Environmental Assessment

LSE Lynx Solar
140 Nod Road, Simsbury, Connecticut

PREPARED FOR

LSE Lynx LLC
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PREPARED BY

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November 2025

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1

Introduction

VHB prepared this Environmental Assessment ("EA") on behalf of LSE Lynx LLC (the "Petitioner") for the proposed installation and utility interconnection of a solar-based electric generating facility (collectively the "Project"), with an output of approximately 4.65 megawatts ("MW") AC located in the Town of Simsbury Connecticut ("Town"). This EA has been completed to support the Petitioner's submission to the Connecticut Siting Council ("Council") of a Petition for Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the electric generating facility.

The results of this assessment demonstrate that the proposed development will comply with the Connecticut Department of Energy and Environmental Protection's ("CTDEEP") air and water quality standards and will not have an adverse effect on the existing environment and ecology of the Site or the surrounding area. The Town of Simsbury is not an "environmental justice community" and the proposed Project is not defined as an "affecting facility" under Connecticut General Statutes § 22a-20a. Therefore, the Project is not subject to the requirements of that section.

The Project will be located at 140 Nod Road in Simsbury, Connecticut (referred to herein as the "Site"), as shown in Figure 1. The Site consists of one parcel: a 118.9-acre property at 140 Nod Road (assessor ID number G18/110/3; see Figure 2 for the Tax Parcel Map and Figure 3 for the Town Zoning Map.

2

Proposed Project

2.1 Project Setting

The project will occupy approximately 19 acres across the parcel. The Site interconnection and access to the proposed array will come through the existing parking lot for the commercial uses on site today. A temporary construction entrance/exit is proposed along Nod Road to provide better sight distance and preventing construction vehicles from mixing with the parking lot. Exhibit 1 of the submission contains the proposed Project site plans.

Existing topography at the Site ranges from approximately 150 feet above mean sea level (AMSL) to 240 feet AMSL. Grades within the Site generally slope east to west, with low points along the west edge at an existing pond and at the north/northwest along a stream that bisects the property. The surrounding area is mostly wooded to the north and east, and the immediate area remaining on site to the south is a disc golf course. The Farmington River is located to the northwest of the Site. Figure 4 shows the site survey map of the Project area.

2.2 Project Development

2.2.1 Access

The Facility will be accessed via proposed driveway through the existing parking lot. The parking lot is located southwest of the array and has two curb cuts for entry and exit. The proposed driveway will connect to the northeast corner of the existing parking lot. See Figure 5 for the project aerial proposed plan.

2.2.2 Public Health and Safety

The Project will meet applicable local, state, national, and industry health and safety standards and requirements related to electric power generation. The Facility will not consume any raw materials, will not produce any by-products, and will be unstaffed during normal operating conditions.

The Facility will be enclosed by a seven-foot-tall agricultural fence that will surround the array. The entrance to the Facility will be gated, limiting access to authorized personnel only.

3

Environmental Conditions

This section provides an overview of the current conditions at the Site and an evaluation of the Project's potential impacts on the environment. The results of this assessment demonstrate that the Project will comply with the CTDEEP air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

Please refer to Figure 5, Project Aerial Proposed Plan, for a depiction of the Project and its relationship with the resources discussed herein.

3.1 Air Quality

Due to the nature of a solar energy generating facility, no air emissions will be generated during operations and, therefore, the operation of the Facility will have no adverse effects on air quality and no permit is required.

Temporary, potential, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities can be considered de minimis. Such emissions will be mitigated using available measures, including limiting idling times of equipment; proper maintenance of all vehicles and equipment; and watering/spraying to minimize dust and particulate releases. In addition, all on-site and off-road equipment will meet the latest standards for diesel emissions, as prescribed by the United States Environmental Protection Agency.

3.2 Water Resources

3.2.1 Wetlands and Watercourses

Ian Cole, LLC, performed a field investigation in November 2023 and has prepared a separate wetland delineation report (*Wetland & Watercourse Delineation Report Prepared for: LSE LYNX LLC, 140 Nod Road*) that is attached as Appendix B. Three wetlands around the development area were located, as well as an intermittent watercourse. The first wetland is related to the stream that flows diagonally across the northwest corner of the project site to the northeast towards the larger offsite wetland complex. Along the eastern edge of the project site, a forested wetland system occupies a low-lying area that is at the base of Talcott Mountain. The third wetland area is located at the southern project boundary and is related to a man-made excavated pond. The Intermittent Water Course is located at the far eastern edge of the project limits and conveys runoff to the northwest towards the second wetland system. (see Figure 6 for the wetland delineation map). Commonly encountered wetland vegetation that was found during the delineation included: Sycamore, cottonwood, pin-oak, silver maple, willow, red maple, hemlock, yellow birch and swamp white oak (trees); alter, willow, silky dogwood, elderberry, honeysuckle, highbush blueberry, spicebush, Japanese barberry, winterberry, and Asiatic bittersweet (shrubs);

and cattail, woodgrass, tussock sedge, sphagnum moss, stout wood reed, sensitive fern, royal fern, interrupted fern, cinnamon fern, skunk cabbage, jewelweed, goldenrod and fringe sedge (herbaceous).

3.2.2 Vernal Pools

The U.S. Army Corps of Engineers (USACE) Connecticut General Permit defines vernal pools as depressional wetland basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as indicator vernal pool species and their presence in a wetland during the breeding season helps to identify that area as a vernal pool. In most years, vernal pools support one or more of the following obligate species: wood frog (*Lithobates sylvaticus*), spotted salamander (*Ambystoma maculatum*), blue-spotted salamander (*Ambystoma laterale*), marbled salamander (*Ambystoma opacum*), Jefferson's salamander (*Ambystoma jeffersonianum*) and fairy shrimp (*Eubranchipus spp.*). However, they should preclude sustainable populations of predatory fish.

Vernal pool physical characteristics can vary widely while still providing habitat for obligate species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Often, vernal pools are depressions or impoundments within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools. "Anthropogenic" vernal pools are intentionally or unintentionally man-made depressions that support successful breeding by obligate species.

In April 2025, wetland scientists from VHB performed a field visit to confirm the wetland delineation performed by Ian Cole, LLC and to perform a check for vernal pools within the property. VHB found no evidence of obligate vernal pool species within the project site and property limits. A Wetland Delineation Report by Ian Cole LLC, and a Verification Memo by VHB has been prepared and is attached as Appendix A.

3.2.3 Wetland Impacts

The Project will not result in any impacts to the onsite wetland. All work is proposed to occur outside of a 100-foot buffer of any delineated wetland, in accordance with the guidance from CTDEEP Wildlife Division. Construction activities are not expected to result in adverse impacts to the State's wetland resources due to the use of sufficient buffers, erosion and sediment control methods, and stormwater management plan that will be deployed.

3.2.4 Floodplain Areas

The Project is partially located within a 100-flood zone. VHB reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps ("FIRMs") covering the Property. According to FIRM PANEL 09003C0333F, dated 9/26/2008, the Site is partially located in an area designated as Zone AE on the north side of the project area, with the remainder in the 500-YR flood hazard area or Zone X, areas of minimal flood hazard.

A drainage report was developed for the site and is included in Appendix B. The Project is not proposing any earthwork fills in the Zone AE areas, and the proposed basins along the north end of the project are net cut earthwork areas. Critical electrical infrastructure is located outside of

the flood hazard areas. As currently designed, the Project will not impact the flood hazard areas and instead will provide additional storage volume for flood conditions through installation of the two drainage basins.

3.3 Water Quality

3.3.1 Groundwater

The entire Project site is classified by publicly available CTDEEP mapping as "GA" (Figure 7). Designated uses include existing private and potential public or private supplies of water suitable for drinking without treatment, and baseflow for hydraulically connected surface water bodies. See Figure 8 for the Public Water Supply Map.

Review of available CTDEEP mapping indicates that the Site is located within a mapped DEEP Aquifer Protection Area (Figure 9). The site is located in the Aquarion Water Company's Nod Road Well Field Aquifer Protection Area (APA) and regulated by both DEEP and the Simsbury Aquifer Protection Agency.

Per the CTDEEP Pre-Application meeting on September 30th, 2025, the Project is not proposing work that is a regulated activity under the APA Program. CTDEEP indicated that there are no permitting requirements from the APA Program at the state or the local level. However, disturbance of the soil in the APA requires that Best Management Practices (BMPs) for construction activities in an APA must be followed during the course of the project. CTDEEP provided Aquifer Protection Area Guidance, "BMPs for Temporary Construction Activities and Reconstruction Operations in Aquifer Protection Areas". The Applicant intends to utilize the relevant BMPs for the Project, which include items like restriction of hazardous materials storage and vehicle fueling, providing an emergency spill and response plan, providing sheet flow conditions where possible for stormwater runoff, and other applicable items.

3.3.2 Surface Water

The Project will have no adverse environmental effect on surface water quality. Based upon CTDEEP mapping, the Site is located in Major Drainage Basin 4 (Connecticut River), Regional Drainage Basin 43 (Farmington River), Subregional Drainage Basin 4300 (Farmington River) and Local Drainage Basin 4300-00. See Figure 10 for corresponding Drainage Basin Map.

CTDEEP mapping indicates that the nearest major conveyance to the Site is the Farmington River, which lies approximately 500 feet from the western project limits of the Site. DEEP classifies the Farmington River as a Class B surface waterbody.

During construction, erosion and sediment ("E&S") controls will be installed and maintained in accordance with the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control. Once operative, stormwater will be managed in accordance with the 2024 Connecticut Stormwater Quality Manual. Based on the distance of the Facility from Farmington River and use of these measures, the Project will have no effect on this surface waterbody.

3.4 Habitat Types

According to publicly available mapping and observations during field visits, the Site is comprised of primarily one habitat. The majority of the site is made up of turf grasses to support the golf course use, and includes small areas of hedgerow deciduous and coniferous forested habitat clusters in between fairways. The southwest portion of the development area is adjacent to the existing clubhouse and commercial uses and would be classified as developed.

3.5 Rare Species

3.5.1 Natural Diversity Data Base

The CTDEEP Natural Diversity Data Base ("NDDB") program performs environmental reviews to determine the impact of proposed development projects on state-listed species and to help landowners conserve the state's biodiversity. CTDEEP has also developed maps to serve as a pre-screening tool to help Petitioners determine if there is the potential for project-related impact to state-listed species.

The NDDB maps represent approximate locations of (i) endangered, threatened and special concern species and, (ii) significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by CTDEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded (or cross-hatched) polygons on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property.

A review of the June 2025 NDDB mapping depicted the project site is within a NDDB polygon associated with Farmington River. A review request was submitted to NDDB, and the Project received an NDDB Final Determination (No. 202412395) on March 6, 2025 that listed protection for state-listed amphibians, reptiles, bats, and freshwater mussels. The Project intends to adhere and implement the recommended protection strategies and buffers that are relevant to the Project and its proximity to the Farmington River. The protection strategies have been noted on the Project's site plans. The most recent NDDB map (June 2025) is included in Figure 11.

3.5.2 USFWS Consultation

The USFWS IPaC system indicated one federally listed species (the Dwarf Wedgemussel, Alasmidonta heterodon), and two species proposed for federal listing (Monarch butterfly, Danaus plexippus, and Tricolored bat, Perimyotis subflavus). As the work is proposed to occur outside of the stream utilizing sedimentation and erosion controls, and no impacts to the Dwarf Wedgemussel are anticipated. Currently, the other two species noted on the Species List are proposed to be listed, but are not formally listed as endangered or threatened. Should either species be listed prior to the completion of the project, USFWS will review the project to determine if additional protective measures for the listed species must be implemented.

3.6 Historic and Archaeological Resources

As previously mentioned, the project parcel is a mostly developed area operating as a golf course that is situated to the east of Nod Road and west of Talcott Mountain. The Farmington River runs to the west of the project parcel. At the time of the survey, the Facility area was characterized primarily as golf course with wooded areas to the east, a wooded area and residential property to the north, and residential areas along the southern end of the parcel.

A pedestrian survey (Phase 1A, Appendix C) of the Project area was completed in May of 2025. The survey revealed that the larger Project parcel is characterized by varying terrain from level to steeply sloping topography, and that the Project area itself contained with areas of manicured lawns, deciduous forest, and wetlands associated with the golf course. A large portion of the southwestern quadrant of the Project area has been previously developed and contains a restaurant, clubhouse, picnic areas, and a man-made pond. The northern part of the Project parcel contains manicured areas separated by lines of pine trees, asphalt walkways, and leveled teeing areas associated with the golf course. Disturbance from constructed mounds and sand traps related to the previous golf course are still clear on the landscape.

As part of the Pedestrian Survey, 10 sediment probes were completed throughout the project area. A typical disturbed soil profile in the project area contained two levels of Fill deposits and reached to a depth of 60 centimeters below surface (cmbs) (23.6 inches below surface [inbs]). The first Fill horizon (Fill 1) was characterized by a deposit of brown (10YR 4/3) loamy fine sand mixed with gravel; it extended to a depth of 30 cmbs (11.8 inbs). It was followed by a second Fill deposit (Fill 2), which was defined as a layer of brown (10YR 5/3) fine sandy silt with arkose. The Fill 2 layer terminated at a depth of 60 cmbs (23.6 inbs).

Of the 37.1 acres comprising the overall project area, 27.3 acres fell within wetlands, on steep slopes, in areas of previous disturbance, or displayed a disturbed sediment profile. These areas were therefore classified as retaining no/low archaeological sensitivity and thus do not require any further archaeological investigation. The combined results of the pedestrian survey and sediment probing across the project area also resulted in the identification of an area of level terrain and intact soil stratigraphy within the Project area; it was designated as Sensitivity Areas SA-1. This areas encompasses approximately 9.8 acres of level to low sloping terrain, well drained soils, and a moderate/high potential for archaeological sensitivity. It was recommended that any portion of Sensitivity Area SA-1 that will be affected by ground disturbance be subjected to a Phase IB cultural reconnaissance survey prior to construction.

The Phase 1B cultural resources reconnaissance survey was completed in July 2025 (Appendix D). A total of 83 shovel test pits were conducted, and those pits yielded 21 post-European Contact Period cultural materials. Laboratory analysis indicated a dates as early as the late 17th Century and through the mid-20th Century. The materials were generally classified as field scatter, and therefore were assessed as not eligible for listing on the National Register of Historic Places. No further cultural studies are required. The Petitioner submitted to the State Historic Preservation Office (SHPO), and on August 19th, 2025, received a letter stating that no historic properties will be affected by the project and no additional archeological investigation is warranted.

3.7 Department of Agriculture Prime Farmland

The Applicant submitted information to the Department of Agriculture (DOAG) on August 5th, 2025, and included co-use agricultural plans for the Project. The Project is proposing the use of native seed mix to support pollination throughout the array area, as well as blueberry bushes planted along the perimeter fence. A small apiary will be installed for honey production.

On October 3rd, 2025, DOAG responded with a No Material Affect Letter that concluded the co-use plan will not material affect the status of the project land as prime farmland. Refer to Appendix J.

3.8 DEEP Bureau of Natural Resources Core Forest

The Applicant reached out to the DEEP Bureau of Natural Resources on September 4th, 2025 with a figure of the Project and the adjacent Core Forestland Habitat areas to the east. Through e-mail correspondence with Chris Martin from DEEP on September 8th, 2025, it was indicated that DEEP does not anticipate a material impact to core forest from the Project. He indicated once the Project is submitted to the Connecticut Siting Council, his department would provide the No Material Affect Letter. The email correspondence has been included as Appendix K.

3.9 Scenic and Recreational Areas

The nearest known state-designated scenic road is located in Canton approximately 5.4 miles from the Project; therefore, it is not anticipated that the project will affect this scenic road.

The nearest known state park is the Talcott Mountain State Park, which abuts the eastern side of the Site. The Project does not impact the ability to access the park, but may be visible from portions of the park due to the large elevation change. The park is approximately 1,475 feet to the east of the project site, measured from the edge of proposed panels.

3.10 Lighting

There is no exterior lighting installation proposed for the Project.

3.11 FAA Determination

The Petitioner submitted the relevant Project information to the Federal Aviation Administration (FAA) for an aeronautical study to evaluate potential hazards to air navigation. Simsbury Airport (4B9) is the closest known airfield located to the Site, approximately 6 miles to the north. The Project input the location and elevations of the proposal into the FAA OE/AAA Pre-Screening Tool and was listed to not require filing a notice with the FAA. The results of the Pre-Screening Tool are included in Appendix E.

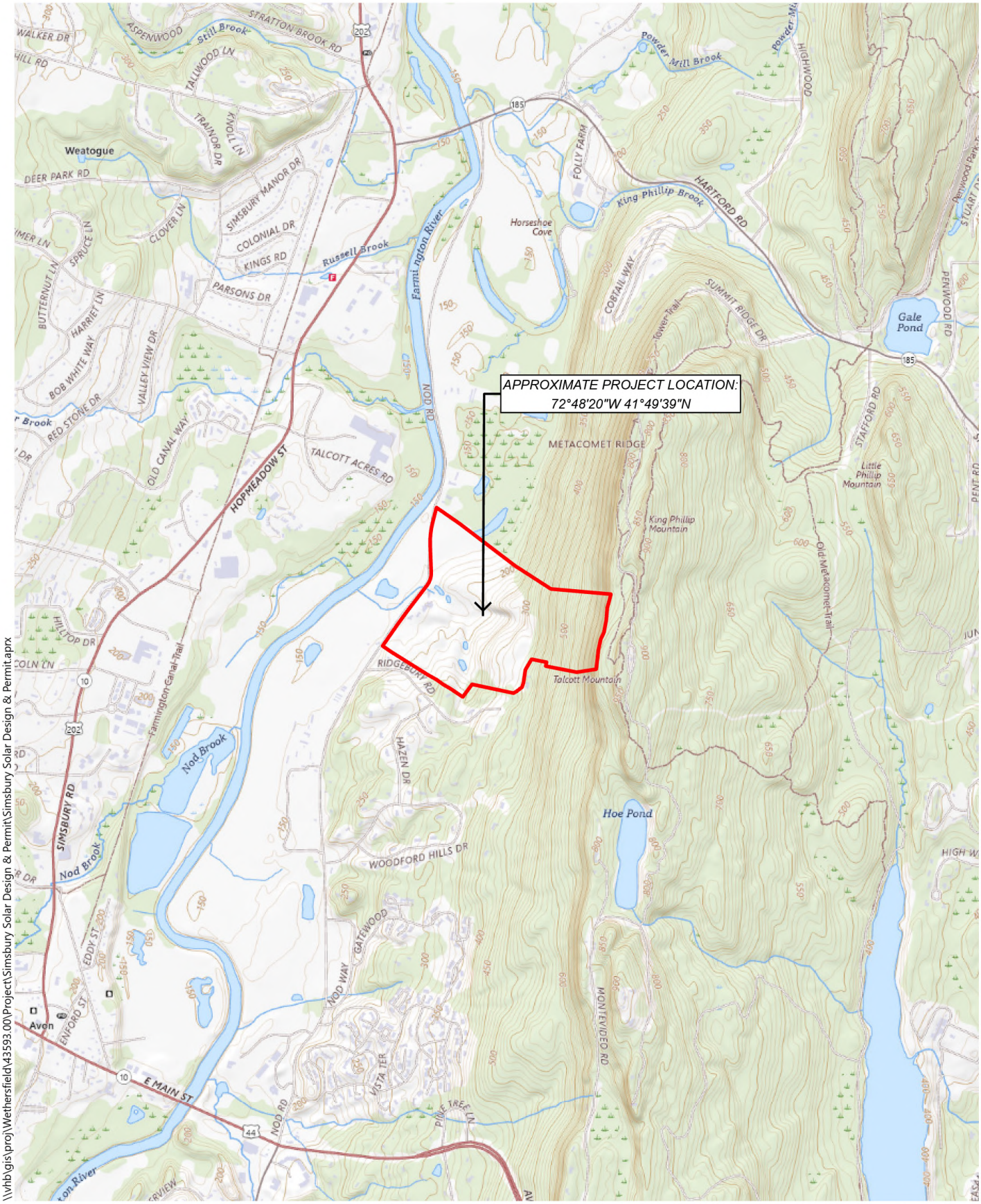
4

Conclusion

The Project will comply with CTDEEP air and water quality standards and will not have adverse effects on the existing environment and ecology. Adverse impacts to scenic, historic, and recreational resources in the vicinity of the Project are not anticipated. Once constructed and operating, the Facility will be unstaffed and generate minimal traffic.

There are no expected impacts to the delineated wetland onsite, there are no vernal pool resources affected and all work will occur outside of the 100-foot buffer area surrounding the wetlands. Proper erosion and sediment controls are proposed to be installed and maintained throughout construction. Areas of ground disturbance to soils from construction and fallow areas will be seeded with a pollinator-friendly seed mix to establish vegetated cover and will be maintained as meadow following construction completion, in accordance with coordination with the Connecticut Department of Agriculture.

FIGURE 1 USGS Site Location Map



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LSE Lynx Solar | Simsbury, Connecticut

USGS Site Location Map

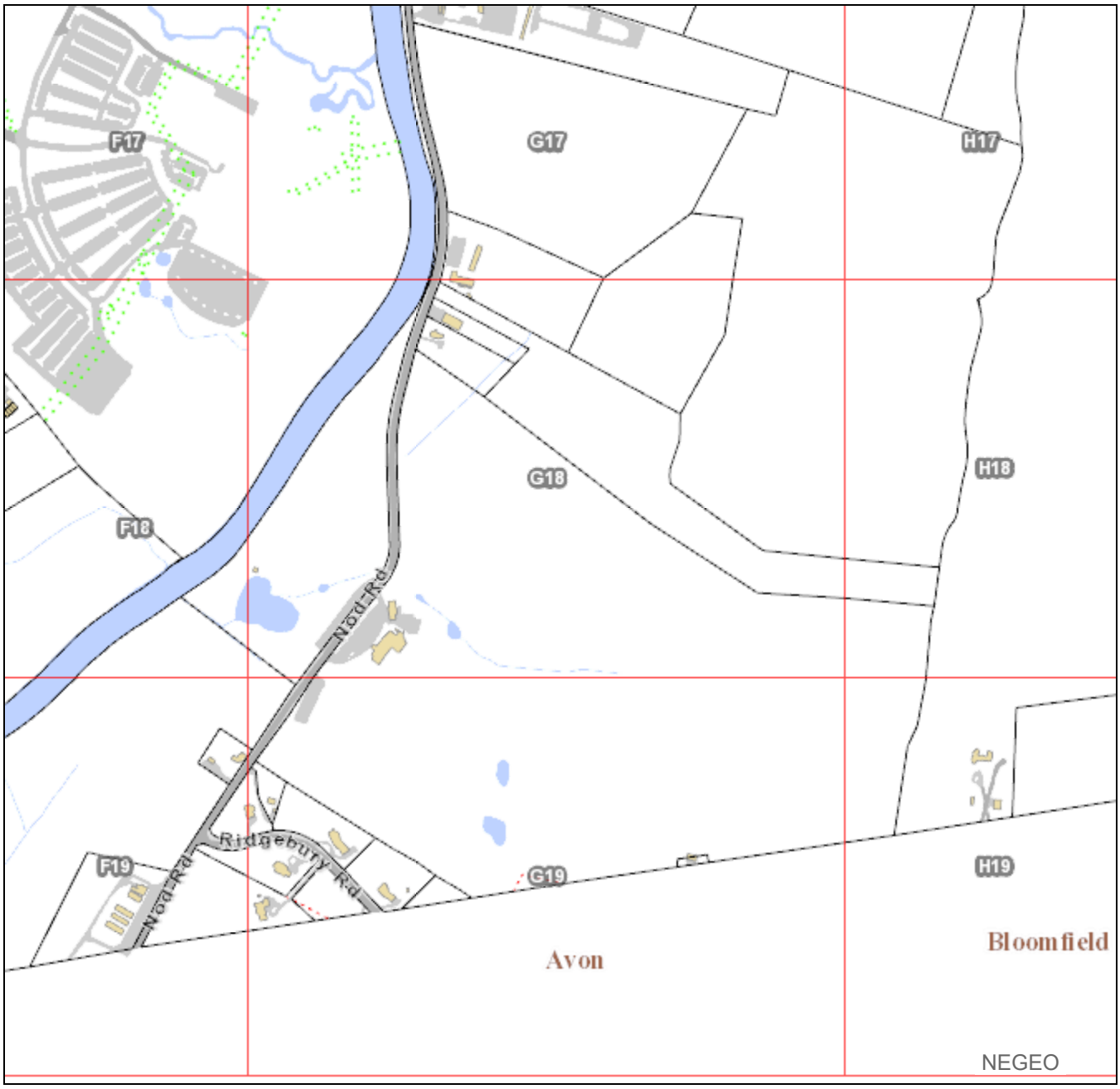
Source: VHB. USGS, ESRI

Figure 2 Tax Parcel Map

Town of Simsbury

Geographic Information System (GIS)

Date Printed: 10/7/2025



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Simsbury and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 800 feet

0 800 Feet

N W E S

Figure 3 Zoning Map

For details of Town Center Code see Separate Town Center Code Document

Legend

- Level A
- Farmington Valley Greenway
- FP Flood Plain Overlay
- AZ Apartment Zone
- HS-FBC Hartford-Simsbury Form-Based Code
- B1 Restricted Buisiness
- B2 General Business
- B3 Designed Business Development
- CZ Single Family Cluster Zone
- HOD Housing Opportunity Development
- WHOZ Workforce Housing Overlay Zone
- I1 Restricted Industrial - 10 Acres
- I2 General Industrial
- I3 Earth Excavation
- PAD Planning Area Development
- PO Professional Office
- R15 Single Family Residence - 15, 000 sq, ft
- R25 Single Family Residence - 25,000 sq. ft
- R30 Single Family Residence - 30,000 sq. ft.
- R40 Single Family Residence - 40,000 sq. ft.
- R40 OS Residential Open Space Subdivision
- R80 Single Family Residence - 2 acres
- R80OS Residential Open Space Subdivision
- R160 Rural Residence - 4 acres
- RD Designed Multiple Residence
- SC Simsbury Center Zone

N W E S

1 inch = 1,000 feet

0 500 1,000 2,000 3,000 4,000 Feet

Signed: _____

Adopted: _____

Amended: _____

_____

_____

_____

_____

Town of Simsbury

February 2025

Zoning Map

DISCLAIMER

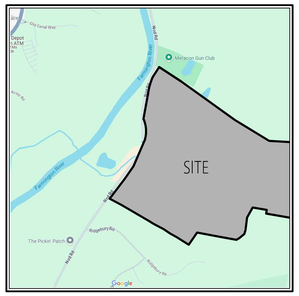
This map is for informational purposes only.
For details regarding any specific parcel or zone, consult the Simsbury Land Records and Department of Community Planning and Development official records.

PREPARED BY
THE TOWN OF SIMSBURY ENGINEERING
IN CONJUNCTION WITH:

NEGEO 20 YEARS
NEW ENGLAND GEOSYSTEMS
PROUDLY MAPPING NEW ENGLAND AND NEW YORK FOR OVER

Map Printed August 2025

Figure 4 Site Survey Map



Locus Map
127 72 6&$/(

MAP REFERENCE

1. PERIMETER SURVEY PREPARED FOR ARNOLD PALMER GOLF MANAGEMENT, LLC, TOWER RIDGE COUNTRY CLUB A/K/A TRAVELERS RIDGE GOLF COURSE, 112,140 NOD ROAD, SIMSBURY/AVON, CONNECTICUT, SCALE 1"=100', MAY 1999 PREPARED BY MESSER & ASSOCIATES, INC

General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. IN MAY, 2025 AND FROM DEEDS AND PLANS OF RECORD.
2) THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VHB, INC. IN MAY, 2025.
3) THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN WERE MAPPED PER AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD 38-22, QUALITY LEVEL(S) "D" AS SPECIFIED IN THE CONTRACT BETWEEN "THE CLIENT" AND VHB. PLEASE NOTE THAT WHILE BEST PRACTICES WERE FOLLOWED, NOT ALL UTILITIES MAY BE SHOWN AND THE ACCURACY OF UTILITY LOCATIONS CANNOT BE GUARANTEED.
4) HORIZONTAL DATUM IS BASED ON CONNECTICUT. GRID SYSTEM, NAD 1983. ELEVATIONS SHOWN ON THIS PLAN REFER TO NAVD OF 1988.
5) THE LOT LIES PARTIALLY WITHIN ZONE AE AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR HARTFORD COUNTY, CONNECTICUT, MAP NUMBER 2501TC0394E, EFFECTIVE DATE JUNE 4, 2012.
6) THE LOT LIES ENTIRELY WITHIN THE RESIDENTIAL DISTRICT (R40) :
7) THE WETLANDS SHOWN ON THIS PLAN WERE FLAGGED BY VHB ENVIRONMENTAL DEPARTMENT AND FIELD SURVEYED BY VHB IN MAY 2025
8) THE TREE SYMBOL OUTLINE SHOWN ON THIS PLAN DOES NOT REPRESENT THE ACTUAL TREE CANOPY.
8) LOCATION OF SEPTIC HOLDING TANKS AND DIRECTION TO LEACHING FIELDS OBTAINED FROM MAPPING PROVIDED BY FARMINGTON VALLEY HEALTH DEPARTMENT AN NOT FIELD LOCATED

6&$/(1)((7

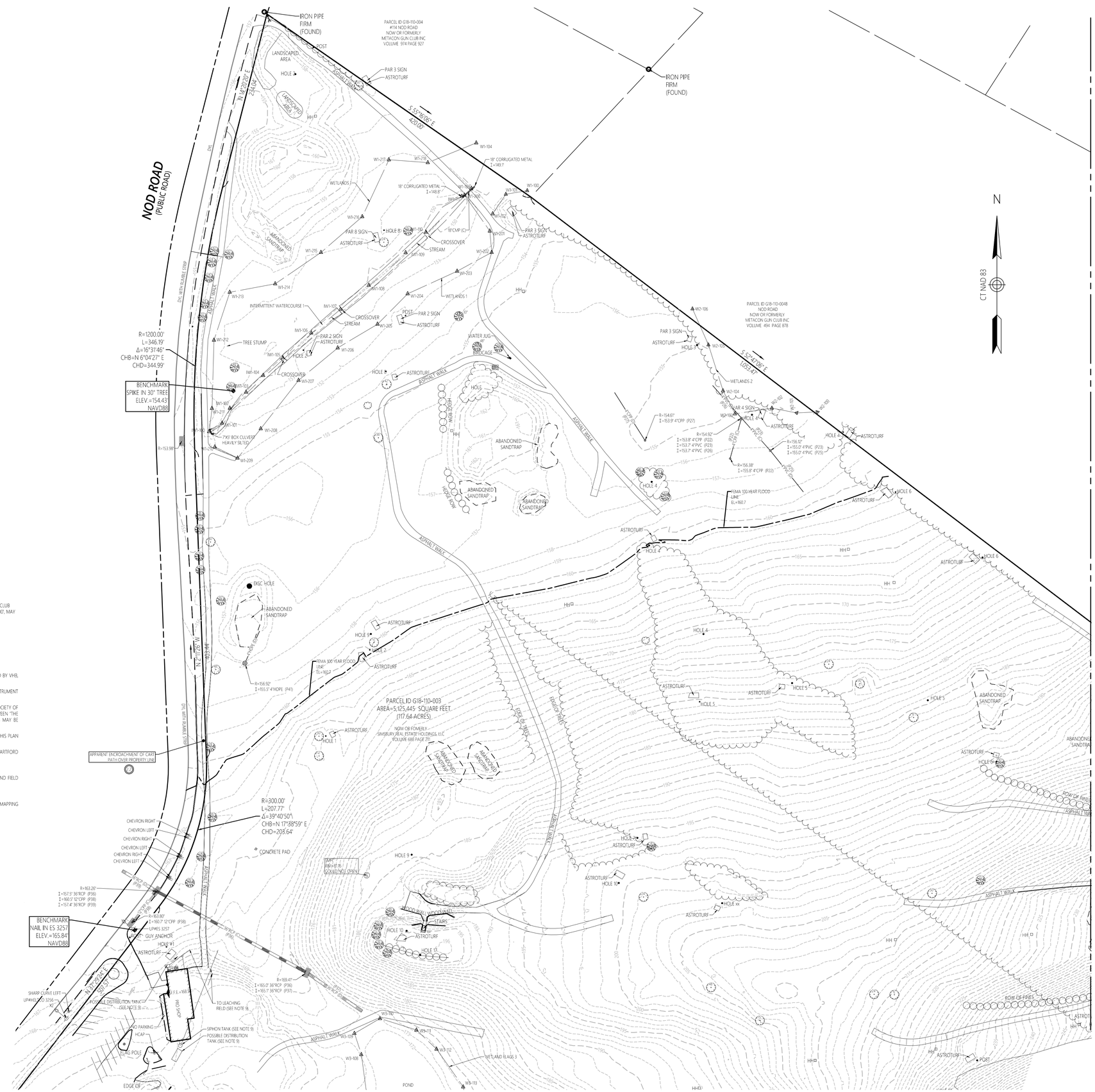
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS. JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2-5, 7(a) 8-9, 11(a), 13, 14, 16-18 AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED DURING MAY OF 2025.

THIS SURVEY AND MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. AUGUST 29, 2019.

THIS IS A PROPERTY SURVEY CONFORMING TO A HORIZONTAL CLASS A-2 ACCURACY. THE BOUNDARY DETERMINATION IS AN DEPENDENT RESURVEY. THIS IS ALSO A TOPOGRAPHIC SURVEY CONFORMING TO A CLASS T-2 AND T-3 HORIZONTAL AND VERTICAL ACCURACY.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON. THIS PLAN IS NOT VALID WITHOUT A LIVE SIGNATURE AND EMBOSSED SEAL.

CHRISTOPHER C. DANFORTH, L.S. #70118 DATE



Match Line See Sheet Sv-2

vhb.com

vhb
100 Great Meadow Road
Suite 200
Wethersfield, CT 06109
860.807.4300

Legend

- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HH HAND HOLE
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- BOLLARD w/LIGHT
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- GUY WIRE
- MONITORING WELL
- FLOOD LIGHT
- W WELL
- MARSH
- F.F.E.=45.27' FINISHED FLOOR ELEVATION
- CNO COULD NOT OPEN
- NPV NO PIPES VISIBLE
- DYL DOUBLE YELLOW LINE
- DWL DASHED WHITE LINE
- SYL SINGLE YELLOW LINE
- DECIDUOUS TREE WITH SIZE
- CONIFEROUS TREE WITH SIZE
- EOP EDGE OF PAVEMENT
- CC CONCRETE CURB
- VGC VERTICAL GRANITE CURB
- SGE SLOPED GRANITE EDGE
- BB BITUMINOUS BERM
- BC BITUMINOUS CURB
- GUARDRAIL
- CHAIN LINK FENCE
- (P51) (C) DRAINAGE LINE w/PIPE NUMBER & ASCE SUE LEVEL CLASSIFICATION
- (P41) (C) SEWER LINE w/PIPE NUMBER & ASCE SUE LEVEL CLASSIFICATION
- OHW OVERHEAD WIRE
- E UNDERGROUND ELECTRIC
- T TELEPHONE LINE
- G GAS LINE
- W WATER LINE
- STONE WALL
- TREE LINE
- 100'BZ 100-FT BUFFER ZONE
- BF1-100 LIMIT OF BANK
- WF1-100 VEGETATED WETLAND BOUNDARY

Simsbury Real Estate Holdings LLC

140 Nod Road
Simsbury, Connecticut

No.	Revision	Date	Appvd.

