozen





SITE NAME:	OBSERVER: M. Zantas IJ. Pour
ORGANIZATION: AECOM	DATE: 2/25/21 COUNTY: Middle SOM
HUNICIPALITY: Middle Se	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depress	sionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%ful	ll<50%fulldry
POOL DIMENSIONS (at max capacity):	_m xm
WATER QUALITY (check):	loredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER): 30%
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):	_upland forestforested wetlands
STRUCTURE OF HABITAT WITHIN 100m OF F	field/grasslandsuburban POOL:
GENERAL NOTES/COMMENTS: FOZE	cover - deptr unknown
	* Set camora





GENERAL INFO

SITE NAME:S	DATE: 2)05/21 COUNTY: Middles
MUNICIPALITY: Middlesex	TOPO QUAD:
POOL CHARACTERISTICS	
POOL TYPE (check): /_natural swale/depres	essionexcavated pit/ditchimpoundment
WATER LEVEL (check): V_full _>50%	full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):	coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVI	ERHANGING POOL (ESTIMATE % COVER):
	getationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):	upland forestforested wetlands
emergent/scrub-shrub wetlandagricultura	al field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF	⁼ POOL:
GENERAL NOTES/COMMENTS: UNKNOW	n depth - jac cover




SITE NAME: CA-4	
ORGANIZATION: AFLOW	DATE: 2) OCTON COUNTY MAL
MUNICIPALITY: Middle Ser	TOPO OLIAD.
DIRECTIONS TO SITE:	1010 QUAD.
POOL CHARACTERISTICS	
POOL TYPE (check): <u>I</u> natural swale/dep	ressionexcavated pit/ditch impoundment
WATER LEVEL (check): full _>50%	6full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):	-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/ON	/ERHANGING POOL (ESTIMATE % COVER): 30%
✓_treesscrub/shrubfloating ve	egetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVE	RHANGING POOL (optional):
emergent/scrub-shrub wetland	:upland forest V_forested wetlands
	rai field/grasslandsuburban
GENERAL NOTES/COMMENTS: 12+	contop 2t
Not suitable for herps.	currently
· · · · · · · · · · · · · · · · · · ·	5





Fish and Wildlife

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME: C5-3	OBSERVER: M. Zentai /J. Read
ORGANIZATION: Actom	DATE: 2105/21 COUNTY: Middleson
MUNICIPALITY: Madeson	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): / natural swale/de	R pressionexcavated pit/ditchimpoundment
WATER LEVEL (check): /_full>50	%full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):teamttaatatatatatatatatatatatatatatatata	a-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/C	VERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVE	ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply	/):upland forest
emergent/scrub-shrub wetlandagricult	ural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:
GENERAL NOTES/COMMENTS: 18"+	2"ice on top



Start	10	:00	an
Sinny Clear.	40	-45	F

Fish and Wildlite

SITE NAME: CS-2	OBSERVER: M. Zenter /J. Reed
ORGANIZATION: AECOM	DATE 22521 COUNTY: Middleson
MUNICIPALITY: Middlesex Twp	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depression	excavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full	<50%fulldry
POOL DIMENSIONS (at max capacity):m >	<m< td=""></m<>
WATER QUALITY (check):	dalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHA	NGING POOL (ESTIMATE % COVER): 30%
treesscrub/shrubfloating vegetation	onemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANG	GING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):up	land forest Lforested wetlands
emergent/scrub-shrub wetlandagricultural field	J/grassiandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POC	DL:
GENERAL NOTES/COMMENTS: 12+ 80°	10 frozen
	* Set Camera





SITE NAME: C5-1	
	OBSERVER: M. Zontai /J. feed
MUNICIPALITY AA? A do	DATE: 2/25/21_ COUNTY: Modeleser
MUNICIPALITY: Midaleson	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): <u>/</u> natural swale/dep	ressionexcavated pit/ditchimpoundment
WATER LEVEL (check): / full _>50%	%full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):cleartea	-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/ON	VERHANGING POOL (ESTIMATE % COVER) 2001
treesscrub/shrubfloating ve	egetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVE	RHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply)	:upland forestforested wetlands
emergent/scrub-shrub wetlandagricultu	ral field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m C	DF POOL:
GENERAL NOTES/COMMENTS: Frozen	- solid 124





SITE NAME:	H-5 OBSERVER: M. Zentri /J. Reed	
ORGANIZATIO	ON: DATE: 3/3/2/ COUNTY:	
MUNICIPALITY	Y: TOPO QUAD:	_
DIRECTIONS T	TO SITE:	
POOL CHAR	RACTERISTICS	
POOL TYPE (ch	check): <u></u>	
WATER LEVEL	L (check):full>50%full<50%fulldry	
POOL DIMENS	SIONS (at max capacity): <u>10 m x 2 m</u>	
WATER QUALI	.ITY (check):cleartea-coloredalgae-green	
STRUCTURE O	OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): scrub/shrubfloating vegetationemergent vegetation	
DOMINANT PL	LANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CC amergent/scru STRUCTURE O	CONTEXT (check all that apply):upland forest /_forested wetlands crub-shrub wetlandagricultural field/grasslandsuburban OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOT	TES/COMMENTS: <u>No ice</u> , <u>2" avg. dept</u>	





SITE NAME: H-4 OBSERVER: M. Zerthi JJ. Red
ORGANIZATION: AECOM DATE: 3/3/21 COUNTY: Middlesex
MUNICIPALITY: Green Brook TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity):
WATER QUALITY (check):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:))" (tuch)
GENERAL NOTES/COMMENTS: 11 Cepth, NJ (Ce





	A COLUMN	
4-0-0		 the second s

SITE NAME: H-3 OBSERVER: M. Zorton / J. Reed
ORGANIZATION: AEGM DATE: 3/3/21 COUNTY: Middlesex
MUNICIPALITY: Modelesez TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full &dry
POOL DIMENSIONS (at max capacity): 5 8 m x 7 m
WATER QUALITY (check): clear algae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest /_forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: 00 1/2 / mar 2º darb
SERVER NOTES/COMMENTS. <u>The face (about 5 Meptin</u>





GENERAL INFO
SITE NAME: H-2 OBSERVER: M. Zentai/ J. Reed
ORGANIZATION: AECON DATE: 33721 COUNTY: Madeson
MUNICIPALITY: Middlecea TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full<50%fulldry
POOL DIMENSIONS (at max capacity): 50 m x 6 m
WATER QUALITY (check):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
\sqrt{trees} scrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: 5-7" deptn. No ice





SITE NAME: 41-1	OBSERVER:	M. Zontai J. Reed
ORGANIZATION:	DATE: 3321	COUNTY: Middlesox
MUNICIPALITY: Middlesea	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		

POOL TYPE (check): /_natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):	
POOL DIMENSIONS (at max capacity): <u>15 m x 5 m</u>	
WATER QUALITY (check):cleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest forested wetlands emergent/scrub-shrub wetland agricultural field/grassland suburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: 1-2" Max Septis, NO ice, recently disturbed	





SITE NAME: <u>(5-12</u> OBSERVER: M. Zentri / J. Reed
ORGANIZATION: AECON DATE: 33/21 COUNTY: Middleson
MUNICIPALITY: Middlesex TOPO QUAD:
DIRECTIONS TO SITE:
PÓOL CHARACTERISTICS
POOL TYPE (check): 🖌 natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity): $25 \text{ m x } 4 \text{ m}$
WATER QUALITY (check):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
trees
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check ail that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: 7" depty No Ke





GENERAL INFO	
SITE NAME: CS-11	OBSERVER: M. Zenta; JJ. Reed
ORGANIZATION: Accom	DATE: 3/3/21 COUNTY: Middleser
MUNICIPALITY: Middle soc	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/dep	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>500	%full<50%fulldry
POOL DIMENSIONS (at max capacity): 4	<u>O_mx_/s_m</u>
WATER QUALITY (check):cleartea	a-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/O	VERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating v	regetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVE	ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply	(): upland forest forested wetlands
emergent/scrub-shrub wetlandagricult	ural field/grassland suburban
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:
GENERAL NOTES/COMMENTS: 8" de	ptn, no ice, 5% algare





GENERAL INFO

SITE NAME: <u>C5-10</u>	OBSERVER: M. Zentai / J. Reed		
ORGANIZATION: Accom	DATE: 3/3/21	COUNTY: Midduson	
MUNICIPALITY: Middle sex	TOPO QUAD:		
DIRECTIONS TO SITE:			

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full<50%fulldry
POOL DIMENSIONS (at max capacity): 5_m x 2_m
WATER QUALITY (check):tea-coloredalgae-green Junice
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: 12" depth. Ad ice





SITE NAME: CS-9	OBSERVER: M. Zentai / J. Reed
ORGANIZATION: AECON	DATE: 33/21 COUNTY: M'adleson
MUNICIPALITY: Middle sex	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/d	epressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>5	i0%full<50%fulldry
POOL DIMENSIONS (at max capacity):	30_m×_10_m
WATER QUALITY (check):clear	tea-coloredaigae-green
STRUCTURE OF VEGETATION WITHIN,	/OVERHANGING POOL (ESTIMATE % COVER):
	g vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/O	VERHANGING POOL (optional):
	/
LANDSCAPE CONTEXT (check all that ap	ply):upland forest /forested wetlands
emergent/scrub-shrub wetlandagric	ultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100	m OF POOL:
	~
GENERAL NOTES/COMMENTS:	depty, 5% algae, Hous out into creak





SITE NAME: (5-7 OBSERVER: M.Zentai) J. Read
ORGANIZATION: AELOM DATE: 33/21 COUNTY: Middleson
MUNICIPALITY: Middlesex TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity): 100 m x 15 m
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: 50% algae, no ice, 8" depth





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the state of the s	-	-	_	-	-						_

SITE NAME: C5-6	OBSERVER: M. Zentai /J. Reu
ORGANIZATION: Acom	DATE: 3/3/21 COUNTY: Middlesa
MUNICIPALITY: Middleson	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): /natural swale/depressi	ionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full	<50%fulldry
POOL DIMENSIONS (at max capacity): 10 r	m x <u>_{0</u> m
WATER QUALITY (check):	oredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER):
<u>J</u> treesscrub/shrubfloating veget	ationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply): _	upland forest
emergent/scrub-shrub wetlandagricultural	field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:
GENERAL NOTES/COMMENTS: 20% al	gae, 10% ice cover remaining, 7" depth
	~





GENERAL INFO

SITE NAME: C5-5	OBSERVER: M. Zerthi / J. Reid			
ORGANIZATION: AECOM	DATE: 332 COUNTY: Middles	ex		
MUNICIPALITY: Middlesex	TOPO QUAD:			
DIRECTIONS TO SITE:				

POOL CHARACTERISTICS

POOL TYPE (check): /_natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity): 20 m x 3 m
WATER QUALITY (check): 🖌 cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
<pre>/ treesscrub/shrubfloating vegetationemergent vegetation</pre>
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: 41/2 depty. 25% ice





SITE NAME: <u>25-4</u>	OBSERVE	R: M. Zentai /J. Reel
ORGANIZATION: Dec an	DATE: 3/3/21	COUNTY: Middleson
MUNICIPALITY: MiddleSex	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		김 아님 김 이 것이 없다. 영화
POOL TYPE (check):natural swale/depression	excavated pit/c	litchimpoundment
WATER LEVEL (check):full>50%full	<50%full	dry
POOL DIMENSIONS (at max capacity): <u>30</u> m x	<u>5</u> m	
WATER QUALITY (check): /cleartea-colored	dalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHA	NGING POOL (EST	IMATE % COVER):
treesscrub/shrubfloating vegetation	onemergent v	regetation
DOMINANT PLANT SPECIES WITHIN/OVERHANG	GING POOL (optior	nal):
LANDSCAPE CONTEXT (check all that apply):up	land forest /_fores	ted wetlands
emergent/scrub-shrub wetlandagricultural field	d/grasslandsub	burban
STRUCTURE OF HABITAT WITHIN 100m OF POO	DL:	
GENERAL NOTES/COMMENTS: 80% ice ca	x-, 10" du	stb





Fish and Wildlife

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

GENERAL INFO

SITE NAME: C5-3	OBSERVER: M. Zentri, / J. Reed		
ORGANIZATION: AECOM	DATE: 3/3/24	COUNTY: Middlewa	
MUNICIPALITY: Middlesex	TOPO QUAD:		
DIRECTIONS TO SITE:			

POOL CHARACTERISTICS

POOL TYPE (check): <u>v</u> natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
✓ trees
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest /_forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: This sheat of ice 80%, depth # 12-16"+



Start time 4:15 Fish and Wildlife Sunny, 55° Ni

GENERAL INFO	Unleshow reme
SITE NAME: <u>C5-2</u>	OBSERVER: M. Zentrai / J. Road
ORGANIZATION: AELOM	DATE: 3/3/21 COUNTY: Middlesex
MUNICIPALITY: Middleson	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): /natural swale/	depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): / full _>	50%full<50%fulldry
POOL DIMENSIONS (at max capacity):	70_m x30_m
WATER QUALITY (check): /_clear	_tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN	I/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloatir	g vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/	OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that ap	oply):upland forest /_forested wetlands
emergent/scrub-shrub wetlandagric	cultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100)m OF POOL:
GENERAL NOTES/COMMENTS: 12"	deptr (Max) 6-8" ==== avg.
8	,





GENERAL INFO	
SITE NAME: 05-1	OBSERVER: M. Zentri / J. Road
ORGANIZATION: AELOM	DATE: 3/3/21 COUNTY: Middleson
MUNICIPALITY: Middusea	_ TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Inatural swale/depress	ionexcavated pit/ditchimpoundment
WATER LEVEL (check):	l<50%fulldry
POOL DIMENSIONS (at max capacity): QO	m x <u>15</u> m
WATER QUALITY (check): /cleartea-col	oredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vege	tationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):	_upland forest /forested wetlands
emergent/scrub-shrub wetlandagricultural	field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:
GENERAL NOTES/COMMENTS: 80+% ic	cover Estimates 12"+





GENERAL INFO
SITE NAME: H-5 OBSERVER: JK/MZ
ORGANIZATION: DATE: 3/ (COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment 6.5°
WATER LEVEL (check):full>50%fulldry
POCL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear V_tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Limited standing water on both ends of pool Wo herps observed





GENERAL INFO		
SITE NAME: H-U	OBSERVER: DIC/MZ	
ORGANIZATION:	DATE: 3/1 (COUNTY:	······································
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS	Ĺ	reather: Dusle
POOL TYPE (check):natural swale/depress	sionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%fu	ll _<50%fulldry	650
POCL DIMENSIONS (at max capacity):	_m xm	depth
WATER QUALITY (check):	oloredalgae-green	0
STRUCTURE OF VEGETATION WITHIN/OVER	RHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating vege	etation Vemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):	_upland forest vetlands	
emergent/scrub-shrub wetlandagricultura	l field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:	
GENERAL NOTES/COMMENTS:	of little	
~ NØ	NOV5 OBJUCCET	





GENERAL INFO		
SITE NAME: H-3	OBSERVER: JK (MZ	
ORGANIZATION:	DATE: 3(1) COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS	beather: dus	šK
POOL TYPE (check):natural swale/depress	ionexcavated pit/ditchimpoundment $\delta 5^{0}$	
WATER LEVEL (check):full>50%full	_<50%fulldry	
POOL DIMENSIONS (at max capacity):	mxm	
WATER QUALITY (check):clear V_tea-col	oredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating veget	tationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):	_upland forest Δ forested wetlands	
emergent/scrub-shrub wetlandagricultural	field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:	
GENERAL NOTES/COMMENTS:	af lifer Floating	
• No	Theips observed	
		1





GENERAL INFO	
SITE NAME: 4-2	OBSERVER: DK/MZ
ORGANIZATION:	DATE: 3/\ COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	heather: dusk
POOL TYPE (check):natural sv	wale/depressionexcavated pit/ditchimpoundment 6
WATER LEVEL (check): 📈 full	>50%full<50%fulldry
POOL DIMENSIONS (at max capac	ity):mxm
WATER QUALITY (check):clea	r <u>tea-colored</u> <u>algae-green</u> 3 - 5 (
STRUCTURE OF VEGETATION WI	THIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubf	loating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITH	HIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all t	hat apply):upland forestforested wetlands
emergent/scrub-shrub wetland	_agricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHI	N 100m OF POOL:
GENERAL NOTES/COMMENTS:	 Algal blocks present eleaf litter Flowling Na harps observed
	1





GENERAL INFO	-
SITE NAME: H -) OBSERVER:	JK/MZ
ORGANIZATION: DATE: 3(1)	_ COUNTY:
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	ucather: sun setting
POOL TYPE (check):natural swale/depressionexcavated pit/dite	thimpoundment 65°
WATER LEVEL (check):full>50%full<50%full	dry
POOL DIMENSIONS (at max capacity):m xm	
WATER QUALITY (check):cleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIM	ATE % COVER):
treesscrub/shrubfloating vegetationemergent veg	getation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional	l):
LANDSCAPE CONTEXT (check all that apply):upland forest (forester	o wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsubu	rban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: <u>Salurated roi</u> no heres 065	erred





GENERAL INFO	
SITE NAME: (5-(2) OBSERVER:	JKfmz
ORGANIZATION: DATE: DATE:	COUNTY:
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	weather: PC
POOL TYPE (check):natural swale/depressionexcavated pit/ditch	himpoundment 700
WATER LEVEL (check):full>50%full<50%full /	dry B
POCL DIMENSIONS (at max capacity):m xm	٣
WATER QUALITY (check):cleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIM	ATE % COVER):
treesscrub/shrubfloating vegetationemergent vege	etation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional));
ANDSCAPE CONTEXT (check all that apply): upland forest	i wetlands
emergent/scrub-shrub wetland agricultural field/grassland subur	han
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	burr
GENERAL NOTES/COMMENTS: 5 saturated soi	(
no helps obsein	veol





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_								

SITE NAME: (5-1) OBSERVER: JK MZ			
ORGANIZATION: DATE: 3/1/ COUNTY:			
MUNICIPALITY: TOPO QUAD:			1
DIRECTIONS TO SITE:			
		NARONA	
POOL CHARACTERISTICS	he	ather	2PC
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment		70	С
WATER LEVEL (check): 1_full>50%full<50%fulldry	Max	dept	M
POOL DIMENSIONS (at max capacity):m xm	7	9	
WATER QUALITY (check):cleartea-coloredalgae-green	I		
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):			
1 treesscrub/shrubfloating vegetation 1 _emergent vegetation			
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):			
LANDSCAPE CONTEXT (check all that apply):upland forest v_forested wetlands			
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban			
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	R		
GENERAL NOTES/COMMENTS: U.I. film Over valer Vo heups absorbed			





<u>GENERAL INFO</u>
SITE NAME: (5-10 OBSERVER: JC/MZ
ORGANIZATION: DATE: 3/(COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS Weather: PC
POOL TYPE (check):natural/swale/depressionexcavated pit/ditchimpoundment 70 *
WATER LEVEL (check):full>50%full<50%fulldry Max dep th
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear Lclear coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Non-Aquetic spider observed No heres indentified cheer film over woter





GENERAL INFO	na nongane opecies i rogran				
SITE NAME: (5-9) OBSERVER: OK / MZ					
ORGANIZATION: DATE: 3 ((COUNTY:					
MUNICIPALITY: TOPO QUAD:					
DIRECTIONS TO SITE:					
POOL CHARACTERISTICS		meather: PC			
POOL TYPE (check):natural swale/depressi	ionexcavated pit/ditchimpoundn	nent 70°			
WATER LEVEL (check):full>50%full	<50%fulldry	max depth			
POOL DIMENSIONS (at max capacity):	n xm	q. "			
WATER QUALITY (check): Clear	oredalgae-green				
STRUCTURE OF VEGETATION WITHIN/OVERI	HANGING POOL (ESTIMATE % COVER)):			
treesscrub/shrubfloating veget	ation <u>emergent</u> vegetation				
DOMINANT PLANT SPECIES WITHIN/OVERHA	ANGING POOL (optional):				
LANDSCAPE CONTEXT (check all that apply):	upland forest $\overline{\checkmark}$ forested wetlands				
emergent/scrub-shrub wetlandagricultural f	field/grasslandsuburban				
STRUCTURE OF HABITAT WITHIN 100m OF F	POOL:				
GENERAL NOTES/COMMENTS:	poatman observed identified Burrow un herps observed wing dramage out	der water to Brook			





GENERAL INFO	<u>GEI</u>	NE	RA		<u>[N</u>	FO
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SITE NAME: CS-8 OBSERVER: TK/MZ	-	
ORGANIZATION: DATE: 3 ((COUNTY:		
MUNICIPALITY: TOPO QUAD:		
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS	weak	her: PC
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment		70°
WATER LEVEL (check):	Max	depth
POOL DIMENSIONS (at max capacity):m xm	\	.(
WATER QUALITY (check):cleartea-coloredalgae-green		
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):		
treesscrub/shrubfloating vegetationemergent vegetation		
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):		
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban		
STRUCTURE OF HABITAT WITHIN 100m OF POOL:		
GENERAL NOTES/COMMENTS: · Algal blooms present		
		energeneteren in der bestehen sinn der gegeinigen





GEN	IER	AL I	INF	0
the second se	And a second sec		A second s	_

SITE NAME:	OBSERVER: JV (AZ	
ORGANIZATION:	DATE: 3/11 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		weather = PC 70°
POOL TYPE (check): natural swale/de	pressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):	%full<50%fulldry	max depth:
POOL DIMENSIONS (at max capacity): _	m xm	6 8
WATER QUALITY (check):	ea-colored algae-green	
STRUCTURE OF VEGETATION WITHIN/C	OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating	vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OV	/ERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that appl	ly):upland forest	
emergent/scrub-shrub wetlandagricul	ltural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m	0 OF POOL:	
GENERAL NOTES/COMMENTS:	Igel blooms present in Colonest no the visibilit	ercess 4 to water 1
		<u> </u>





GENERAL INFO					
SITE NAME: <u>CS-6</u> OBSERVER: <u>JC/MZ</u>					
ORGANIZATION: DATE: 3 / 1 (COUNTY:					
MUNICIPALITY: TOPO QUAD:					
DIRECTIONS TO SITE:					
	weather: PC				
PUOL CHARACTERISTICS	70 2 1=				
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment					
WATER LEVEL (check):	max depth:				
POOL DIMENSIONS (at max capacity):m xm	6 11				
WATER QUALITY (check):clearclea-coloredalgae-green					
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):					
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):					
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands					
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban					
STRUCTURE OF HABITAT WITHIN 100m OF POOL:					
GENERAL NOTES/COMMENTS:Algal Blooms observed ps	escat				





GENERAL INFO							
SITE NAME: (5 - 5) OBSERVER: TK / MZ ORGANIZATION: DATE: 3 (1) COUNTY: MUNICIPALITY: TOPO QUAD:							
						DIRECTIONS TO SITE:	
						POOL CHARACTERISTICS	heather: PC 70°
POOL TYPE (check): natural swale/depression excavated pit/ditchimpoundment WATER LEVEL (check): full _>50%full c50%full dry POOL DIMENSIONS (at max capacity): m xm	nt Muk depth Y'r						
WATER QUALITY (check):clear 'tea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):							
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL: GENERAL NOTES/COMMENTS: D(agon fly lawae (dead)							





GENERAL INFO	,					
TE NAME: CS-4 OBSERVER: JK/MZ						
ORGANIZATION: DATE: 3/11 COUNTY:	ZATION: DATE: 3/11 COUNTY:					
MUNICIPALITY: TOPO QUAD:						
DIRECTIONS TO SITE:						
POOL CHARACTERISTICS	Rother = Perting (loudy 70°					
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundmer WATER LEVEL (check):full>50%full<50%fulldry	Max delth q "					
WATER QUALITY (check):clear /_tea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation						
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):						
LANDSCAPE CONTEXT (check all that apply): _upland forest _forested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL: GENERAL NOTES/COMMENTS: Much GENERAL NOTES/COMMENTS: Much Bogsmen observed Recovered Recovered						





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	_						_		-

SITE NAME: <u>(5 - 3</u>	OBSERVER: JK /MZ	
ORGANIZATION:	DATE: <u>3/1(</u> COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
		18
POOL CHARACTERISTICS		heather: PC. 20°
POOL TYPE (check): natural swale/depre	essionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%	full<50%fulldry	
POOL DIMENSIONS (at max capacity):	m xm	
WATER QUALITY (check):cleartea-	colored _algae-green (Muddy)	
STRUCTURE OF VEGETATION WITHIN/OV	'ERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating ve	getationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVER	RHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply)	:upland forestforested wetlands	
emergent/scrub-shrub wetlandagricultu	ral field/grasslandsuburban	· · · · · · · · · · · · · · · · · · ·
STRUCTURE OF HABITAT WITHIN 100m (DF POOL:	
GENERAL NOTES/COMMENTS:	atman observed heres observed	





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					_

SITE NAME:	OBSERVER: MZ -	JK	
ORGANIZATION:	DATE: 3/11/21 COUNTY	ſ:	
MUNICIPALITY:	TOPO QUAD:		
DIRECTIONS TO SITE:			
POOL CHARACTERISTICS		nead	hes: sunny/pert
POOL TYPE (check): X_natural swale/depres	ssionexcavated pit/ditchimpou	undment	75 -
WATER LEVEL (check): X_full>50%fr	ull<50%fulldry	max	depty
POOL DIMENSIONS (at max capacity):	_m xm		8'-10'
WATER QUALITY (check):cleartea-c	oloredalgae-green	1	
STRUCTURE OF VEGETATION WITHIN/OVE	RHANGING POOL (ESTIMATE % CO	VER):	
treesscrub/shrubfloating veg	etationemergent vegetation		
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):		
LANDSCAPE CONTEXT (check all that apply):	upland forestforested wetlands		
emergent/scrub-shrub wetlandagricultur	al field/grasslandsuburban		
STRUCTURE OF HABITAT WITHIN 100m O	FPOOL: Forested wetle	ond	
	1		
GENERAL NOTES/COMMENTS: No h Small S/1000 SR	- seen (Every nut	aeua	die
· Algal Masses	Plesent		




GENERAL INFO	
SITE NAME: OBSERVER: OBSERVER:	MZ
ORGANIZATION: DATE: 3/11 COUNT	(:
MUNICIPALITY: TOPO QUAD:	·
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	Measther: Portuy cloudy 75°
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpou	indment mar depth:
WATER LEVEL (check):	9''
POOL DIMENSIONS (at max capacity):m xm	
WATER QUALITY (check):clear `tea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % CO	VER):
trees	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: No herp S · Aquatic Bactles Riesert · Algal mosses preserv	7





GENERAL INFO
SITE NAME: H5 OBSERVER: SG/MZ
ORGANIZATION: DATE: 3/21/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full>50%full &dry
POCL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):cleartea-colored Xalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest $\chi_{forested}$ wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: almost connected to #3
No hups





GENERAL INFO
SITE NAME: H24 OBSERVER: SGMZ
ORGANIZATION: DATE: 3/21/2-1 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Inatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%fulldry
POOL DIMENSIONS (at max capacity):m xm Q^{II} max
WATER QUALITY (check): Keleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Nothing obscirved





GENERAL INFO	
SITE NAME: 13 OBSERVER: SG/MZ	
ORGANIZATION: DATE: 3/21/21 COUNTY:	
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): X_natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%full X_<50%fulldry	
POOL DIMENSIONS (at max capacity):m xm // " Mo	
WATER QUALITY (check):tea-colored Xalgae-green	h
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	5
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest Yeorested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: no hup absentations	





Fish and Wildline

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME:	HZ OBSERVER: SG/MZ
ORGANIZATION	V: DATE: 3/21/2/ COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO	D SITE:
POOL CHARA	ACTERISTICS
POOL TYPE (che	eck):
WATER LEVEL ((check):full X>50%full<50%fulldry 10 max depth
WATER QUALIT	Y (check): Kelear tea-colored kalgae-green
STRUCTURE OF	VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): _scrub/shrubfloating vegetationemergent vegetation ANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CO emergent/scru STRUCTURE OF	ONTEXT (check all that apply):upland forestforested wetlands ab-shrub wetlandagricultural field/grasslandsuburban HABITAT WITHIN 100m OF POOL:
GENERAL NOTE	ES/COMMENTS:





GENERAL INFO
SITE NAME: COD HI OBSERVER: MZSG
ORGANIZATION: DATE: 331 21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full>50%full<50%full /_dry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





Fish and Wildle

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME: C5-VPIZ OBSERVER: S6/MZ
ORGANIZATION: DATE: 3/21/2(COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full X<50%fulldry
POOL DIMENSIONS (at max capacity):m xm 2,5 (max
WATER QUALITY (check): 'tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: nothing observed





<u>GENERAL INFO</u>
SITE NAME: C5-VPII OBSERVER: SGMZ
ORGANIZATION: DATE: 3212/ COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Anatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm 4/" max. An oth
WATER QUALITY (check): Xclear Xtea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: NO 101/5/099 MUSSES





SITE NAME: C5-10 OBSERVER: S6/MZ
ORGANIZATION: DATE: 32121 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full
POOL DIMENSIONS (at max capacity):m xm 7.5" max depth
WATER QUALITY (check):clear
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:
Water study/water spiders





SITE NAME: C5-VP9 OBSERVER: SGMZ	
ORGANIZATION: DATE: 3/21/21 COUNTY:	
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full<50%full<50%fulldry	
POCL DIMENSIONS (at max capacity):m xm /b" max do at	0
WATER QUALITY (check):tea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
Xtreesscrub/shrubfloating vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: Channel draw out	





SITE NAME: C5-UP8 OBSERVER: SG/MZ
ORGANIZATION: DATE: 3/21/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%fulldry
POOL DIMENSIONS (at max capacity):m xm 6 max depth
WATER QUALITY (check):cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest omorgant/scrub-shrub wotland
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





SITE NAME: CS-VP7 OBSERVER: SG/MZ
ORGANIZATION: DATE: 3/2/2/ COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full
POOL DIMENSIONS (at max capacity):m xm 7 max depth
WATER QUALITY (check):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
Lemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
٦
GENERAL NOTES/COMMENTS: Shen on Surface





SITE NAME: <u>C5-VPG</u>	OBSERVER: SGMZ
ORGANIZATION:	DATE: 32121 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depressi	ionexcavated pit/ditchimpoundment
WATER LEVEL (check):full X>50%full	<50%fulldry
POOL DIMENSIONS (at max capacity):r	nxm (6" max depth
WATER QUALITY (check):cleartea-colo	ored Xalgae-green
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating veget	ationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHA	ANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):	_upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural	field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF I	POOL:
GENERAL NOTES/COMMENTS: Sculla Muck w/ algae, turbic	I wood docks to mallards on arrival





SITE NAME: C5-VP5 OBSERVER: SGM7.
ORGANIZATION: DATE: 32121 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
ж.
POOL CHARACTERISTICS
POOL TYPE (check): X_natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full X<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: NO egg#masses or herps obscript interconnected at current water level w/ G and F





SITE NAME: C5-VP4 OBSERVER: 56/MZ
ORGANIZATION: DATE: 32121 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full<50%fulldry Mar de oth
POOL DIMENSIONS (at max capacity):m xm 9 inches
WATER QUALITY (check): Cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
•
GENERAL NOTES/COMMENTS: NO Egg Masses Frog abserved - photos taken for identification mites





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Fish and Wildlife

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

1500 60°P diar

SITE NAME: C5 - VP Z OBSERVER: SG/MZ	
ORGANIZATION: DATE: 32121 COUNTY:	
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full	٥
POCL DIMENSIONS (at max capacity):m xm	depth
WATER QUALITY (check): Kcleartea-colored Kalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	Manager 1
Nondomant - star usod	
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS:	
<u>\</u>	





SITE NAME:	CS-VPI OBSERVER: SG/MZ
ORGANIZATIO	N: DATE: 321/21 COUNTY:
MUNICIPALITY	/: TOPO QUAD:
DIRECTIONS T	O SITE:
POOL CHAR	ACTERISTICS
POOL TYPE (ct	neck):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL	(check):full<50%fulldry
POOL DIMENS	IONS (at max capacity):m xm // Max depte
WATER QUALI	TY (check): Kelear tea-colored Kalgae-green
STRUCTURE O	DF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): _scrub/shrub floating vegetation _scrub/shrub floating vegetation
LANDSCAPE Co emergent/scr STRUCTURE O	ONTEXT (check all that apply):upland forest ub-shrub wetlandagricultural field/grasslandsuburban OF HABITAT WITHIN 100m OF POOL:
GENERAL NOT	





GENERAL INFO	reu and Nongame Species Program
SITE NAME:5	OBSERVER: 36/MZ
ORGANIZATION:	DATE: 32521 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Knatural swale/d	epressionexcavated pit/ditchimpoundment
WATER LEVEL (check):	0%full
POOL DIMENSIONS (at max capacity):	mxm 3.5" mapdepth
WATER QUALITY (check): Kelear	tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN,	/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating	g vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/C	VERHANGING POOL (optional):
	mb ()
emergent/scrub-shrub wetland	piy):upland TorestTorested wetlands
STRUCTURE OF HABITAT WITHIN 100	m OF POOL:
GENERAL NOTES/COMMENTS:	





GENERAL INFO
SITE NAME: H4 OBSERVER: SGMZ
ORGANIZATION: DATE: 3252 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear Xtea-coloredalgae-green depth
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





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GENERAL INFO
SITE NAME: <u>H3</u> OBSERVER: <u>SG/MZ</u>
ORGANIZATION: DATE: 3/25/2/ COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full X>50%full<50%fulldry
POCL DIMENSIONS (at max capacity):m xm 7"max
WATER QUALITY (check): Xcleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





GENERAL INFO	gered and Nongame Species Program
SITE NAME: HZ	OBSERVER: SG/MZ
ORGANIZATION:	DATE: 3/25/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swa	le/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):mxm 10.5"
WATER QUALITY (check):	tea-coloredalgae-green Max dupth
STRUCTURE OF VEGETATION WITH	IN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloa	ating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHI	N/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that	t apply):upland forest X forested wetlands
emergent/scrub-shrub wetlanda	gricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN :	L00m OF POOL:
GENERAL NOTES/COMMENTS:	





GENERAL INFO	
SITE NAME: 141 OBSERVER: S6/MZ	_
ORGANIZATION: DATE: 3/25/21 COUNTY:	
MUNICIPALITY: TOPO QUAD:	_
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%full X<50%fulldry //	
POOL DIMENSIONS (at max capacity):m xm 2.5 kmax	
WATER QUALITY (check): Xeleartea-coloredalgae-green dupt	£
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest Xorested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: Frash Gled, No herps	
	48
	140 15.Con





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GENERAL INFO
SITE NAME: C5-VP11 OBSERVER: SGMZ
ORGANIZATION: DATE: 32521 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full<50%fulldry 7/ m // N
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear Xtea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagrıcultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





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SITE NAME: 05-UPIO OBSERVER: 36/MZ
ORGANIZATION: DATE: 335 31 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): X_natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear Xtea-coloredalgae-green Appth
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





SITE NAME: CS-VP9	OBSERVER: SG/MZ
ORGANIZATION: D/	ATE: 3252 (COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): X natural swale/depression	excavated pit/ditchimpoundment
WATER LEVEL (check): Xfull _>50%full	<50%fulldry
POOL DIMENSIONS (at max capacity):m x	m /2 max depth
WATER QUALITY (check):tea-colored	algae-green
STRUCTURE OF VEGETATION WITHIN/OVERHAM	NGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetatio	nemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANG	SING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upl	and forestforested wetlands
emergent/scrub-shrub wetlandagricultural field	l/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POC	DL:
GENERAL NOTES/COMMENTS: 31975 of on swianding veg likely fre heavy flow out of chann	recent high flow - water maks on previous day cantal el into River





GENERAL INFO
SITE NAME: VP8 OBSERVER: SGMZ
ORGANIZATION: DATE: 33531 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Value and swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity):m xm ~m
WATER QUALITY (check): Leartea-coloredalgae-green depth
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Very full due to previous days rainfall





G	E	N	E	R/	L	Į	N	F()
									_

SITE NAME: C5-UP7 OBSERVER: SG/MZ	
ORGANIZATION: DATE: 3/35/21 COUNTY:	
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check): Xfuli>50%full<50%fulldry	
POCL DIMENSIONS (at max capacity):m xm 9.5 Max	
WATER QUALITY (check):tea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest Vorested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: fecent Fainfall previous night	





GENERAL INFO
SITE NAME: C5-VPG OBSERVER: SG/MZ
ORGANIZATION: DATE: 32501 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full<50%fulldry
POCL DIMENSIONS (at max capacity)m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAD NOTES/COMMENTS: Kecent (last night) availed fall Camera went underwater Waterlogged but Anchang Spapping tirtle - B" long carapace
G-8 wood dicks to 2 mailards present on approach





GENERAL INFO	
SITE NAME: C5-VP5	OBSERVER: SG/MZ
ORGANIZATION:	DATE: 3/25/21_ COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Knatural swale/depress	ionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full	<50%fulldry
POCL DIMENSIONS (at max capacity):r	nxm G'may dooth
WATER QUALITY (check): Cleartea-col	oredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating veget	ationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply): _	_upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural	field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:
GENERAL NOTES/COMMENTS:	ed to UPG/7 at current water level





GENERAL INFO
SITE NAME: 05-UP4 OBSERVER: 56/MZ
ORGANIZATION: DATE: 3/25/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full<50%fulldry
POCL DIMENSIONS (at max capacity):m xm // mars depte
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
Continued (2)
GENERAL NOTES/COMMENTS: I kely wood frag abscared. That documented will attempt to get rocal recording during notional survey. No egg musses obscared.





GENERAL INFO
SITE NAME: C5-VP3 OBSERVER: 56/M7
ORGANIZATION: DATE: 3/25/2 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Viatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): X full _>50%full _<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear Xtea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





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GEN	IERAL	. INFO

SITE NAME: CS - VP2 OI	BSERVER: SGMZ	
ORGANIZATION: DATE: 36	15/21_ COUNTY:	
MUNICIPALITY: TOPO QU/	AD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Xnatural swale/depressionexcava	ted pit/ditchimpoundme	nt
WATER LEVEL (check):full X>50%full<50%ful	ılldry	1-711
POOL DIMENSIONS (at max capacity):m xm		13 map
WATER QUALITY (check): Xcleartea-coloredalgae	-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING PO	OL (ESTIMATE % COVER):	
treesscrub/shrubfloating vegetationem	ergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL	_ (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest	forested wetlands	
emergent/scrub-shrub wetlandagricultural field/grassland	suburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:		
GENERAL NOTES/COMMENTS:		





<u>GENERAL INFO</u>
SITE NAME: C5-VP1 OBSERVER: SG/M7
ORGANIZATION: DATE: 3/25/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity):m xm 13" man depth
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: pockets of algree





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GENERAL INFO
SITE NAME: 45 OBSERVER: MZ/SG
ORGANIZATION: DATE: 33021 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%fullK<50%fulldry 3' max diath
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Xclear _tea-colored _algae-green lots of leaves filling pond
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
·
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: No herpo abserved




GENERAL INFO		5
SITE NAME:	OBSERVER: 56	mz
ORGANIZATION:	DATE: 330/21 COUNTY	/:
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Vnatural swal	le/depressionexcavated pit/ditchimpou	Indment
WATER LEVEL (check):full >	50%full<50%fulldry):m xm	11" nox depth
WATER QUALITY (check): Xclear	tea-coloredalgae-green	(_
STRUCTURE OF VEGETATION WITH	IIN/OVERHANGING POOL (ESTIMATE % COV ating vegetationemergent vegetation N/OVERHANGING POOL (optional):	/ER):
LANDSCAPE CONTEXT (check all that emergent/scrub-shrub wetlandag STRUCTURE OF HABITAT WITHIN 1	t apply):upland forestvorested wetlands gricultural field/grasslandsuburban 100m OF POOL:	
GENERAL NOTES/COMMENTS:		





GENERAL INFO	
SITE NAME: H3 OBSERVER: 36/MZ	
ORGANIZATION: DATE: 330 21 COUNTY:	
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%full<50%fulldry	
POOL DIMENSIONS (at max capacity):m xm 7" A	rax depth
WATER QUALITY (check):tea-colored Xalgae-green	6
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forest	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: despest in ATV tracks	
possible frog plop- Not verified	





<u>GENERAL INFO</u>	,	
SITE NAME: H2	OBSERVER: SG/MZ	
ORGANIZATION:	DATE: 33021 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Xnatural swale/de	epressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full X>50	0%full<50%fulldry	d
POOL DIMENSIONS (at max capacity):	m xm	10.5
WATER QUALITY (check):	ea-coloredalgae-green	maxdipth
STRUCTURE OF VEGETATION WITHIN/	OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating	vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/O	VERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that app	ply):upland foresttorested wetlands	
GENERAL NOTES/COMMENTS:		
· · · · · · · · · · · · · · · · · · ·		
		and probably and provide the second second second second



731 20



<u>GENERAL INFO</u>
SITE NAME: HI OBSERVER: SG/MZ
ORGANIZATION: DATE: 3/30/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full>50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
Xtreesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: NO NON PS Observed





SITE NAME:	5-VPIZ OBSERVER: SGMZ
ORGANIZATION: _	DATE: 33001 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO S	ITE:
POOL CHARACT	TERISTICS
POOL TYPE (check	:natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (che	eck):full λ >50%full<50%fulldry
POOL DIMENSION	S (at max capacity):m xm
WATER QUALITY (check): <u>K</u> clear tea-colored _algae-green
STRUCTURE OF VE	EGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
LANDSCAPE CONT	EXT (check all that apply):upland forest
emergent/scrub-s	hrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF H	ABITAT WITHIN 100m OF POOL:
GENERAL NOTES/0	COMMENTS: No hups observed at paul on artival