Designed by DFS | Checked by CCD

Issued for: ALTA/NSPS LAND TITLE SURVEY

Date: May 12, 2025

Drawing Title: Partial Property and Topographical Survey

Drawing Number: Sv-1

Sheet 1 of 2

Project Number: 45935.00

STATE OF CONNECTICUT · CHRISTOPHER C. DANFORTH · NO. 70118 · LICENSED LAND SURVEYOR

Title Notes - Lease Parcel Area

REFERENCE IS MADE TO ALTA OWNERS POLICY OF TITLE INSURANCE ISSUED BY REPUBLIC TITLE COMMITMENT - FILE NUMBER 2502426 , DATED JULY 8, 2025- SCHEDULE B

ITEM COMMENT

AS TO PARCEL "C" 140 NOD ROAD, SIMSBURY

12. COVENANTS AND RESTRICTIONS AS MORE PARTICULARLY SET FORTH IN QUIT CLAIM DEED FROM ANTHONY J. FRANSOLINE TO AVONRIDGE, INCORPORATED DATED AND RECORDED AUGUST 10, 1992 IN VOLUME 396 AT PAGE 664 OF THE SIMSBURY LAND RECORDS AND VOLUME 264 AT PAGE 668 OF THE AVON LAND RECORDS. COVENANTS AND RESTRICTIONS NOT LOCATED IN LEASE AREA.

13. RIGHTS OF ACCESS AND RIGHTS TO USE WATER FROM EXISTING WELL, INCLUDING MAINTENANCE OF EXISTING WELL, AS SET FORTH IN EASEMENT AGREEMENT BY AND BETWEEN ARNOLD PALMER GOLF MANAGEMENT, LLC AND MARK A. MURNANE, DATED NOVEMBER 20, 1998 AND RECORDED JANUARY 5, 1999 IN VOLUME 501 AT PAGE 1027 OF THE SIMSBURY LAND RECORDS . AFFECTS THE PROPERTY BUT NOT THE LEASED AREA

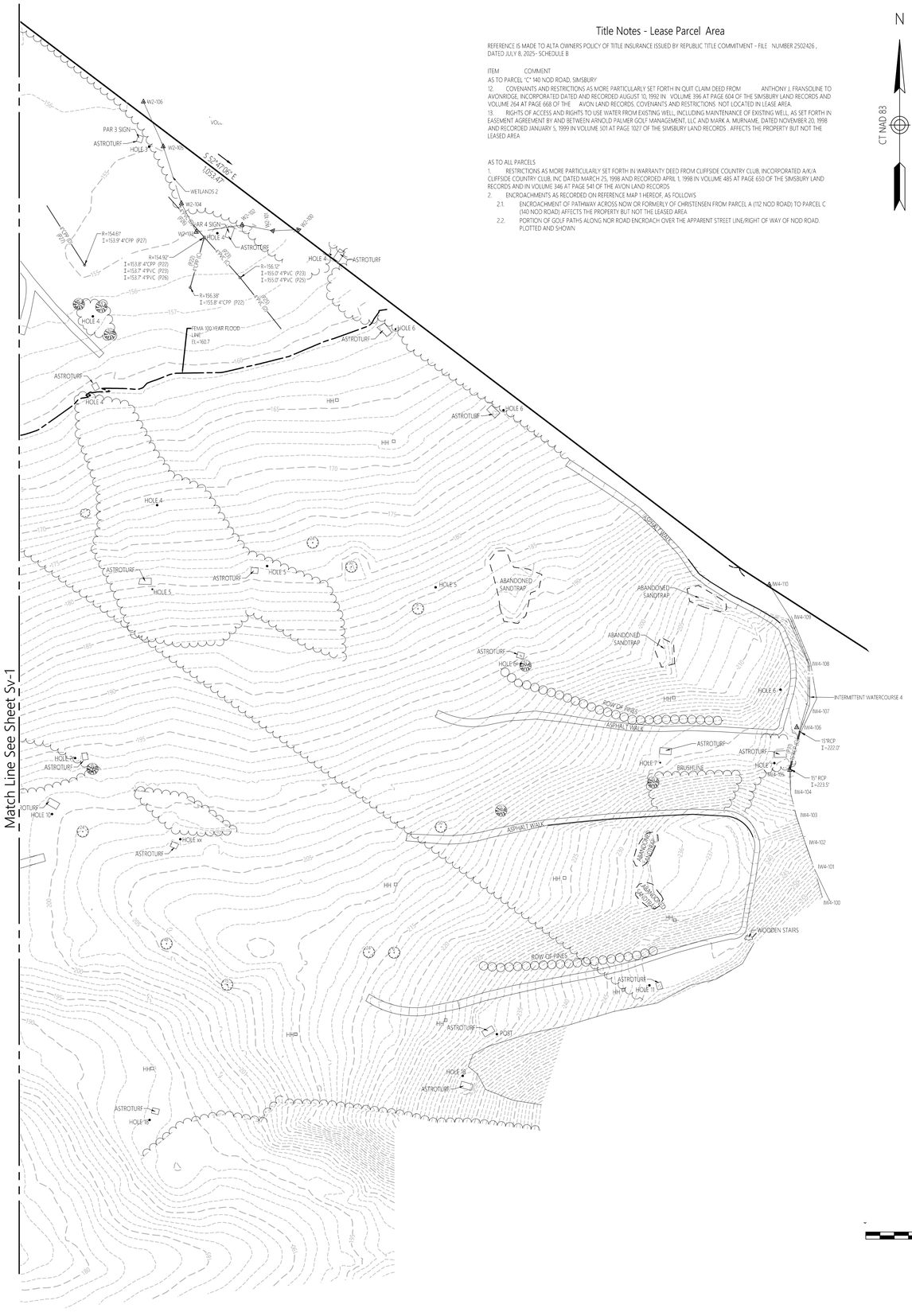
AS TO ALL PARCELS

1. RESTRICTIONS AS MORE PARTICULARLY SET FORTH IN WARRANTY DEED FROM CLIFFSIDE COUNTRY CLUB, INCORPORATED A/K/A CLIFFSIDE COUNTRY CLUB, INC. DATED MARCH 25, 1998 AND RECORDED APRIL 1, 1998 IN VOLUME 485 AT PAGE 650 OF THE SIMSBURY LAND RECORDS AND IN VOLUME 346 AT PAGE 541 OF THE AVON LAND RECORDS

2. ENCROACHMENTS AS RECORDED ON REFERENCE MAP 1 HEREOF, AS FOLLOWS

2.1. ENCROACHMENT OF PATHWAY ACROSS NOW OR FORMERLY OF CHRISTENSEN FROM PARCEL A (112 NOD ROAD) TO PARCEL C (140 NOD ROAD) AFFECTS THE PROPERTY BUT NOT THE LEASED AREA

2.2. PORTION OF GOLF PATHS ALONG NOR ROAD ENCROACH OVER THE APPARENT STREET LINE/RIGHT OF WAY OF NOD ROAD. PLOTTED AND SHOWN



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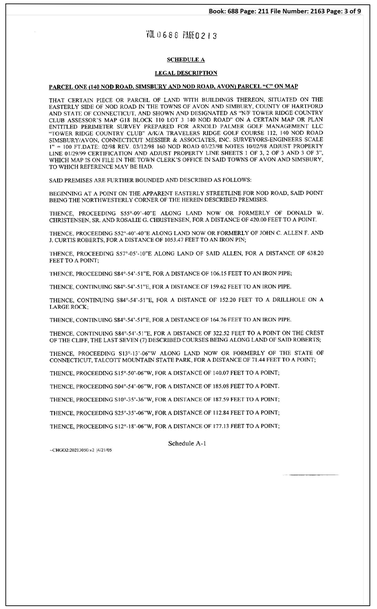
CT NAD 83

Record Property Description



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SCHEDULE A

LEGAL DESCRIPTION

PARCEL ONE (140 NOD ROAD, SIMSBURY AND NOD ROAD, AVON) PARCEL "C" ON MAP

THAT CERTAIN PIECE OR PARCEL OF LAND WITH BUILDINGS THEREON, SITUATED ON THE EASTERLY SIDE OF NOD ROAD IN THE TOWNS OF AVON AND SIMSBURY, COUNTY OF HARTFORD AND STATE OF CONNECTICUT, AND SHOWN AND DESIGNATED AS "670 TOWER RIDGE COUNTRY CLUB ASSESSOR'S MAP 62E BLOCK 100 LOT 2 - 140 NOD ROAD" ON A CERTAIN MAP OR PLAN ENTITLED PERIMETER SURVEY PREPARED FOR ARNOLD PALMER GOLF MANAGEMENT LLC "TOWER RIDGE COUNTRY CLUB" A/K/A TRAVELERS RIDGE GOLF COURSE 112, 140 NOD ROAD SIMSBURY/AVON, CONNECTICUT MESSIER & ASSOCIATES, INC. SURVEYORS-ENGINEERS SCALE 1" = 100 3'7 DATE: 02/98 REV. 03/12/98 160 NOD ROAD 05/25/98 NAVES 10/02/98 ADJUST PROPERTY LINE 01/29/99 CERTIFICATION AND ADJUST PROPERTY LINE SHEETS 1 OF 3, 2 OF 3 AND 3 OF 3", WHICH MAP IS ON FILE IN THE TOWN CLERK'S OFFICE IN SAID TOWNS OF AVON AND SIMSBURY, TO WHICH REFERENCE MAY BE HAD.

SAID PREMISES ARE FURTHER BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE APPARENT EASTERLY STREETLINE FOR NOD ROAD, SAID POINT BEING THE NORTHWESTERLY CORNER OF THE HEREIN-DESCRIBED PREMISES;

THENCE, PROCEEDING S55°-09'-40"E ALONG LAND NOW OR FORMERLY OF DONALD W. CHRISTENSEN, SR. AND ROSALIE G. CHRISTENSEN, FOR A DISTANCE OF 420.00 FEET TO A POINT;

THENCE, PROCEEDING S52°-00'-40"E ALONG LAND NOW OR FORMERLY OF JOHN C. ALLEN F. AND J. CURTIS ROBERTS, FOR A DISTANCE OF 1053.47 FEET TO AN IRON PIN;

THENCE, PROCEEDING S37°-05'-10"E ALONG LAND OF SAID ALLEN, FOR A DISTANCE OF 638.20 FEET TO A POINT;

THENCE, PROCEEDING S84°-54'-51"E, FOR A DISTANCE OF 106.15 FEET TO AN IRON PIPE;

THENCE, CONTINUING S84°-54'-51"E, FOR A DISTANCE OF 139.62 FEET TO AN IRON PIPE.

THENCE, CONTINUING S84°-54'-51"E, FOR A DISTANCE OF 152.20 FEET TO A DRILLHOLE ON A LARGE ROCK;

THENCE, CONTINUING S84°-54'-51"E, FOR A DISTANCE OF 164.76 FEET TO AN IRON PIPE.

THENCE, CONTINUING S84°-54'-51"E, FOR A DISTANCE OF 322.52 FEET TO A POINT ON THE CREST OF THE CLIFF, THE LAST SEVEN (7) DESCRIBED COURSES BEING ALONG LAND OF SAID ROBERTS;

THENCE, PROCEEDING S13°-13'-06"W ALONG LAND NOW OR FORMERLY OF THE STATE OF CONNECTICUT, TALCOTT MOUNTAIN STATE PARK, FOR A DISTANCE OF 71.44 FEET TO A POINT;

THENCE, PROCEEDING S15°-50'-06"W, FOR A DISTANCE OF 140.07 FEET TO A POINT;

THENCE, PROCEEDING S06°-54'-06"W, FOR A DISTANCE OF 185.01 FEET TO A POINT;

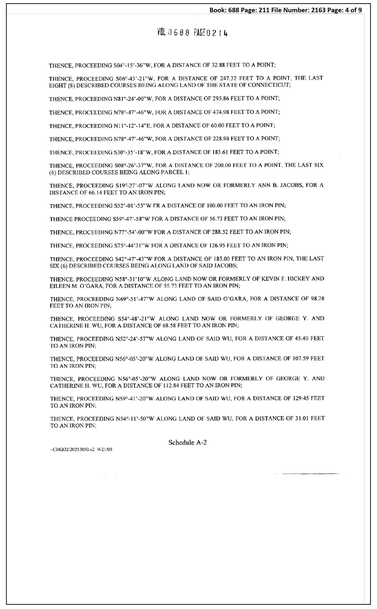
THENCE, PROCEEDING S10°-35'-36"W, FOR A DISTANCE OF 187.59 FEET TO A POINT;

THENCE, PROCEEDING S25°-35'-06"W, FOR A DISTANCE OF 112.84 FEET TO A POINT;

THENCE, PROCEEDING S12°-18'-06"W, FOR A DISTANCE OF 177.13 FEET TO A POINT;

Schedule A-1

-CHGO2:2021305-v1 3/21/05



Book: 688 Page: 211 File Number: 2163 Page: 4 of 9

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THENCE, PROCEEDING S04°-15'-36"W, FOR A DISTANCE OF 32.88 FEET TO A POINT;

THENCE, PROCEEDING S06°-41'-21"W, FOR A DISTANCE OF 247.35 FEET TO A POINT, THE LAST EIGHT (8) DESCRIBED COURSES BEING ALONG LAND OF THE STATE OF CONNECTICUT;

THENCE, PROCEEDING N81°-24'-00"W, FOR A DISTANCE OF 293.86 FEET TO A POINT;

THENCE, PROCEEDING N78°-47'-46"W, FOR A DISTANCE OF 434.58 FEET TO A POINT;

THENCE, PROCEEDING N11°-12'-14"E, FOR A DISTANCE OF 60.00 FEET TO A POINT;

THENCE, PROCEEDING N78°-47'-46"W, FOR A DISTANCE OF 228.98 FEET TO A POINT;

THENCE, PROCEEDING S30°-35'-18"W, FOR A DISTANCE OF 183.61 FEET TO A POINT;

THENCE, PROCEEDING S08°-26'-37"W, FOR A DISTANCE OF 208.00 FEET TO A POINT, THE LAST SIX (6) DESCRIBED COURSES BEING ALONG PARCEL 1;

THENCE, PROCEEDING S19°-27'-07"W ALONG LAND NOW OR FORMERLY ANN B. JACOBS, FOR A DISTANCE OF 66.14 FEET TO AN IRON PIN;

THENCE, PROCEEDING S52°-01'-53"W FR A DISTANCE OF 180.00 FEET TO AN IRON PIN;

THENCE PROCEEDING S59°-47'-18"W FOR A DISTANCE OF 56.73 FEET TO AN IRON PIN;

THENCE, PROCEEDING N77°-54'-00"W FOR A DISTANCE OF 288.52 FEET TO AN IRON PIN;

THENCE, PROCEEDING S75°-44'-11"W FOR A DISTANCE OF 136.95 FEET TO AN IRON PIN;

THENCE, PROCEEDING S42°-47'-45"W FOR A DISTANCE OF 185.00 FEET TO AN IRON PIN, THE LAST SIX (6) DESCRIBED COURSES BEING ALONG LAND OF SAID JACOBS;

THENCE, PROCEEDING N58°-31'-10"W ALONG LAND NOW OR FORMERLY OF KEVIN F. HICKEY AND EILEEN M. O'GARA, FOR A DISTANCE OF 91.75 FEET TO AN IRON PIN;

THENCE, PROCEEDING S69°-51'-47"W ALONG LAND OF SAID O'GARA, FOR A DISTANCE OF 98.28 FEET TO AN IRON PIN;

THENCE, PROCEEDING S54°-48'-21"W ALONG LAND NOW OR FORMERLY OF GEORGE Y. AND CATHERINE H. WU, FOR A DISTANCE OF 68.58 FEET TO AN IRON PIN;

THENCE, PROCEEDING N02°-24'-57"W ALONG LAND OF SAID WU, FOR A DISTANCE OF 45.40 FEET TO AN IRON PIN;

THENCE, PROCEEDING N50°-05'-20"W ALONG LAND OF SAID WU, FOR A DISTANCE OF 107.59 FEET TO AN IRON PIN;

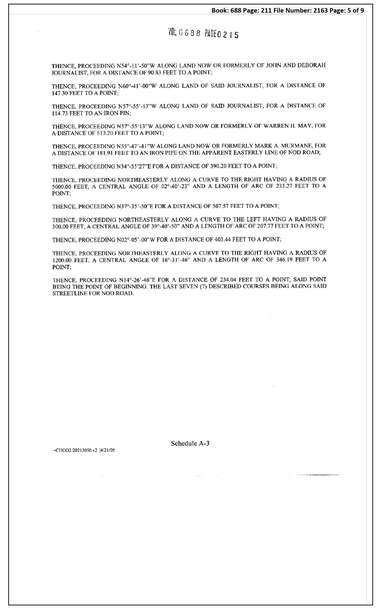
THENCE, PROCEEDING N56°-05'-20"W ALONG LAND NOW OR FORMERLY OF GEORGE Y. AND CATHERINE H. WU, FOR A DISTANCE OF 112.84 FEET TO AN IRON PIN;

THENCE, PROCEEDING N59°-41'-20"W ALONG LAND OF SAID WU, FOR A DISTANCE OF 129.45 FEET TO AN IRON PIN;

THENCE, PROCEEDING N54°-11'-50"W ALONG LAND OF SAID WU, FOR A DISTANCE OF 31.01 FEET TO AN IRON PIN;

Schedule A-2

-CHGO2:2021305-v2 3/21/05



Book: 688 Page: 211 File Number: 2163 Page: 5 of 9

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THENCE, PROCEEDING N58°-11'-50"W ALONG LAND NOW OR FORMERLY OF JOHN AND DEBORAH JOURNALIST, FOR A DISTANCE OF 90.83 FEET TO A POINT;

THENCE, PROCEEDING N60°-41'-00"W ALONG LAND OF SAID JOURNALIST, FOR A DISTANCE OF 147.30 FEET TO A POINT;

THENCE, PROCEEDING N37°-55'-13"W ALONG LAND OF SAID JOURNALIST, FOR A DISTANCE OF 114.73 FEET TO AN IRON PIN;

THENCE, PROCEEDING N37°-55'13"W ALONG LAND NOW OR FORMERLY OF WARREN H. MAY, FOR A DISTANCE OF 513.20 FEET TO A POINT;

THENCE, PROCEEDING N35°-47'-41"W ALONG LAND NOW OR FORMERLY MARK A. MURMANE, FOR A DISTANCE OF 181.91 FEET TO AN IRON PIPE ON THE APPARENT EASTERLY LINE OF NOD ROAD;

THENCE, PROCEEDING N34°-55'27"E FOR A DISTANCE OF 390.20 FEET TO A POINT;

THENCE, PROCEEDING NORTHEASTERLY ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 5000.00 FEET, A CENTRAL ANGLE OF 02°-40'-23" AND A LENGTH OF ARC OF 233.27 FEET TO A POINT;

THENCE, PROCEEDING N37°-35'-50"E FOR A DISTANCE OF 507.57 FEET TO A POINT;

THENCE, PROCEEDING NORTHEASTERLY ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 500.00 FEET, A CENTRAL ANGLE OF 59°-40'-50" AND A LENGTH OF ARC OF 357.77 FEET TO A POINT;

THENCE, PROCEEDING N02°-05'-00"W FOR A DISTANCE OF 403.44 FEET TO A POINT;

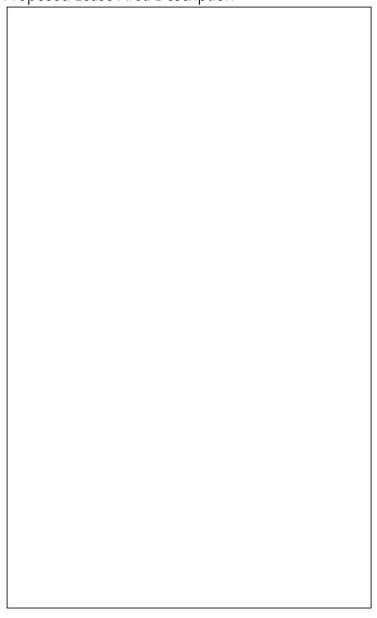
THENCE, PROCEEDING NORTHWESTERLY ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 1200.00 FEET, A CENTRAL ANGLE OF 16°-31'-46" AND A LENGTH OF ARC OF 346.19 FEET TO A POINT;

THENCE, PROCEEDING N14°-26'-46"E FOR A DISTANCE OF 234.04 FEET TO A POINT, SAID POINT BEING THE POINT OF BEGINNING. THE LAST SEVEN (7) DESCRIBED COURSES BEING ALONG SAID STREETLINE FOR NOD ROAD.

Schedule A-3

-CHGO2:2021305-v2 3/21/05

Proposed Lease Area Description



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100 Great Meadow Road
Suite 200
Wethersfield, CT 06109
860.807.4300

Legend

- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HH HAND HOLE
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- BOLLARD w/LIGHT
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- GUY WIRE
- MONITORING WELL
- FLOOD LIGHT
- W WELL
- MARSH
- F.F.E.=45.27' FINISHED FLOOR ELEVATION
- CNO COULD NOT OPEN
- NPV NO PIPES VISIBLE
- DYL DOUBLE YELLOW LINE
- DWL DASHED WHITE LINE
- SYL SINGLE YELLOW LINE
- DECIDUOUS TREE WITH SIZE
- CONIFEROUS TREE WITH SIZE
- EOP EDGE OF PAVEMENT
- CC CONCRETE CURB
- BB BITUMINOUS BERM
- BC BITUMINOUS CURB
- GUARDRAIL
- CHAIN LINK FENCE
- (DS1) (C) DRAINAGE LINE w/PIPE NUMBER & ASCE SUE LEVEL CLASSIFICATION
- (FM1) (C) SEWER LINE w/PIPE NUMBER & ASCE SUE LEVEL CLASSIFICATION
- OHW OVERHEAD WIRE
- E UNDERGROUND ELECTRIC
- T TELEPHONE LINE
- G GAS LINE
- W WATER LINE
- STONE WALL
- TREE LINE
- 100'BZ 100-FT BUFFER ZONE
- BF1-100 LIMIT OF BANK
- WF1-100 VEGETATED WETLAND BOUNDARY

Simsbury Real Estate Holdings LLC

140 Nob Road
Simsbury, Connecticut

No.	Revision	Date	Appvd.

Designed by DFS | Checked by CCD

Issued for: ALTA/NSPS LAND TITLE SURVEY

Date: May 12, 2025

Drawing Title

Partial Property and Topographical Survey

Drawing Number

Sv-2

Sheet 2 of 2

Project Number
45935.00

Figure 5 Aerial Proposed Plan

\\vhb.com\gbl\proj\Wethersfield\43593.00\05_Work\cad\d\Planmisc\LM-Aerial\43593.00-LM_recover.dwg

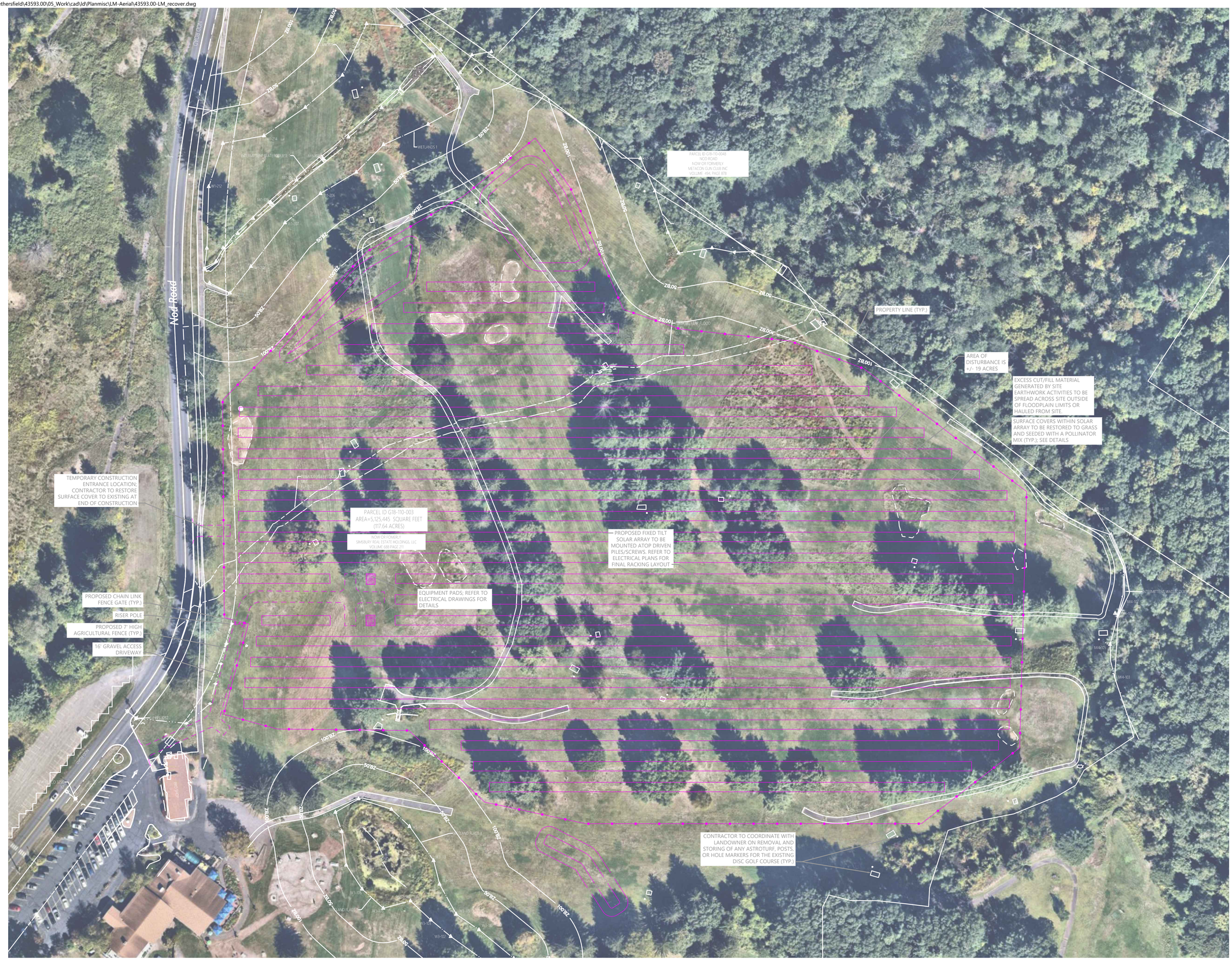

Nod Road
TEMPORARY CONSTRUCTION ENTRANCE LOCATION; CONTRACTOR TO RESTORE SURFACE COVER TO EXISTING AT END OF CONSTRUCTION
PROPOSED CHAIN LINK FENCE GATE (TYP.)
RISER POLE
PROPOSED 7' HIGH AGRICULTURAL FENCE (TYP.)
16' GRAVEL ACCESS DRIVEWAY
PARCEL ID G18-110-003
AREA=5,325,445 SQUARE FEET (117.64 ACRES)
NOW OR FORMERLY SIMSBURY REAL ESTATE HOLDINGS, LLC VOLUME: 688 PAGE 215
PARCEL ID G18-110-004/5
NOD ROAD
NOW OR FORMERLY METACON GUN CLUB INC
VOLUME: 494, PAGE 878
PROPERTY LINE (TYP.)
PROPOSED FIXED TILT SOLAR ARRAY TO BE MOUNTED ATOP DRIVEN PILES/SCREWS. REFER TO ELECTRICAL PLANS FOR FINAL RACKING LAYOUT
EQUIPMENT PADS; REFER TO ELECTRICAL DRAWINGS FOR DETAILS
CONTRACTOR TO COORDINATE WITH LANDOWNER ON REMOVAL AND STORING OF ANY ASTROTURF, POSTS, OR HOLE MARKERS FOR THE EXISTING DISC GOLF COURSE (TYP.)
AREA OF DISTURBANCE IS +/- 19 ACRES
EXCESS CUT/FILL MATERIAL GENERATED BY SITE EARTHWORK ACTIVITIES TO BE SPREAD ACROSS SITE OUTSIDE OF FLOODPLAIN LIMITS OR HAULED FROM SITE.
SURFACE COVERS WITHIN SOLAR ARRAY TO BE RESTORED TO GRASS AND SEEDED WITH A POLLINATOR MIX (TYP.); SEE DETAILS
WETLANDS 1
INTERMITTENT WATERCOURSE
INTERMITTENT WATERCOURSE
EXISTING TREE LINE (TYP.)
EXISTING TREE LINE (TYP.)
EXISTING TREE LINE (TYP.)

Figure 6 Wetland Delineation Figure

WETLAND SKETCH PREPARED FOR LSE LYNX LLC

140 NOD ROAD – SIMSBURY

MBL G18-110-003

Disclaimer: This map is for planning purposes only. Verification of its accuracy, currency and completeness is the responsibility of the reader's own independent research. All inland wetland and watercourse boundaries are subject to refinement once traditionally field located by a Licensed Land Surveyor and formally adopted by the Town. Ian Cole LLC shall not be held liable for any loss, damages or claims made in relation to anyone referring to this map.

Figure 7 Groundwater Classification Map

WATER QUALITY CLASSIFICATIONS
SIMSBURY, CT

SURFACE WATER QUALITY CLASSES

A	A
AA	AA
B, B*	B, B*
SA	SA
SB	SB

NOTES:
Surface Water Classifications beginning with S refer to Coastal and Marine Surface Water.
B* is a subset of Class B where no direct wastewater discharges are allowed other than those consistent with Class AA, A and SA surface waters.

GROUND WATER QUALITY CLASSES

GA (white background)

GAA, GAAs

GA, GAA may not meet current standards

GB

GC

Area of Contribution to Public Supply Well

Final Aquifer Protection Area (Level A)

Major Basin Boundary

EXPLANATION

WATER QUALITY CLASSIFICATIONS (WQC) MAPS are one of the elements of the Water Quality Standards (WQS) for the State of Connecticut. The WQS are a part of Connecticut's clean water program and are essential for protecting and improving water quality. The WQS follow the principles of Connecticut's Clean Water Act which is in Chapter 446K of the Connecticut General Statutes. The WQS provide policy guidance in many areas, for example decisions on acceptable discharges to water resources, siting of landfills, remediation or prioritization of municipal sewerage system projects. The first two elements of the WQS are the Standards, which set an overall policy for management of water quality, and the Criteria, which are descriptive and numerical standards that describe the allowable parameters and goals for various water quality classifications. A discussion of these two elements is found in the Water Quality Standards document available on the CT DEEP website. The third element is the Classifications and the Water Quality Classification Maps which show the Classification assigned to each surface and groundwater resource throughout the State. The WQS are adopted using a public participation process. The WQC maps are also adopted using a public participation process but go through hearings separately from the Standards and Criteria hearings. Revision and adoption of the WQC data occurs in accordance with the public participation procedures contained in Section 22a-426 of the Connecticut General Statutes. Ground WQC is subject to Connecticut regulation and changes must be reviewed and adopted. All changes to the Surface WQC require an adoption process which is subject to federal review and approval in addition to CT regulation. The adoption dates for the WQC by major drainage basin are: Housatonic River, Hudson River and Southwest Coastal Basins - March 1999; Connecticut River and South Central Coastal Basins - February 1993; Thames River, Pawcatuck River and Southeast Coastal Basins - December 1986. Surface Water Classifications do not change after the adoption date until the next major revision. Ground Water Classifications may change after the adoption date under specific circumstances. The map may have more than one WQC adoption date because a town may be in more than one major drainage basin.

SURFACE WATERS in Connecticut are divided into freshwater classified as AA, A, B or B* and saline waters classified as SA or SB. Class AA designated uses are existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture. Class A designated uses are habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture. Class SA designated uses are habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption; recreation; industrial water supply; and navigation. Class B designated uses are habitat for fish and aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply. Class B*, applicable to Candlewood Lake, is a subset of Class B and is identical in all ways to the designated uses, criteria and standards for Class B waters except for the restriction on direct discharges. Class SB designated uses are habitat for marine fish and aquatic life and wildlife; commercial shellfish harvesting; recreation; industrial water supply; and navigation.

Surface waters which are not specifically classified shall be considered as Class A or Class AA. Surface waters in GA ground water areas are assumed Class A or Class SA unless otherwise indicated. Surface waters in GAA ground water areas are assumed Class AA unless otherwise indicated.

On the WQC map a surface water quality goal of A is represented by blue colored water bodies. Surface water quality goal of AA is represented by purple colored water bodies. Surface water quality goal of B is represented by gold colored water bodies.

GROUND WATERS in Connecticut are classified as GAA, GA, GB and GC. Class GAA designated uses are existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. The Class GAAs is a subclass of GAA for ground water that is tributary to a public water supply reservoir. The area of contribution to a public water supply well is represented by a 500-foot radius around the well and is assumed to be Class GAA unless otherwise classified. Class GA designated uses are existing private and potential public or private supplies of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. All ground waters not specifically classified are considered as Class GA. Class GB designated uses are industrial process water and cooling waters and baseflow for hydraulically-connected water bodies and is presumed not suitable for human consumption without treatment. Class GC designated uses are assimilation of discharges authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes.

On the WQC map GA is represented by white colored land areas. Class GAA and class GAAs are represented by blue colored land areas. The area of contribution to a public water supply well is shown by a blue cross-hatch overprint. A notation of GAA followed by a state abbreviation indicates a watershed that contributes to the public water supply for a state other than Connecticut. Class GA or Class GAA areas that currently may not be meeting the GA or GAA standards are represented on the WQC maps by tan colored land areas. Class GB is represented by green colored land areas. Class GC is represented by magenta colored land areas.

FINAL AQUIFER PROTECTION AREAS (Level A) are included on the WQC maps for informational purposes. These areas are anticipated to be reclassified GAA during the next major basin updates, subject to public participation. The Aquifer Protection Program helps protect Connecticut's public drinking water resources by delineating aquifer protection areas (also called wellhead protection areas) for public supply wells and establishing land use regulations within these areas. These areas represent the land area contributing ground water to active public water supply wells or well fields that serve more than 1000 people and are set in sand and gravel aquifers (stratified drift deposits).

DATA SOURCES

WATER QUALITY CLASSIFICATIONS DATA – Water quality classifications shown on this map are based on information from the following digital spatial datasets that are typically shown together – Ground Water Quality Classifications Poly, Surface Water Quality Classifications Line, and Surface Water Quality Classifications Poly. The map legend above reflects the content of these three data sources. These WQC data were initially compiled on 1:24,000-scale 7.5 minute USGS topographic quadrangle maps and later digitized at 1:24,000 scale. For example, the Surface Water Quality Classifications Line and Surface Water Quality Classifications Poly digital data assigns surface water quality classifications to water bodies such as rivers, streams, reservoirs, lakes, ponds and coves found in 1:24,000-scale hydrography data available from CT DEEP. The hydrography may not include all the waterbodies in Connecticut. The Ground Water Quality Classifications Poly data assigns ground water quality classifications, at 1:24,000 scale, to the remaining land areas in Connecticut.

AQUIFER PROTECTION AREA DATA – Aquifer Protection Areas shown on this map are from the Aquifer Protection Area digital dataset which contains polygon data intended to be used at 1:24,000 scale. The dataset contains regulated areas classified as Level A Aquifer Protection Area (Final) and Level B Aquifer Protection Area (Preliminary). The Level B areas are not shown on the WQC maps. The data was collected from 1991 to the present and is actively updated as Final area mapping replaces earlier Preliminary areas. The Aquifer Protection Areas are delineated by the individual water companies owning the well fields and submitted to the CT DEEP for approval. Preliminary mapping provides a general estimate of the area contributing ground water to the well field. Final mapping is based on extensive, site-specific, detailed modeling of the ground water flow system. CT DEEP may adjust Final area boundaries to be consistent with 1:24,000 scale topography and base map data where appropriate during the approval process.

MAJOR DRAINAGE BASIN DATA – Major drainage basins shown on this map are from Major Basin Line data developed by CT DEEP and intended to be used at 1:24,000 scale.

BASE MAP DATA - Based on data originally from 1:24,000-scale USGS 7.5 minute topographic quadrangle maps published between 1969 and 1992. It includes political boundaries, railroads, airports, hydrography, geographic names and geographic places. Streets and street names are from Tele Atlas® copyrighted data. Base map information is neither current nor complete.

RELATED INFORMATION
This map is intended to be printed at its original dimensions in order to maintain the 1:24,000 scale (1 inch = 2000 feet).
WATER QUALITY STANDARDS - Go to the CT DEEP website for a summary and the full text of the "Water Quality Standards" and for other information on water quality.
AQUIFER PROTECTION AREAS - Go to the CT DEEP website for more information.

ADOPTED DATES

Water Quality Standards
February 25, 2011

Thames River, Pawcatuck River and Southeast Coastal Basins: December 1986

Connecticut River and South Central Coastal Basins: February 1993

Housatonic River, Hudson River and Southwest Coastal Basins: March 1999

MAJOR BASINS

1 Pawcatuck
2 Southeast Coast
3 Thames
4 Connecticut
5 South Central Coast
6 Housatonic
7 Southwest Coast
8 Hudson

MAP LOCATION

State Plane Coordinate System of 1983, Zone 3526
Lambert Conformal Conic Projection
North American Datum of 1983

SCALE 1:24,000 (1 inch = 2000 feet) when map is printed at original size

STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Map created by CT DEEP
October 2018

Map is not colorfast
Protect from light and moisture

Approx. Site Location

SUFFIELD
GRANBY
EAST GRANBY
WINDSOR LOCKS
BARKHAMSTED
WINDSOR
SIMSBURY
CANTON
BLOOMFIELD
NEW HARTFORD
AVON
WEST HARTFORD
HARTFORD
BURLINGTON
FARMINGTON

Figure 8 Public Water Supply Map

Public Water Supply Map

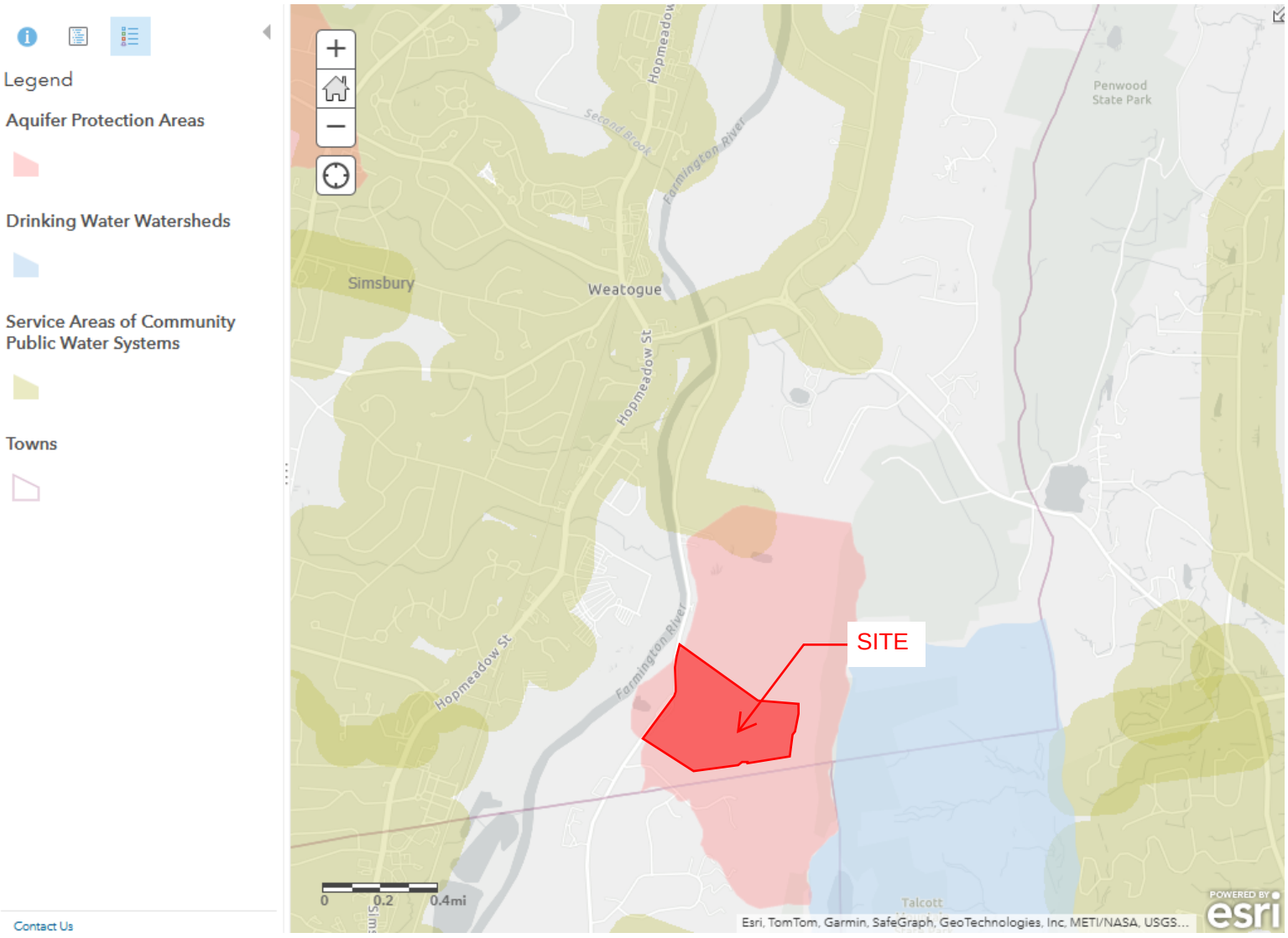


Figure 9 Aquifer Protection Area Map

AQUIFER PROTECTION AREAS

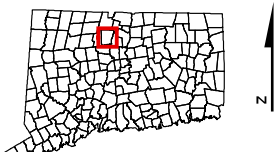
Simsbury, CT

December 23, 2021

- Level A APA (Final Adopted)
- Level A APA (Final)
- Level B APA (Preliminary)
- Town Boundary

NOTE: The Aquifer Protection Areas were delineated through Connecitcut's Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it replaces the Level B Mapping. Final Adopted Level A Areas are those where towns have land use regulations for them. Masschusetts and Rhode Island Wellhead Protection Areas may be shown for informational purposes.

QUESTIONS:
Bureau of Water Protection and Land Reuse
Planning and Standards Division
Phone: (860) 424-3020
www.ct.gov/deep/aquiferprotection



STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

A 131
Tariffville
11/21/2013

A 145
Hoskins
07/15/2011

A 138
Stratten Brook
07/15/2011

A 137
Nod Road
07/15/2011

A 137
Nod Road
04/01/2010

A 5
Well 5
09/01/2010

A 5
Well 5
06/30/2008

A 5
Well 5
08/21/2006

A 146
Meadow Ridge
08/21/2006

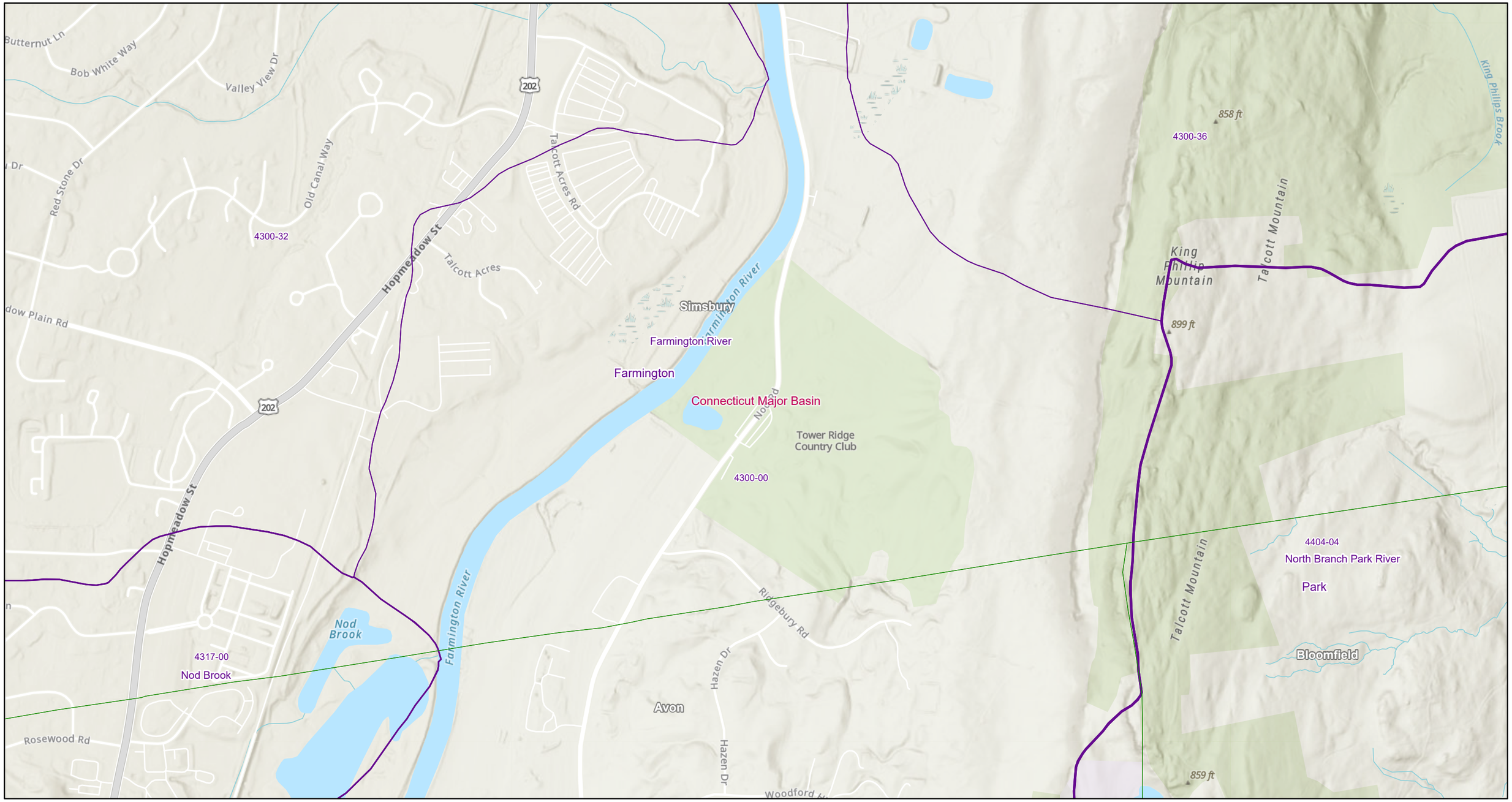
A 3
Well 2
06/01/2007

Simsbury
Canton
Avon
Bloomfield

179
309
10
315
189
187
167
202
185
178
44
177
218

Figure 10 Drainage Basin Map

CT ECO Map



9/16/2025, 11:36:22 AM

1:12,798

- CT Municipalities
- DEEP Major Drainage Basins
- DEEP Regional Drainage Basin
- DEEP Subregional Drainage Basin
- DEEP Local Drainage Basin
- World_Hillshade

0 500 1,000 2,000 ft

0 195 390 780 m

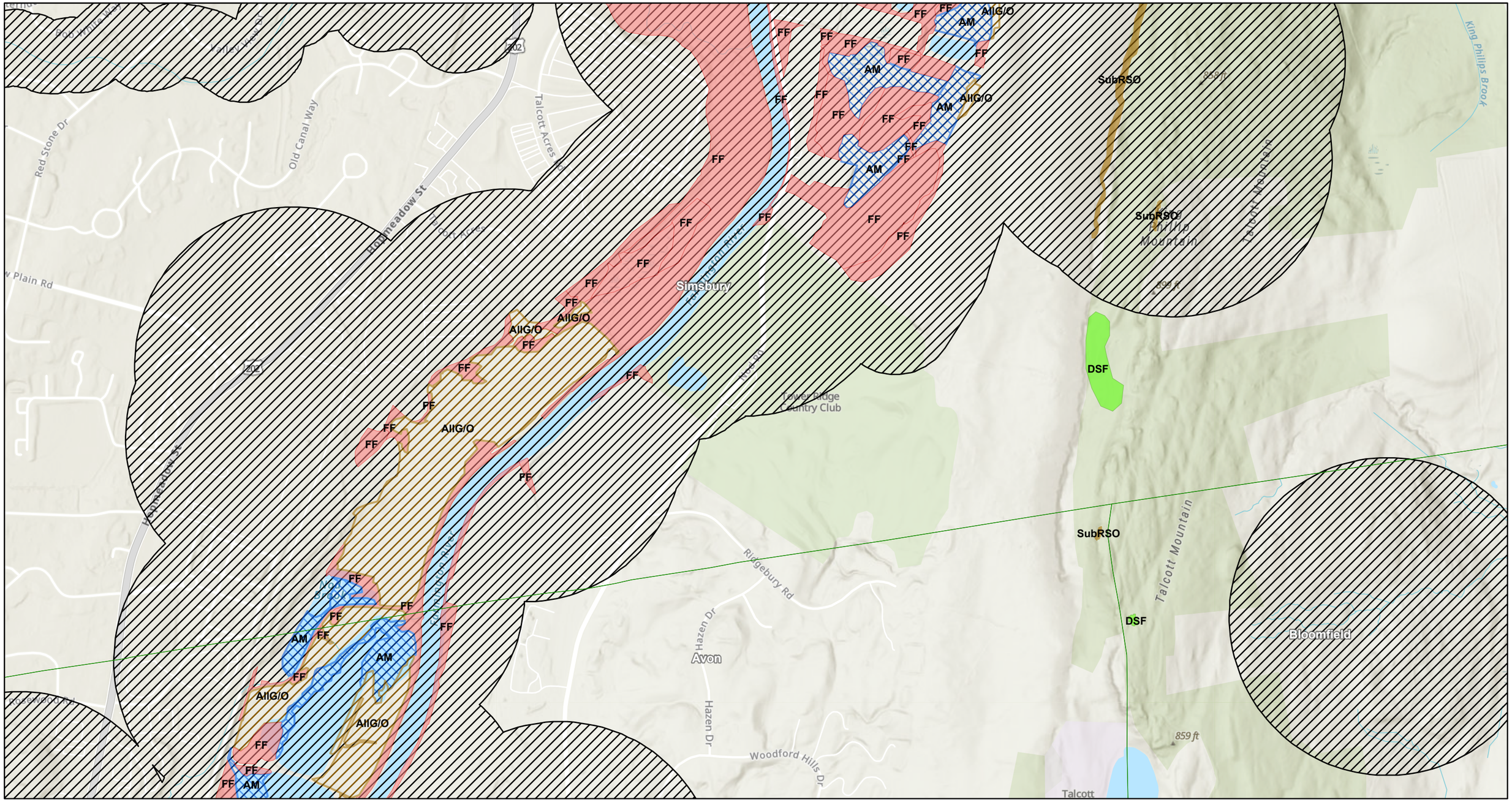
Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Map created with the CT ECO Advanced Viewer. Visit CT ECO at

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

Figure 11 NDDB Figure

CT ECO Map



9/16/2025, 1:33:13 PM

1:12,798

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

CT Municipalities

Critical Habitats

Floodplain Forest

Alluvial Marsh

Dry Subacidic Forest

Alluvial Grassland/Outcrop

Subacidic Rocky Summit Outcrop

Natural Diversity Area

World_Hillshade

Esri, NASA, NGA, USGS, FEMA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Map created with the CT ECO Advanced Viewer. Visit CT ECO at

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

Figure 12 Core Forest Map

\\vhbgis\proj\Wethersfield\43593.00\Project\Simsbury Solar Design & Permit\Simsbury Solar Design & Permit.aprx

0 200 400 800 Feet

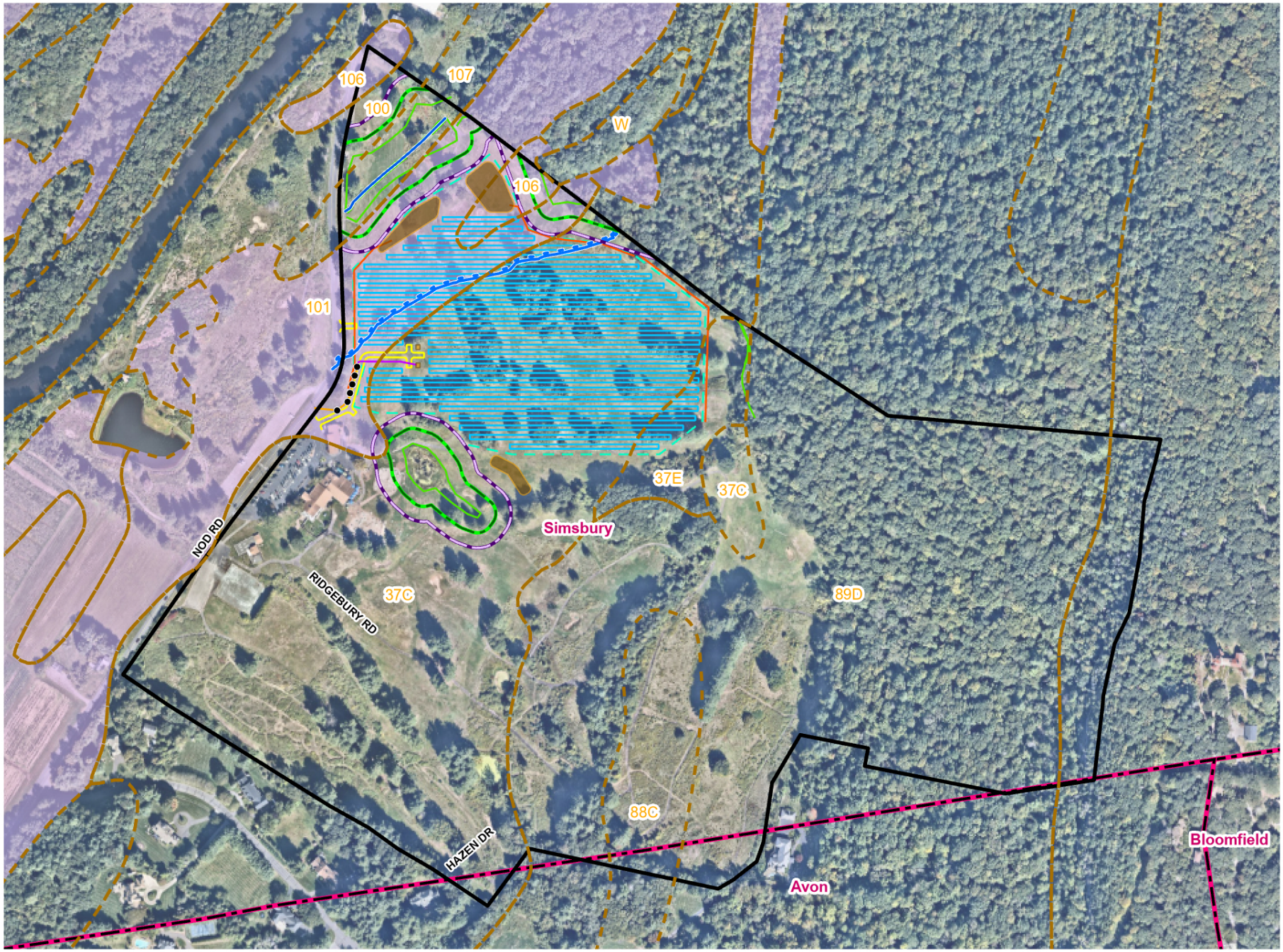
Property Boundary
Fence
Edge of Contiguous Core Forestland
Forestland Habitat
Town Boundary

LSE Lynx Solar | Simsbury, Connecticut

CT Forestland Habitat Figure

Source: VHB. CTDEEP, ESRI

Figure 13 DoAG Map



\\vhb.com\gis\proj\Wethersfield\43593.00\Project\Simsbury Solar Design & Permit\Simsbury Solar Design & Permit.aprx

0 200 400 800 Feet

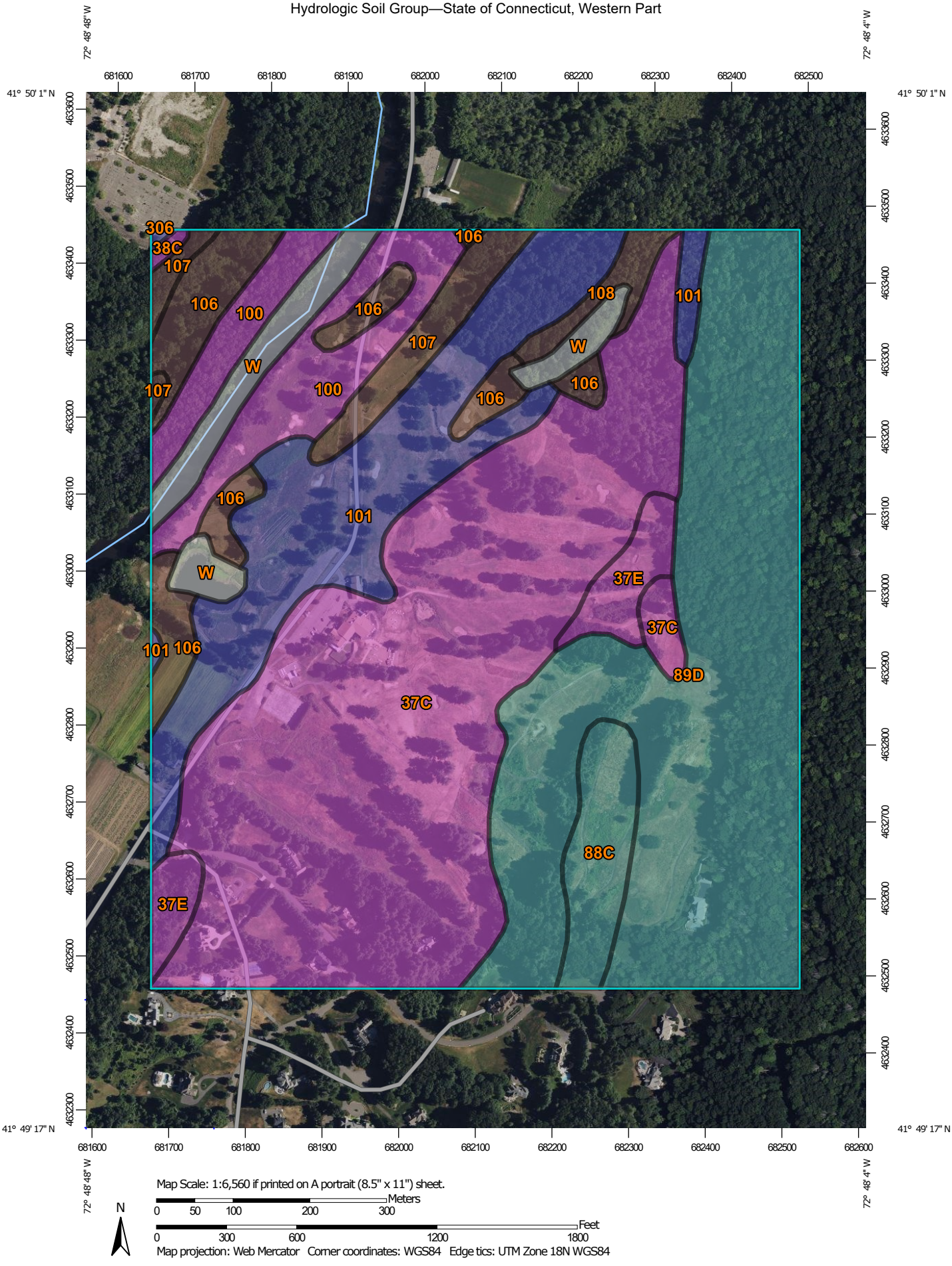
Pole
Fence
Gravel Road
Solar Panels
Swale
Underground Electric
Aboveground Electric
FEMA 100-year Flood Zone
50' Wetland Buffer
100' Wetland Buffer
Wetland Edge
Property Boundary
Delineated Stream
Basin
Equipment Pad
Prime Farmland
NRCS Soils Boundary
Town Boundary

LSE Lynx Solar | Simsbury, Connecticut

Farmland Soils Figure

Source: VHB. CTDEEP, ESRI

Figure 14 NRCS Soils Map


72° 48' 48" W
72° 48' 4" W
41° 50' 1" N
41° 49' 17" N
681600
681700
681800
681900
682000
682100
682200
682300
682400
682500
682600
4633600
4633500
4633400
4633300
4633200
4633100
4633000
4632900
4632800
4632700
4632600
4632500
4632400
4632300
306
38C
107
106
100
W
101
108
37E
37C
89D
88C
Map Scale: 1:6,560 if printed on A portrait (8.5" x 11") sheet.
Meters
0 50 100 200 300
Feet
0 300 600 1200 1800
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 2, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	A	71.7	34.7%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	A	5.2	2.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	0.3	0.1%
88C	Wethersfield loam, 8 to 15 percent slopes, very stony	C	6.3	3.0%
89D	Wethersfield loam, 15 to 35 percent slopes, extremely stony	C	56.6	27.4%
100	Suncook loamy fine sand	A	14.0	6.7%
101	Occum fine sandy loam	B	26.4	12.8%
106	Winooski silt loam	B/D	10.9	5.3%
107	Limerick and Lim soils, 0 to 3 percent slopes, frequently flooded	B/D	5.6	2.7%
108	Saco silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded	B/D	2.2	1.1%
306	Udorthents-Urban land complex	B	0.1	0.1%
W	Water		7.6	3.7%
Totals for Area of Interest			**206.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix A Wetlands Report & Verification Memo

Memorandum

To: LSE Lynx LLC
40 Tower Lane, Suite 201
Avon, CT 06001

Date: May 13, 2025

Project #: 43593.00

From: Sara Berryman, PWS, CSS
Alyssa Masi and Amy Vaillancourt, LEP

Re: Wetland Delineation Verification Memo
LSE Lynx LLC
140 Nod Road, Simsbury, Connecticut

Introduction

Vanasse Hangen Brustlin, Inc (VHB) prepared this Wetland Delineation Verification Memorandum on behalf of LSE Lynx LLC (the Client). A wetland delineation was conducted by Ian Cole, LLC, in November 2023 at 140 Nod Road in Simsbury, Connecticut (the Project Site). The delineation identified three wetlands and two intermittent streams. VHB completed a field review on April 30, 2025, to confirm the wetland areas identified, as requested and authorized.

Site Description

The Project Site is located in the Weatogue section of Simsbury, between the base of Talcott Mountain State Park and the Farmington River floodplain, which is located west of Nod Road. The Project Site is located at the former Tower Ridge Golf Course and is approximately 30 acres in size. Currently the Project Site is used as a disc/golf course. The surrounding habitat around the maintained course is predominately forested, with the Site sloping up to the east along the west-facing slope of Talcott Mountain. The abutting property to the northeast is a firearms range.

VHB's verification site walk resulted in our concurrence with the Ian Cole, LLC November 2023 wetland delineation. Further details about the delineation can be found in the Ian Cole, LLC delineation report dated December 30, 2023.

The portion of Wetland #2 delineated by Ian Cole, LLC that was observed within the Project Site exhibited some characteristics of a potential vernal pool, including no observed inlet/outlet, no observable flow, and no fish present. During the field visit, which occurred during the Spring amphibian breeding season, no evidence of obligate vernal pool species was observed within the Project Site. There is a possibility that offsite to the east, evidence of obligate species may be present; however, VHB did not have access to investigate offsite portions of the wetland. Due to the partially developed and open lawn maintained nature of the Project Site along the southwestern boundary of this wetland, it is unlikely that amphibians would traverse the existing disk/golf course to access the wetland. The portion of Wetland #2 located offsite is surrounded by forest and would be a more appropriate habitat for amphibians to inhabit and traverse.

Conclusions

Based on our wetland delineation verification for the Project Site on April 30, 2025, VHB can confirm that the wetland delineation conducted by Ian Cole, LLC, remains accurate. No additional or new resources on the Project Site were identified.

Ian Cole, LLC

Professional Registered Soil Scientist / Professional Wetland Scientist
PO BOX 619
Middletown, CT 06457
Itcole@gmail.com

December 30, 2023

LSE Lynx LLC
Mr. Jeffery Macel, Manager
40 Tower Lane, Suite 201
Avon, CT 06001

RE: ***Wetland & Watercourse Delineation Report Prepared For: LSE LYNX LLC, 140 Nod Road, MBL: G18-110-003 Simsbury, Connecticut.***

Dear Mr. Macel:

At LSE Lynx LLC's request, I completed a field survey of the jurisdictional freshwater inland wetland and watercourses boundaries at the above referenced project site.

DELIENATION METHODOLOGY

A wetland survey was completed in accordance with the standards of the Natural Resources Conservation Services (NRCS) National Cooperative Soil Survey and the definitions of inland wetlands and watercourses as found in the Connecticut General Statutes, Chapter 440, Sections 22a-36 through 22a-45 as amended. Wetlands, as defined by the Statute, are those soil types designated as poorly drained, very poorly drained, floodplain or alluvial in accordance with the NRCS National Cooperative Soil Survey. Such areas may also include disturbed areas that have been filled, graded, or excavated and which possess an aquic (saturated) soil moisture regime.

Watercourses means rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, vernal, or intermittent, public, or private, which are contained within, flow through or border upon the Town of Simsbury or any portion thereof not regulated pursuant to sections 22a-28 through 22a-35, inclusive, of the Connecticut General Statutes. Intermittent watercourses are defined permanent channel and bank and the occurrence of two or more of the following characteristics: (a) evidence of scour or deposits of recent alluvium or detritus, (b) the presence of standing or flowing water for duration longer than a particular storm incident, and (c) the presence of hydrophytic vegetation.

WETLAND DELINEATION FINDINGS

The wetland survey was completed in November 2023. The on-site wetland delineation examined the upper 20" of the soil profile for the presence of hydric soil conditions. Those areas meeting the wetland criteria noted above were marked in the field with sequentially numbered pink and blue wetland flagging. Figure 1 Wetland Sketch illustrates the approximate wetland boundary locations and corresponding flag series. Please note this sketch is intended for planning purposes only and the wetland boundary as illustrated is subject to refinement once traditionally located and mapped.

SITE DESCRIPTION

The Project is located in the Weatogue section of Simsbury. The site sits between the base of Talcott Mountain State Park and the Farmington River floodplain which is located west of Nod Road. In its present condition the overall 30 +/- acre project site is the location of the former Tower Ridge Golf Course and currently hosts a disc-golf business which has maintained the site. The predominate habitat cover is maintained lawn and forest edge. The surrounding landscape consist of a mixed hardwood forest on the higher west facing slope of Talcott Mountain. The well-known State Police Metacom Firearms Range abuts the site to the north.

WETLAND OVERVIEW

Generally, the site drains west to the Farmington River. The wetlands and watercourse flow patterns are influenced by the underlying bedrock, and topography as well as that of the dense underlying till deposits that characterize the majority of the watershed contributing to the site. Four regulated wetland and/or watercourse resource areas were identified on or immediately adjacent to the Project site.

Wetland System #1: A man-made linear steam channel flows south diagonally across the northwestern corner of the project site to a headwall along the shoulder of Nod Road. The stream channel and associated wetlands were created when the golf-course was developed in the 1960's. This low-lying wetland system is frequently flooded. At the time of the field delineation the wetland system was at full bank conditions and flow was stagnant, which appeared to be partly caused or exacerbated by a blockage of the culvert that flows under Nod Road. A notable paved golf-cart path bisects the northern limits of the wetland bordering the property line. Wetland flags 1-1 through 1-42 mark the limits of wetland system #1.

Wetland System #2:

Bisecting the property to the north is a large seasonally flooded forested wetland system that occupies the low-lying land at the base of Talcott mountain. This neighboring wetland system follows the northern project boundary / property line. At the mid-point along the northern project boundary the wetland system encroaches slightly into the peripheral of the course, draining to a catch basin / overflow collection system which was installed as part of the golf course development. Wetland flags 2-1 to 2-9 marks the southerly limits and terminus of Wetland System #2.

Wetland System #3: Straddling the southern project boundary is a man-made excavated pond. The pond is enclosed with a permitter exclusion fence. Wetland flags 3-1 through 3-9 represent the limits of the wetlands as flagged in the field.

Intermittent Watercourse / Wetland System #4: At the eastern limits of the project area following the tree line is an eroded intermittent watercourse that conveys runoff north off-site to Wetland System #2. The intermittent watercourse is rocky and well-defined. No wetland soils are found outside the incised intermittent stream channel. Wetland flags 4-1 through 4-15 represent the westerly leading edge of the intermittent watercourse proximal to the project site.