SITE NAME:(OBSERVER: SGMZ
ORGANIZATION:	DATE: 330 21 COUNTY:
MUNICIPALITY: _	TOPO QUAD:
DIRECTIONS TO S	SITE:
POOL CHARAC	TERISTICS
POOL TYPE (check	:natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (ch	eck):full<50%fulldry
POOL DIMENSION	IS (at max capacity):m xm G.5" Mayo
WATER QUALITY	(check): Xcleartea-coloredalgae-green
STRUCTURE OF V	EGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
	rub/shrubfloating vegetation
DOMINANT PLAN	T SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CON	FEXT (check all that apply):upland forestforested wetlands
emergent/scrub-s	shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF H	ABITAT WITHIN 100m OF POOL:
GENERAL NOTES/	COMMENTS: Water striders, raccoon tracks in mud around





SITE NAME: C5-VPIO	OBSERVER: SGMZ
ORGANIZATION:	DATE: 3/30/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS POOL TYPE (check): X_natural swale/depress WATER LEVEL (check): X_full>50%ful POOL DIMENSIONS (at max capacity): WATER QUALITY (check):clear X_tea-co STRUCTURE OF VEGETATION WITHIN/OVER X_treesscrub/shrubfloating vege DOMINANT PLANT SPECIES WITHIN/OVERH	sionexcavated pit/ditchimpoundment II<50%fulldry II Maxdeph m xm loredalgae-green {Wbid/low Vis bility RHANGING POOL (ESTIMATE % COVER): etation Zemergent vegetation IANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply): _ emergent/scrub-shrub wetlandagricultural STRUCTURE OF HABITAT WITHIN 100m OF GENERAL NOTES/COMMENTS:	_upland forest Xorested wetlands field/grassland _suburban POOL: PS/egg_Masses





SITE NAME:	CS-VP9 OBSERVER: 1112/SG
ORGANIZATION	DATE: 3/30/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO) SITE:
POOL CHARA	CTERISTICS
POOL TYPE (che	eck): X_natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full<50%fulldry //).5"Max
POOL DIMENSIC	DNS (at max capacity):m xm depth
WATER QUALIT	Y (check): Liclear Litea-colored _algae-green Slightly firbid
STRUCTURE OF	VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
Xtreess	crub/shrubfloating vegetationYemergent vegetation
DOMINANT PLA	NT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CO	NTEXT (check all that apply):upland forestforested wetlands
emergent/scrub	o-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF	HABITAT WITHIN 100m OF POOL:
GENERAL NOTES	S/COMMENTS:
3 Carado	a Geose in River adjacent to pool VPG
Channe	I draining out
Area 5	roured from recent high flow





SITE NAME: C5-UPS OBSERVER: SG/MZ
ORGANIZATION: DATE: 3302 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check): Xfull X>50%full _<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest Xforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Some algue
Water staders





SITE NAME: CS-VP7	OBSERVER: SGMZ
ORGANIZATION:	DATE: 33731 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/dep	ressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full X>509	%full<50%fulldry
POOL DIMENSIONS (at max capacity):	_mx_m 7" max depth
WATER QUALITY (check):cleartea	a-colored Zalgae-green
STRUCTURE OF VEGETATION WITHIN/O	VERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVE	ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply	/):upland forestKorested wetlands
Kemergent/scrub-shrub wetlandagricult	ural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:
GENERAL NOTES/COMMENTS:	Snapping furtle (carapaee legth) Surface/low visibility
Oligiochaetz Wirms	





SITE NAME: 05-VPG	OBSERVER: MZ/SG
ORGANIZATION: D	ATE: 330 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depression	excavated pit/ditchimpoundment
WATER LEVEL (check):full X_>50%full	_<50%full _dry 7" max depth
POOL DIMENSIONS (at max capacity):m x	m
WATER QUALITY (check): Cleartea-colored	Kalgae-green fill m on surface
STRUCTURE OF VEGETATION WITHIN/OVERHAM	IGING POOL (ESTIMATE % COVER):
LANDSCAPE CONTEXT (check all that apply):upla emergent/scrub-shrub wetlandagricultural field STRUCTURE OF HABITAT WITHIN 100m OF POC	and forest /grasslandsuburban
GENERAL NOTES/COMMENTS: NO Lesp Oligochaete worms	slegg masses





GENERAL INFO
SITE NAME: C5-NP5 OBSERVER: MZ SG
ORGANIZATION: DATE: COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm 51 mar depth
WATER QUALITY (check): Cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation Vemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: No helps or egg musses observed





SITE NAME: 05-VP4 OBSERVER: S6/MZ
ORGANIZATION: DATE: 330/2(COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Xcleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
Litreesscrub/shrubfloating vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
- ADQ PLOP - previously confirmed wood frogs in pool
Watel studels
A treesscrub/shrubfloating vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):





SITE NAME: CS-VP3 OBSERVER: SGMZ
ORGANIZATION: DATE: 3/30/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS Trafall POOL TYPE (check): X natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): X_full>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear /tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Crguatic_miles(?)





SITE NAME: C5-NP2 OBSERVER: MZGG
ORGANIZATION: DATE: 3/30/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full
POOL DIMENSIONS (at max capacity):m xm 13 max depth
WATER QUALITY (check): Cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





GENERAL INFO
SITE NAME: CS-VPI OBSERVER: SGMZ
ORGANIZATION: DATE: 33021 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
÷
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm [3" mar depth
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
X_treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: NO NORPS or egg Musses observed





GENERAL INFO	crea and nongame opecies rrogram
SITE NAME: 45	OBSERVER: SG/MZ
ORGANIZATION:	DATE: 4/10/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Xnatural swale/	depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>	50%full X<50%full X_dry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):	tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN	N/OVERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/	OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that a	pply):upland forest Xforested wetlands
emergent/scrub-shrub wetlandagri	icultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 10	0m OF POOL:
GENERAL NOTES/COMMENTS: Are	a connected to H3 2" depth, rest dry
no herps obse	rued
N	





ORGANIZATION:	
MUNICIPALITY: TOPO QUAD: DIRECTIONS TO SITE: POOL CHARACTERISTICS	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Ynatural swale/depression excavated pit/ditchimpoundment WATER LEVEL (check): full X>50%full dry POOL DIMENSIONS (at max capacity): m xm 7" Maxi WATER QUALITY (check): tea-colored Xigae-green Sheer STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): Auptst in Fu Xtrees scrub/shrub _floating vegetation Xemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	ruts à.
LANDSCAPE CONTEXT (check all that apply):upland forest	





SITE NAME:	HZ OBSERVER: SEMZ
ORGANIZATIO	N: DATE: 41021 COUNTY:
MUNICIPALITY	: TOPO QUAD:
DIRECTIONS T	O SITE:
POOL CHAR	ACTERISTICS
POOL TYPE (ch	neck): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL	(check): <u>×</u> full>50%fulldry
POOL DIMENS	IONS (at max capacity):m xm hardepth 9"
WATER QUALT	TY (check):clear Xtea-colored Xalgae-green
STRUCTURE O	F VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
	_scrub/shrubfloating vegetationemergent vegetation
DOMINANT PL	ANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CO	ONTEXT (check all that apply):upland forest X forested wetlands
emergent/scri	ub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE O	F HABITAT WITHIN 100m OF POOL:
GENERAL NOT	ES/COMMENTS: (Grand for almong and (photos - and)
833 from	plops
VP-1	H and H4 dry - wo data sheet Thotos taken





SITE NAME: CS. UPIZ OBSERVER: SG/MZ
ORGANIZATION: DATE: 4/10/-21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full<50%full //dry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation Xemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: No heips, dry, 2 cats in cat houses
monst soil





Fish and Wildlife

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME:	C5-UPIL OBSERVER: SG/MZ
ORGANIZATION	DATE: 4 10 21 COUNTY:
MUNICIPALITY	TOPO QUAD:
DIRECTIONS T	O SITE:
POOL CHAR	ACTERISTICS
POOL TYPE (ch	eck):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL	(check):full>50%full<50%full //dry 2small 1'x1'pools ~.75"
POOL DIMENSI	ONS (at max capacity):m xm
WATER QUALI	Y (check):cleartea-coloredalgae-green
STRUCTURE OF	VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
trees	scrub/shrubfloating vegetationemergent vegetation
DOMINANT PLA	NT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CC	NTEXT (check all that apply):upland forestforested wetlands
emergent/scru	b-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OI	HABITAT WITHIN 100m OF POOL:
GENERAL NOT	ES/COMMENTS: dy - No herps





SITE NAME: C5-VP10	OBSERVER: MZ/SG	
ORGANIZATION:	DATE: 4/10/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS VIC POOL TYPE (check): MATER LEVEL (check): full >50%full	forexcavated pit/ditchimpoundment	
POOL DIMENSIONS (at max capacity):m	n xm	3" maxdepth
WATER QUALITY (check):tea-colo	redalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERH	HANGING POOL (ESTIMATE % COVER): ation Cemergent vegetation NGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):	upland forest Aforested wetlands	
emergent/scrub-shrub wetlandagricultural fi	ield/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF P	'OOL:	
GENERAL NOTES/COMMENTS: ~/~/~/~	`	





SITE NAME: <u>CS-</u>	NP9 OBSERVER: 56/MZ
ORGANIZATION:	DATE: 4/10/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITI	E:
POOL CHARACTE	RISTICS
POOL TYPE (check):	
WATER LEVEL (check):full>50%fulldrγ
POOL DIMENSIONS (at max capacity):m xm ~ ~ 6" max
WATER QUALITY (ch	eck):cleartea-colored Lalgae-green +urbid
STRUCTURE OF VEG	ETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/	shrubfloating vegetation 2 emergent vegetation
DOMINANT PLANT SI	PECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEX	T (check all that apply):upland forestforested wetlands
emergent/scrub-shru	ib wetlandagricultural field/grasslandsuburban
STRUCTURE OF HAB	ITAT WITHIN 100m OF POOL:
GENERAL NOTES/CO	MMENTS: Water studens; 12" Snapper
· · · · · · · · · · · · · · · · · · ·	





SITE NAME: CS-JP8 OBSERVER: MZS6	
DRGANIZATION: DATE: 24/10/21 COUNTY:	
IUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):	
NATER LEVEL (check):full>50%full ¥<50%fulldry	
POOL DIMENSIONS (at max capacity):m xm 3" max depth	
WATER QUALITY (check): Xcleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
ANDSCAPE CONTEXT (check all that apply):upland forest	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: water striders, pad ~ 3×3m	
aquitic mites; mosquite larvae, snails	





SITE NAME: CS-VP7 OBSERVER: SG/M7
ORGANIZATION: DATE: 4/10/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full>50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): X clear Xtea-colored Xalgae-green Shew patchy, ION VIS
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation 40 emergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: water staders visibility poor, sheer on CABOS on arrival surface and heavy glare
Snapping torthe (also 12" carapace)





SITE NAME: <u>C5-VPG</u>	OBSERVER: MZ/SG
ORGANIZATION:	DATE: 4/10/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/	depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	50%full _<50%full _dry 7"max dept
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check): 🖄 clear 😾	tea-colored Kalgae-green Shen on svrface patchy
STRUCTURE OF VEGETATION WITHIN	V/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloati	ng vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/	OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that a	pply):upland forestforested wetlands
emergent/scrub-shrub wetlandagr	cultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 10	0m OF POOL:
GENERAL NOTES/COMMENTS:	pping toxtle (12" carapace) bothon VP5 and VP6
game canera retues	1d-Not working-FUSt
water stude	lý





OLITERAL INTO
SITE NAME: CS-UP5 OBSERVER: SGMZ
ORGANIZATION: DATE: 4/10/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): χ natural swale/depression excavated pit/ditch impoundment
WATER LEVEL (check): full $>50\%$ full $\sqrt{<50\%}$ full dry
POOL DIMENSIONS (at max capacity):
3 Max
WATER QUALITY (check): A cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Small are w/ standing wales





SITE NAME:	(5-VP4	OBSERVER:	56/MZ	
ORGANIZATION	N: DATE	: 4/10/21 cc	DUNTY:	
MUNICIPALITY	: ТО	PO QUAD:		
DIRECTIONS TO	O SITE:			
POOL CHAR	ACTERISTICS			
POOL TYPE (ch	eck):natural swale/depression	_excavated pit/ditch	impoundment	
WATER LEVEL	(check):full X>50%full	<50%fulldry		
POOL DIMENSI	ONS (at max capacity):m x	m		6.5"
WATER QUALIT	TY (check):cleartea-colored	_algae-green		Max
STRUCTURE OF	VEGETATION WITHIN/OVERHANGI	NG POOL (ESTIMATE	% COVER):	
Xtrees	scrub/shrubfloating vegetation		on	
DOMINANT PLA	ANT SPECIES WITHIN/OVERHANGING	G POOL (optional):		
LANDSCAPE CC	NTEXT (check all that apply);upland	forest Xforested wet	lands	
emergent/scru	ib-shrub wetlandagricultural field/gra	asslandsuburban		
STRUCTURE OF	- HABITAT WITHIN 100m OF POOL:			
GENERAL NOTE	ES/COMMENTS: Jutu Stad	els, dragon	the lawae	
h	palustas dominant e	mergent		
			and the second se	and the second





GENERAL INFO
SITE NAME: CS-VP3 OBSERVER: SGMZ
ORGANIZATION: DATE: 41021 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%fulldry
POOL DIMENSIONS (at max capacity):m xm 5'' m ky
WATER QUALITY (check):clear
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Musquits lance, setting bubbles





SITE NAME: CS-VPZ OBSERVER: SG/MZ
ORGANIZATION: DATE: 41021 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xuatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full X<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Cleartea-colored Kalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest / forested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Undentified frog, water stadens No egg masses observed.





SITE NAME:	OBSERVER: SG/mz
ORGANIZATION	DATE: 4/10/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO	SITE:
POOL CHARA	CTERISTICS
POOL TYPE (che	ck): Δp atural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full χ <50%fulldry
POOL DIMENSIC	DNS (at max capacity):m xm /0.5" max deft
WATER QUALIT	Y (check):clear Xtea-colored X_algae-green
STRUCTURE OF	VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
_X_treess	crub/shrubfloating vegetation
DOMINANT PLA	NT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE COI	NTEXT (check all that apply):upland forestforested wetlands
emergent/scrut	o-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF	HABITAT WITHIN 100m OF POOL:
GENERAL NOTE	S/COMMENTS: Water St.