VEGETATIVE COVER

Commonly encountered wetland vegetation includes:
Trees: Sycamore, cottonwood, pin-oak, silver maple, willow, red Maple, hemlock, yellow birch, and swamp white oak.

Shrubs: Alder, willow, silky dogwood, elderberry, honeysuckle, highbush blueberry, spicebush, Japanese barberry, winterberry, Asiatic bittersweet.

Herbaceous: Cattail, woolgrass, tussock sedge, sphagnum moss, stout wood reed, sensitive fern, royal fern, interrupted fern, cinnamon fern, skunk cabbage, jewelweed, goldenrod, and fringe sedge.

The above is not an exhaustive list, but a sample of commonly encountered vegetation that characterizes the on-site wetland community.

Representative photos of the site are attached below.

SOIL SURVEY

The soils identified on-site are a refinement of the Natural Resources Conservation Service (NRCS) Websoil Soil Survey. The site is located the geological interface of dense ablation till that defines Talcott Mountain and the Metacomet basalt traprock ridge to the east and the coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits that cover the outwash plain at the base of the mountain extending westward to the Farmington River Valley.

The site is located within the Northern Uplands – Transitional Hardwoods Zone. This interior ecoregion has minimal coastal influence. Bedrock is primarily metamorphic, complexly folded into north-trending belts, and soils are developed on glacial till in the uplands, and on local glaciofluvial deposits (i.e., stratified drift). Elevations are generally between 250 feet to over 1,000 feet above mean sea level. Eastern hemlock and white pine are important evergreen forest constituents, and forests also include many oaks and hickories. Mesic sites are dominated by sugar maple, beech, and yellow birch.

Wetland Soils

The naturally occurring wetlands soils are classified as (107) Limerick and Lim frequently flooded silty loams. The disturbed poorly drained soils along the majority of the delineated wetland boundary are characterized as poorly drained Aquent soils. These poorly drained soils are saturated well graded fine sandy loams. The Aquent (AQ) map unit is a miscellaneous soil type used to denote disturbed landscapes which have been subject to prior filling and/or excavation activities where two or more feet of the original soil surface has been filled over, graded, or excavated and where the natural soils have been mixed so that the natural soil horizons are not identifiable.

The Aquent soils are characterized by a seasonal to prolonged high ground water table and either support or are capable of supporting wetland vegetation. Aquents are recently formed soils which have an aquic moisture regime. An aquic moisture regime is associated with a reducing soil environment that is virtually free of dissolved oxygen because the soil is saturated by groundwater or by water of the capillary fringe. The key feature is the presence of water at or very near to the soil surface for a prolonged period extending at least partially into the growing season.

A typical soil profile along the wetland boundary consists of approximately 0”-6” of a thick dark topsoil horizon (A), underlain by 6-20+” of a wet weakly developed grayish subsoil horizon (Bg) with common redoximorphic features (Common medium distinct strong brown mottles, masses) ranging from gravelly loamy sand to very fine sandy loam. This subsoil is underlain by a saturated sandy loam to fine sandy loam gray substratum (2Cg).

Upland Soils

The upland soils were not examined in great detail except where necessary to delineate the wetland boundary. The bulk of the naturally occurring sandy outwash upland soils mapped at the level low-lying foothills along the roadside are mapped and classified as loamy fine sands belonging to the Suncook, Occum, and Winooski soil series. The higher elevations where the bulk of the proposed development is slated, the underlying soils transition from the sandy soils of the Farmington River Valley to lodgment till at the base of Talcott Mountain that is the parent material that developed Manchester gravelly-sandy loams.

The bulk of the on-site soils near the existing infrastructure, buildings and parking lots have long been disturbed throughout. The soils are classified as belonging to the Udorthents / Urban Land soil complex which contains miscellaneous soil types that are present on the landscape in a complex pattern that is not practical or necessary to sperate. These soils are used to denote moderately well to well drained earthen material which has been so disturbed by cutting, filling, or grading, that the original soil profile can no longer be decerned and are co-associated with buildings, roads, parking lots and landscaping of developed areas.

A copy of the NRCS Soil Survey is attached.

If you have any questions or comments, please do not hesitate to contact me at itcole@gmail.com or (860) 514-5642

Sincerely,

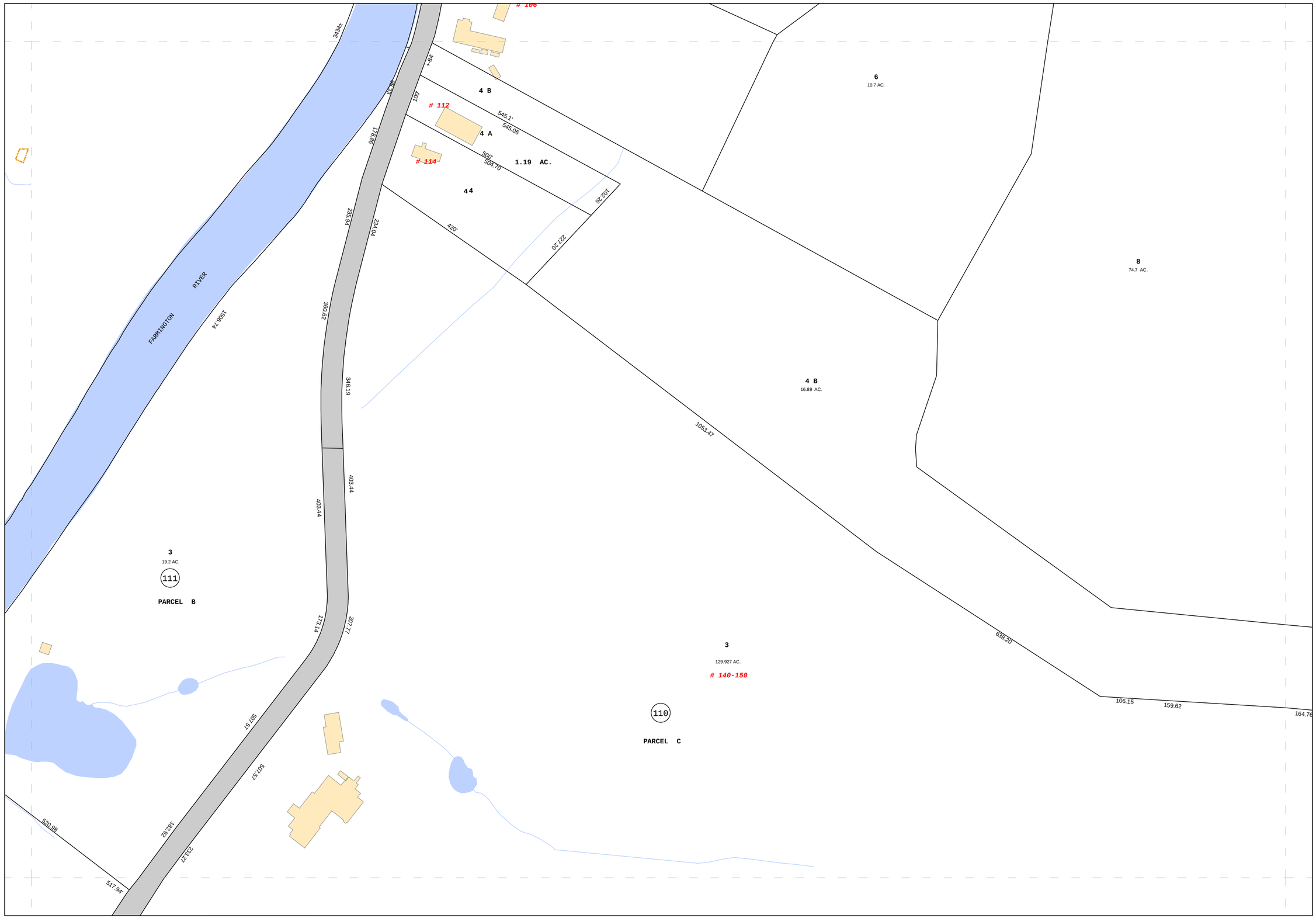
Ian T. Cole
Professional Registered Soil Scientist
Professional Wetland Scientist #2006

FIGURE 1: WETLAND SKETCH PREPARED FOR LSE LYNX LLC

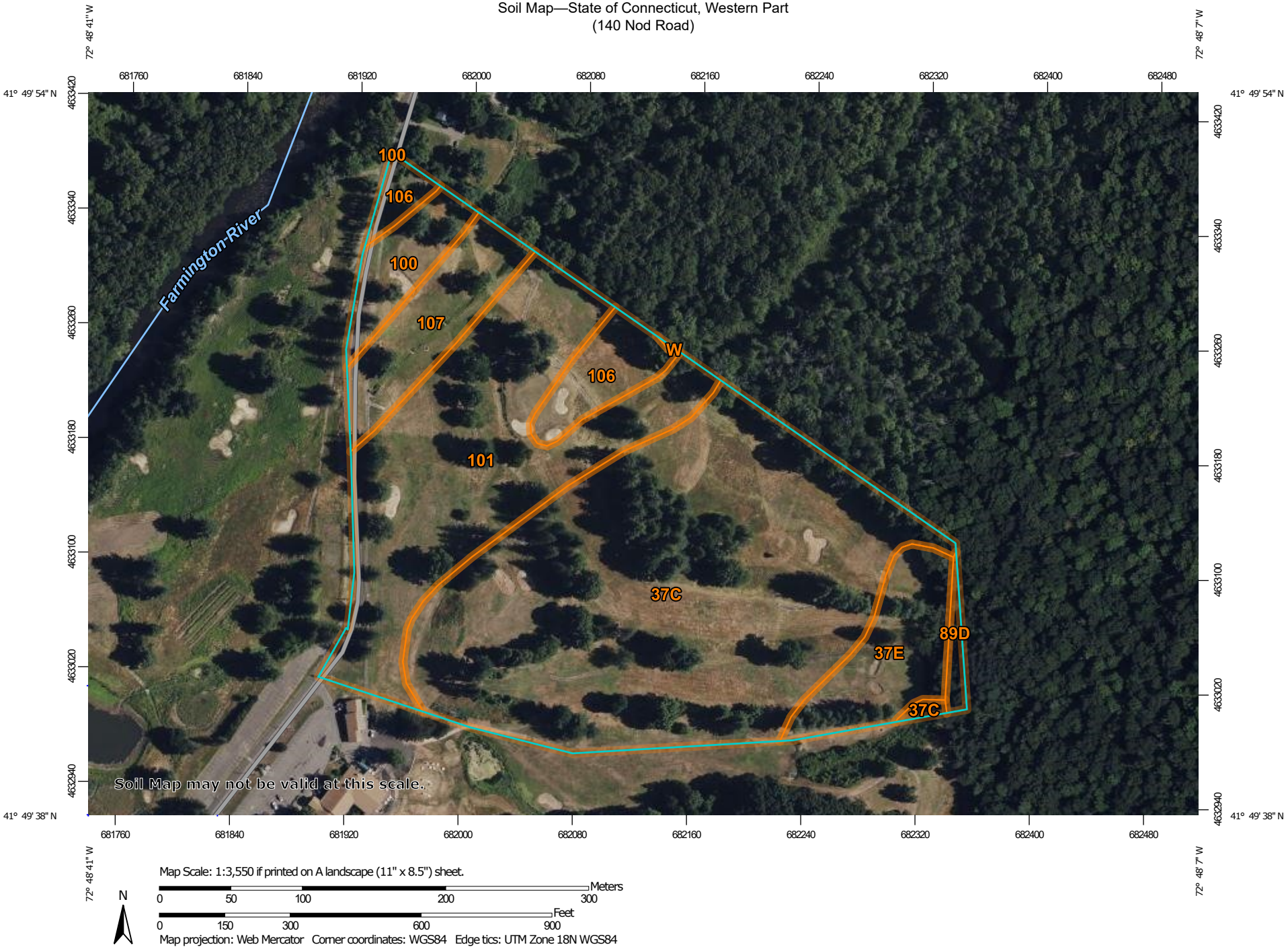
140 NOD ROAD – SIMSBURY

MBL G18-110-003

Disclaimer: This map is for planning purposes only. Verification of its accuracy, currency and completeness is the responsibility of the reader's own independent research. All inland wetland and watercourse boundaries are subject to refinement once traditionally field located by a Licensed Land Surveyor and formally adopted by the Town. Ian Cole LLC shall not be held liable for any loss, damages or claims made in relation to anyone referring to this map.


MAP: G18
THESE ASSESSOR MAPS ARE NOT LAND RECORD MAPS AND SHOULD NOT BE USED FOR DEED DESCRIPTION OR REFERENCE. ALL AVENUES, STREETS. ROADS, LANES ARE SHOWN WHETHER ACCEPTED, PROPOSED OR DEDICATED BY DEED.
106
112
114
4 B
4 A
44
1.19 AC.
6
10.7 AC.
8
74.7 AC.
4 B
16.89 AC.
3
19.2 AC.
111
PARCEL B
3
129.927 AC.
140-150
110
PARCEL C
RIVER
FARMINGTON
3434±
+84'
100'
50'
545.1'
545.06
178.86
500'
504.70
102.26
420'
227.20
225.54
224.04
360.62
346.19
403.44
403.44
1506.74
1053.47
638.20
106.15
159.62
164.76
173.14
207.77
507.57
507.57
182.92
232.27
520.98
517.94
0 75 150 300 450 600 Feet
1 = 150 feet
TOWN OF SIMSBURY, CONNECTICUT
ASSESSOR MAP 2022
Printed December 2022
13 Parcel Lot
2.4 Ac Acres
17
152
Address
Block
Historic Parcel
Parcels
Easements
Easement Areas
Stream
Water Features
Buildings
MAP: G18
NEGEO
New England GeoSystems
www.negeosystems.com
420 East Main Street - Bldg 3 Suite 1B
Branford, CT 06405 • (203) 404 - 7129
F17 G17 H17
F18 G18 H18
F19 G19 H19

Soil Map—State of Connecticut, Western Part
(140 Nod Road)



Map Scale: 1:3,550 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 1, Sep 15, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	14.8	50.9%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	2.0	7.0%
89D	Wethersfield loam, 15 to 35 percent slopes, extremely stony	0.2	0.8%
100	Suncook loamy fine sand	1.1	3.8%
101	Occum fine sandy loam	7.6	26.1%
106	Winooski silt loam	1.4	4.9%
107	Limerick and Lim soils, 0 to 3 percent slopes, frequently flooded	1.9	6.5%
W	Water	0.0	0.0%
Totals for Area of Interest		**29.0**	**100.0%**

WETLAND SURVEY PHOTOS

NOVEMBER 2023

LSE LYNX LLC

140 NOD ROAD

SIMSBURY

CONNECTICUT

Photo 1: Example of typical upland conditions view looking west towards Nod Road

Photo 2: Example of the upland conditions view looking east towards Talcott Mt.

Photo 3: Example of the linear stream channel associated with Wetland System #1

Photo 4: Example of the forested Wetland System #2 along the northern property line

Photo 5: Example of the man-made pond / wetland system #3, south of the project boundary

Photo 6: Example of the intermittent watercourse associated with wetland system #4

Appendix B Drainage Report

STORMWATER MANAGEMENT REPORT

LSE Nod Road Solar Project

140 Nod Road
Simsbury, Connecticut

PREPARED FOR

LSE Lynx, LLC
40 Tower Lane
Avon, CT 06001

PREPARED BY

100 Great Meadow Road
Suite 200
Wethersfield, Connecticut 06109
860.807.4300

October 17, 2025

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Appendix C: Operation and Maintenance Plan C-1

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Table 3	Peak Discharge Rates (cfs*)	A-1

Stormwater Report Narrative

The Project was designed to incorporate measures provided in the Connecticut Stormwater Quality Manual (CTDEEP 2024) as well as the CTDEEP Stormwater General Permit effective November 25, 2022. The conclusion of this analysis is that the proposed improvements will not increase the post-development peak runoff rates in comparison to existing predevelopment rates at any of the critical design points analyzed and the quality of stormwater runoff leaving the Site will be treated prior to discharge from the Site.

Project Description

The Petitioner, LSE Lynx, LLC, is proposing to construct a ±5 MW-AC solar photovoltaic electric generating facility on approximately ±20.5 acres of existing golf course land along with all associated utilities, access paths, fencing and stormwater management to support this use (the Project).

Site Description

The Project Site will be comprised on approximately ±20.5 acres on the parcel of 140 Nod Road, (Map, Lot: 110-3) in Simsbury, Connecticut (see Figure 1). The site is bounded by wooded area to the north and east, Nod Road to the west, and a residential neighborhood to the south. The development site is within the R-40, residential 40,000 sq.ft., zoning district.

The project area under existing conditions is a fully developed golf course with gradual slopes sweeping across the site from east to west. The site is border by wetland areas to the north and south of the development, these areas are not being impacted as part of this project. Under existing conditions, runoff from the project area generally flows overland to the drainage culvert on the north side of the parcel.

According to available soil mapping[1], most on-Site soils within the Project area belong to the Hydraulic Soil Group "A" or "B", indicating that the soils have acceptable infiltration rates when thoroughly wet. There are areas of 'C' soils, which are likely confined to wetland areas that will not provide adequate infiltration rates. See Appendix B for NRCS Web Soil Survey output.

[1] https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

According to available CTDEEP Groundwater Classification maps, the site is not located within an area of concern (see Appendix B). The CTDEEP Aquifer Protection Areas Mapping website displays that the Project is located within a Drinking Water Watershed.

According to FEMA Flood Insurance Rate Map Community Panel Number 09003C033F dated September 26, 2008, the site is partially located within a 1% Flood Hazard Area towards the northern end of the project site.

Existing Drainage Conditions

Under existing conditions, runoff from the project area flows overland to the west of the site through a golf course. The Site is generally at its highest elevation to the southeast of the project area. The majority of the Project area is comprised of developed golf course with limited clusters of trees. Terrain slopes in the Project area range from 1% to approximately 25% at the steepest points. Figure 2 illustrates the existing drainage patterns on the Site. A portion of the subject parcel (G18-110-003) has been included for the drainage analysis.

For the existing conditions hydrologic analysis, the project area is encompassed by two (2) sub catchment areas. Flow moves west to Nod Road and the northern drainage culvert before ultimately draining to the Farmington River. Table 1 provides a summary of the existing conditions hydrologic data. Figure 2 illustrates the existing drainage patterns on the Site. All portions of the Project area have been considered in the hydrologic analysis.

Drainage Area 1 (EX-1) - This ±26.4-acre area encompasses the majority of the site to the north. Untreated stormwater in this area flows to the west end of the site to an existing drainage culvert and wetlands.

Drainage Area 2 (EX-2) - This ±4.27-acre area encompasses a small subsection to the south of the site. Untreated stormwater in this area flows to the southwest end of the site to an existing wetland.

Table 1 provides a summary of the existing conditions hydrologic data.

Table 1 Existing Conditions Hydrologic Data

Drainage Area	Discharge Location	Area (Acres)	Curve Number	Time of Concentration (min)
EX-1	DP-1	26.4	44	11.5
EX-2	DP-2	4.27	40	9.2

Proposed Drainage Conditions

The Site has been designed to maintain existing topography and mimic existing drainage patterns to the maximum extents feasible. Across the proposed development area, the Project

proposes to install a photovoltaic solar array with gravel access roads and equipment pads along with three permanent stormwater basins which will assist in lowering runoff rates from the facility to the discharge point. As a result, the Project will have minimal impact to surrounding ecologically sensitive or offsite areas. Regrading will be limited to the areas around the basins.

The only impervious surfaces proposed to be constructed are small concrete pads for utility equipment and a small amount of gravel access drive. Once operational, vehicular access to the Project will be limited to infrequent maintenance visits. The permanent stormwater basins and vegetated buffers held to the wetlands will provide adequate residence time and treatment capabilities for the de minimis amount of imperviousness of the project.

In accordance with CTDEEP Stormwater General Permit, it is not proposed to install solar panels within 100 feet of any onsite wetland systems, nor is it proposed to perform any land disturbance (i.e. tree clearing, grading, swales, stormwater basins, fences) within 50 feet of these systems. In accordance with CTDEEP Stormwater General Permit, a reduction in Hydrologic Soil Group of half a step has been considered in the proposed conditions hydrologic model for developed portions of the site. No grading over a two-foot change is proposed that would require reducing HSG by a full step.

Figure 3 illustrates the proposed "post construction" drainage conditions for the project. The proposed conditions analysis utilizes six (6) drainage areas discharging to the same design point as the existing analysis.

Drainage Area 1 (PR-1) - This ±6.56-acre area encompasses the north side of the site with open golf field and wetlands. The runoff flows directly into the drainage culvert bordering the development area.

Drainage Area 2 (PR-2) - This ±2.24-acre area encompasses the southwest area of the site with solar arrays and grassed areas. The runoff flows directly into the wetland at the south of the development area.

Drainage Area 3 (PR-3) - This ±2.10-acre area encompasses the south-central area of the site with solar arrays and grassed open areas from the golf course. Stormwater is directed directly to Stormwater Basin 1. After being treated by this basin, stormwater will be conveyed to the south via a stone spillway.

Drainage Area 4 (PR-4) - This ±1.64-acre area encompasses eastern edge of the site with grassed open areas from the golf course, and some wooded areas. Runoff from this area is directed around the proposed development and enters the wetlands at the northeast corner of the site.

Drainage Area 5 (PR-5) – This ±10.42-acre area encompasses the central area of the site with solar arrays. Untreated stormwater is directed directly to Stormwater Basin 2. After being treated by this basin, stormwater will be conveyed to the north via a stone spillway.

Drainage Area 6 (PR-6) – This ±7.77-acre area encompasses the western edge of the site with solar arrays. Stormwater is directed directly to Stormwater Basin 3. After being treated by this basin, stormwater will be conveyed to the north via a stone spillway.

Table 2 on the next page provides a summary of the proposed conditions hydrologic data.

Table 2 Proposed Conditions Hydrologic Data

Drainage Area	Discharge Location	Area (Acres)	Curve Number	Time of Concentration (min)
PR-1	DP-1	6.57	59	24.3
PR-2	DP-2	2.24	47	5.0
PR-3	DP-2	2.04	41	7.4
PR-4	DP-1	1.64	51	6.7
PR-5	DP-1	10.42	53	9.8
PR-6	DP-1	7.77	58	7.6

Figure 1 Site Location Map

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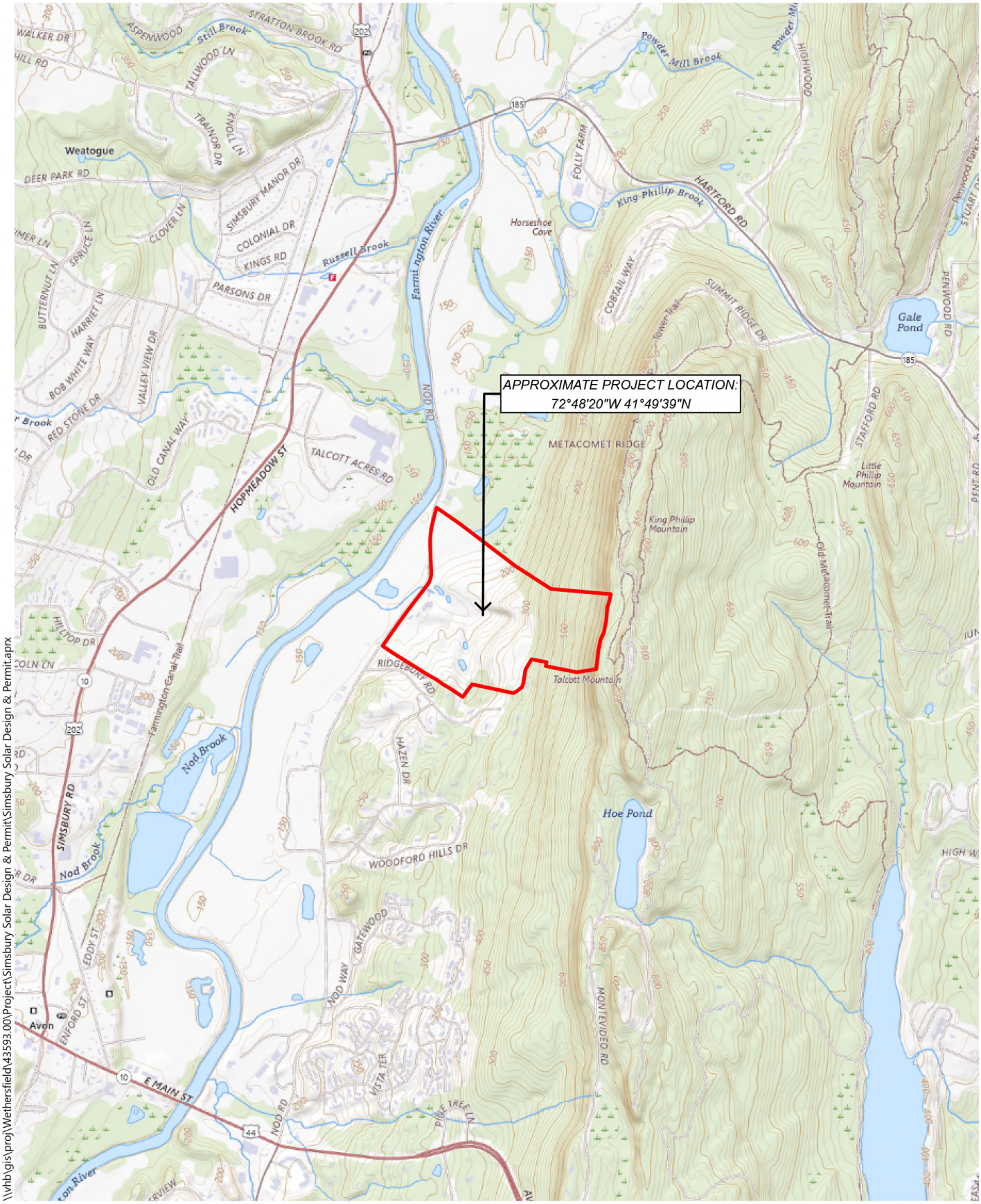

\\vhb\gis\proj\Wethersfield\43593.00\Project\Simsbury Solar Design & Permit\Simsbury Solar Design & Permit.aprx

LSE Lynx Solar | Simsbury, Connecticut

USGS Site Location Map

Source: VHB. USGS, ESRI

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Figure 2 Existing Drainage Area

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Legend

SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

LINETYPES

- DRAINAGE AREA BOUNDARY
- SOIL TYPE BOUNDARY
- WETLAND BOUNDARY
- TIME OF CONCENTRATION

SCS SOIL CLASSIFICATIONS

- 37C — MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15% SLOPES
- 37E — MANCHESTER GRAVELLY SANDY LOAM 15 TO 45% SLOPES
- 89D — WETHERSFIELD LOAM 8 TO 15 PERCENT SLOPES, EXTREMELY STONY
- 100 — SUNCOOK LOAMY FINE SAND
- 101 — OCCUM FINE SANDY LOAM
- 106 — WINOOSKI SILT LOAM
- 107 — LIMERICK AND LIM SOILS, O TO 3% SLOPES, FREQUENTLY FLOODED
- 108 — SACO SILT LOAM, FREQUENTLY PONDED, 0 TO 2% SLOPES, FREQUENTLY FLOODED
- W — WATER

0 90 180 360Feet

Existing Drainage Conditions
LSE Nod Road Solar
140 Nod Road
Simsbury, CT

Figure 2

July 2025

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Figure 3 Proposed Drainage Area

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Legend

SYMBOLS

- **DESIGN POINT**
- **DRAINAGE AREA DESIGNATION**
- **POND**

LINETYPES

- **DRAINAGE AREA BOUNDARY**
- **SOIL TYPE BOUNDARY**
- **WETLAND BOUNDARY**
- **TIME OF CONCENTRATION**

SCS SOIL CLASSIFICATIONS

- 37C — **MANCHESTER GRAVELLY SANDY LOAM, 3 TO 15% SLOPES**
- 37E — **MANCHESTER GRAVELLY SANDY LOAM 15 TO 45% SLOPES**
- 89D — **WETHERSFIELD LOAM 8 TO 15 PERCENT SLOPES, EXTREMELY STONY**
- 100 — **SUNCOOK LOAMY FINE SAND**
- 101 — **OCCUM FINE SANDY LOAM**
- 106 — **WINOOSKI SILT LOAM**
- 107 — **LIMERICK AND LIM SOILS, O TO 3% SLOPES, FREQUENTLY FLOODED**
- 108 — **SACO SILT LOAM, FREQUENTLY PONDED, 0 TO 2% SLOPES, FREQUENTLY FLOODED**
- W — **WATER**

0 90 180 360Feet

Proposed Drainage Conditions
LSE Nod Road Solar
140 Nod Road
Simsbury, CT

Figure 3

July 2025

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Appendix A: Hydrologic Computations and Supporting Information

The rainfall-runoff response of the Site under existing and proposed conditions was evaluated for storm events with recurrence intervals of 2, 25, 50 and 100-years. Rainfall volumes used for this analysis were based on the NOAA National Weather Service Hydrometeorological Design Studies Center volumes Type III, 24-hour storm event: 3.63, 6.78, 7.68, and 8.65 inches, respectively. Runoff coefficients for the pre- and post-development conditions, as previously shown in Tables 1 and 2 respectively, were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. Drainage areas used in the analyses were described in previous sections and shown on Figures 2 and 3. The HydroCAD model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology.

The results of the pre- and post-development hydrologic models indicate that peak runoff rates from the Site will be reduced for all design storms. Infiltration has been included as part of the model due to the presence of such well-draining soils in the area.

Drainage area used in the analyses were described in previous sections and shown on Figures 2 and 3. Detailed printouts of the HydroCAD analyses are included in this Appendix.

Table 3 presents a summary of the existing and proposed conditions peak discharge rates.

Table 3 Peak Discharge Rates (cfs*)

Watershed	2-year	25-year	50-year	100-year
DP-1 (wetland to the north)				
Existing	5.13	28.87	40.43	55.63
Proposed	1.96	10.66	20.01	31.22

*expressed in cubic feet per second

Watershed	2-year	25-year	50-year	100-year
DP-2 (wetland to the south)				
Existing	0.14	1.26	2.46	4.31
Proposed	0.11	1.09	1.87	2.89

Water Quality Volume

Water Quality Volume (WQV) is based upon the first inch of rainfall, or a 1.3-inch rainfall event, over the acreage of proposed impervious surfaces for the development. Runoff from the entire solar array is directed to one of five basins to provide treatment and detention. Some swales are proposed to direct the water directly to the basins as runoff leaves the array area.

To be conservative, water quality computations have been performed using 2024 CTDEEP Stormwater Quality Manual for the access roads and equipment pads to determine required water quality volumes. These water quality volumes are addressed in the design of the proposed permanent stormwater basins.

Water Quality Flow

Water Quality Flow (WQF) is a rate of stormwater runoff based upon the first inch of rainfall, or a 1-inch rainfall event. This regulation is generally followed for "flow-through" treatment devices. As the proposed development does not incorporate any "flow-through" water quality treatment devices, WQF is not applicable to this project.

Appendix A: Attachments

- HydroCAD Analysis: Existing Conditions
- HydroCAD Analysis: Proposed Conditions
- NOAA Rainfall Data
- Water Quality Volume Calculations
- Sediment Trap Sizing Calculations

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HydroCAD Analysis: Existing Conditions

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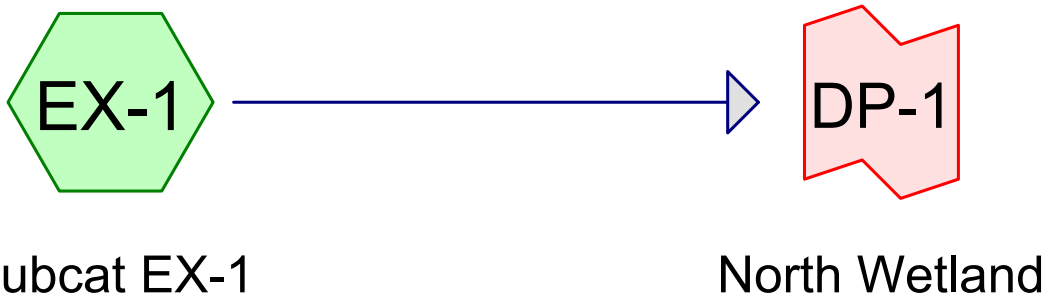
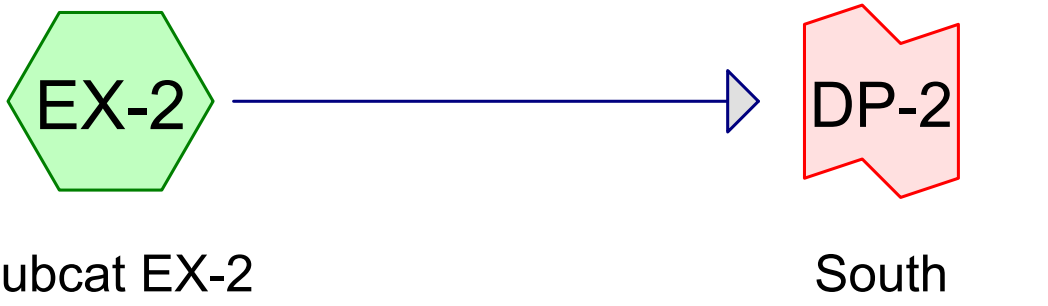
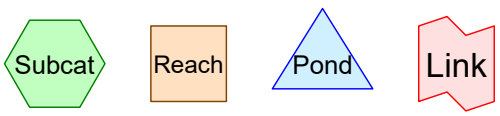






Routing Diagram for 43593.00-EX
Prepared by VHB, Inc, Printed 10/15/2025
HydroCAD® 10.20-5c s/n 01038 © 2023 HydroCAD Software Solutions LLC

Project Notes

Defined 5 rainfall events from Simsbury-CT IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.34	2
2	10-yr	Type III 24-hr		Default	24.00	1	5.36	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.63	2
4	50-yr	Type III 24-hr		Default	24.00	1	7.55	2
5	100-yr	Type III 24-hr		Default	24.00	1	8.58	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
18.614	39	>75% Grass cover, Good, HSG A (EX-1, EX-2)
9.339	61	>75% Grass cover, Good, HSG B (EX-1)
0.478	98	Paved parking, HSG A (EX-1, EX-2)
0.381	98	Paved parking, HSG B (EX-1)
1.314	30	Woods, Good, HSG A (EX-1, EX-2)
0.257	55	Woods, Good, HSG B (EX-1)
0.075	70	Woods, Good, HSG C (EX-1)
30.458	**47**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
20.406	HSG A	EX-1, EX-2
9.977	HSG B	EX-1
0.075	HSG C	EX-1
0.000	HSG D	
0.000	Other	
30.458		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
18.614	9.339	0.000	0.000	0.000	27.953	>75% Grass cover, Good	EX-1, EX-2
0.478	0.381	0.000	0.000	0.000	0.859	Paved parking	EX-1, EX-2
1.314	0.257	0.075	0.000	0.000	1.646	Woods, Good	EX-1, EX-2
20.406	**9.977**	**0.075**	**0.000**	**0.000**	**30.458**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=26.187 ac 3.10% Impervious Runoff Depth>0.28"
Flow Length=1,050' Tc=11.5 min CN=WQ Runoff=5.13 cfs 0.615 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=4.271 ac 1.10% Impervious Runoff Depth>0.04"
Tc=9.2 min CN=WQ Runoff=0.14 cfs 0.013 af

Link DP-1: North Wetland Inflow=5.13 cfs 0.615 af
Primary=5.13 cfs 0.615 af

Link DP-2: South Inflow=0.14 cfs 0.013 af
Primary=0.14 cfs 0.013 af

Total Runoff Area = 30.458 ac Runoff Volume = 0.628 af Average Runoff Depth = 0.25"
97.18% Pervious = 29.599 ac 2.82% Impervious = 0.859 ac

Summary for Subcatchment EX-1: Subcat EX-1

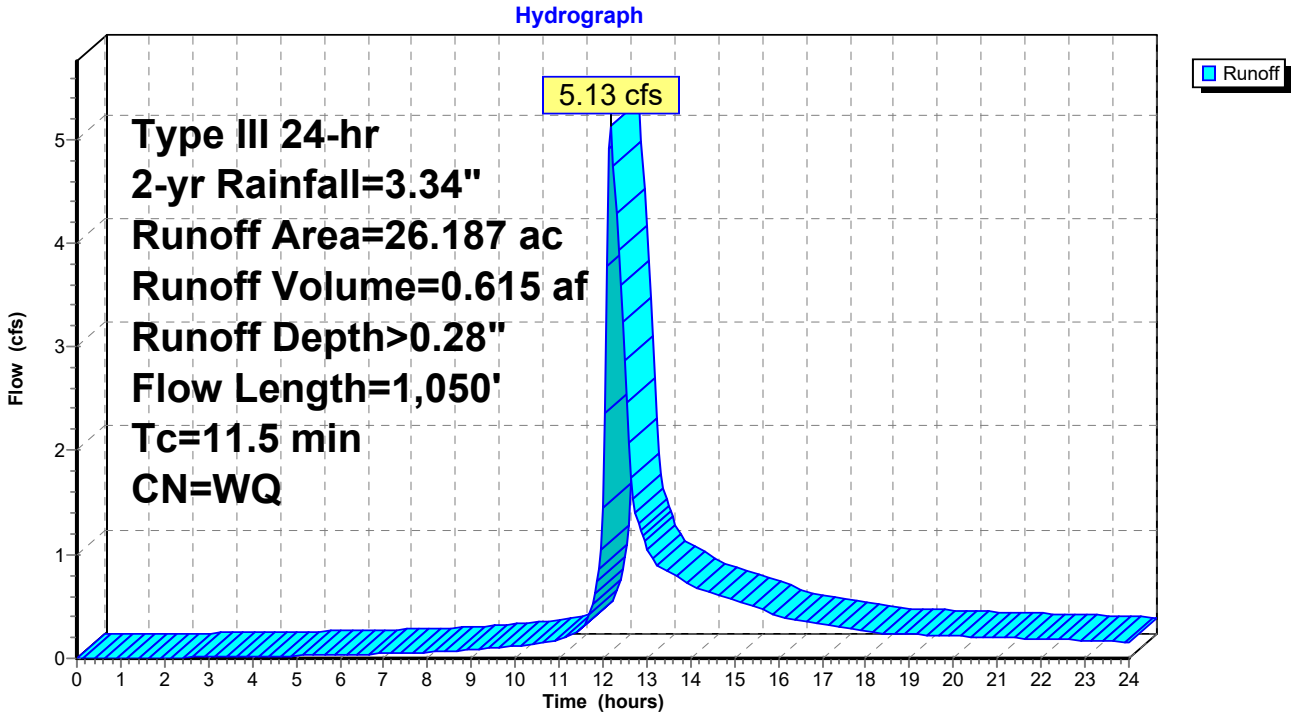
Runoff = 5.13 cfs @ 12.19 hrs, Volume= 0.615 af, Depth> 0.28"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

Area (ac)	CN	Description
14.833	39	>75% Grass cover, Good, HSG A
9.339	61	>75% Grass cover, Good, HSG B
0.431	98	Paved parking, HSG A
0.381	98	Paved parking, HSG B
0.871	30	Woods, Good, HSG A
0.257	55	Woods, Good, HSG B
0.075	70	Woods, Good, HSG C
26.187		Weighted Average
25.374		96.90% Pervious Area
0.812		3.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4000	0.23		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
7.9	1,000	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.5	1,050	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

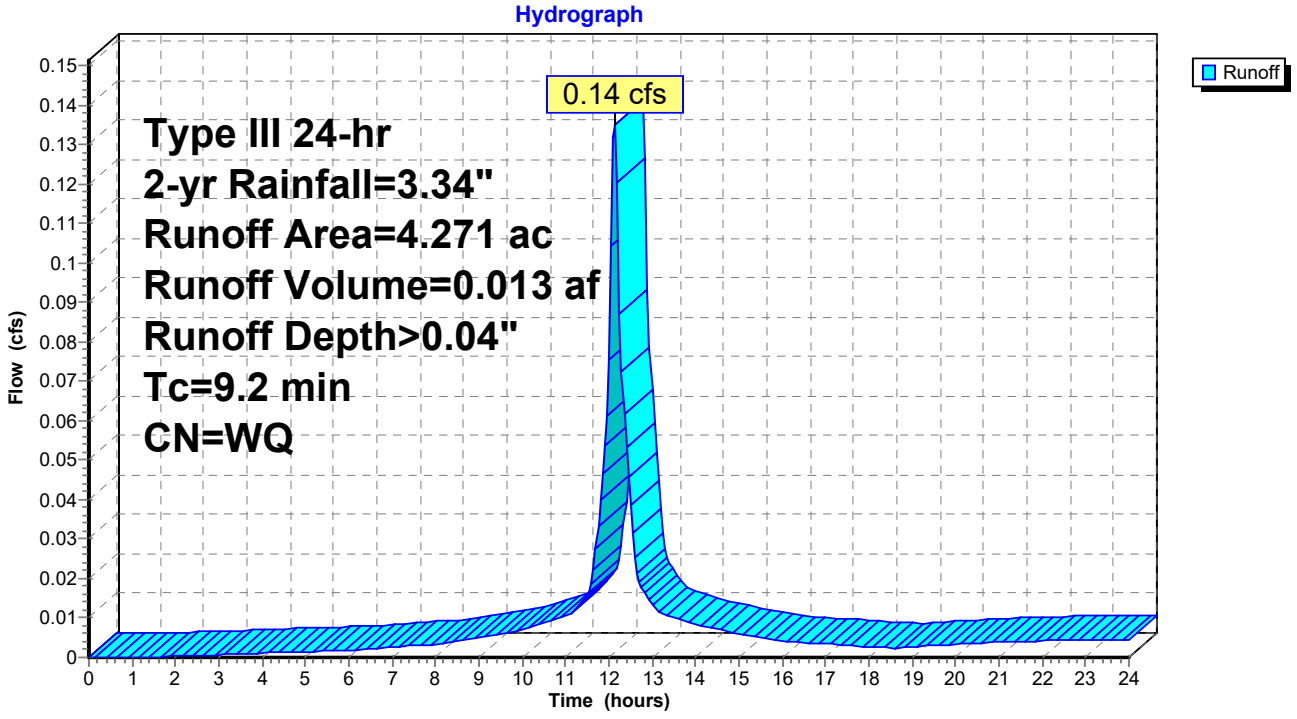
Runoff = 0.14 cfs @ 12.12 hrs, Volume= 0.013 af, Depth> 0.04"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

Area (ac)	CN	Description
3.781	39	>75% Grass cover, Good, HSG A
0.047	98	Paved parking, HSG A
0.443	30	Woods, Good, HSG A
4.271		Weighted Average
4.224		98.90% Pervious Area
0.047		1.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment EX-2: Subcat EX-2

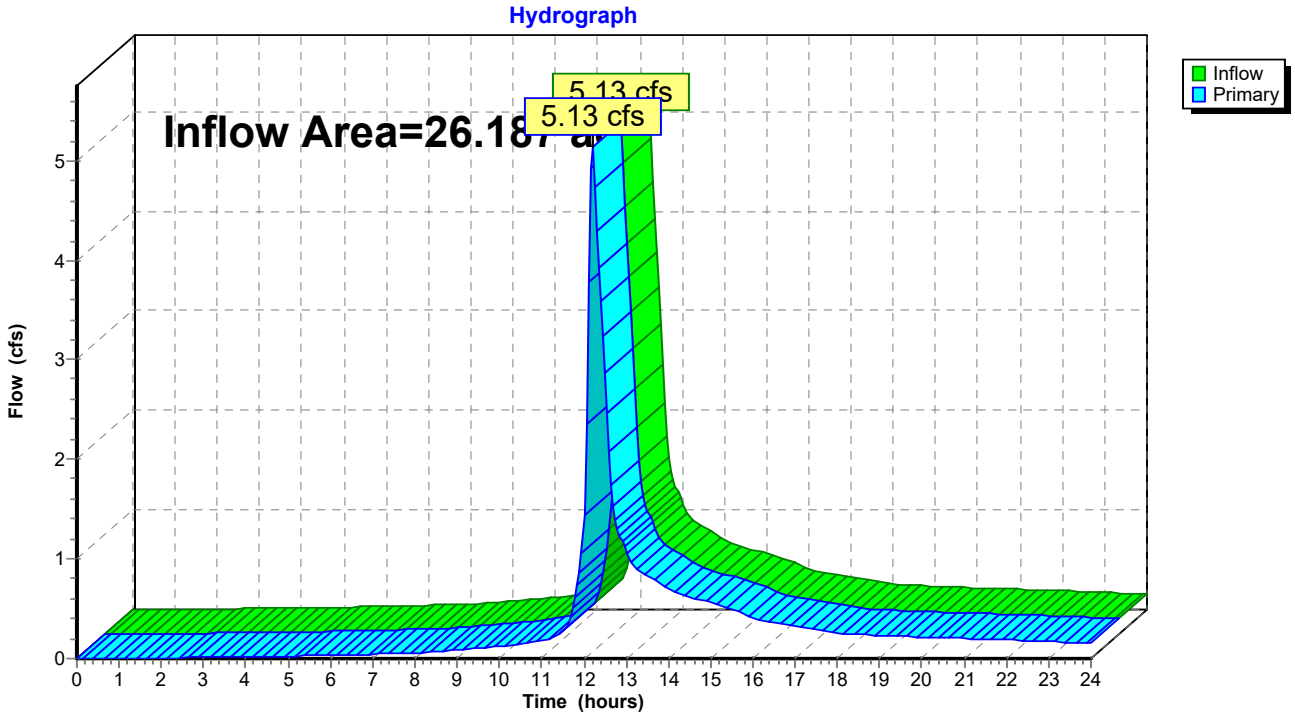


Summary for Link DP-1: North Wetland

Inflow Area = 26.187 ac, 3.10% Impervious, Inflow Depth > 0.28" for 2-yr event
Inflow = 5.13 cfs @ 12.19 hrs, Volume= 0.615 af
Primary = 5.13 cfs @ 12.19 hrs, Volume= 0.615 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

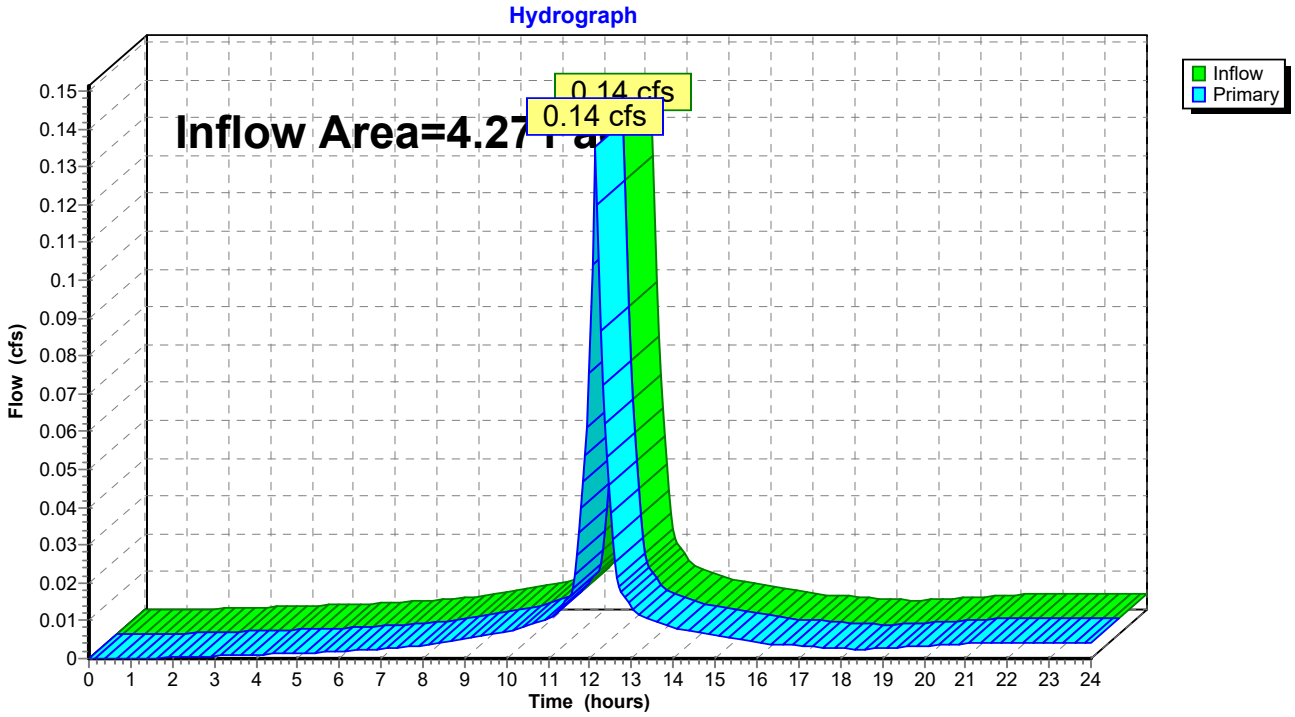


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 1.10% Impervious, Inflow Depth > 0.04" for 2-yr event
Inflow = 0.14 cfs @ 12.12 hrs, Volume= 0.013 af
Primary = 0.14 cfs @ 12.12 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=26.187 ac 3.10% Impervious Runoff Depth>0.90"
Flow Length=1,050' Tc=11.5 min CN=WQ Runoff=17.24 cfs 1.963 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=4.271 ac 1.10% Impervious Runoff Depth>0.30"
Tc=9.2 min CN=WQ Runoff=0.36 cfs 0.108 af

Link DP-1: North Wetland Inflow=17.24 cfs 1.963 af
Primary=17.24 cfs 1.963 af

Link DP-2: South Inflow=0.36 cfs 0.108 af
Primary=0.36 cfs 0.108 af

Total Runoff Area = 30.458 ac Runoff Volume = 2.072 af Average Runoff Depth = 0.82"
97.18% Pervious = 29.599 ac 2.82% Impervious = 0.859 ac

Summary for Subcatchment EX-1: Subcat EX-1

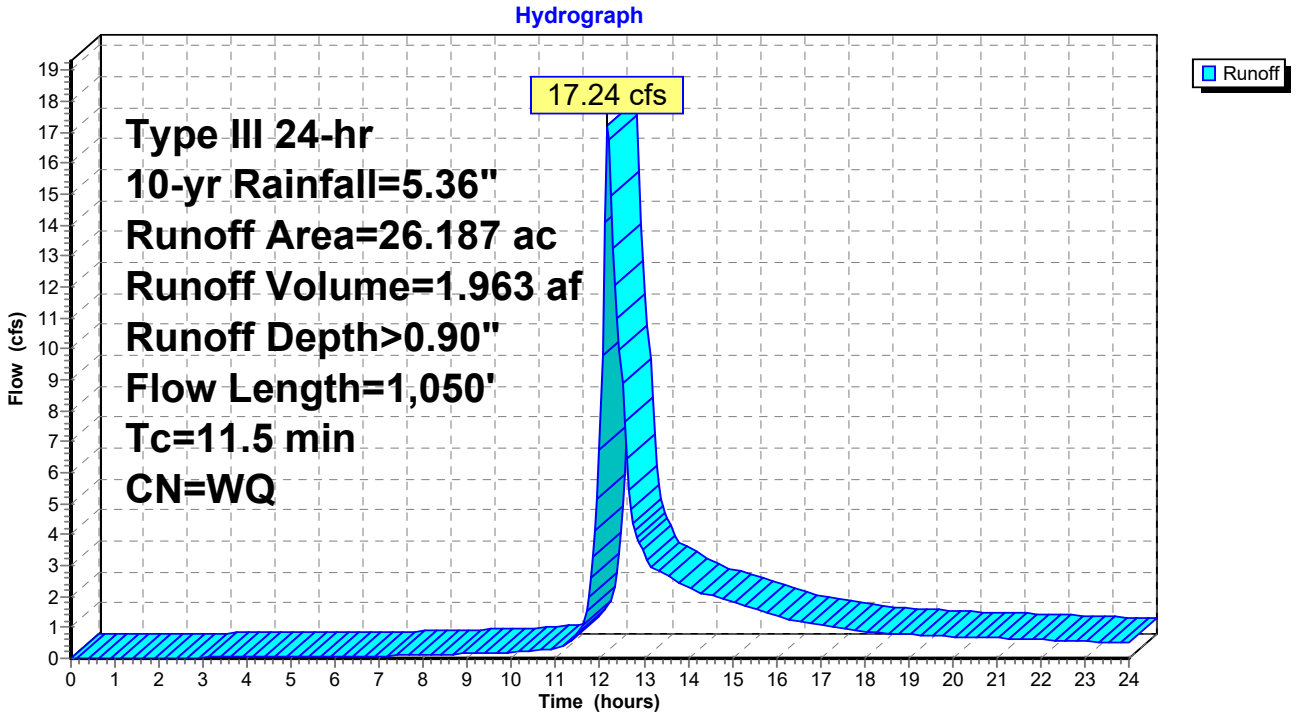
Runoff = 17.24 cfs @ 12.17 hrs, Volume= 1.963 af, Depth> 0.90"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

Area (ac)	CN	Description
14.833	39	>75% Grass cover, Good, HSG A
9.339	61	>75% Grass cover, Good, HSG B
0.431	98	Paved parking, HSG A
0.381	98	Paved parking, HSG B
0.871	30	Woods, Good, HSG A
0.257	55	Woods, Good, HSG B
0.075	70	Woods, Good, HSG C
26.187		Weighted Average
25.374		96.90% Pervious Area
0.812		3.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4000	0.23		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
7.9	1,000	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.5	1,050	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

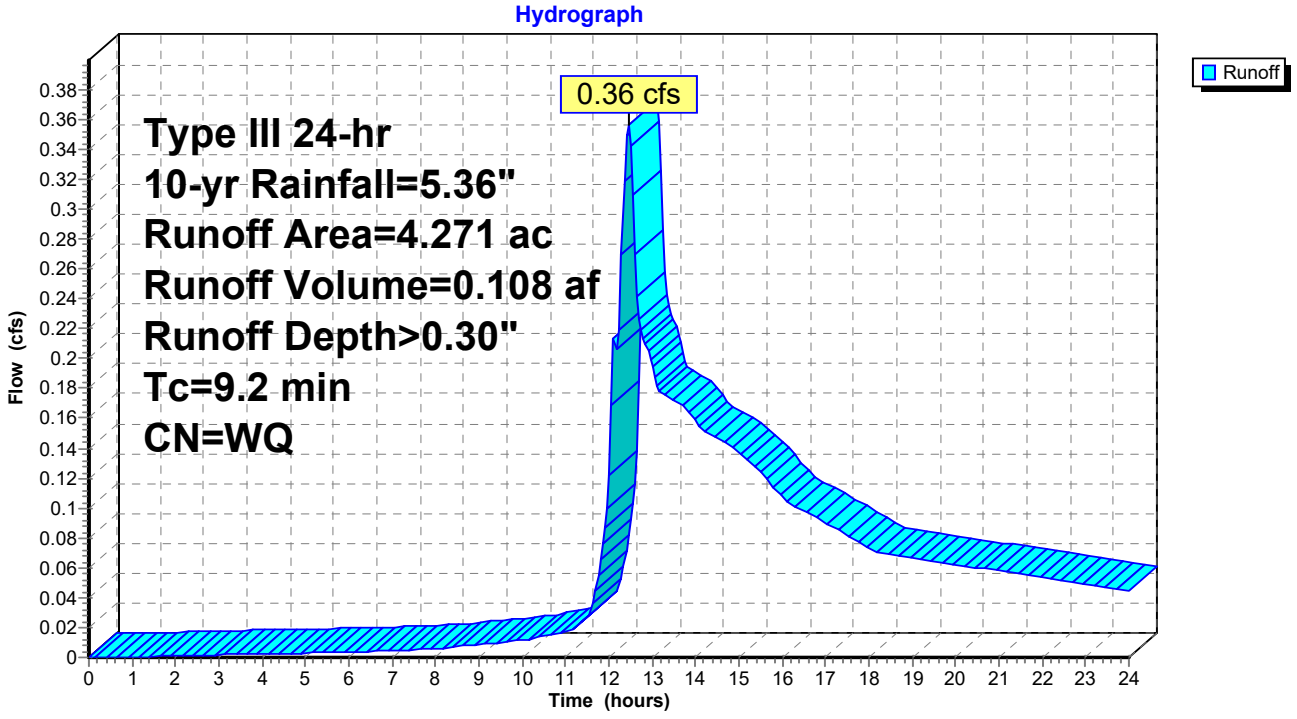
Runoff = 0.36 cfs @ 12.44 hrs, Volume= 0.108 af, Depth> 0.30"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

Area (ac)	CN	Description
3.781	39	>75% Grass cover, Good, HSG A
0.047	98	Paved parking, HSG A
0.443	30	Woods, Good, HSG A
4.271		Weighted Average
4.224		98.90% Pervious Area
0.047		1.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment EX-2: Subcat EX-2

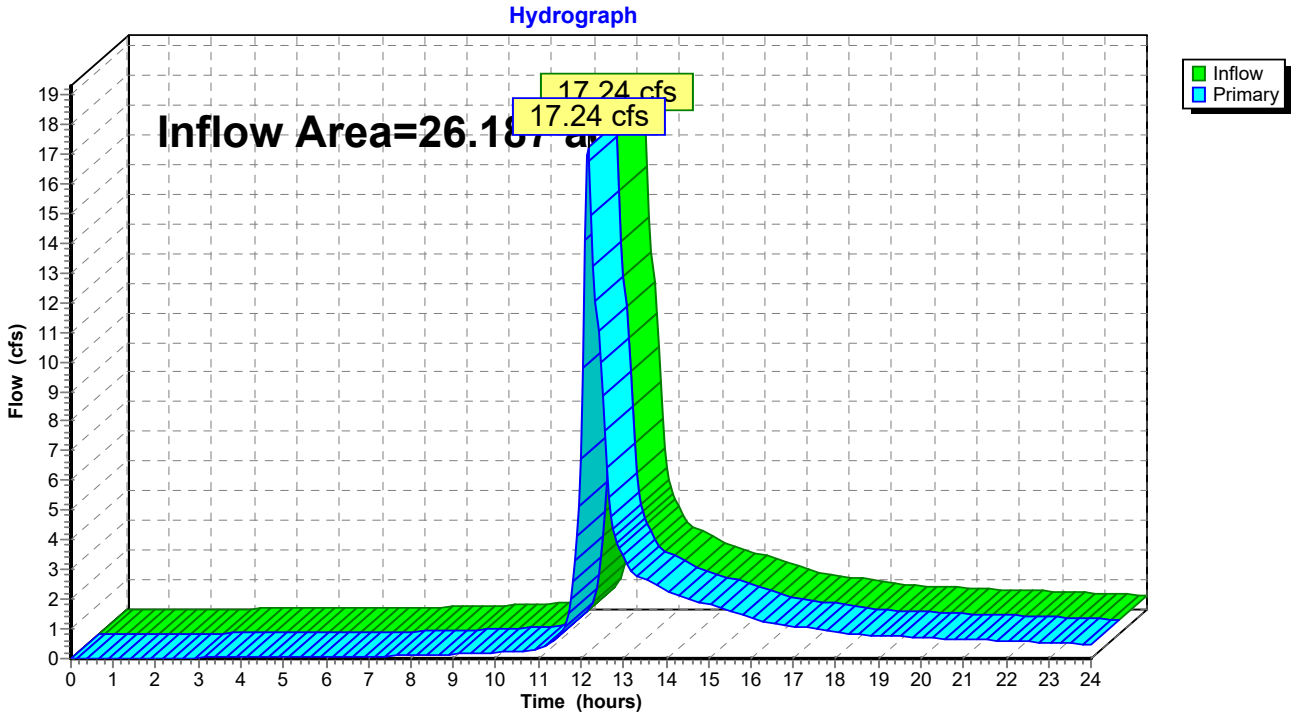


Summary for Link DP-1: North Wetland

Inflow Area = 26.187 ac, 3.10% Impervious, Inflow Depth > 0.90" for 10-yr event
Inflow = 17.24 cfs @ 12.17 hrs, Volume= 1.963 af
Primary = 17.24 cfs @ 12.17 hrs, Volume= 1.963 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

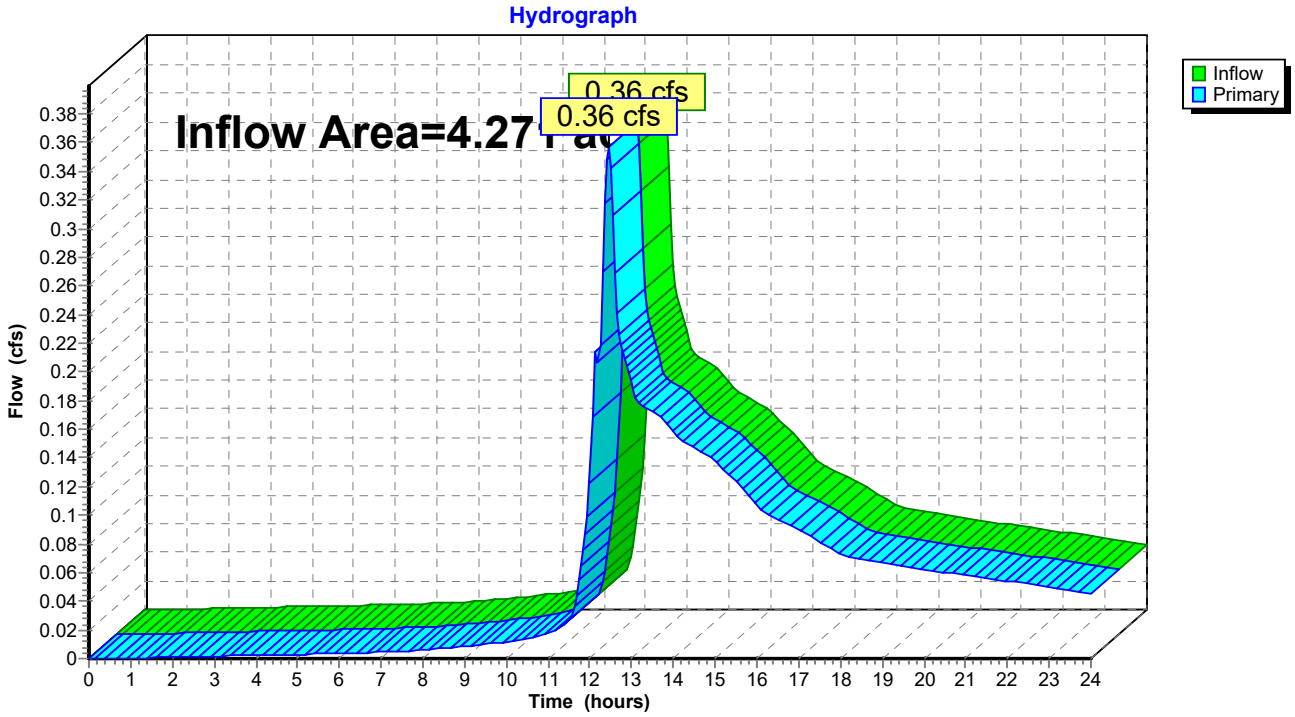


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 1.10% Impervious, Inflow Depth > 0.30" for 10-yr event
Inflow = 0.36 cfs @ 12.44 hrs, Volume= 0.108 af
Primary = 0.36 cfs @ 12.44 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=26.187 ac 3.10% Impervious Runoff Depth>1.46"
Flow Length=1,050' Tc=11.5 min CN=WQ Runoff=28.87 cfs 3.185 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=4.271 ac 1.10% Impervious Runoff Depth>0.65"
Tc=9.2 min CN=WQ Runoff=1.26 cfs 0.232 af

Link DP-1: North Wetland Inflow=28.87 cfs 3.185 af
Primary=28.87 cfs 3.185 af

Link DP-2: South Inflow=1.26 cfs 0.232 af
Primary=1.26 cfs 0.232 af

Total Runoff Area = 30.458 ac Runoff Volume = 3.417 af Average Runoff Depth = 1.35"
97.18% Pervious = 29.599 ac 2.82% Impervious = 0.859 ac

Summary for Subcatchment EX-1: Subcat EX-1

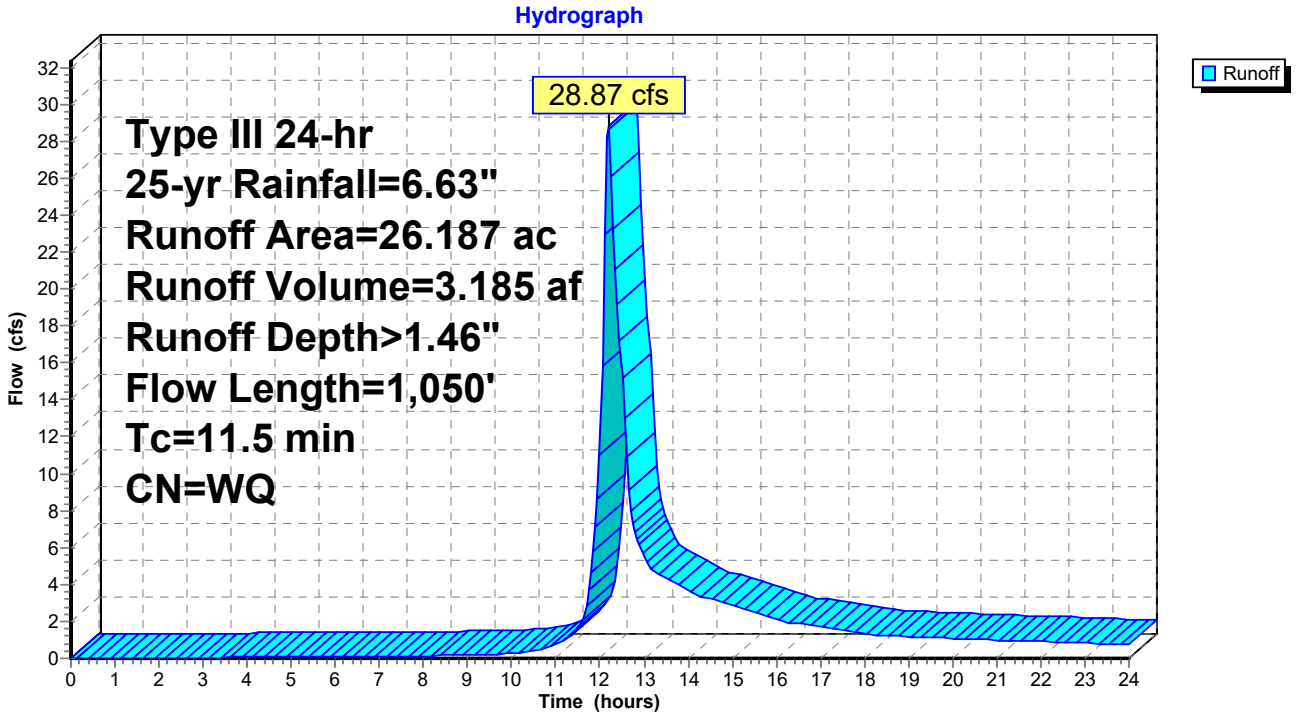
Runoff = 28.87 cfs @ 12.18 hrs, Volume= 3.185 af, Depth> 1.46"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

Area (ac)	CN	Description
14.833	39	>75% Grass cover, Good, HSG A
9.339	61	>75% Grass cover, Good, HSG B
0.431	98	Paved parking, HSG A
0.381	98	Paved parking, HSG B
0.871	30	Woods, Good, HSG A
0.257	55	Woods, Good, HSG B
0.075	70	Woods, Good, HSG C
26.187		Weighted Average
25.374		96.90% Pervious Area
0.812		3.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4000	0.23		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
7.9	1,000	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.5	1,050	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