Fish and Wildlife

Ne	w Jersey Division o	of Fish and me Specie	Wildlife S Program	Apr. 16	LADI
GENERAL INFO	ngerea ana nonga	me specie:	sriogiaili		
SITE NAME: H-5	(DBSERVER:	Star (Henry Jo	n Reed
ORGANIZATION:	DATE:		COUNTY:	\	
MUNICIPALITY:	TOPO QL	JAD:			
DIRECTIONS TO SITE:	-reenbrook				
POOL CHARACTERISTICS				, en de la décida de	
POOL TYPE (check):natural sw	ale/depressionexcav	vated pit/ditch	impoundme	ent	
WATER LEVEL (check):full	_>50%full	fulldi	ry		
POOL DIMENSIONS (at max capaci	.y):m xm				
WATER QUALITY (check):	tea-coloredalga	e-green			
STRUCTURE OF VEGETATION WIT	HIN/OVERHANGING PC	DOL (ESTIMA	TE % COVER):		
treesscrub/shrubfl	oating vegetatione	mergent vege	tation		
DOMINANT PLANT SPECIES WITH	IN/OVERHANGING POC	DL (optional):			
	Harle and the second				11
LANDSCAPE CONTEXT (check all th	at apply):upland forest	tforested	wetlands		
emergent/scrub-shrub wetland	agricultural field/grassland	dsuburb	an		
STRUCTURE OF HABITAT WITHIN	100m OF POOL:	<u> </u>			
GENERAL NOTES/COMMENTS:			11 11	at hinto	
	no vocat			to report	
	16				





G	E	N	Ē	R	A	L	I	N	F	0	
	_		_	_					_	_	

SITE NAME: H-M OB	SERVER: Steve Glenn, Jen Reed
ORGANIZATION: DATE:	COUNTY:
MUNICIPALITY: TOPO QUA	D:
DIRECTIONS TO SITE: Greenbrook	

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): Xfull>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Xcleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





x

<u>GENERAL INFO</u>				Apr. 16,	2021
SITE NAME: H-3	C	BSERVER:_	Steve	Glenn,	Jen Reed
ORGANIZATION:	DATE:		COUNTY:	/	
MUNICIPALITY:	_ TOPO QU	IAD:			
DIRECTIONS TO SITE:	brook			a a -	
POOL CHARACTERISTICS					
POOL TYPE (check):natural swale/depress	ionexcava	ated pit/ditch	ıimpoundı	nent	
WATER LEVEL (check): Kfull _>50%full	<50%f	fullc	iry		
POOL DIMENSIONS (at max capacity):	m xm				
WATER QUALITY (check): Keleartea-col	oredalgae	e-green			
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING PC	OL (ESTIMA	TE % COVER):	
treesscrub/shrubfloating veget	tationer	mergent vege	etation		
DOMINANT PLANT SPECIES WITHIN/OVERH	ANGING POO	L (optional)	P		
LANDSCAPE CONTEXT (check all that apply): _	_upland forest	forested	wetlands		
emergent/scrub-shrub wetlandagricultural	field/grassland	lsuburl	oan		
STRUCTURE OF HABITAT WITHIN 100m OF	POOL:				
GENERAL NOTES/COMMENTS:	voral,		Ma	dynii	įμ 1
France	tel to 5	· · · · · · · · · · · · · · · · · · ·	1.06		





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					1	
SITE NAME: 4-2	OE	BSERVER:	Steve	Glenn,	Jen	Reed
ORGANIZATION:	DATE:		COUNTY:			
MUNICIPALITY:	TOPO QUA	AD:				-
DIRECTIONS TO SITE: Greenbrool	6					

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment						
WATER LEVEL (check): full>50%full<50%fulldry						
POOL DIMENSIONS (at max capacity):m xm						
WATER QUALITY (check):						
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):						
treesscrub/shrubfloating vegetationemergent vegetation						
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):						
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:						
GENERAL NOTES/COMMENTS:						





GENERAL INFO	u Nongame Spec	ies Program	Apr. 16, 2021
SITE NAME:	OBSERVER	Steve G	lenn, Jen Reed
ORGANIZATION:	DATE:	_ COUNTY:	/
MUNICIPALITY:	TOPO QUAD:		
DIRECTIONS TO SITE: Greenbroo	κ		the rain
POOL CHARACTERISTICS			
POOL TYPE (check):natural swale/depression	nexcavated pit/dit	chimpoundme	nt
WATER LEVEL (check):full>50%full	<50%full	-dry Maist h	hr
POOL DIMENSIONS (at max capacity):m	xm		
WATER QUALITY (check):cleartea-color	edalgae-green		
STRUCTURE OF VEGETATION WITHIN/OVERH	ANGING POOL (ESTIN	1ATE % COVER):	
treesscrub/shrubfloating vegetat	tionemergent ve	getation	
DOMINANT PLANT SPECIES WITHIN/OVERHAM	NGING POOL (optiona	l):	
LANDSCAPE CONTEXT (check all that apply):u	ipland forestforeste	ed wetlands	
emergent/scrub-shrub wetlandagricultural fie	eld/grasslandsubu	ırban	
STRUCTURE OF HABITAT WITHIN 100m OF PC	DOL:		
GENERAL NOTES/COMMENTS:	no voca	1	
Fox Den East or	f ff-1 m ypla	nd 3-4	kits Seeh




ORGANIZATION:
MUNICIPALITY:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%full /_dry molfst mod POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
POOL CHARACTERISTICS POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%full /_dry hoolst hool
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment WATER LEVEL (check):full>50%full<50%full /_dry moldt modd
WATER LEVEL (check):full>50%full<50%full / dry wolft wood POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):cleartea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
WATER QUALITY (check):tea-coloredalgae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER): treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
treesscrub/shrubfloating vegetationemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:
no vocal, ho standing water
moist mud only





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and the second se			_	_

GENERAL INFO		
SITE NAME:	OBSERVER:	Steve Chenn, Jan Reed
ORGANIZATION:	DATE:	COUNTY:
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE: Greenbra	ok	
POOL CHARACTERISTICS		
POOL TYPE (check):natural swale/depre	essionexcavated pit/ditcl	nimpoundment
WATER LEVEL (check):full 50%f	full<50%full0	dry
POOL DIMENSIONS (at max capacity):	m xm	
WATER QUALITY (check):	coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OV	ERHANGING POOL (ESTIMA	TE % COVER):
treesscrub/shrubfloating veg	getationemergent vege	etation
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional)	:
LANDSCAPE CONTEXT (check all that apply):	upland forestforested	wetlands
emergent/scrub-shrub wetlandagricultur	al field/grasslandsuburb	ban
STRUCTURE OF HABITAT WITHIN 100m O	F POOL:	
JENERAL NOTES/COMMENTS:		51
ho vocan	fept.	





GENERAL INFO

SITE NAME: C5-10	OBSERVER: Steve Clenn, Jen Reed
ORGANIZATION: DATE:	COUNTY:
MUNICIPALITY: TOPO	QUAD:
DIRECTIONS TO SITE: Creenbrook	

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green cloudy
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:
no vocali q'i depit





NEDAL THEO

GENERAL INFO	
SITE NAME: <u>C5-9</u>	OBSERVER: Steve Wenn, Jon Ree)
ORGANIZATION:	_ DATE: COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE: Creenbr	ook
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depre	essionexcavated pit/ditchimpoundment
WATER LEVEL (check): Zfull>50%f	ull<50%fulldry
POCL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check): Keleartea-o	coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OV	ERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating ve	getationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):	upland forestforested wetlands
emergent/scrub-shrub wetlandagricultur	al field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m O	F POOL:
GENERAL NOTES/COMMENTS:	
1	no vocal. The The mater of the
	digh





<u>GENERAL INFO</u>			Aspr: 10, 2021
SITE NAME:	OBSERVER:_	Steve	Glenn, Jen Reed
ORGANIZATION: D	ATE:	COUNTY:	/
MUNICIPALITY:	TOPO QUAD:		
DIRECTIONS TO SITE: C-reenbrook			
POOL CHARACTERISTICS			
POOL TYPE (check):natural swale/depression	excavated pit/ditch	impoundr	nent
WATER LEVEL (check):full>50%full	X<50%fulld	ry	
POOL DIMENSIONS (at max capacity):m x	m		
WATER QUALITY (check):	lalgae-green		
STRUCTURE OF VEGETATION WITHIN/OVERHAI	NGING POOL (ESTIMA	TE % COVER):
treesscrub/shrubfloating vegetatio	nemergent vege	tation	
DOMINANT PLANT SPECIES WITHIN/OVERHANG	SING POOL (optional):		
LANDSCAPE CONTEXT (check all that apply):upl	and forestforested	wetlands	
emergent/scrub-shrub wetlandagricultural field	l/grasslandsuburb	an	
STRUCTURE OF HABITAT WITHIN 100M OF POC	JL:		
GENERAL NOTES/COMMENTS:	alter and a second s		
no via	the hr	nor, dept	A 5"





GENERAL INFO

SITE NAME: <u>C5-7</u>	OBSERVER:	Steve Glenn, Jen Reed
ORGANIZATION: DAT	E:	COUNTY:
MUNICIPALITY: TC	OPO QUAD:	
DIRECTIONS TO SITE: Creenbrook		

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment					
WATER LEVEL (check): 🔀 full>50%full<50%fulldry					
POOL DIMENSIONS (at max capacity):m xm					
WATER QUALITY (check): <u>Clear</u> tea-coloredalgae-green					
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):					
treesscrub/shrubfloating vegetationemergent vegetation					
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):					
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands					
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban					
STRUCTURE OF HABITAT WITHIN 100m OF POOL:					
GENERAL NOTES/COMMENTS: No vocal, connected to 46					
6" max. depth					





SITE NAME: C5-6 OBSERVER: Steve Glown, Jen Reef	
ORGANIZATION: DATE: COUNTY:	
MUNICIPALITY: TOPO QUAD:	
DIRECTIONS TO SITE: Creen brook Overcast int. to bo	ath
50°	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check): Xfull	
POOL DIMENSIONS (at max capacity):m xm	
WATER QUALITY (check): Keleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	101
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS:	
no vocal.	-
	-





G	ΞN	EF	<u>. I</u>	N	FO		
						-	-

GENERAL INFO	Enuangereu anu Nong	Jame Specie	Apr. 16, 2021				
SITE NAME:	5-5	OBSERVER:_	Stere Glenn, Jen Reo)				
ORGANIZATION:	DATE:		COUNTY:				
MUNICIPALITY:	ТОРО	QUAD:					
DIRECTIONS TO SITE:	Creenbrook		· · · · · · · · · · · · · · · · · · ·				
POOL CHARACTERISTICS							
POOL TYPE (check):	_natural swale/depressionex	cavated pit/ditch	impoundment				
WATER LEVEL (check):)%fullc	lry				
POOL DIMENSIONS (at r	nax capacity):m xn	n					
WATER QUALITY (check): Cleartea-coloreda	gae-green					
STRUCTURE OF VEGETA	TION WITHIN/OVERHANGING	POOL (ESTIMA	TE % COVER):				

____trees ____scrub/shrub ____floating vegetation ____emergent vegetation

DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):

LANDSCAPE CONTEXT (check all that apply): __upland forest __forested wetlands

___emergent/scrub-shrub wetland ___agricultural field/grassland ___suburban

STRUCTURE OF HABITAT WITHIN 100m OF POOL:

·	no vocal.		
		5' may depth	2
COMPCHED	49 6		





Apr. 16,2021

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

GENERAL INFO

SITE NAME: <u>C5~4</u>	OBSERVER: Steve Clenn, Jen Deed
ORGANIZATION: DATE:	COUNTY:
MUNICIPALITY: TOPO	QUAD:
DIRECTIONS TO SITE: Creenbrook	

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): X full>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Leartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: I plop' upon approach of may, depth





Endangered a	and Nong	ame Specie	es Prograi	m KAr.	16 200	
GENERAL INFO				Pipic	, 10	~/
SITE NAME: <u>C5-3</u>		OBSERVER:_	Steve	Henn,	Jen	Reed
ORGANIZATION:	DATE:		COUNTY:_			
MUNICIPALITY:		QUAD:				<u>. </u>
DIRECTIONS TO SITE: Creen b	rook	·				
POOL CHARACTERISTICS						
POOL TYPE (check):natural swale/depress	ionexc	avated pit/ditch	impound	dment		
WATER LEVEL (check): V full _>50%full	<50	%fullc	Iry			

POOL

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): V_full>50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Zcleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:
no vocal. 10 may depty





GENERAL INFO

SITE NAME: <u>C5-2</u>	OBSERVER: Steve (Henn, Jen Ree)
ORGANIZATION: DATE:	COUNTY:
MUNICIPALITY: TOPO (QUAD:
DIRECTIONS TO SITE: Greenbrook	

POOL CHARACTERISTICS

POOL TYPE (check): natural swale/depression excavated pit/ditch impoundment	
VVATER LEVEL (CRECK). Aut _>50%ruli<50%rulidry	
POOL DIMENSIONS (at max capacity):m xm	Mr.
WATER QUALITY (check): 'Scleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: No vacalizations	
Sh mat, Jeph	





Apr. 16,2021

GENERAL INFO

SITE NAME:	OBSERVER:_	Steve	Wegn,	Jen Reed
ORGANIZATION:	DATE:	COUNTY:	·····	
MUNICIPALITY:	TOPO QUAD:	-		
DIRECTIONS TO SITE: Greenbrook				

POOL CHARACTERISTICS





New Jers	ey Division	of Fish and	d Wildlife
Endangered	d and Nong	ame Speci	es Program

GENERAL INFO	
SITE NAME: 45	OBSERVER: JR/MZ
ORGANIZATION:	DATE: 4/18/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/dep	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>509	%full χ <50%full _dry $<$ (
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):cleartea	a-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/O	VERHANGING POOL (ESTIMATE % COVER):
DOMINANT PLANT SPECIES WITHIN/OV	ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply	y):upland forest
emergent/scrub-shrub wetlandagricult	ural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:
GENERAL NOTES/COMMENTS:	o harps