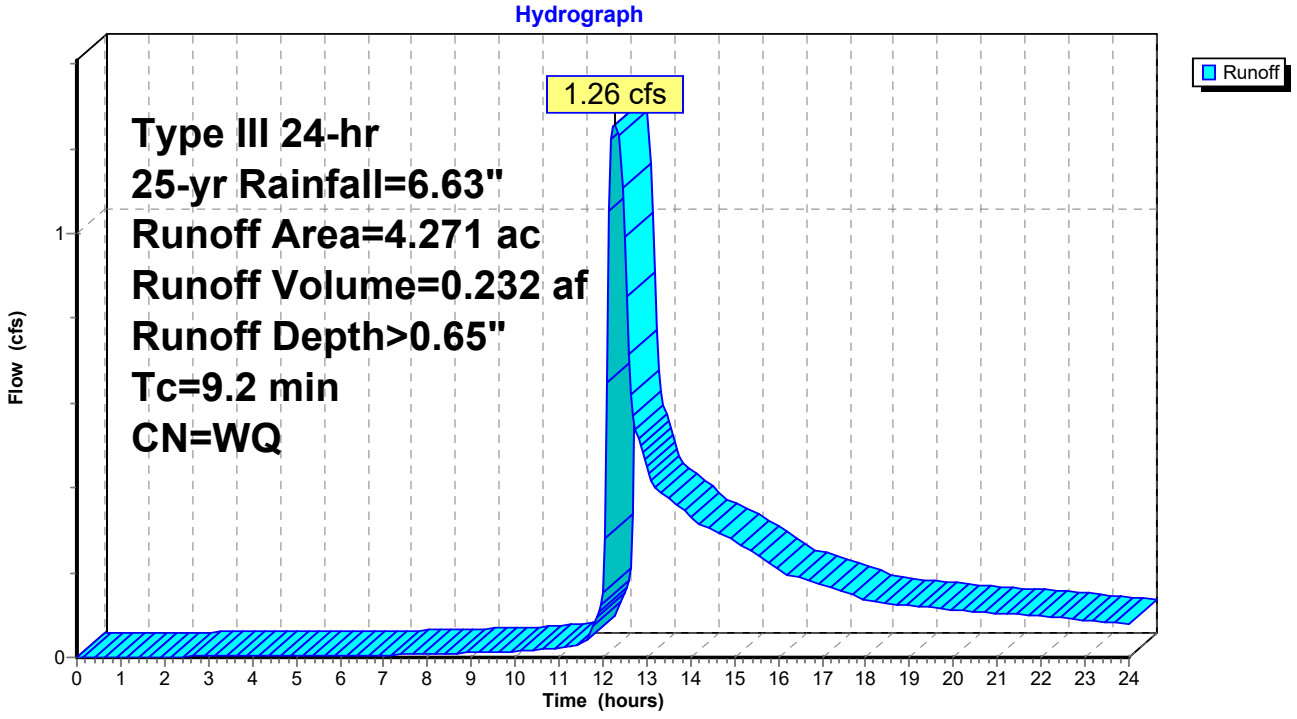
Runoff = 1.26 cfs @ 12.29 hrs, Volume= 0.232 af, Depth> 0.65"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

Area (ac)	CN	Description
3.781	39	>75% Grass cover, Good, HSG A
0.047	98	Paved parking, HSG A
0.443	30	Woods, Good, HSG A
4.271		Weighted Average
4.224		98.90% Pervious Area
0.047		1.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment EX-2: Subcat EX-2

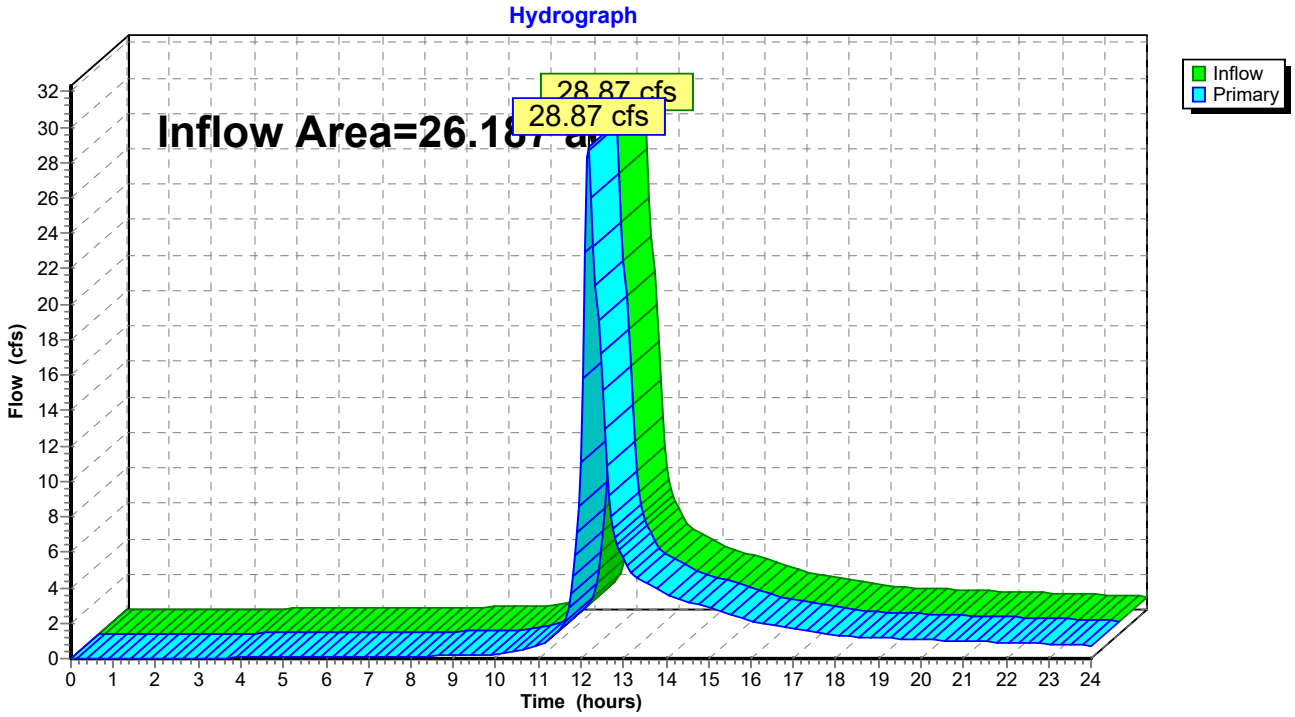


Summary for Link DP-1: North Wetland

Inflow Area = 26.187 ac, 3.10% Impervious, Inflow Depth > 1.46" for 25-yr event
Inflow = 28.87 cfs @ 12.18 hrs, Volume= 3.185 af
Primary = 28.87 cfs @ 12.18 hrs, Volume= 3.185 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

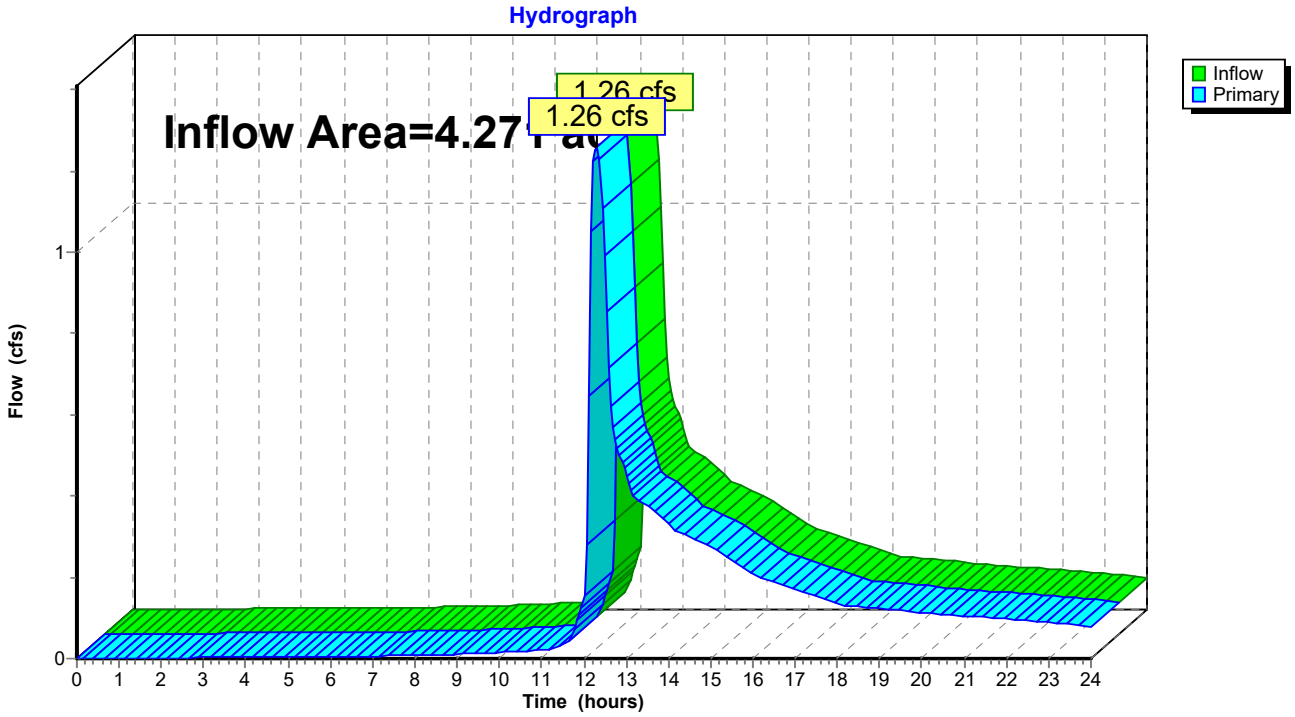


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 1.10% Impervious, Inflow Depth > 0.65" for 25-yr event
Inflow = 1.26 cfs @ 12.29 hrs, Volume= 0.232 af
Primary = 1.26 cfs @ 12.29 hrs, Volume= 0.232 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=26.187 ac 3.10% Impervious Runoff Depth>1.93"
Flow Length=1,050' Tc=11.5 min CN=WQ Runoff=40.43 cfs 4.206 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=4.271 ac 1.10% Impervious Runoff Depth>0.97"
Tc=9.2 min CN=WQ Runoff=2.46 cfs 0.346 af

Link DP-1: North Wetland Inflow=40.43 cfs 4.206 af
Primary=40.43 cfs 4.206 af

Link DP-2: South Inflow=2.46 cfs 0.346 af
Primary=2.46 cfs 0.346 af

Total Runoff Area = 30.458 ac Runoff Volume = 4.553 af Average Runoff Depth = 1.79"
97.18% Pervious = 29.599 ac 2.82% Impervious = 0.859 ac

Summary for Subcatchment EX-1: Subcat EX-1

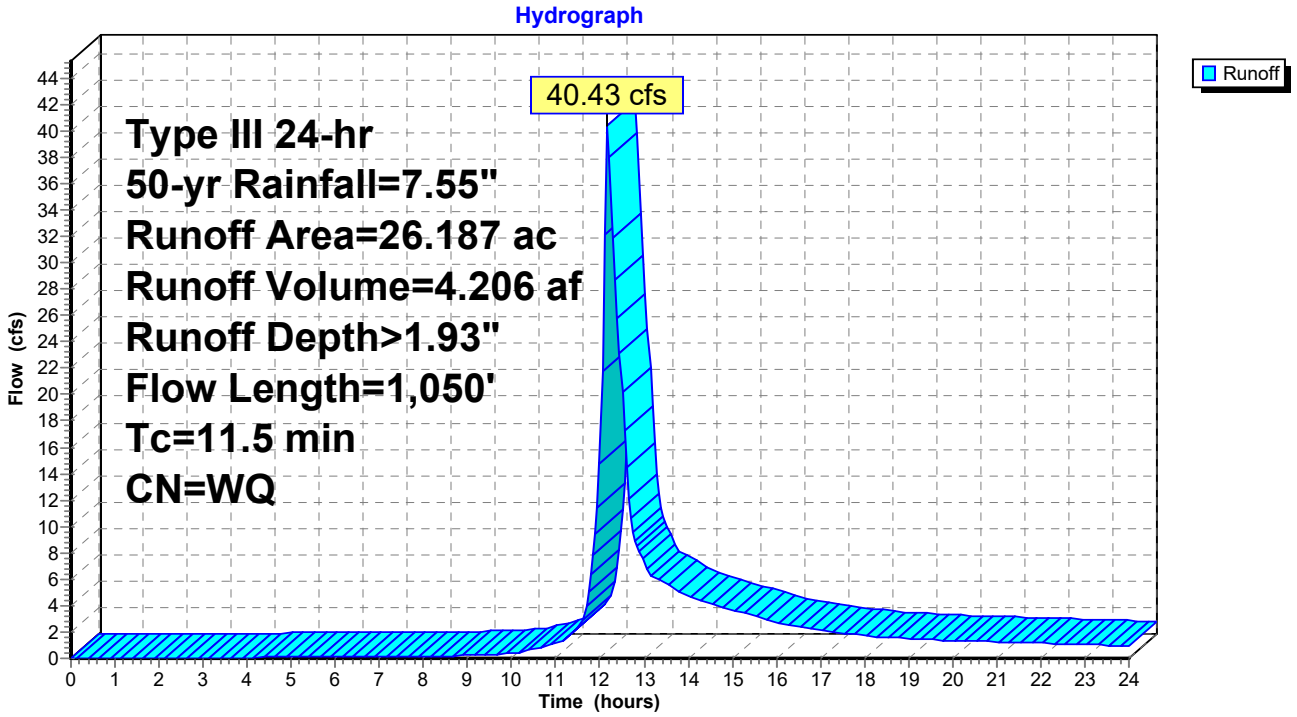
Runoff = 40.43 cfs @ 12.18 hrs, Volume= 4.206 af, Depth> 1.93"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

Area (ac)	CN	Description
14.833	39	>75% Grass cover, Good, HSG A
9.339	61	>75% Grass cover, Good, HSG B
0.431	98	Paved parking, HSG A
0.381	98	Paved parking, HSG B
0.871	30	Woods, Good, HSG A
0.257	55	Woods, Good, HSG B
0.075	70	Woods, Good, HSG C
26.187		Weighted Average
25.374		96.90% Pervious Area
0.812		3.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4000	0.23		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
7.9	1,000	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.5	1,050	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

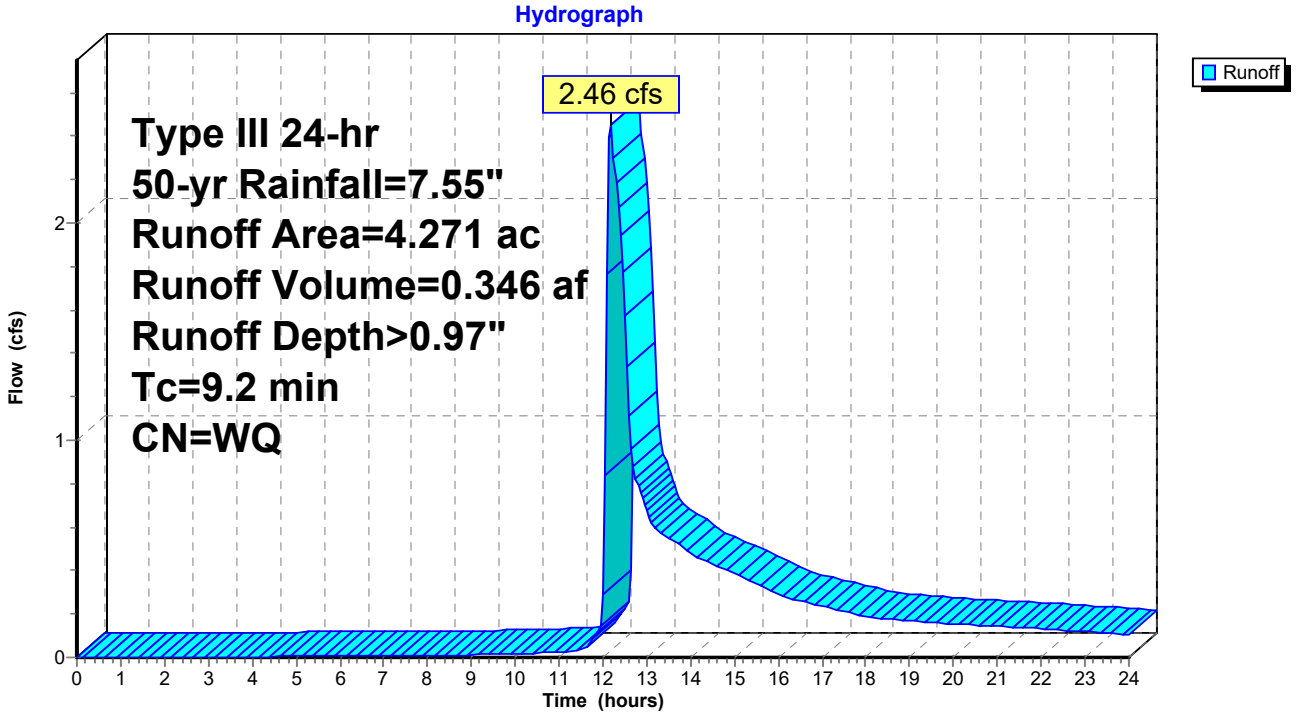
Runoff = 2.46 cfs @ 12.19 hrs, Volume= 0.346 af, Depth> 0.97"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

Area (ac)	CN	Description
3.781	39	>75% Grass cover, Good, HSG A
0.047	98	Paved parking, HSG A
0.443	30	Woods, Good, HSG A
4.271		Weighted Average
4.224		98.90% Pervious Area
0.047		1.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment EX-2: Subcat EX-2

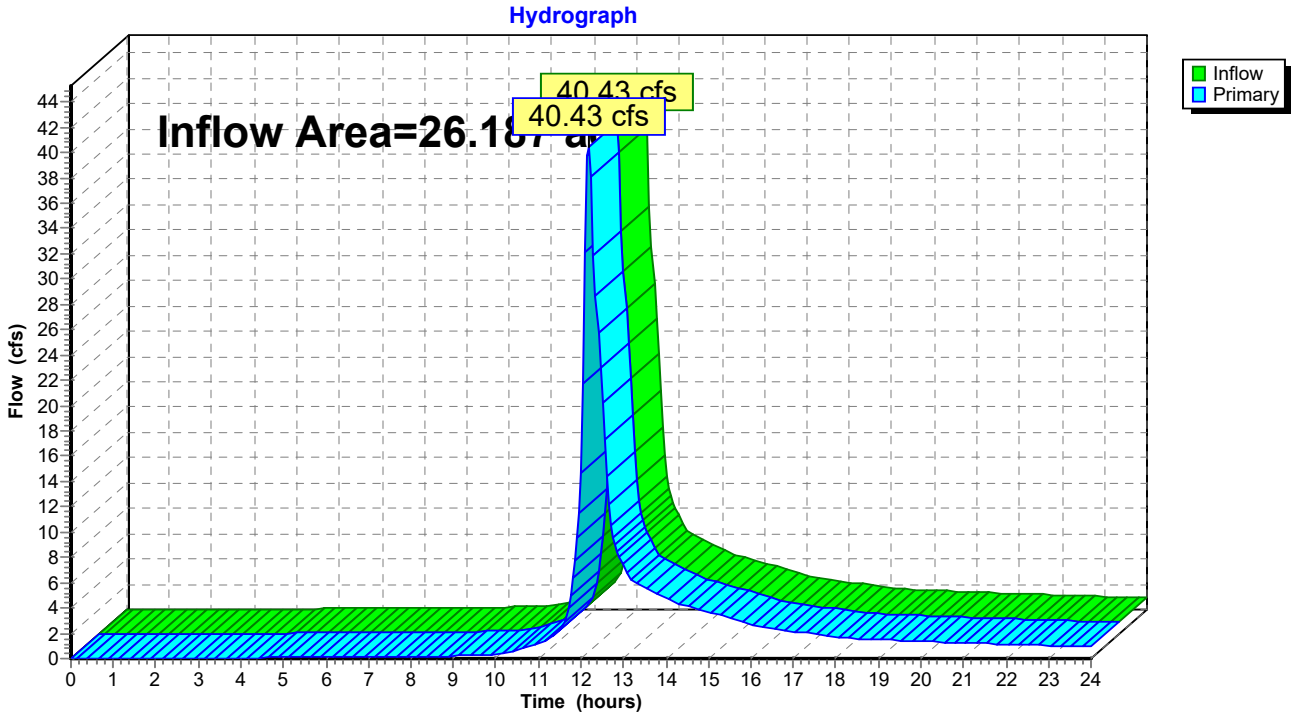


Summary for Link DP-1: North Wetland

Inflow Area = 26.187 ac, 3.10% Impervious, Inflow Depth > 1.93" for 50-yr event
Inflow = 40.43 cfs @ 12.18 hrs, Volume= 4.206 af
Primary = 40.43 cfs @ 12.18 hrs, Volume= 4.206 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

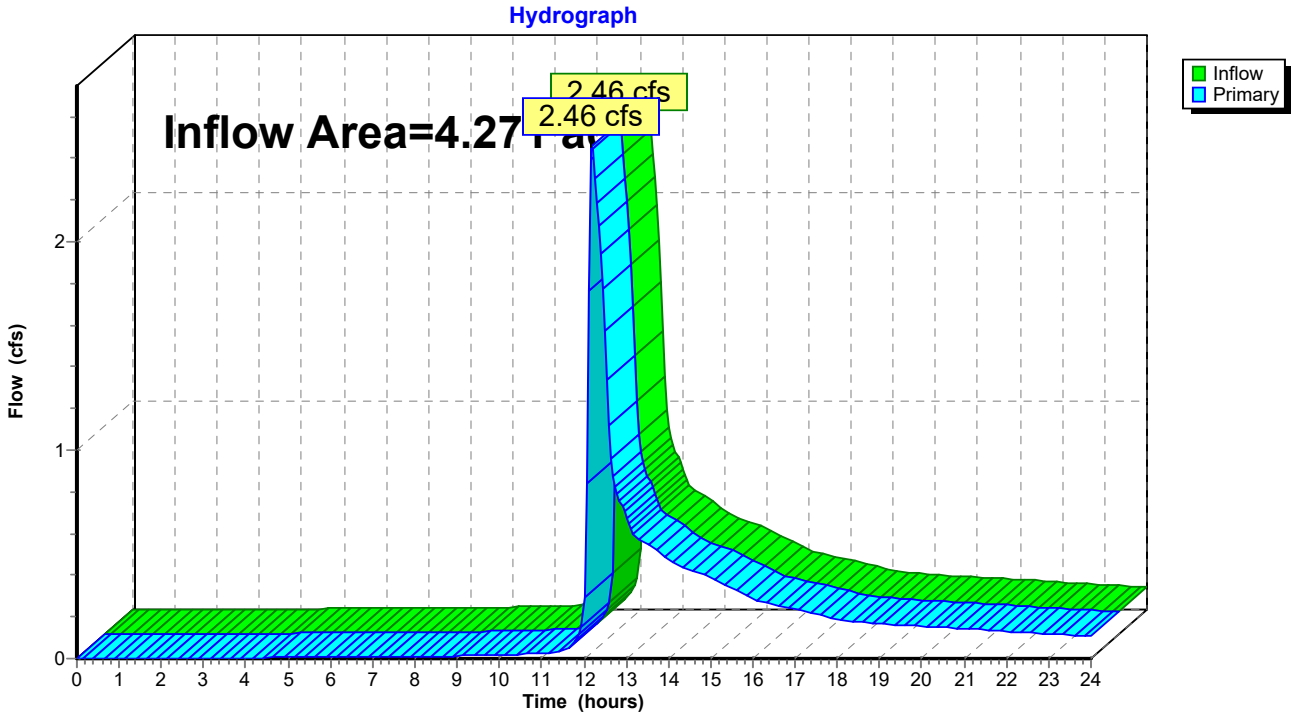


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 1.10% Impervious, Inflow Depth > 0.97" for 50-yr event
Inflow = 2.46 cfs @ 12.19 hrs, Volume= 0.346 af
Primary = 2.46 cfs @ 12.19 hrs, Volume= 0.346 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Subcat EX-1 Runoff Area=26.187 ac 3.10% Impervious Runoff Depth>2.50"
Flow Length=1,050' Tc=11.5 min CN=WQ Runoff=55.63 cfs 5.461 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=4.271 ac 1.10% Impervious Runoff Depth>1.39"
Tc=9.2 min CN=WQ Runoff=4.31 cfs 0.496 af

Link DP-1: North Wetland Inflow=55.63 cfs 5.461 af
Primary=55.63 cfs 5.461 af

Link DP-2: South Inflow=4.31 cfs 0.496 af
Primary=4.31 cfs 0.496 af

Total Runoff Area = 30.458 ac Runoff Volume = 5.957 af Average Runoff Depth = 2.35"
97.18% Pervious = 29.599 ac 2.82% Impervious = 0.859 ac

Summary for Subcatchment EX-1: Subcat EX-1

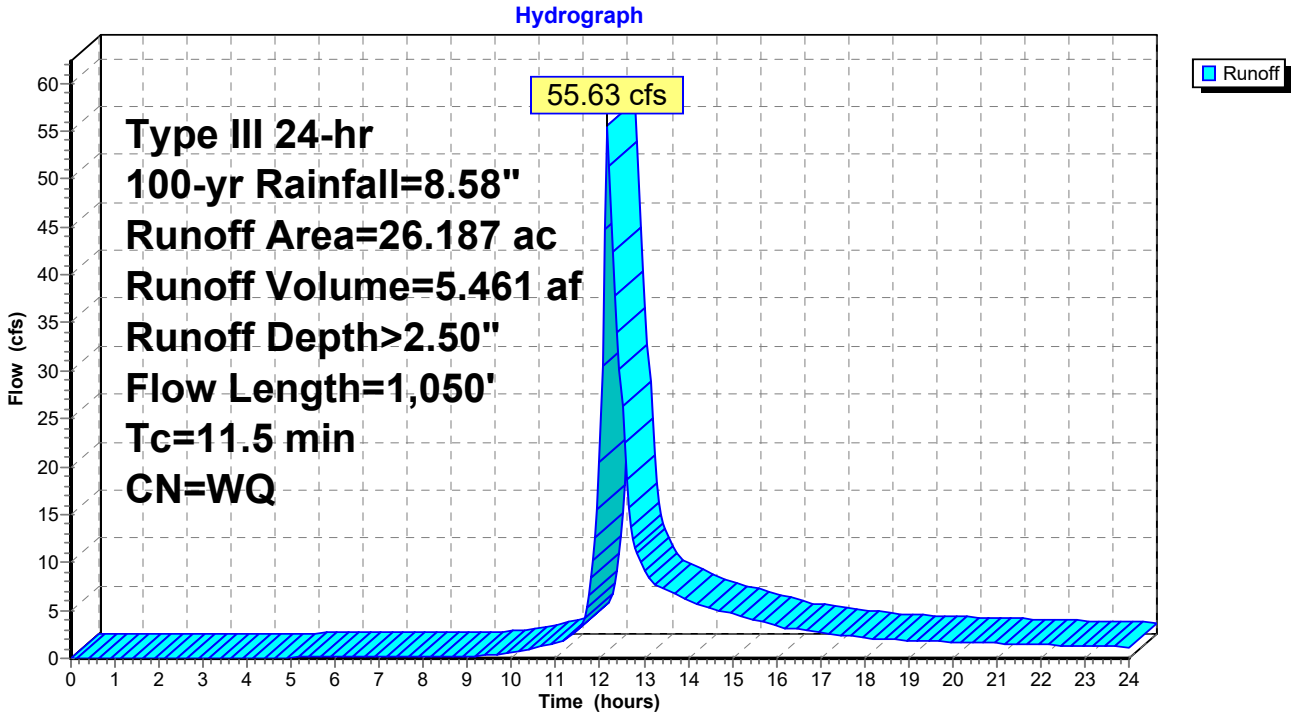
Runoff = 55.63 cfs @ 12.17 hrs, Volume= 5.461 af, Depth> 2.50"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

Area (ac)	CN	Description
14.833	39	>75% Grass cover, Good, HSG A
9.339	61	>75% Grass cover, Good, HSG B
0.431	98	Paved parking, HSG A
0.381	98	Paved parking, HSG B
0.871	30	Woods, Good, HSG A
0.257	55	Woods, Good, HSG B
0.075	70	Woods, Good, HSG C
26.187		Weighted Average
25.374		96.90% Pervious Area
0.812		3.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4000	0.23		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
7.9	1,000	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.5	1,050	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

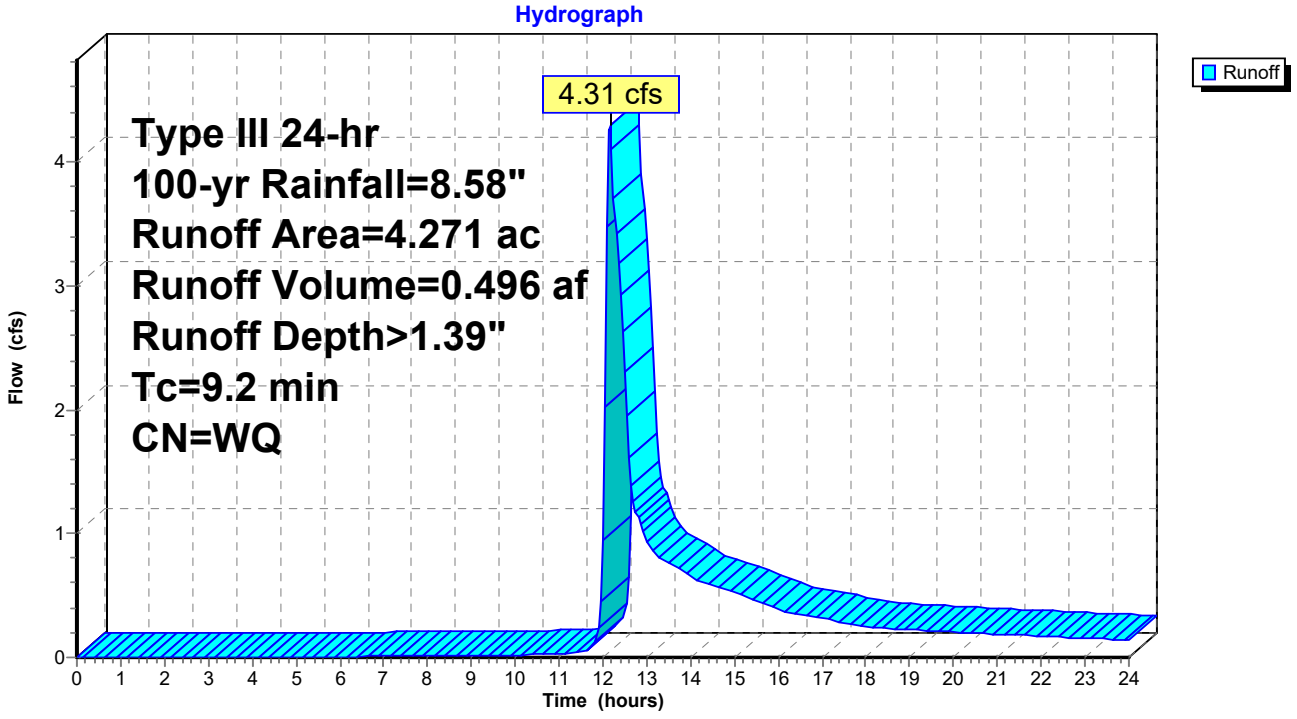
Runoff = 4.31 cfs @ 12.17 hrs, Volume= 0.496 af, Depth> 1.39"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

Area (ac)	CN	Description
3.781	39	>75% Grass cover, Good, HSG A
0.047	98	Paved parking, HSG A
0.443	30	Woods, Good, HSG A
4.271		Weighted Average
4.224		98.90% Pervious Area
0.047		1.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2					**Direct Entry,**

Subcatchment EX-2: Subcat EX-2

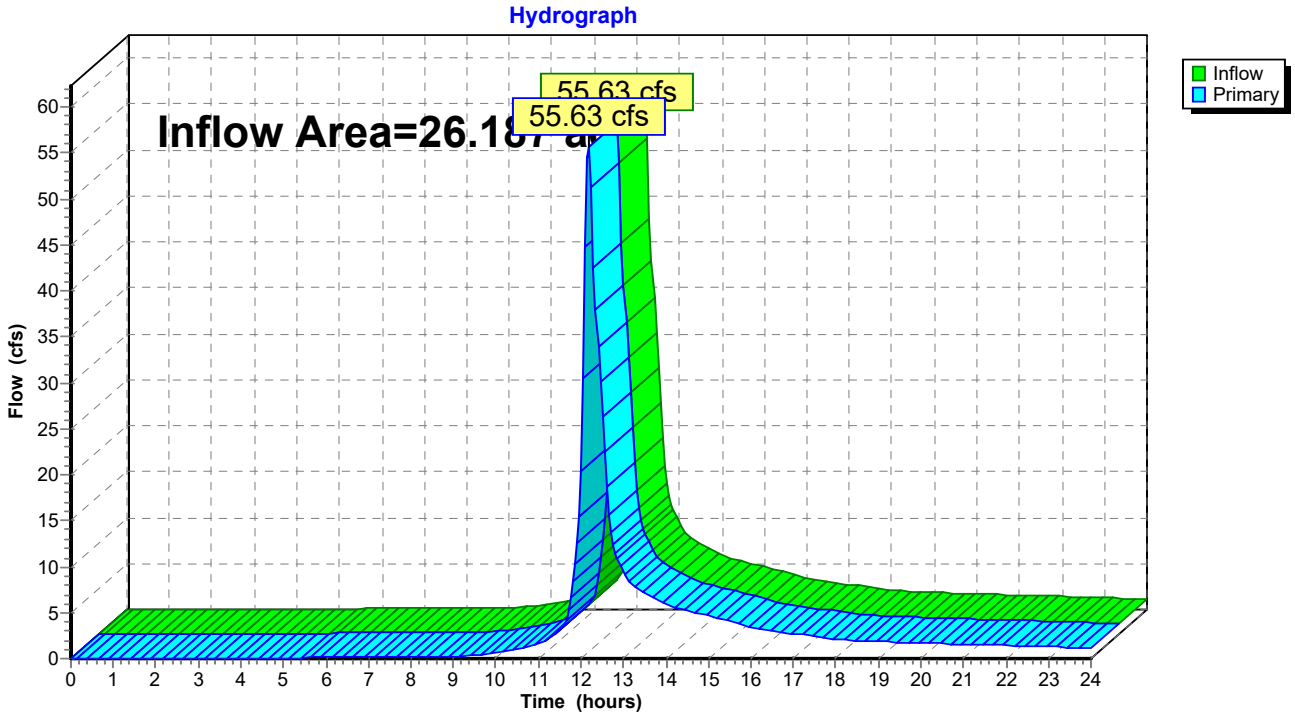


Summary for Link DP-1: North Wetland

Inflow Area = 26.187 ac, 3.10% Impervious, Inflow Depth > 2.50" for 100-yr event
Inflow = 55.63 cfs @ 12.17 hrs, Volume= 5.461 af
Primary = 55.63 cfs @ 12.17 hrs, Volume= 5.461 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

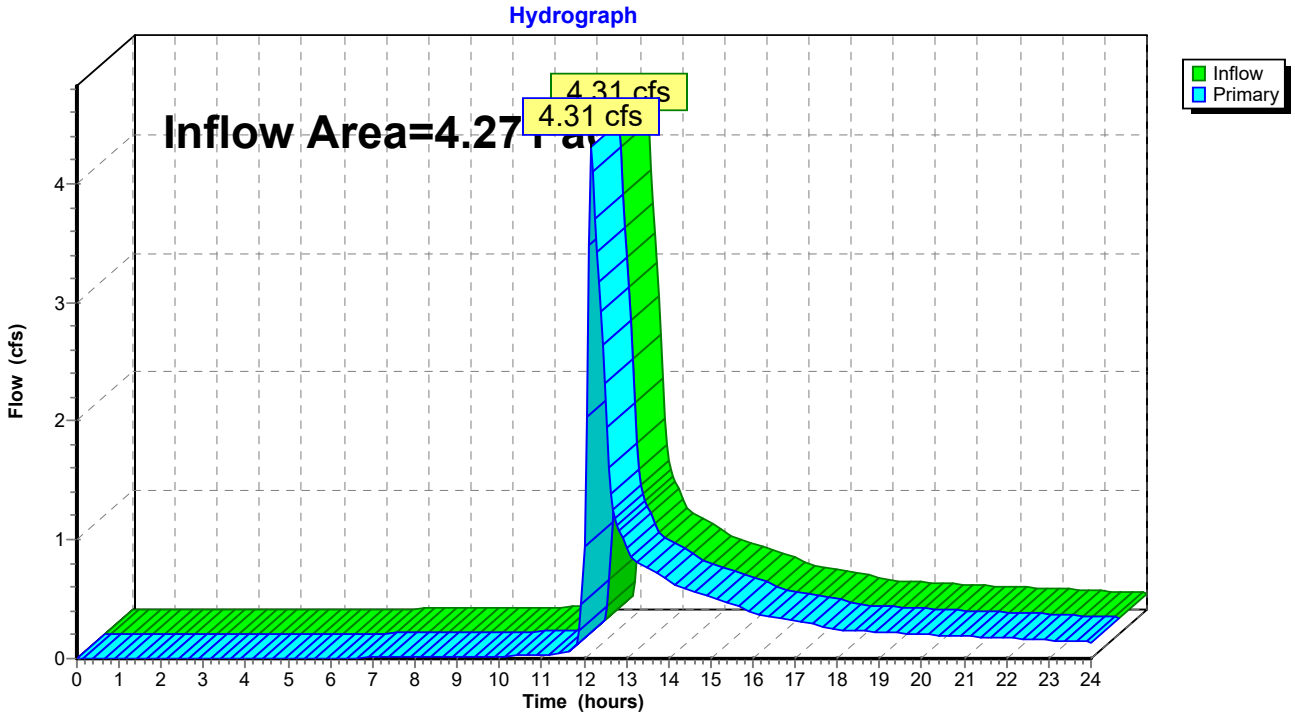


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 1.10% Impervious, Inflow Depth > 1.39" for 100-yr event
Inflow = 4.31 cfs @ 12.17 hrs, Volume= 0.496 af
Primary = 4.31 cfs @ 12.17 hrs, Volume= 0.496 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link DP-2: South



HydroCAD Analysis: Proposed Conditions

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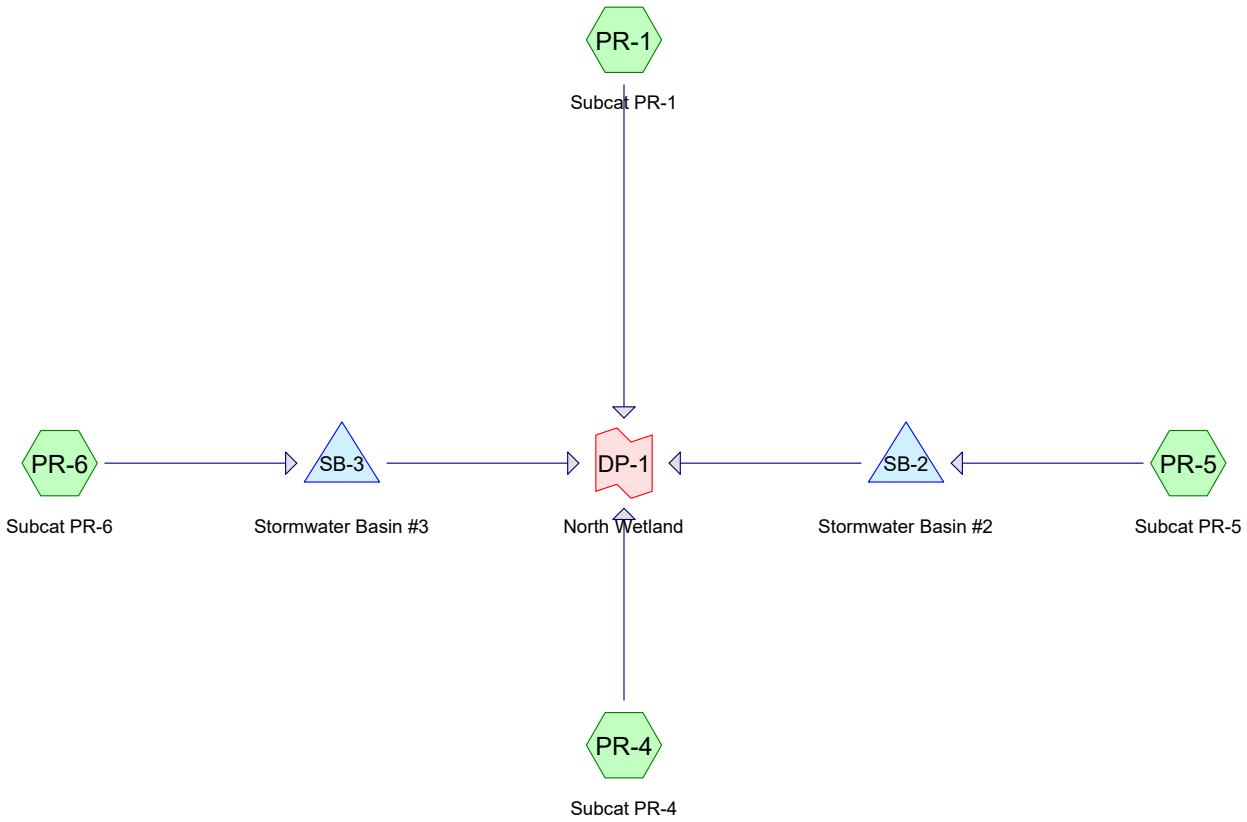

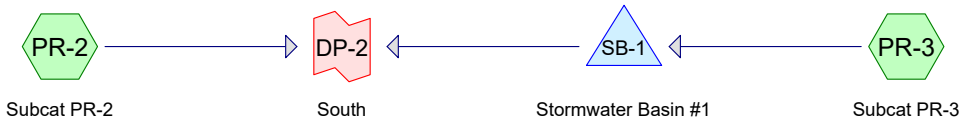

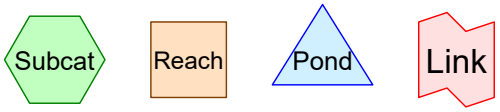

Routing Diagram for 43593.00-PR
Prepared by VHB, Inc, Printed 10/15/2025
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Project Notes

Defined 5 rainfall events from Simsbury-CT IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.34	2
2	10-yr	Type III 24-hr		Default	24.00	1	5.36	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.63	2
4	50-yr	Type III 24-hr		Default	24.00	1	7.55	2
5	100-yr	Type III 24-hr		Default	24.00	1	8.58	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.313	39	>75% Grass cover, Good, HSG A (PR-1, PR-2, PR-3, PR-4, PR-5, PR-6)
12.258	50	>75% Grass cover, Good, HSG A-B (PR-2, PR-3, PR-5, PR-6)
6.635	61	>75% Grass cover, Good, HSG B (PR-1, PR-5, PR-6)
3.011	68	>75% Grass cover, Good, HSG B-C (PR-5, PR-6)
0.039	96	Gravel surface, HSG A (PR-6)
0.091	96	Gravel surface, HSG B (PR-1, PR-6)
0.213	98	Paved parking, HSG A (PR-1, PR-2, PR-4, PR-5, PR-6)
0.216	98	Paved parking, HSG B (PR-1)
1.558	30	Woods, Good, HSG A (PR-1, PR-2, PR-3, PR-4, PR-5)
0.257	55	Woods, Good, HSG B (PR-1)
0.075	70	Woods, Good, HSG C (PR-4)
30.667	**52**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
20.382	HSG A	PR-1, PR-2, PR-3, PR-4, PR-5, PR-6
10.210	HSG B	PR-1, PR-5, PR-6
0.075	HSG C	PR-4
0.000	HSG D	
0.000	Other	
30.667		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
18.571	9.646	0.000	0.000	0.000	28.217	>75% Grass cover, Good	PR-1, PR-2, PR-3, PR-4, PR-5, PR-6
0.039	0.091	0.000	0.000	0.000	0.130	Gravel surface	PR-1, PR-6
0.213	0.216	0.000	0.000	0.000	0.430	Paved parking	PR-1, PR-2, PR-4, PR-5, PR-6
1.558	0.257	0.075	0.000	0.000	1.890	Woods, Good	PR-1, PR-2, PR-3, PR-4, PR-5
20.382	**10.210**	**0.075**	**0.000**	**0.000**	**30.667**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Subcat PR-1 Runoff Area=286,141 sf 4.26% Impervious Runoff Depth=0.53"
Flow Length=910' Tc=24.3 min CN=WQ Runoff=1.83 cfs 0.290 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=2.236 ac 1.48% Impervious Runoff Depth=0.07"
Flow Length=460' Tc=5.0 min CN=WQ Runoff=0.11 cfs 0.014 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=2.035 ac 0.00% Impervious Runoff Depth=0.04"
Flow Length=550' Tc=7.4 min CN=WQ Runoff=0.02 cfs 0.007 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=1.639 ac 5.85% Impervious Runoff Depth=0.22"
Flow Length=360' Tc=6.7 min CN=WQ Runoff=0.37 cfs 0.031 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=10.418 ac 0.12% Impervious Runoff Depth=0.20"
Flow Length=850' Tc=9.8 min CN=WQ Runoff=0.66 cfs 0.170 af

Subcatchment PR-6: Subcat PR-6 Runoff Area=7.770 ac 0.12% Impervious Runoff Depth=0.44"
Flow Length=585' Tc=7.6 min CN=WQ Runoff=2.58 cfs 0.287 af

Pond SB-1: Stormwater Basin #1 Peak Elev=186.00' Storage=0 cf Inflow=0.02 cfs 0.007 af
Discarded=0.02 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.007 af

Pond SB-2: Stormwater Basin #2 Peak Elev=152.33' Storage=871 cf Inflow=0.66 cfs 0.170 af
Discarded=0.26 cfs 0.170 af Primary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.170 af

Pond SB-3: Stormwater Basin #3 Peak Elev=153.20' Storage=6,234 cf Inflow=2.58 cfs 0.287 af
Discarded=0.17 cfs 0.288 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.288 af

Link DP-1: North Wetland Inflow=1.96 cfs 0.320 af
Primary=1.96 cfs 0.320 af

Link DP-2: South Inflow=0.11 cfs 0.014 af
Primary=0.11 cfs 0.014 af

Total Runoff Area = 30.667 ac Runoff Volume = 0.799 af Average Runoff Depth = 0.31"
98.60% Pervious = 30.237 ac 1.40% Impervious = 0.430 ac

Summary for Subcatchment PR-1: Subcat PR-1

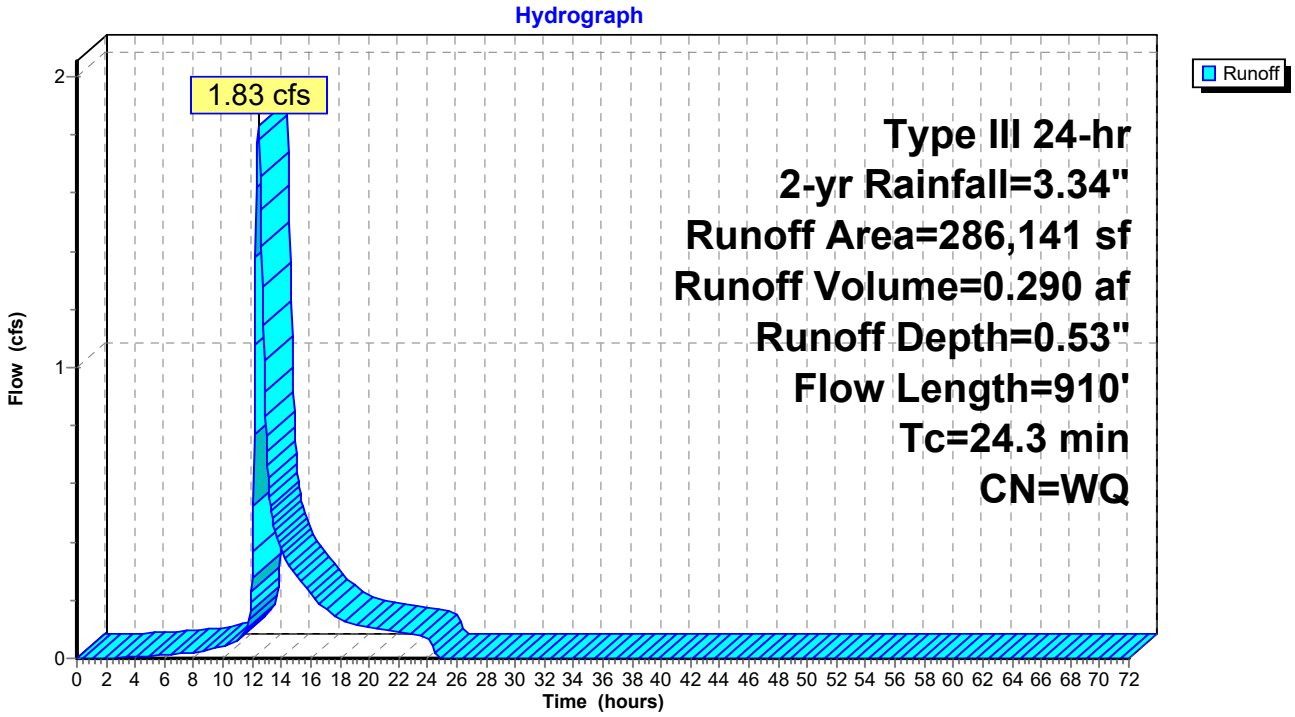
Runoff = 1.83 cfs @ 12.42 hrs, Volume= 0.290 af, Depth= 0.53"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

Area (sf)	CN	Description
48,008	39	>75% Grass cover, Good, HSG A
2,354	30	Woods, Good, HSG A
11,190	55	Woods, Good, HSG B
9,430	98	Paved parking, HSG B
1,431	96	Gravel surface, HSG B
210,964	61	>75% Grass cover, Good, HSG B
2,764	98	Paved parking, HSG A
286,141		Weighted Average
273,947		95.74% Pervious Area
12,195		4.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0460	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.4	480	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.3	910	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

[49] Hint: Tc<2dt may require smaller dt

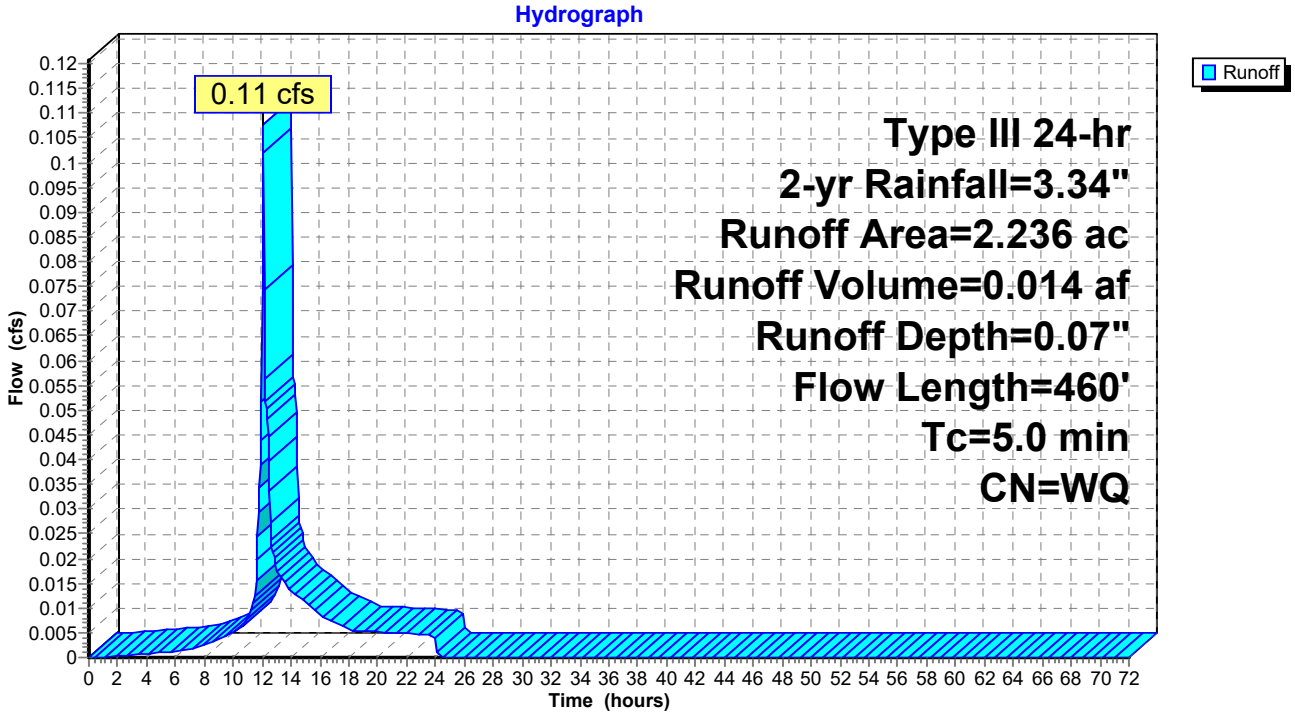
Runoff = 0.11 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 0.07"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

	Area (ac)	CN	Description
	0.539	30	Woods, Good, HSG A
	1.302	39	>75% Grass cover, Good, HSG A
	0.033	98	Paved parking, HSG A
*	0.362	50	>75% Grass cover, Good, HSG A-B
	2.236		Weighted Average
	2.203		98.52% Pervious Area
	0.033		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.2000	2.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	410	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.0	460	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

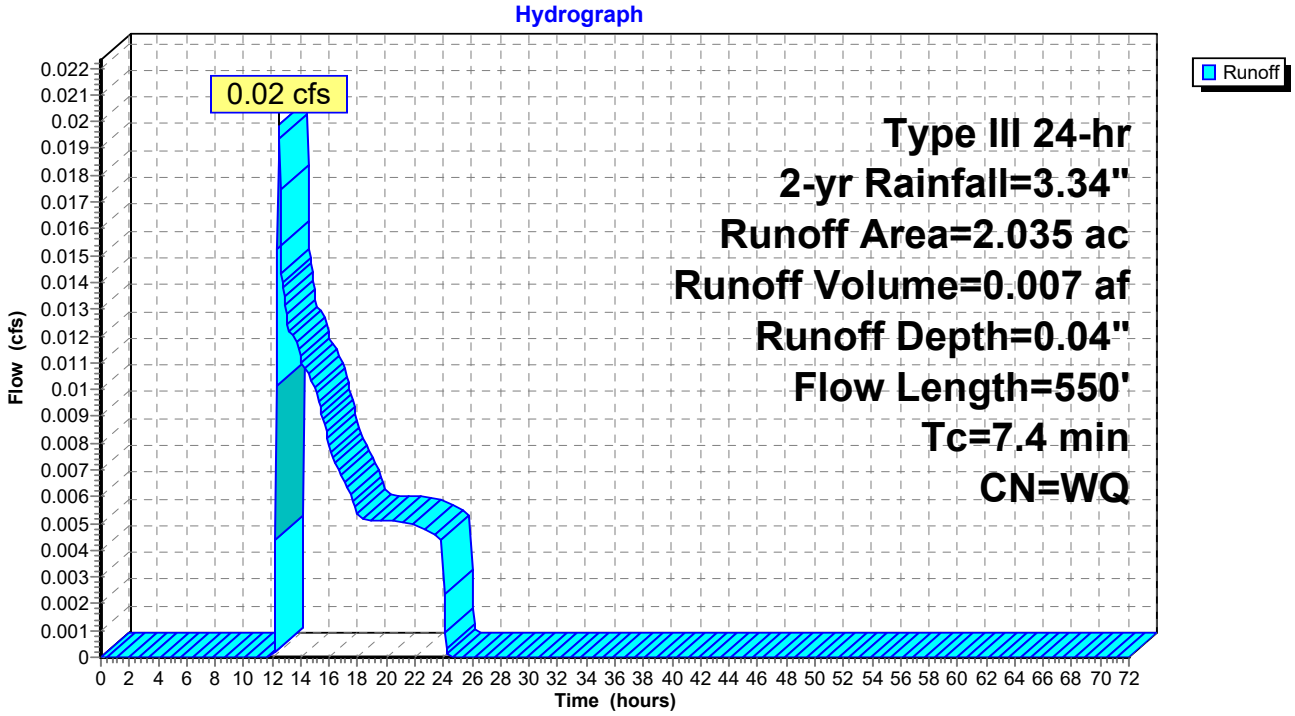
Runoff = 0.02 cfs @ 12.46 hrs, Volume= 0.007 af, Depth= 0.04"
Routed to Pond SB-1 : Stormwater Basin #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

	Area (ac)	CN	Description
	1.371	39	>75% Grass cover, Good, HSG A
	0.149	30	Woods, Good, HSG A
*	0.515	50	>75% Grass cover, Good, HSG A-B
	2.035		Weighted Average
	2.035		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.3350	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
3.5	500	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.4	550	Total			

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

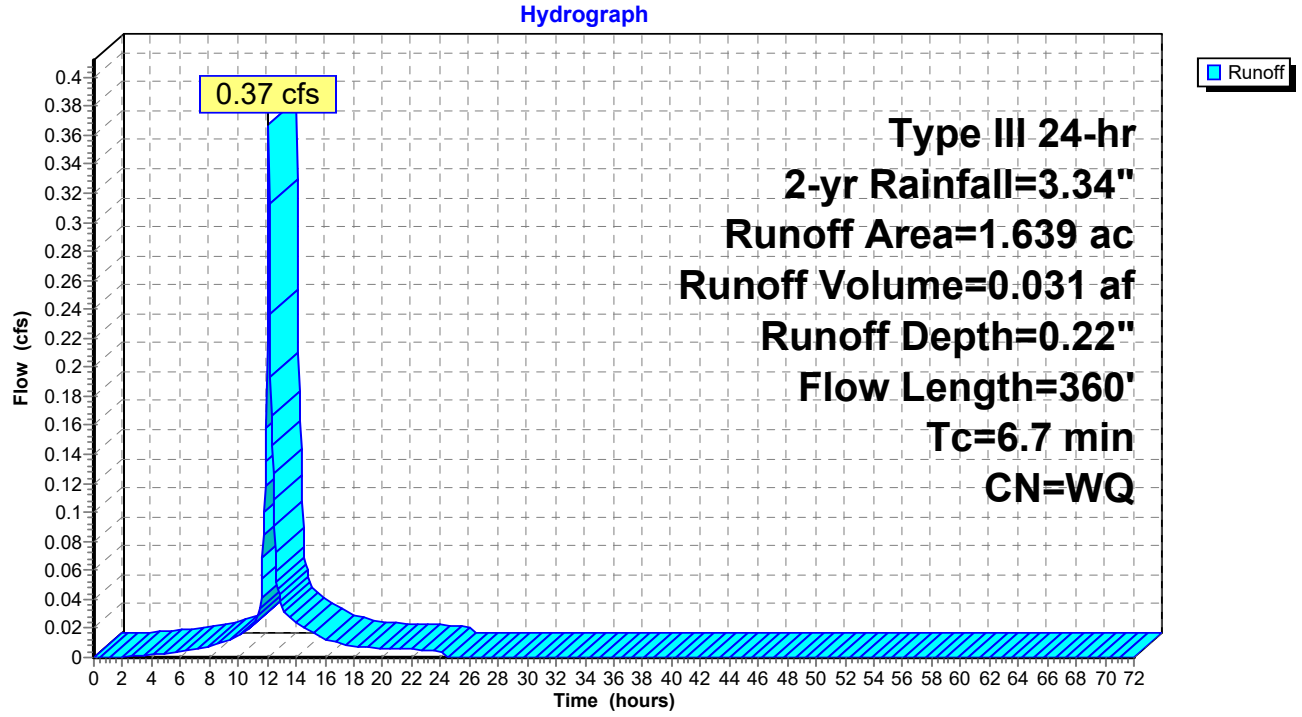
Runoff = 0.37 cfs @ 12.10 hrs, Volume= 0.031 af, Depth= 0.22"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

Area (ac)	CN	Description
0.096	98	Paved parking, HSG A
0.518	30	Woods, Good, HSG A
0.950	39	>75% Grass cover, Good, HSG A
0.075	70	Woods, Good, HSG C
1.639		Weighted Average
1.543		94.15% Pervious Area
0.096		5.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.3000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	360	Total			

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

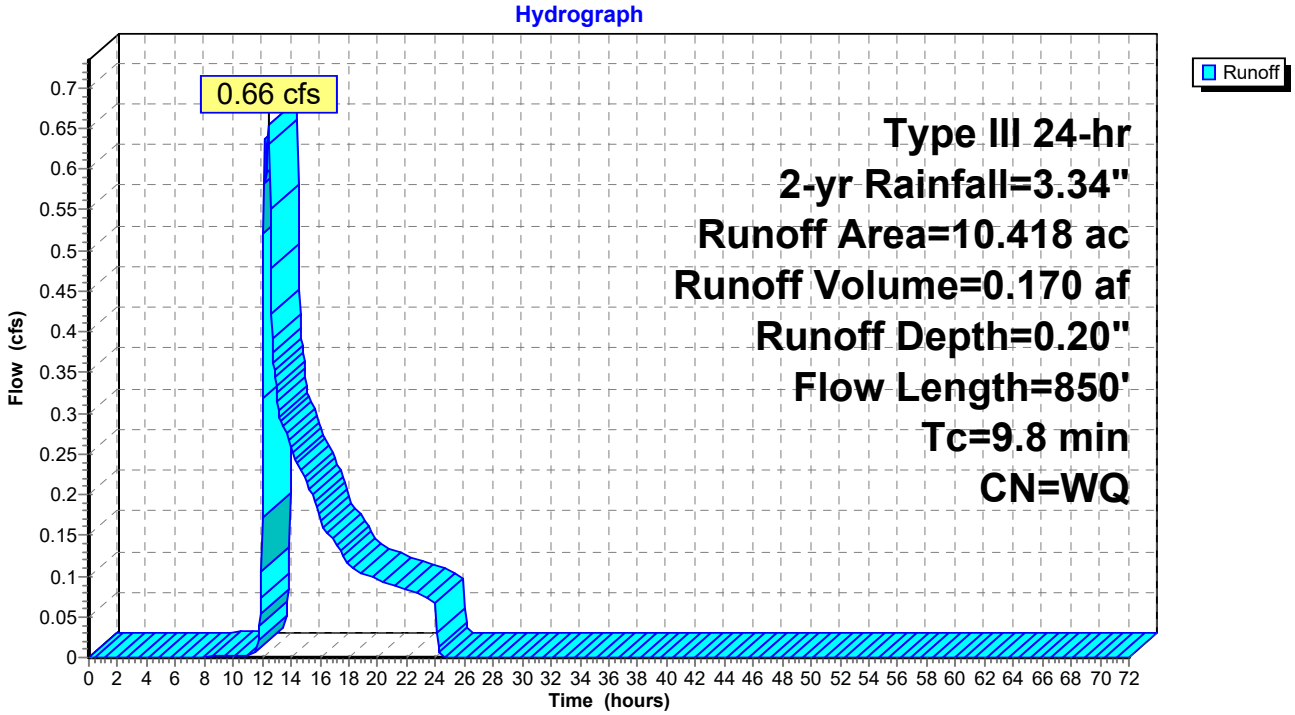
Runoff = 0.66 cfs @ 12.42 hrs, Volume= 0.170 af, Depth= 0.20"
Routed to Pond SB-2 : Stormwater Basin #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

	Area (ac)	CN	Description
	0.298	30	Woods, Good, HSG A
	1.143	39	>75% Grass cover, Good, HSG A
	0.012	98	Paved parking, HSG A
*	7.727	50	>75% Grass cover, Good, HSG A-B
*	0.507	68	>75% Grass cover, Good, HSG B-C
	0.731	61	>75% Grass cover, Good, HSG B
	10.418		Weighted Average
	10.406		99.88% Pervious Area
	0.012		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.3500	0.22		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
6.0	800	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.8	850	Total			

Subcatchment PR-5: Subcat PR-5



Summary for Subcatchment PR-6: Subcat PR-6

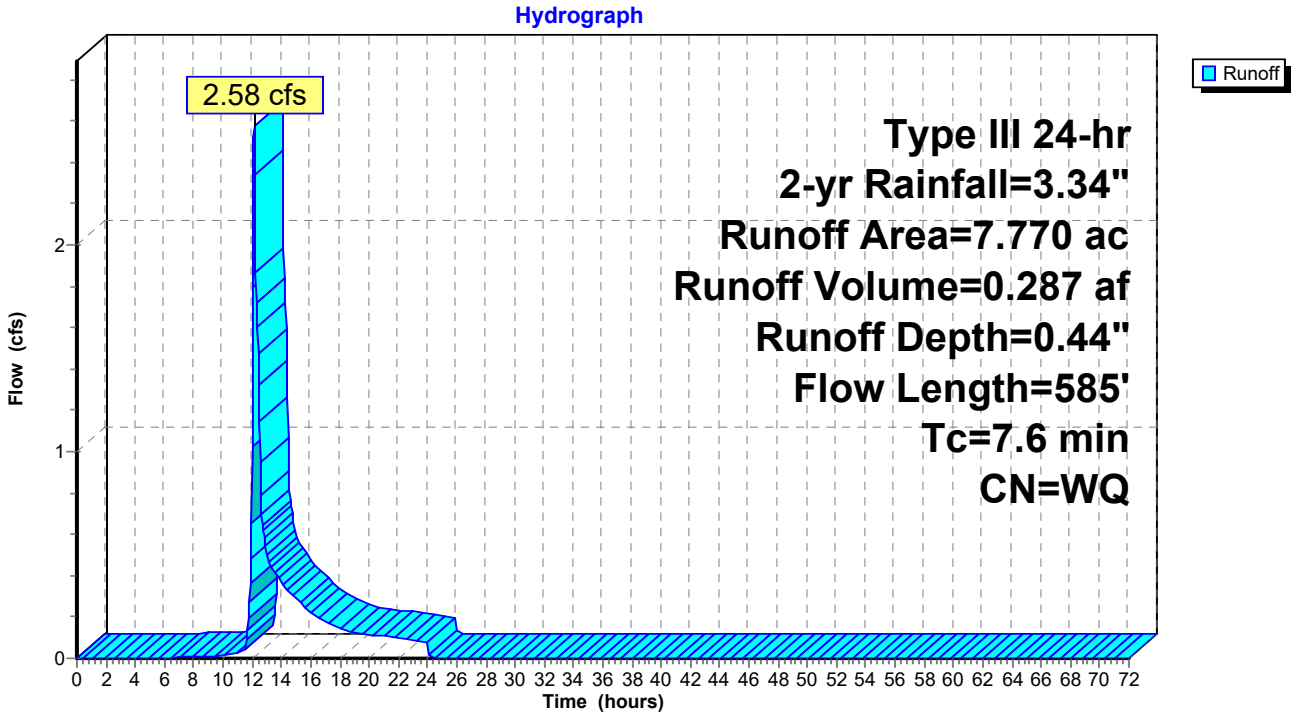
Runoff = 2.58 cfs @ 12.13 hrs, Volume= 0.287 af, Depth= 0.44"
Routed to Pond SB-3 : Stormwater Basin #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.34"

	Area (ac)	CN	Description
	0.009	98	Paved parking, HSG A
	0.039	96	Gravel surface, HSG A
*	3.654	50	>75% Grass cover, Good, HSG A-B
	0.445	39	>75% Grass cover, Good, HSG A
	0.058	96	Gravel surface, HSG B
*	2.504	68	>75% Grass cover, Good, HSG B-C
	1.061	61	>75% Grass cover, Good, HSG B
	7.770		Weighted Average
	7.761		99.88% Pervious Area
	0.009		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1350	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
5.0	535	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.6	585	Total			

Subcatchment PR-6: Subcat PR-6



Summary for Pond SB-1: Stormwater Basin #1

Inflow Area = 2.035 ac, 0.00% Impervious, Inflow Depth = 0.04" for 2-yr event
Inflow = 0.02 cfs @ 12.46 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 12.46 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.02 cfs @ 12.46 hrs, Volume= 0.007 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-2 : South

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 186.00' @ 0.00 hrs Surf.Area= 2,137 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,011.9 - 1,011.9)

Volume	Invert	Avail.Storage	Storage Description
#1	186.00'	16,621 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

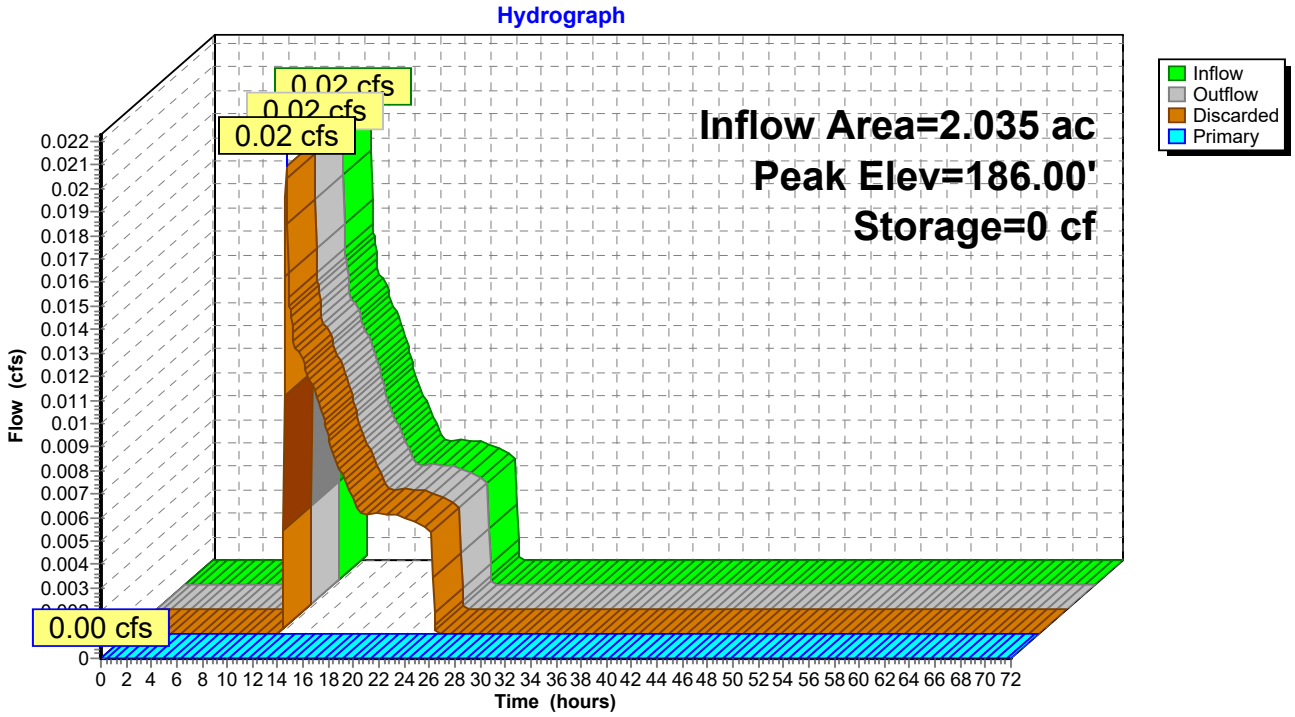
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
186.00	2,137	317.4	0.0	0	0	2,137
190.00	6,579	392.8	100.0	16,621	16,621	6,629