GENERAL INFO		
SITE NAME: 144	OBSERVER: JRMZ	
ORGANIZATION:	DATE: 4/18/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Anatural swale/de	epressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):	0%fulldry	
POOL DIMENSIONS (at max capacity):	m xm	3611
WATER QUALITY (check):	ea-coloredalgae-green	1. S Max
STRUCTURE OF VEGETATION WITHIN/	OVERHANGING POOL (ESTIMATE % COVER):	alph
treesscrub/shrubfloating	vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/O	VERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that app	bly):upland forestivested wetlands	
emergent/scrub-shrub wetlandagricu	ultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100r	m OF POOL:	
GENERAL NOTES/COMMENTS:	heips	
	N	





GENERAL INFO
SITE NAME: 13 OBSERVER: JR/MZ
ORGANIZATION: DATE: 4/18/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Inatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full X350%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):cleartea-colored Xalgae-green 7 Max dept
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
<u>X</u> treesscrub/shrubfloating vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub_shrub_wetlandagricultural_field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: MOSQUED Larval
2 frog plops - undertified





GENERAL INFO		
SITE NAME: HZ	OBSERVER: JPMZ	
ORGANIZATION:	DATE: 4/18/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		, and the second s
POOL TYPE (check): Xnatural swale/depr	ressionexcavated pit/ditchimpoundmer	nt
WATER LEVEL (check):	ofull<50%fulldry	
POOL DIMENSIONS (at max capacity):	m xm	VIL max
WATER QUALITY (check):cleartea	-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/ON trees	VERHANGING POOL (ESTIMATE % COVER): egetation	
LANDSCAPE CONTEXT (check all that apply emergent/scrub-shrub wetlandagricultu STRUCTURE OF HABITAT WITHIN 100m ():upland forestforested wetlands ural field/grasslandsuburban OF POOL:	
GENERAL NOTES/COMMENTS: Jusually confirmed 4 additional plops	J-green frogs	





GENERAL INFO	
SITE NAME:	OBSERVER: JRMZ
ORGANIZATION:	DATE: 4 18 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):	/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	>50%full<50%full ¥dry
POOL DIMENSIONS (at max capacity):	m xm /
WATER QUALITY (check):clear	tea-coloredalgae-green
STRUCTURE OF VEGETATION WITH	N/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloat	ing vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN	/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that	apply):upland forestforested wetlands
emergent/scrub-shrub wetlandag	ricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 10)0m OF POOL:
GENERAL NOTES/COMMENTS:	1
Active fox der o	dyacent upland. Kits observed





GENERAL INFO
SITE NAME: C5-VP12 OBSERVER: JR/MZ
ORGANIZATION: DATE: 4 18 2 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):
WATER LEVEL (check):full>50%full<50%fullry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub-wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: dy - moist soil No haps





GE	NE	RAL	INFO
_			and the second se

SITE NAME: C5-VPIL OBSERVER: TRIMZ
ORGANIZATION: DATE: 4/18/24 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Value wale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full <<50%fulldry
POOL DIMENSIONS (at max capacity):m xm 3" max due
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation Vemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: Frog plop - unable to identify





SITE NAME: 5-VPID OBSERVER: JRIMZ
ORGANIZATION: DATE: 4 18 21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full<50%full<50%fulldry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear /tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: NO harps or musits





SITE NAME:	(5-VP9	OBSERVER:	JRIMZ	
ORGANIZATION	v:	DATE: 4/18/21 0	COUNTY:	
MUNICIPALITY		TOPO QUAD:		
DIRECTIONS T	0 SITE:			- 10
POOL CHAR	ACTERISTICS			
POOL TYPE (ch	eck): Xoatural swale/depression	onexcavated pit/ditch	impoundment	
WATER LEVEL	(check):full>50%full	<50%fulldry	,	
POOL DIMENSI	ONS (at max capacity):m	i xm	Su	May
WATER QUALIT	TY (check):cleartea-colo	redalgae-green		
STRUCTURE OF	VEGETATION WITHIN/OVER	ANGING POOL (ESTIMATI	E % COVER):	
trees	scrub/shrubfloating vegeta	tionemergent vegeta	ation	
DOMINANT PLA	ANT SPECIES WITHIN/OVERHA	NGING POOL (optional):		
LANDSCAPE CO	ONTEXT (check all that apply):	upland forestforested w	vetlands	
emergent/scru	ib-shrub wetlandagricultural fi	ield/grasslandsuburba	n	
STRUCTURE OI	- HABITAT WITHIN 100m OF P	OOL:		
GENERAL NOTI	ES/COMMENTS: pohe	1ps - duck f	Fathers	





GENERAL INFO
SITE NAME: C5-VP8 OBSERVER: JRMZ
ORGANIZATION: DATE: 4/18/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Inatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check): _full _>50%full _<50%full _<50%full _<6.5" Max left
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):cleartea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:
Garter Snake on bank of post
Dragon-fly lance





GENERAL INFO	
SITE NAME: C5-VP7 OBSERVER: M2JJR	
ORGANIZATION: DATE: 4(15/2) COUNTY:	
MUNICIPALITY: TOPO QUAD:	
TPECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full X>50%full<50%fulldry	
POOL DIMENSIONS (at max capacity):m xm \M	
WATER QUALITY (check): Cleartea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating vegetationXemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):	
	Po
LANDSCAPE CONTEXT (check all that apply):upland forest	
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF POOL:	
GENERAL NOTES/COMMENTS: water studens	
Wood ducks (3) present on acrival	
	and the second second





VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife

Endangered and Nongame Species Program

GENERAL INFO			
SITE NAME: 05-UP6	OBSERVER:	JRMZ	
ORGANIZATION:	_ DATE: 4/18/21 0	COUNTY:	
MUNICIPALITY:	TOPO QUAD:		
DIRECTIONS TO SITE:			
		_	
POOL CHARACTERISTICS			
POOL TYPE (check):	essionexcavated pit/ditch	impoundment	
WATER LEVEL (check):full50%	ofull _<50%fulldry	,	
POOL DIMENSIONS (at max capacity):	m xm		10" may
WATER QUALITY (check):cleartea-	-coloredalgae-green		
STRUCTURE OF VEGETATION WITHIN/OV	/ERHANGING POOL (ESTIMATI	E % COVER):	
treesscrub/shrubfloating ve	getationemergent vegeta	ation	
DOMINANT PLANT SPECIES WITHIN/OVE	RHANGING POOL (optional):		
LANDSCAPE CONTEXT (check all that apply)):upland forestforested w	vetlands	
emergent/scrub-shrub wetlandagricultu	ıral field/grasslandsuburba	n	
STRUCTURE OF HABITAT WITHIN 100m (OF POOL:		
GENERAL NOTES/COMMENTS: Wat	u Inders		
Thore a water Permit	1		
, muss on your pentities			
the second se	the second state in the second state of the se		and the second se





SITE NAME: C5-VP5	OBSERVER:	
ORGANIZATION:	DATE: 4/18/21 COUNTY	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
MINE STREET		
POOL CHARACTERISTICS		
POOL TYPE (check): Xatural swal	le/depressionexcavated pit/ditchimpour	ndment
WATER LEVEL (check):full	50%full _<50%fulldry	
POOL DIMENSIONS (at max capacity)):m xm	3" map.
WATER QUALITY (check): Kelear	tea-coloredalgae-green	depth
STRUCTURE OF VEGETATION WITH	IN/OVERHANGING POOL (ESTIMATE % COV	ER):
treesscrub/shrubfloa	ating vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN	N/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that	t apply):upland forestforested wetlands	
emergent/scrub-shrub wetlanda	gricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 1	L00m OF POOL:	
GENERAL NOTES/COMMENTS:	ech, notes	
water stralers		
and a second sec		





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VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program



SITE NAME: CS-VP4 OBSERVER: JPMZ
ORGANIZATION: DATE: 4 18 2 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): Xnatural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full<50%full<50%fulldry
FOOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check): Xlear Xea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation X emergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: NO herps doscried





New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME:	OBSERVER: JR/MZ	
ORGANIZATION:	DATE: 4 18 21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
COL CHARACTERISTICS		
POOL TYPE (check):natural swale/depress	sionexcavated pit/ditchimpoundme	nt
WATER LEVEL (check):full X>50%ful	ll<50%fulldry	
POOL DIMENSIONS (at max capacity):	_m xm	Gamax deph
STRUCTURE OF VEGETATION WITHIN/OVER	RHANGING POOL (ESTIMATE % COVER):	
BOMINANT PLANT SPECIES WITHIN/OVERF	IANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):emergent/scrub-shrub wetlandagricultural STRUCTURE OF HABITAT WITHIN 100m OF	upland forest forested wetlands l field/grasslandsuburban POOL:	
GENERAL NOTES/COMMENTS: NO MOGy lawae abundan	Jups	





SITE NAME: _	C5. UP 2	OE	SERVER:	RIMZ	
ORGANIZATIC	DN:	DATE: 4/14	8/21 COU	NTY:	
MUNICIPALIT	Y:	TOPO QUA	D:	-	
DIRECTIONS	TO SITE:				
	eren ju an				
POOL CHAR	RACTERISTICS				
POOL TYPE (c	check): Ynatural swale/	depressionexcavat	ed pit/ditchim	npoundment	
WATER LEVEL	_ (check):full>	50%full ¥<50%fu	lldry		
POOL DIMENS	SIONS (at max capacity):	m xm		Q	5" map diath
WATER QUAL	ITY (check): Xclear _	_tea-coloredalgae-	green		i and aupril
STRUCTURE C	OF VEGETATION WITHI	N/OVERHANGING POC	DL (ESTIMATE %	COVER):	
trees	scrub/shrubfloati	ng vegetation Xem	ergent vegetation		
DOMINANT PI	LANT SPECIES WITHIN/	OVERHANGING POOL	(optional):		
LANDSCAPE C	CONTEXT (check all that a	pply);upland forest	forested wetla	nds	
emergent/sci	rub-shrub wetlandagr	icultural field/grassland	suburban		
STRUCTURE (OF HABITAT WITHIN 10	0m OF POOL:			
GENERAL NO	TES/COMMENTS: _ P.	hups			
11					





GENERAL INFO		
SITE NAME: CS-VPI	OBSERVER: JRMZ	
ORGANIZATION:	DATE: 4/18/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Xnatural swale/depre	ssionexcavated pit/ditchimpoundmer	ıt
ER LEVEL (check):full	ull<50%fulldry	1211 arrivaliste
POOL DIMENSIONS (at max capacity):	m xm	i mare cuping
WATER QUALITY (check): Xcleartea-c	coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/OVE	ERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating veg	getationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):	
ANDSCAPE CONTEXT (check all that apply):	upland forestforested wetlands	
emergent/scrub-shrub wetlandagricultur	al field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m O	F POOL:	
SENERAL NOTES/COMMENTS:	studen in tes	
- table and		





VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife

Endangered and Nongame Species Program

GENERAL INFO	
SITE NAME: 145	OBSERVER: SGMZ
ORGANIZATION:	DATE: 4 2 2 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	

POOL CHARACTERISTICS

POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%fulldry
POOL DIMENSIONS (at max capacity):m xm Z" May
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
GENERAL NOTES/COMMENTS: Most of area dry except area near H3





Endangered and Nongame Species Program
GENERAL INFO
SITE NAME: OBSERVER:
ORGANIZATION: DATE: 21 222 COUNTY:
MUNICIPALITY: TOPO QUAD:
TIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full<50%full Xdry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS:





NERAL INFO			
SITE NAME: H3	OBSERVER: SB/MZ		
ORGANIZATION:	DATE: 4/22/21 COUNTY:		
MUNICIPALITY:	TOPO QUAD:		
DIRECTIONS TO SITE:			
POOL CHARACTERISTICS			
POOL TYPE (check): 🗡 natural swale	<pre>/depressionexcavated pit/ditchimpoundment</pre>		
WATER LEVEL (check):full	>50%fulldry1		
POOL DIMENSIONS (at max capacity)	mx_m (g may		

STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):

<u>X</u>trees __scrub/shrub __floating vegetation __Yemergent vegetation

DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional): _

WATER QUALITY (check): _____clear ____tea-colored _____tgae-green

LANDSCAPE CONTEXT (check all that apply): __upland forest __emergent/scrub-shrub wetland __agricultural field/grassland __suburban STRUCTURE OF HABITAT WITHIN 100m OF POOL: _____

GENERAL NOTES/COMMENTS:





VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife

SITE NAME: HZ	OBSERVER: SGMZ
ORGANIZATION:	DATE: 4222 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): X natural s	swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	>50%fulldry
POOL DIMENSIONS (at max capa	icity):m xm Z'max de
WATER QUALITY (check):clea	artea-coloredalgae-green
STRUCTURE OF VEGETATION W	(ITHIN/OVERHANGING POOL (ESTIMATE % COVER): _floating vegetation
DOMINANT PLANT SPECIES WIT	THIN/OVERHANGING POOL (optional):
DANDSCAPE CONTEXT (check all	that apply):upland forest X forested wetlands
emergent/scrub-shrub wetland	agricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITH	IN 100m OF POOL: <u>Accodplacin</u>
GENERAL NOTES/COMMENTS:	No herps - Ne bogepelapos





Fish and Wildite

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

40-45°F

GENERAL INFO	Endangerea ana nongame opecies rrogram	partly clade
	OBSERVER: SGMZ	
ORGANIZATION:	DATE: 2222 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERIS	TICS	
POOL TYPE (check):	natural swale/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):	_full>50%full<50%full Vdry	
POOL DIMENSIONS (at m	ax capacity):m xm	
WATER QUALITY (check):	cleartea-coloredalgae-green	
STRUCTURE OF VEGETAT	TION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shru	bfloating vegetationemergent vegetation	
DOMINANT PLANT SPECI	ES WITHIN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (cl	heck all that apply):upland forestforested wetlands	
emergent/scrub-shrub we	etlandagricultural field/grasslandsuburban	
STRUCTURE OF HABITAT	WITHIN 100m OF POOL:	(
GENERAL NOTES/COMME	ENTS: Nohops, day	
-440-5		





SITE NAME: CS-UPIZ OBSERVER: SGMZ/MJ
ORGANIZATION: DATE: 4 22 2 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check):natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full<50%full \/_dry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: d.M. NU herps





SITE NAME: CS-VPI	OBSERVER: MZ SG/MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/de	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50	%full _<50%full
POOL DIMENSIONS (at max capacity): _	m xm
WATER QUALITY (check):clearte	a-coloredaigae-green
STRUCTURE OF VEGETATION WITHIN/C	OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating	vegetation X_emergent vegetation
DOMINANT PLANT SPECIES WITHIN/OV	ERHANGING POOL (optional): <u>Lysmacia noney</u> wort
LANDSCAPE CONTEXT (check all that app	ly):upland forest Vorested wetlands
emergent/scrub-shrub wetlandagricul	itural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m) OF POOL:
GENERAL NOTES/COMMENTS:	erps dry




Fish and Wildlife

GENERAL INFO	
SITE NAME: 05 VP10	OBSERVER: 56/MZ/MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	Fall
POOL TYPE (check): Xnatural swale/depre	ssionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%f	ull X<50%full Zdry
POOL DIMENSIONS (at max capacity):	_mx_m AAC'
WATER QUALITY (check):cleartea-c	coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVE	ERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating veg	etationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):
	. ^
LANDSCAPE CONTEXT (check all that apply):	upland forest Y forested wetlands
emergent/scrub-shrub wetlandagricultura	al field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m O	F POOL:
GENERAL NOTES/COMMENTS:NO	resps, mostly filled we beard s





SITE NAME: C5-VP9	OBSERVER: SG/MZ/MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50	%full X<50%fulldry
POOL DIMENSIONS (at max capacity):	5 mx 5 m 51 max
WATER QUALITY (check):clear \te	ea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/	OVERHANGING POOL (ESTIMATE % COVER):
	vegetation
DOMINANT PLANT SPECIES WITHIN/OV	/ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that app	ly): _upland forest Xforested wetlands
emergent/scrub-shrub wetlandagricu	ltural field/grassland /suburban
STRUCTURE OF HABITAT WITHIN 100m	1 OF POOL:
GENERAL NOTES/COMMENTS:	hups, mun gase ponts





SITE NAME: C5 - N7%	OBSERVER: SK MZ MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	

POOL TYPE (check):
WATER LEVEL (check):full>50%full
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):tea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):treesscrub/shrubfloating vegetation 2
LANDSCAPE CONTEXT (check all that apply):upland forestforested wetlands emergent/scrub-shrub wetlandagricultural field/grasslandsuburban STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: No haps





SITE NAME: CS-VP7 OBSERVER: SGMZ/MJ
ORGANIZATION: DATE: 4/22/21 COUNTY:
MUNICIPALITY: TOPO QUAD:
DIRECTIONS TO SITE:
POOL CHARACTERISTICS
POOL TYPE (check): λ natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full X<50%fulldry
POOL DIMENSIONS (at max capacity): $10 \text{ m x} 3 \text{ m}$
WATER QUALITY (check): Xcleartea-colored Xalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERHANGING POO!. (ESTIMATE % COVER):
treesscrub/shrubfloating vegetation \sum emergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply): upland forest V forested wetlands
emergent/scrub-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF POOL:
GENERAL NOTES/COMMENTS: No harps





Fish and Wildlife

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME:	C5-NP6	OBSERVER:	mz/s6/mJ
ORGANIZATIO	N:	DATE: 4/22/21	COUNTY:
MUNICIPALITY	·:	TOPO QUAD:	
DIRECTIONS T	O SITE:		
POOL CHAR	ACTERISTICS		
		ion oursusted sit/ditab	
WATER LEVEL	(check):full>50%ful	i 🟒 50%full _dr	impounament
POOL DIMENS	IONS (at max capacity):	m xm	("max depth
WATER QUALI	TY (check): <u>K</u> leartea-col	lored Aalgae-green	
STRUCTURE O	F VEGETATION WITHIN/OVER	/ RHANGING POOL (ESTIMAT	FE % COVER):
trees	_scrub/shrubfloating vege	tation Xemergent veget	ation
DOMINANT PL	ANT SPECIES WITHIN/OVERH	ANGING POOL (optional):	
LANDSCAPE CO	ONTEXT (check all that apply): _	_upland forest Yorested v	vetlands
emergent/scru	ub-shrub wetlandagricultural	field/grasslandsuburba	an
STRUCTURE OI	F HABITAT WITHIN 100m OF	POOL:	
GENERAL NOTE	ES/COMMENTS:		
		na sena a sena a sena de la constitución de sena de la constitución de sena de la constitución de sena de sena Referencia de 1 de sena de desarro de constitución de presentantem proprio de la constitución de sena de sena d	1





SITE NAME: 05-VP5	OBSERVER: SG/MZ/MJ
ORGANIZATION:	DATE: 4/22/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Anatural swale/depres	ssionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%ft	$_{\rm III}$ χ < 50% fulldry
POOL DIMENSIONS (at max capacity):	Imx 3_m @ time of sowey L'mary
WATER QUALITY (check):cleartea-cd	oloredalgae-green
STRUCTURE OF VEGETATION WITHIN/OVE	RHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating veg	etationemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERI	HANGING POOL (optional): <u>h. palustas within</u>
- t Caret gp.	
LANDSCAPE CONTEXT (check all that apply):	upland forestforested wetlands
emergent/scrub-shrub wetlandagricultura	al field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m OF	= POOL:
GENERAL NOTES/COMMENTS: MOSTL	1 day or moist soil only
mosquito lanuae, max windy a	jig portles, mites
oquatic worms	





SITE NAME: 65-VP4	OBSERVER: SGMZ MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Anatural swale/depr	essionexcavated pit/dilchimpoundment
WATER LEVEL (check):full>50%	full X<50%fulldry
POOL DIMENSIONS (at max capacity):	gm x 5 m 7" muscolepsh
WATER QUALITY (check):	-colored Yalgae-green
STRUCTURE OF VEGETATION WITHIN/OV	/ERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating ve	egetation X emergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVER	RHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply)	:upland forest X forested wetlands
emergent/scrub-shrub wetlandagricultu	ral field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m C	DF POOL: box elder red maple
GENERAL NOTES/COMMENTS:	rto larvale, mites,





SITE NAME: CS-VP3	OBSERVER: 56 MZ	= / MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:	1
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check):natural swale/depres	ssionexcavated pit/ditchimpoundme	nt
WATER LEVEL (check):full>50%fu	ılldry	
POOL DIMENSIONS (at max capacity):	_m xm	4" 110 2000
WATER QUALITY (check):clear X_tea-co	oloredalgae-green	many merek
STRUCTURE OF VEGETATION WITHIN/OVE	RHANGING POOL (ESTIMATE % COVER):	
DOMINANT PLANT SPECIES WITHIN/OVER	HANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that apply):	upland forest \forested wetlands	
emergent/scrub-shrub wetlandagricultura	al field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m OF	= POOL:	
GENERAL NOTES/COMMENTS:		





Fish and Wildlife

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

GENERAL INFO	
SITE NAME: LS -VPZ	_ OBSERVER: SG/MZ/MJ
ORGANIZATION:	DATE: 4 22 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Anatural swale/depression	nexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full	1/ 50% full _dry 2" max de the
POOL DIMENSIONS (at max capacity):m	x_1_m
WATER QUALITY (check):	edalgae-green
STRUCTURE OF VEGETATION WITHIN/OVERH	ANGING POOL (ESTIMATE % COVER):
treesscrub/shrubfloating vegetal	ion Viemergent vegetation
DOMINANT PLANT SPECIES WITHIN/OVERHAM	IGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):	pland forget Vergeted wailands
emergent/scrub-shrub wetland agricultural fie	ld/grassland suburban
STRUCTURE OF HABITAT WITHIN 100m OF PC	
GENERAL NOTES/COMMENTS:	1
Thusty any moist suit	, MARS , walke striders





SITE NAME: CS - JR 1	OBSERVER: SG/m2/mJ
ORGANIZATION:	DATE: = 22/2)_ COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):natural swale/dej	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50 POOL DIMENSIONS (at max capacity): WATER QUALITY (check): Xclearte STRUCTURE OF VEGETATION WITHIN/O treesscrub/shrubfloating DOMINANT PLANT SPECIES WITHIN/OV	%full X<50%fulldry 6_m x _ m & &!' 5 mup dept ea-colored Xalgae-green OVERHANGING POOL (ESTIMATE % COVER): vegetation <u>40</u> emergent vegetation /ERHANGING POOL (optional): <u>L. paluetas (unagent)</u>
LANDSCAPE CONTEXT (check all that appl emergent/scrub-shrub wetlandagricul STRUCTURE OF HABITAT WITHIN 100m	iy):upland forest X_forested wetlands itural field/grasslandsuburban n OF POOL:
GENERAL NOTES/COMMENTS:	u stiders, nités





VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife

Endangered	and	Nongame	Species	Program





Fish and Wildlite

VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife

· Endo	angered and Nongame Species Program
GENERAL INFO	
SITE NAME: H4	OBSERVER: SGMZ
ORGANIZATION:	DATE: 43/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): X natural s	wale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	>50%full<50%full Xdry
POOL DIMENSIONS (at max capac	ity):m xm
WATER QUALITY (check):clea	rtea-coloredalgae-green
STRUCTURE OF VEGETATION WI	THIN/OVERHANGING POOL (ESTIMATE % COVER):
	floating vegetationemergent vegetation
DOMINANT PLANT SPECIES WIT	HIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all t	hat apply):upland forest Xforested wetlands
emergent/scrub-shrub wetland	_agricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHI	N 100m OF POOL:
GENERAL NOTES/COMMENTS:	No herps, dry
Andreas and a second	





GENERAL INTO	
SITE NAME: H3	OBSERVER: SGMZ
ORGANIZATION:	DATE: 430 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Knatural swa	e/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full POOL DIMENSIONS (at max capacity WATER QUALITY (check):clear STRUCTURE OF VEGETATION WITH 	>50%full X<50%full _dry #5 "Max]: 12_m x 17m _tea-colored Xalgae-green Set 1-2" MIN/OVERHANGING POOL (ESTIMATE % COVER): ating vegetation Xemergent vegetation N/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all tha	t apply):upland forest Yeorested wetlands
emergent/scrub-shrub wetlanda	gricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN	100m OF POOL:
GENERAL NOTES/COMMENTS:	re-frog plop-undentified
fox, grandhag in u	centry





VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife

Enda	ngered and Nongame Species Program
GENERAL INFO	
SITE NAME: HZ	OBSERVER: SG/MZ
ORGANIZATION:	DATE: 430 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Venatural st	vale/depressionexcavated pit/ditchimpoundment
VVATER LEVEL (check):full	>50%full<50%full Xdry
POOL DIMENSIONS (at max capac	ity):m xm
WATER QUALITY (check):clea	rtea-coloredalgae-green
STRUCTURE OF VEGETATION WI	THIN/OVERHANGING POOL (ESTIMATE % COVER):
Ktreesscrub/shrub	floating vegetationemergent vegetation
DOMINANT PLANT SPECIES WIT	HIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all t	hat apply):upland forestorested wetlands
emergent/scrub-shrub wetland	agricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITH	N 100m OF POOL:
CENERAL NOTES/COMMENTS:	maret mad





GENERAL INFO	ANT 156	
SITE NAME: 41	OBSERVER. MICHAN	
ORGANIZATION:	DATE: 430/21 COUNTY	1. T
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		a de la dela de la dela de la dela de la dela de
POOL CHARACTERISTICS		
POOL TYPE (check):	/depressionexcavated pit/ditchimpoundment >50%full<50%full Xdry	
POOL DIMENSIONS (at max capacity):	m xm	
WATER OUALITY (check):	tea-coloredalgae-green	
STRUCTURE OF VEGETATION WITH	IN/OVERHANGING POOL (ESTIMATE % COVER):	
Virees scrub/shrubfloa	ting vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN	N/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that emergent/scrub-shrub wetlanda	t apply):upland forest X forested wetlands agricultural field/grasslandsuburban 100m OF POOL:	
	k. h. m. h. os	
GENERAL NOTES/COMMENTS:	Maist mud no narps	
		n and the state of





SITE NAME: UP12	OBSERVER: <u>SG/MZ</u>	
ORGANIZATION:	DATE: 4 30/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check):natural swale,	/depressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>	⊳50%full<50%full ¥dry	
POOL DIMENSIONS (at max capacity):	m xm	
WATER QUALITY (check):clear	_tea-coloredalgae-green	
STRUCTURE OF VEGETATION WITHI	N/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloati	ng vegetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/	OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that a	apply):upland forestforested wetlands	
emergent/scrub-shrub wetlandagr	icultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 10	00m OF POOL:	
GENERAL NOTES/COMMENTS:	o herps, day soil	





SITE NAME: VPI	OBSERVER: MZ SG	
ORGANIZATION:	DATE: 4/30/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Knatural swale/dep	ressionexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%	ofull <50%full Yary	
PCOL DIMENSIONS (at max capacity):	m xm	
WATER QUALITY (check):tea	-coloredalgae-green	
STRUCTURE OF VEGETATION WITHIN/O	VERHANGING POOL (ESTIMATE % COVER):	
	egetationemergent vegetation	
DOMINANT PLANT SPECIES WITHIN/OVE	ERHANGING POOL (optional):	
LANDSCAFE CONTEXT (check all that apply	v):upland forest	
emergent/scrub-shrub wetlandagricult	ural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN 100m	OF POOL:	
GENERAL NOTES/COMMENTS:	No herps	





SITE NAME: NPID	OBSERVER: <u>SG/mZ</u>
ORGANIZATION:	DATE: 430 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POUL CHARACTERISTICS	
POOL TYPE (check):natural sw	ale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	>50%full<50%full _dry
POOL DIMENSIONS (at max capaci	ty):m xm
WATER QUALITY (check):clear	tea-coloredalgae-green
STRUCTURE OF VEGETATION WI	THIN/OVERHANGING POOL (ESTIMATE % COVER):
	loating vegetation
DOMINANT PLANT SPECIES WITH	IN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all th	nat apply):upland forest
emergent/scrub-shrub wetland	_agricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN	N 100m OF POOL:
GENERAL NOTES/COMMENTS: *	hole in post with exposed grandwater flow.
· /	



GENERAL INFO



VERNAL POOL DATA SHEET New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program

SITE NAME: JP9	OBSERVER: SGM2	
DRGANIZATION:	DATE: 430/21 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Anatural swale/depressi	onexcavated pit/ditchimpoundment	
WATER LEVEL (check):full>50%full	X<50%fulldry	
POOL DIMENSIONS (at max capacity):r	n xm 1/2"	may depth
WATER QUALITY (check):cleartea-cole	oredalgae-green	1×1mpoul
STRUCTURE OF VEGETATION WITHIN/OVER	HANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfloating veget	ationemergent vegetation	

1/2" may depth 1×1 m pool

DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional): _____

LANDSCAPE CONTEXT (check all that apply): __upland forest ___forested wetlands

___emergent/scrub-shrub wetland ___agricultural field/grassland ___suburban

STRUCTURE OF HABITAT WITHIN 100m OF POOL: _____

GENERAL NOTES/COMMENTS: NO heaps, moist soil





GENERAL INFO		
SITE NAME: JP8	OBSERVER: 56/10.7	
ORGANIZATION:	DATE: 43021 COUNTY:	
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Anatural sw	ale/depressionexcavated pit/ditchimpoundment	1
WATER LEVEL (check):full	>50%full<50%full <u>X</u> dry	
POOL DIMENSIONS (at max capacil	y):m xm	
WATER QUALITY (check):clear	tea-coloredalgae-green	
STRUCTURE OF VEGETATION WIT	HIN/OVERHANGING POOL (ESTIMATE % COVER):	
treesscrub/shrubfl	pating vegetation	
DOMINANT PLANT SPECIES WITH	IN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all th	at apply):upland forestforested wetlands	
emergent/scrub-shrub wetland	agricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN	100m OF POOL:	
GENERAL NOTES/COMMENTS:	Johnes dry	





GENERAL INFO

SITE NAME: NP7	OBSERVER: <u>SGMZ</u>
ORGANIZATION:	DATE: 43021 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	

POOL CHARACTERISTICS

POOL TYPE (check): X_natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%full X<50%fulldry POOL DIMENSIONS (at max capacity):m xm WATER QUALITY (check):clear X_tea-colored X_algae-green STRUCTURE OF VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):treesscrub/shrubfloating vegetation Xemergent vegetation DOMINANT PLANT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that apply):upland forest
GENERAL NOTES/COMMENTS: <u>Small pooled areas</u> , <u>Mostly mast mud</u>





SITE NAME: C5-VPC	OBSERVER: MZ/SG
ORGANIZATION:	DATE: 4 30/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): X natural swale/dep	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>504	%fulldry
POOL DIMENSIONS (at max capacity):	m xm 51 max
WATER QUALITY (check):clear Xte	a-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/C	VERHANGING POOL (ESTIMATE % COVER):
	vegetation
DOMINANT PLANT SPECIES WITHIN/OV	ERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that appl	ly):upland forest Xforested wetlands
emergent/scrub-shrub wetlandagricul	tural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100m) OF POOL:
GENERAL NOTES/COMMENTS:	
Shappine tixtle 17" raca	PAGE IN ACCOUNTUR VPG + VP7





SITE NAME: CS UPS	OBSERVER: <u>SG/MZ</u>
ORGANIZATION:	DATE: 430/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Knatural swa	e/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full	_>50%full<50%full Xdry
POOL DIMENSIONS (at max capacity):m xm
WATER QUALITY (check):clear	tea-coloredalgae-green
STRUCTURE OF VEGETATION WITH	IN/OVERHANGING POOL (ESTIMATE % COVER):
treesscrub/shrubflo	ating vegetation
DOMINANT PLANT SPECIES WITHI	N/OVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all the	t apply):upland forest
emergent/scrub-shrub wetlanda	gricultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN	100m OF POOL:
GENERAL NOTES/COMMENTS:	moist soil, Noharps
10	





SITE NAME: C5-VP4	OBSERVER: SGMZ	7
ORGANIZATION:	DATE: 4/30/21 COUNTY	(: <u></u>
MUNICIPALITY:	TOPO QUAD:	
DIRECTIONS TO SITE:		
POOL CHARACTERISTICS		
POOL TYPE (check): Xnatural swa	ale/depressionexcavated pit/ditchimpou	Indment
WATER LEVEL (check):full	_>50%fulldry	
POOL DIMENSIONS (at max capacity	y):m xm	41" mar depth
WATER QUALITY (check):clear	tea-colored Xalgae-green	
STRUCTURE OF VEGETATION WITH	HIN/OVERHANGING POOL (ESTIMATE % COV	VER):
treesscrub/shrubflo	pating vegetation Kemergent vegetation	
DOMINANT PLANT SPECIES WITHI	IN/OVERHANGING POOL (optional):	
LANDSCAPE CONTEXT (check all that	at apply):upland forestforested wetlands	
emergent/scrub-shrub wetlanda	agricultural field/grasslandsuburban	
STRUCTURE OF HABITAT WITHIN	100m OF POOL:	
GENERAL NOTES/COMMENTS:(nustly reg filled - L. palus	tris





G	E	N	E	R	A	L	I	N	F	0	
_											

SITE NAME: VP3	OBSERVER: <u>S6/mz</u>
ORGANIZATION:	DATE: 430/21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check):nabital swale/c	lepressionexcavated pit/ditchimpoundment
WATER LEVE. (check):fuli>!	50%full _ X <50%fulldry
POOL DIMENSIONS (at max capacity):	m xm 2.5"
WATER QUALITY (check):	Dea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN	/OVERHANGING POOL (ESTIMATE % COVER):
treerscrub/shrubloatin	ig vegetation
DOMENANT PLANT SPECIES WITHIN/C	DVERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that a	pply):upland forest
energent/scrub-shrub wetlandagrie	cultural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 10	3m OF POOL:
CENERAL NOTES, COMMENTS:	y shall alla mundated ixim
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GENERAL INFO	
SITE NAME: <u>C5-VP2</u>	OBSERVER: SGNZ
ORGANIZATION:	DATE: 4 30 21 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO SITE:	
POOL CHARACTERISTICS	
POOL TYPE (check): Anatural swale/de	pressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50)%full<50%fulldry
POOL DIMENSIONS (at max capacity):	m xm
WATER QUALITY (check):teartear	ea-coloredalgae-green
STRUCTURE OF VEGETATION WITHIN/	OVERHANGING POOL (ESTIMATE % COVER):
Atreesscrub/shrubfloating	vegetation
DOMINANT PLANT SPECIES WITHIN/O	VERHANGING POOL (optional):
LANDSCAPE CONTEXT (check all that app	oly):upland forest
emergent/scrub-shrub wetlandagricu	Iltural field/grasslandsuburban
STRUCTURE OF HABITAT WITHIN 100r	n OF POOL:
GENERAL NOTES/COMMENTS: 1002	st soul, No hups
racoon, Gx, dag tracks	in mud





GEN	ERAL	INFO
COLUMN STREET,	the second s	and the second se

SITE NAME:	5-VPI OBSERVER: SG/MZ
ORGANIZATION:	DATE: 43021 COUNTY:
MUNICIPALITY:	TOPO QUAD:
DIRECTIONS TO	SITE:
POOL CHARA	CTERISTICS
POOL TYPE (che	ck): <u>M</u> natural swale/depressionexcavated pit/ditchimpoundment
WATER LEVEL (check):full>50%fullk<50%fulldry $\int_{0}^{1} 50\%$ full
POOL DIMENSIO)NS (at max capacity):m xm
WATER QUALIT	Y (check):cleartea-colored X algae-green
STRUCTURE OF	VEGETATION WITHIN/OVERHANGING POOL (ESTIMATE % COVER):
	scrub/shrubfloating vegetationemergent vegetation
DOMINANT PLA	NT SPECIES WITHIN/OVERHANGING POOL (optional):
LANDSCAPE CO	NTEXT (check all that apply):upland forestViorested wetlands
emergent/scrul	o-shrub wetlandagricultural field/grasslandsuburban
STRUCTURE OF	HABITAT WITHIN 100m OF POOL:
GENERAL NOTE	S/COMMENTS:

Contract Number: W912DS-18-D-0006: IDC 212 Green Brook Flood Risk Management Project Vernal Pool Investigation – Phase 2

Attachment D NJDEP Meeting Minutes

MEMORANDUM FOR RECORD

SUBJECT: Green Brook Flood Risk Management (FRM) Project, Segments C5 and H Vernal Habitat Survey, Middlesex Borough, Middlesex County, New Jersey

 A meeting was held on September 1, 2021 between staff from U.S. Army Corps of Engineers, New York District (USACE) and their consultants, and the New Jersey Department of Environmental Protection, Division of Watershed Protection and Restoration and Division of Dam Safety and Flood Engineering to discuss the results of a vernal habitat survey conducted within the Green Brook FRM Segments C5 and H project areas. The following staff attended the meeting:

Name	Agency/Company	
Alek Petersen	USACE - Programs and Project Management	
Kimberly Rightler	USACE – Planning Division, Environmental Analysis	
	Branch	
Carissa Scarpa	USACE – Planning Division, Environmental Analysis	
	Branch	
Elena Manno	USACE – Engineering Division	
Minhaz Mahmud	USACE – Engineering Division	
Kunal Patel	NJDEP - Division of Dam Safety and Flood Control	
Susan Lockwood	NJDEP Division of Watershed Protection & Restoration –	
	Threatened and Endangered Species	
Sally Florio	NJDEP Division of Watershed Protection & Restoration –	
	Threatened and Endangered Species	
Christina Albizati	NJDEP Division of Watershed Protection & Restoration –	
	Threatened and Endangered Species	
Allegra Mitchell	NJDEP Division of Watershed Protection & Restoration –	
	Threatened and Endangered Species	
John Rollino	AECOM – USACE Consultant: Vernal Habitat Survey	
Mark Jaworski	Baird – USACE Consultant: Vernal Habitat Survey	
Kimberly Lukas	HDR – USACE Consultant: Segment C5 Design	
Jim Hunt	Princeton Hydro – USACE Consultant: Segment C5 Design	
Casey Hurt	Princeton Hydro – USACE Consultant: Segment C5 Design	
Duncan Simpson	Princeton Hydro – USACE Consultant: Segment C5 Design	

- 2. The following were key issues discussed at the meeting:
 - a. USACE provided a brief summary of the overall Green Brook FRM Project (Attachment 1). It was noted that Segment C5 is connected to Segment C4 via a closure gate across Rte 28. This connection could potentially limit the extent of realignment made to Segment C5 to avoid adverse impacts to wetlands and vernal habitat.

- b. The initial vernal habitat study conducted from April through September 2020 was delayed in part to COVID and funding issues. In addition, 2020 was below average in precipitation and warmer in average. As result the supplemental survey was performed.
- c. NJDEP Division of Watershed Protection and Restoration Threatened & Endangered Species confirmed that the visual observations and vocal calls of wood frog, on obligate vernal habitat species, verifies the presence of vernal habitat in location C5-4. In response to a question, the District confirmed that dip netting yielded no egg masses or tadpoles.
- d. There are currently two alignments (see attachment 2) being considered. The first alignment would indirectly adversely effect vernal habitat C5-4 by cutting off the hydrology from the Bound Brook. The second alignment would directly adversely effect vernal habitat C5-4 as it lies completely within the levee alignment. A third potential option was recently proposed through a Value Engineering Study which recommend that the levee be replaced by a floodwall in vicinity of C5-4 to avoid adverse impacts to it. However, a layout of that option has not yet been developed and will require further evaluation to determine its feasibility.
- e. Compensatory mitigation at a 2:1 ratio will be required for any adverse impacts; on site mitigation is preferable. Areas C5-10, 11 and 12 were not observed holding fish and could potentially serve as a compensatory mitigation location through enhancement of the areas via topographical modifications and installation of artificial cover.
- f. NJDEP Division of Watershed Protection and Restoration Threatened and Endangered Species expressed concerns about how the hydrology on the unprotected side of the levee will be effected and requested that an analysis be conducted to determine impacts. The USACE agreed to perform such an analysis and will discuss further internally on how complete it.
- 3. The lands on which the project is located is Green Acres encumbered. Therefore, the USACE will be scheduling a separate meeting with Green Acres staff to discuss the project.

In addition, the New Jersey Freshwater Wetland Protection Act Rules do not allow for mitigation to occur on Green Acres lands. Therefore, further coordination with Green Acres and NJDEP Division of Watershed Protection and Restoration staff will need to occur.

Post Meeting Addendum: Based on a review of the Freshwater Wetland Protection Act Rules section 7:7A-11.4 Property Suitable for Mitigation subsequent of the meeting, it was found that the section specifies that off-site compensatory mitigation on Green Acres property is not allowed.

There does not appear to be any restrictions within the Freshwater Wetland Rules pertaining to on-site compensatory mitigation within Green Acres encumbered properties. Given that

on-site compensatory mitigation may be considered for Segment C-5 impacts, further coordination with the Division of Watershed Protect and Restoration - Mitigation Unit and Green Acres will be required.

- 4. NJDEP Division of Watershed Protection and Restoration Threatened and Endangered Species concurred with the survey results confirming no vernal habitat within the Segment H project area.
- 5. Please contact the undersigned at 917-790-8722 or <u>kimberly.a.rightler@usace.army.mil</u> with any questions or concerns.

Kimberly Rightler Project Biologist



Miles



Green Brook Flood Risk Management Project

Middlesex and Somerset Counties, New Jersey Segments CHBD (8 July 2020) Assumes Funding of \$30M FED & \$10M NON-FED

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Construction Award Sequence

#1 Segment C-2 Contract 1 (FY18-19) #2 Segment C-1 Base (FY19) #3 Segment C-1 Options (FY21) #4 Non-Structural Measures (FY21)

US Army Corps of Engineers® New York District



#5 Segments C-2 & H Contract (FY21) #6 Segment C-3 (FY22) #7 Segments C-4 (FY22) #8 Segements B-4, C-5, and PS (FY23) **#9 Non-Structural Measures (FY23)** #10 Segments C & D (FY24-25)