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	189.00'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.00 cfs @ 12.46 hrs HW=186.00' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.05 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=186.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-1: Stormwater Basin #1



Summary for Pond SB-2: Stormwater Basin #2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=68)

Inflow Area = 10.418 ac, 0.12% Impervious, Inflow Depth = 0.20" for 2-yr event
Inflow = 0.66 cfs @ 12.42 hrs, Volume= 0.170 af
Outflow = 0.26 cfs @ 13.88 hrs, Volume= 0.170 af, Atten= 60%, Lag= 87.7 min
Discarded = 0.26 cfs @ 13.88 hrs, Volume= 0.170 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 152.33' @ 13.88 hrs Surf.Area= 11,407 sf Storage= 871 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 26.2 min (982.8 - 956.6)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	55,961 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

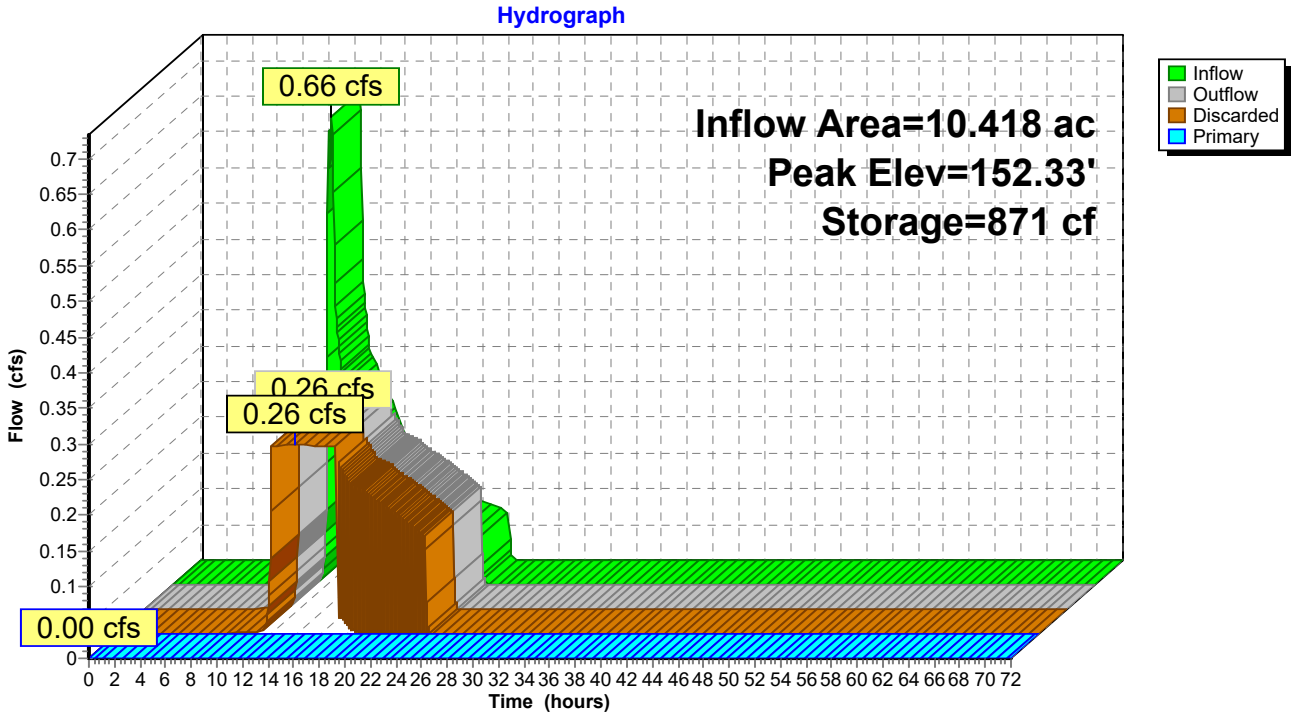
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	11,311	424.0	0.0	0	0	11,311
156.25	16,853	500.0	100.0	55,961	55,961	17,197

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.26 cfs @ 13.88 hrs HW=152.33' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=152.25' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-2: Stormwater Basin #2



Summary for Pond SB-3: Stormwater Basin #3

Inflow Area = 7.770 ac, 0.12% Impervious, Inflow Depth = 0.44" for 2-yr event
Inflow = 2.58 cfs @ 12.13 hrs, Volume= 0.287 af
Outflow = 0.17 cfs @ 17.34 hrs, Volume= 0.288 af, Atten= 94%, Lag= 312.8 min
Discarded = 0.17 cfs @ 17.34 hrs, Volume= 0.288 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 153.20' @ 17.34 hrs Surf.Area= 7,200 sf Storage= 6,234 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 426.3 min (1,322.0 - 895.7)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	35,578 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

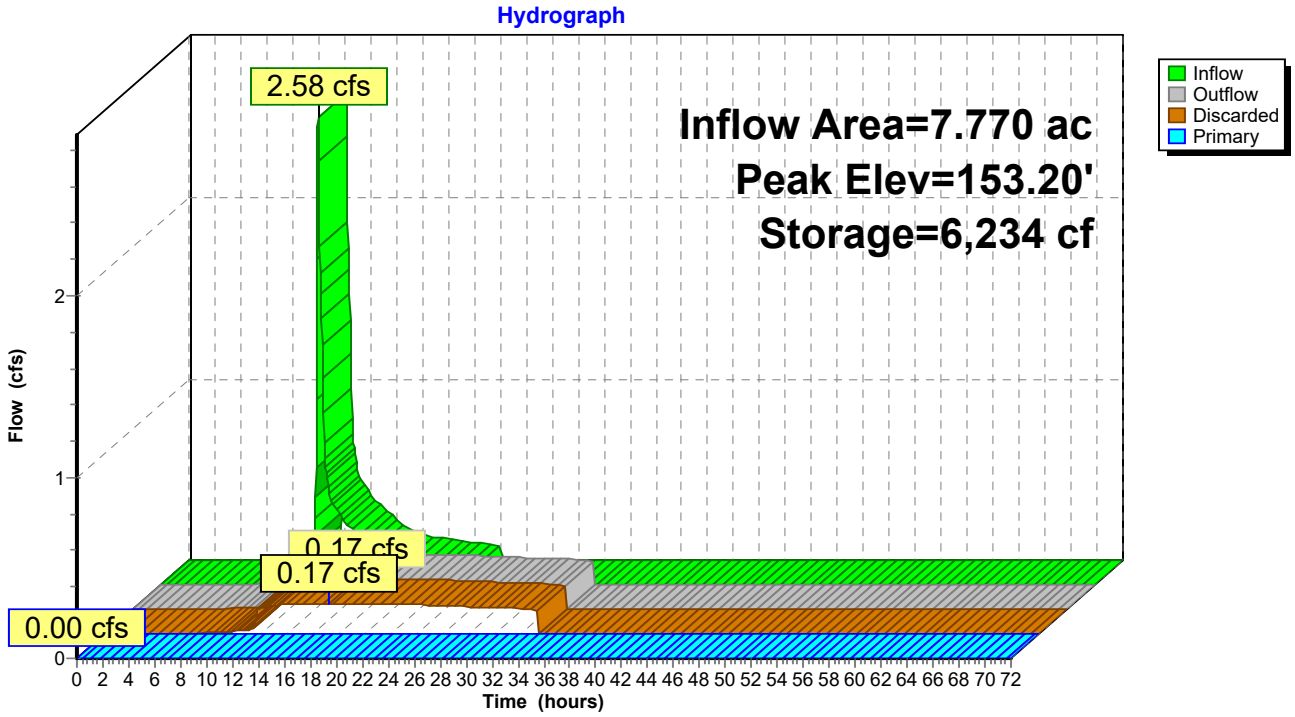
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	5,881	497.0	0.0	0	0	5,881
156.25	12,298	573.0	100.0	35,578	35,578	12,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.17 cfs @ 17.34 hrs HW=153.20' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=152.25' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-3: Stormwater Basin #3

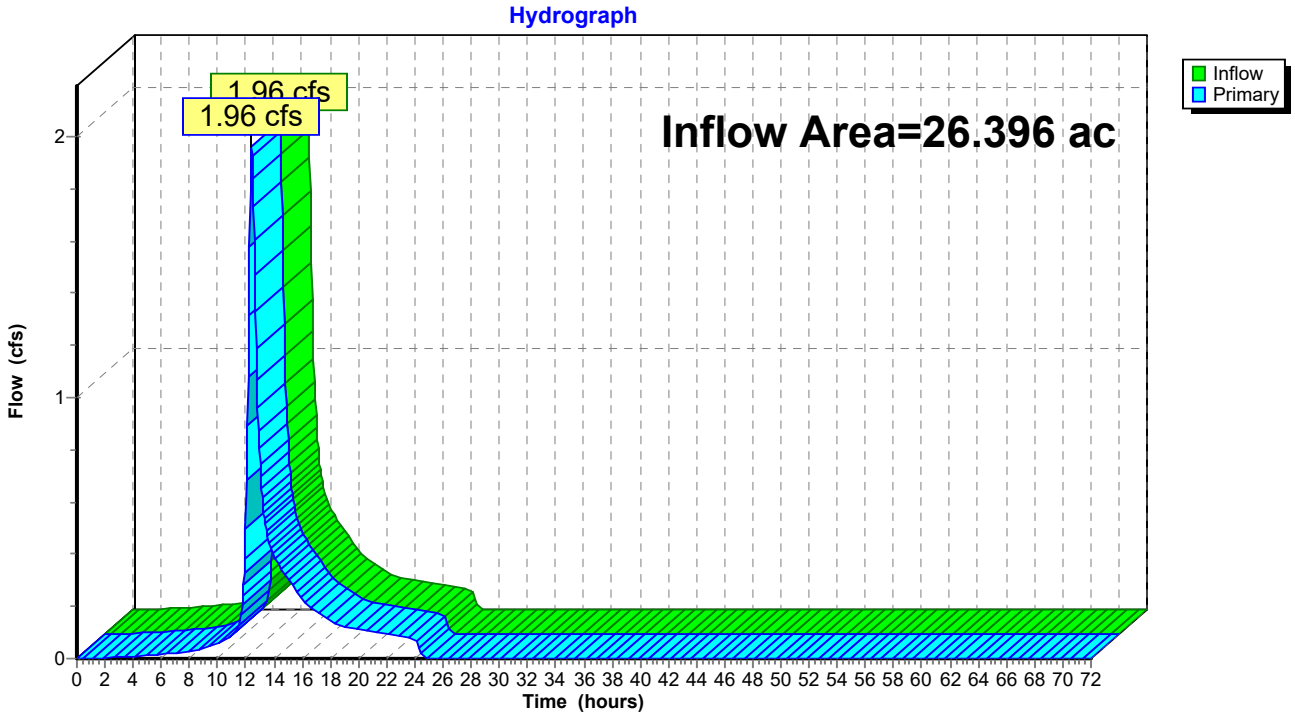


Summary for Link DP-1: North Wetland

Inflow Area = 26.396 ac, 1.50% Impervious, Inflow Depth = 0.15" for 2-yr event
Inflow = 1.96 cfs @ 12.40 hrs, Volume= 0.320 af
Primary = 1.96 cfs @ 12.40 hrs, Volume= 0.320 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

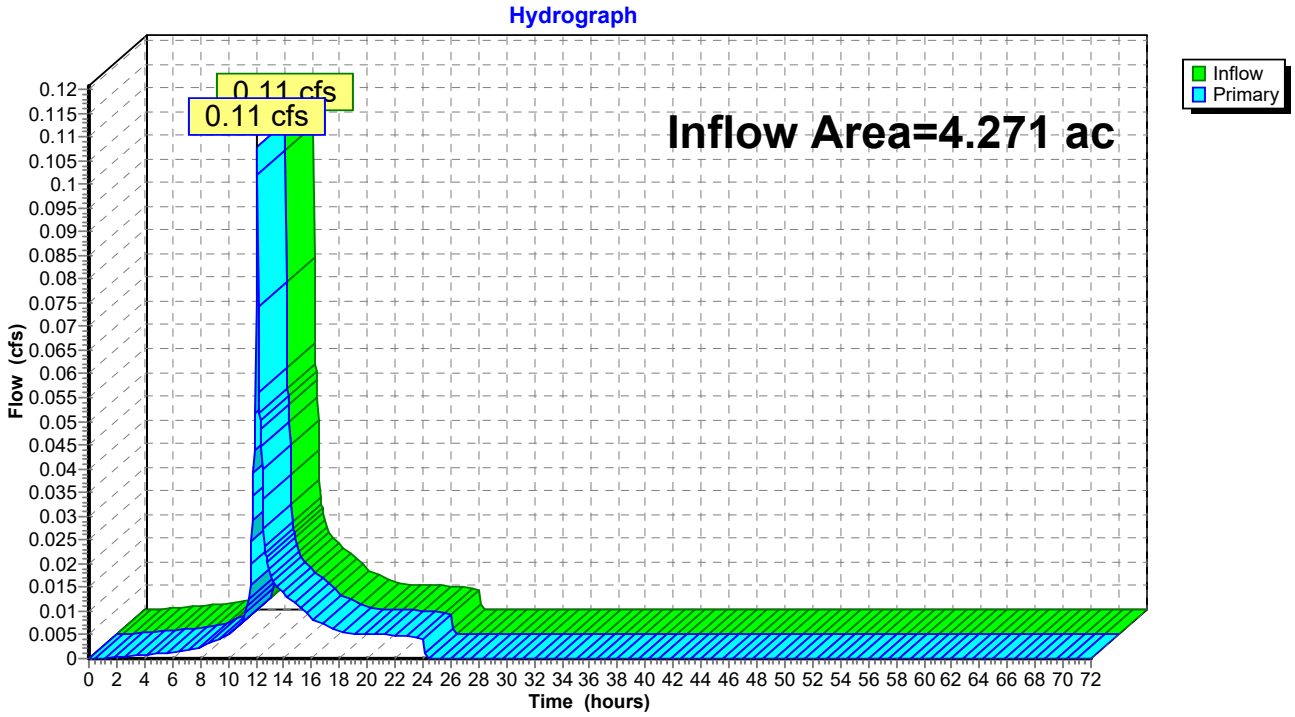


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 0.77% Impervious, Inflow Depth = 0.04" for 2-yr event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 0.014 af
Primary = 0.11 cfs @ 12.07 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Subcat PR-1 Runoff Area=286,141 sf 4.26% Impervious Runoff Depth=1.51"
Flow Length=910' Tc=24.3 min CN=WQ Runoff=6.37 cfs 0.825 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=2.236 ac 1.48% Impervious Runoff Depth=0.38"
Flow Length=460' Tc=5.0 min CN=WQ Runoff=0.42 cfs 0.071 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=2.035 ac 0.00% Impervious Runoff Depth=0.40"
Flow Length=550' Tc=7.4 min CN=WQ Runoff=0.33 cfs 0.068 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=1.639 ac 5.85% Impervious Runoff Depth=0.57"
Flow Length=360' Tc=6.7 min CN=WQ Runoff=0.67 cfs 0.078 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=10.418 ac 0.12% Impervious Runoff Depth=0.88"
Flow Length=850' Tc=9.8 min CN=WQ Runoff=6.80 cfs 0.764 af

Subcatchment PR-6: Subcat PR-6 Runoff Area=7.770 ac 0.12% Impervious Runoff Depth=1.39"
Flow Length=585' Tc=7.6 min CN=WQ Runoff=10.22 cfs 0.898 af

Pond SB-1: Stormwater Basin #1 Peak Elev=186.44' Storage=1,031 cf Inflow=0.33 cfs 0.068 af
Discarded=0.06 cfs 0.068 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.068 af

Pond SB-2: Stormwater Basin #2 Peak Elev=153.88' Storage=20,102 cf Inflow=6.80 cfs 0.764 af
Discarded=0.31 cfs 0.764 af Primary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.764 af

Pond SB-3: Stormwater Basin #3 Peak Elev=155.31' Storage=24,845 cf Inflow=10.22 cfs 0.898 af
Discarded=0.24 cfs 0.816 af Primary=0.32 cfs 0.082 af Outflow=0.57 cfs 0.898 af

Link DP-1: North Wetland Inflow=6.70 cfs 0.986 af
Primary=6.70 cfs 0.986 af

Link DP-2: South Inflow=0.42 cfs 0.071 af
Primary=0.42 cfs 0.071 af

Total Runoff Area = 30.667 ac Runoff Volume = 2.704 af Average Runoff Depth = 1.06"
98.60% Pervious = 30.237 ac 1.40% Impervious = 0.430 ac

Summary for Subcatchment PR-1: Subcat PR-1

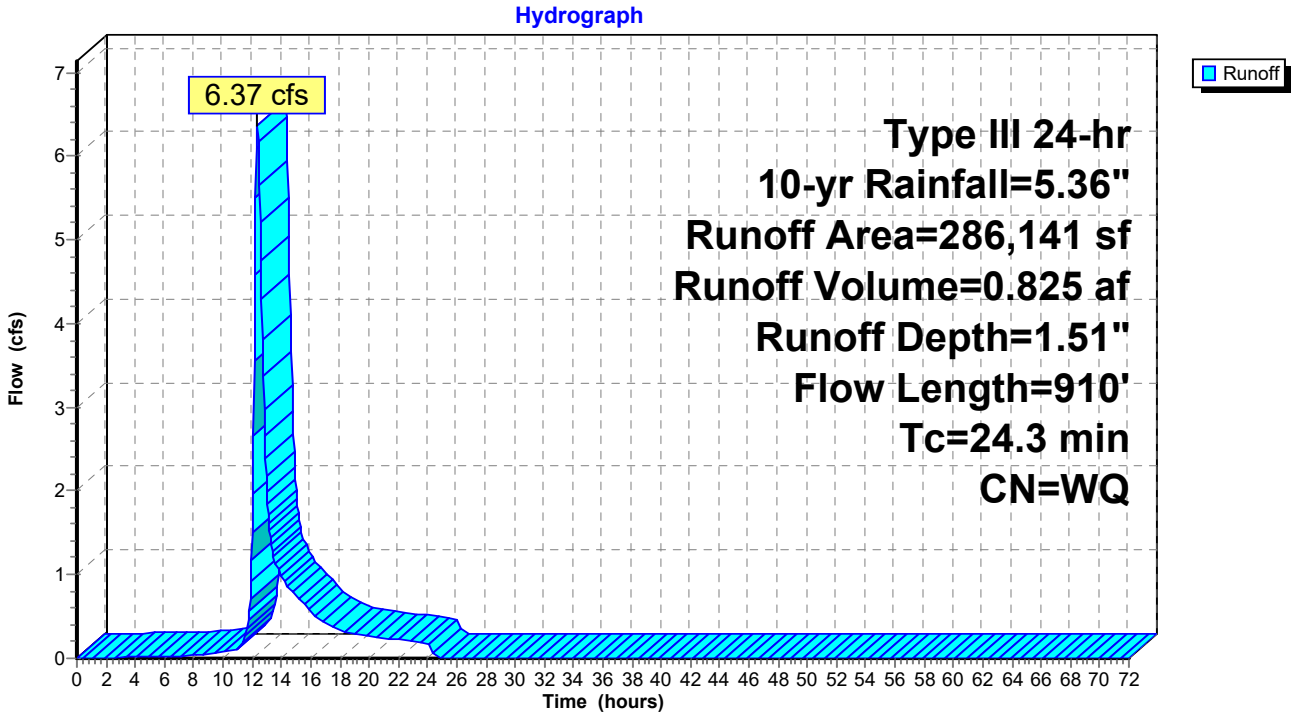
Runoff = 6.37 cfs @ 12.37 hrs, Volume= 0.825 af, Depth= 1.51"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

Area (sf)	CN	Description
48,008	39	>75% Grass cover, Good, HSG A
2,354	30	Woods, Good, HSG A
11,190	55	Woods, Good, HSG B
9,430	98	Paved parking, HSG B
1,431	96	Gravel surface, HSG B
210,964	61	>75% Grass cover, Good, HSG B
2,764	98	Paved parking, HSG A
286,141		Weighted Average
273,947		95.74% Pervious Area
12,195		4.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0460	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.4	480	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.3	910	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

[49] Hint: Tc<2dt may require smaller dt

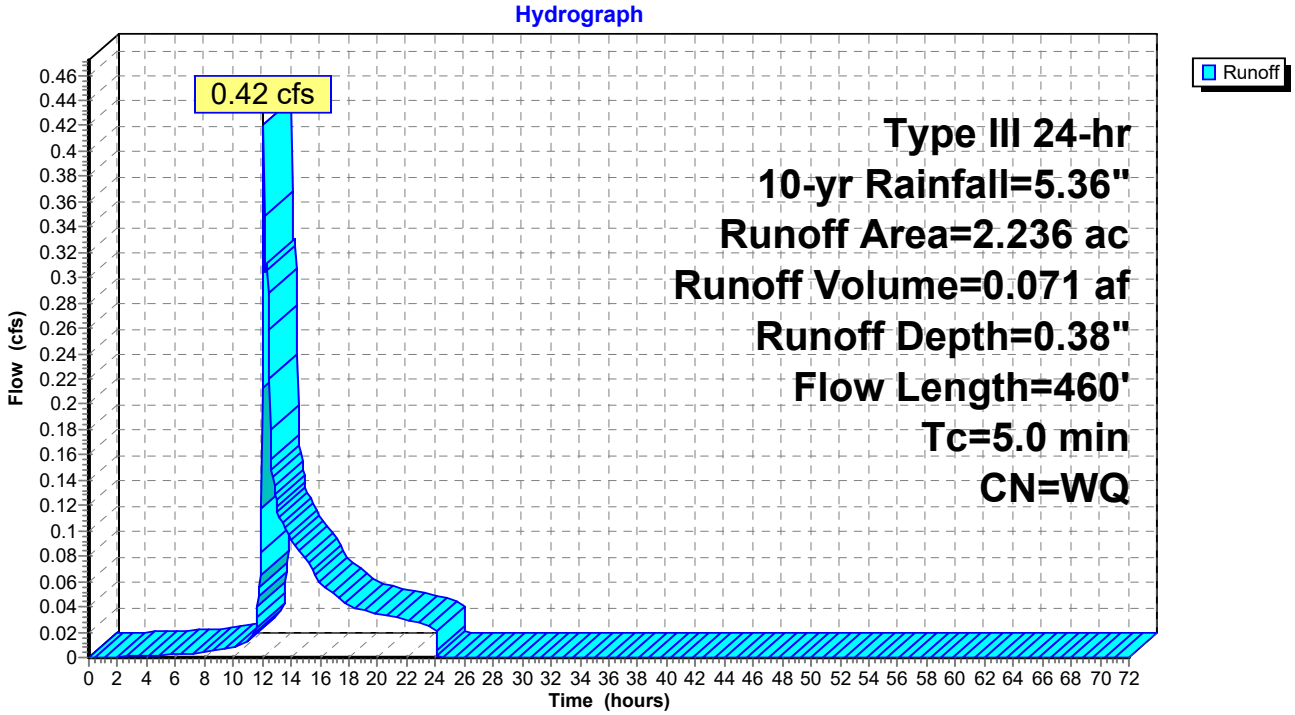
Runoff = 0.42 cfs @ 12.10 hrs, Volume= 0.071 af, Depth= 0.38"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

	Area (ac)	CN	Description
	0.539	30	Woods, Good, HSG A
	1.302	39	>75% Grass cover, Good, HSG A
	0.033	98	Paved parking, HSG A
*	0.362	50	>75% Grass cover, Good, HSG A-B
	2.236		Weighted Average
	2.203		98.52% Pervious Area
	0.033		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.2000	2.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	410	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.0	460	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

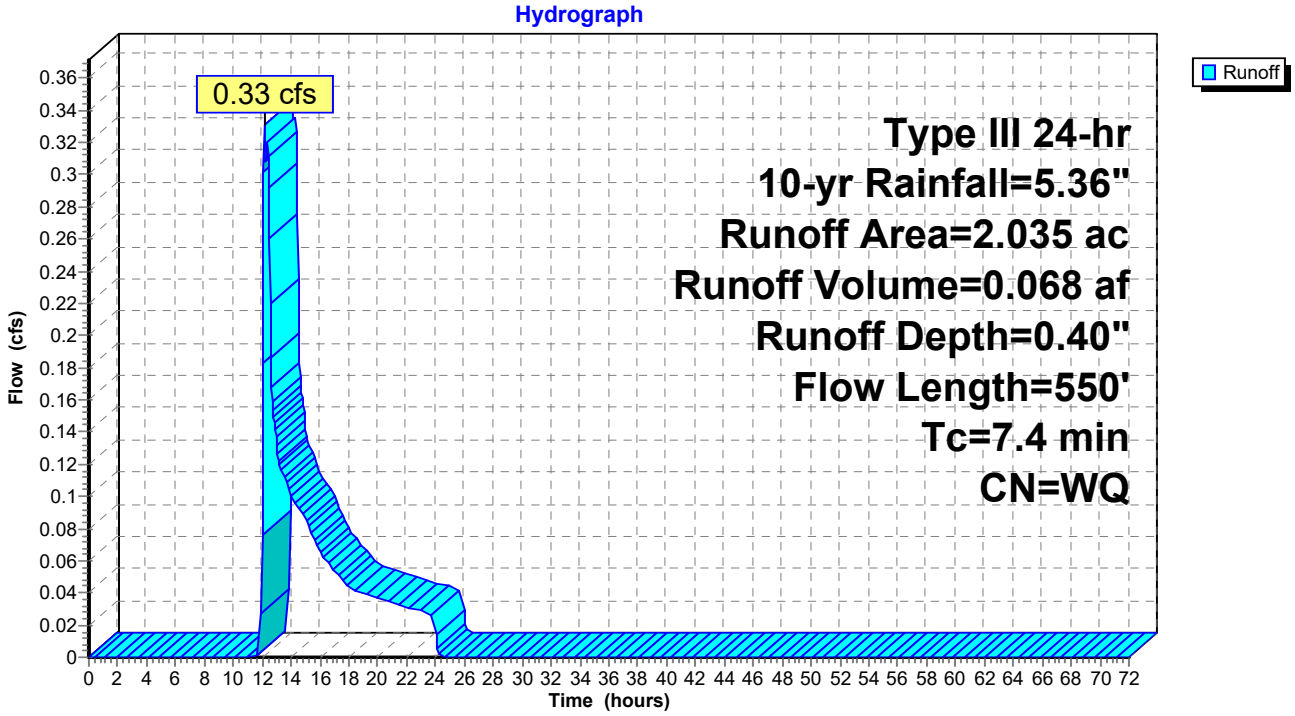
Runoff = 0.33 cfs @ 12.15 hrs, Volume= 0.068 af, Depth= 0.40"
Routed to Pond SB-1 : Stormwater Basin #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

	Area (ac)	CN	Description
	1.371	39	>75% Grass cover, Good, HSG A
	0.149	30	Woods, Good, HSG A
*	0.515	50	>75% Grass cover, Good, HSG A-B
	2.035		Weighted Average
	2.035		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.3350	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
3.5	500	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.4	550	Total			

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

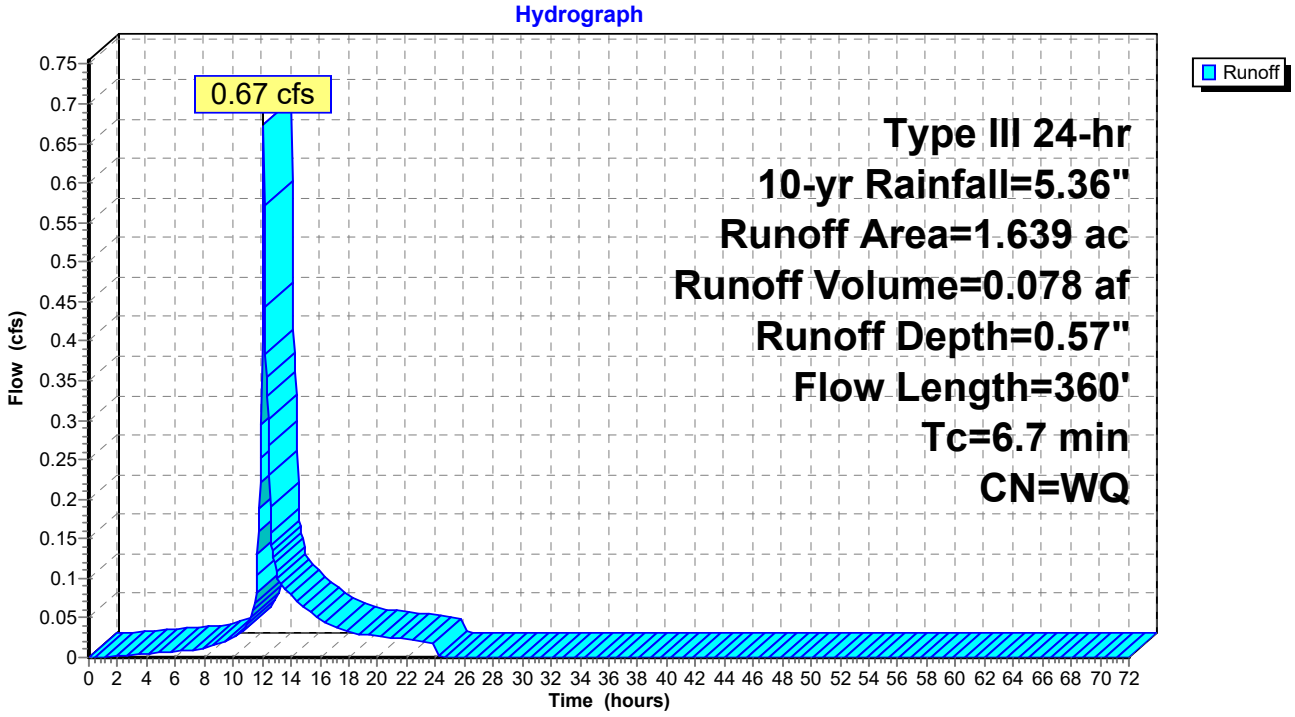
Runoff = 0.67 cfs @ 12.10 hrs, Volume= 0.078 af, Depth= 0.57"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

Area (ac)	CN	Description
0.096	98	Paved parking, HSG A
0.518	30	Woods, Good, HSG A
0.950	39	>75% Grass cover, Good, HSG A
0.075	70	Woods, Good, HSG C
1.639		Weighted Average
1.543		94.15% Pervious Area
0.096		5.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.3000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	360	Total			

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

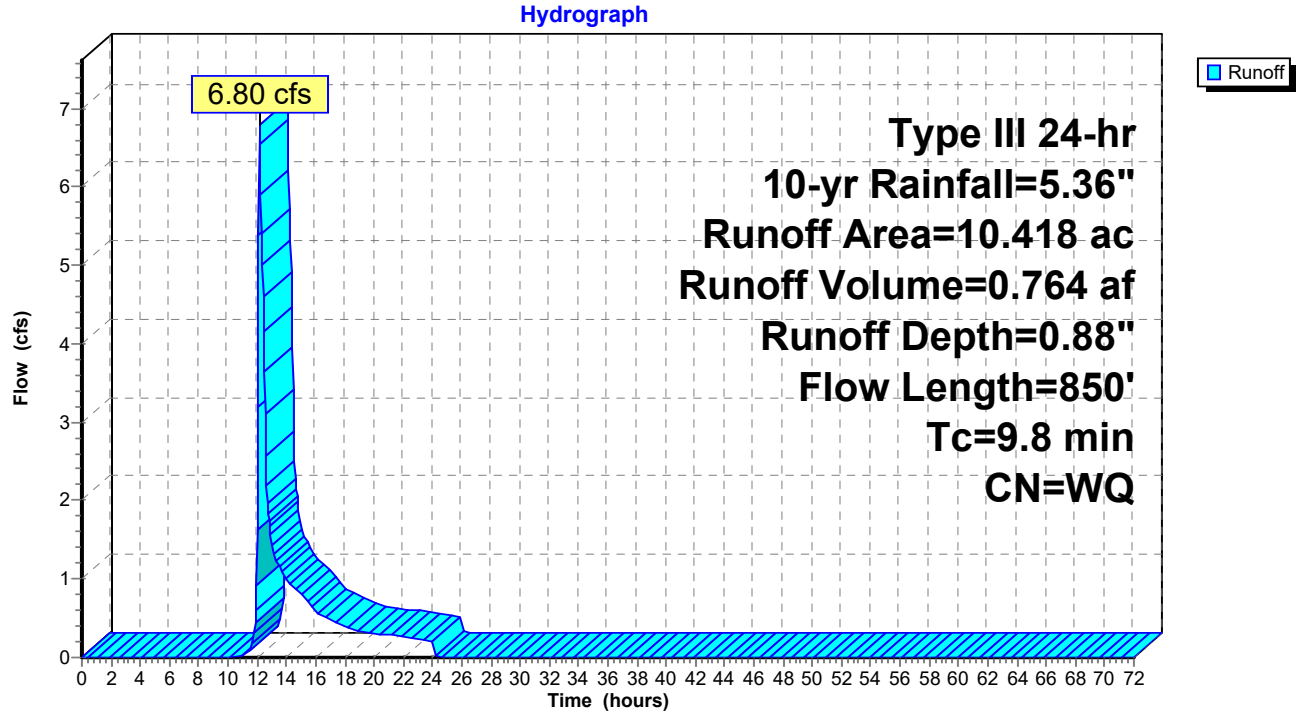
Runoff = 6.80 cfs @ 12.17 hrs, Volume= 0.764 af, Depth= 0.88"
Routed to Pond SB-2 : Stormwater Basin #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

	Area (ac)	CN	Description
	0.298	30	Woods, Good, HSG A
	1.143	39	>75% Grass cover, Good, HSG A
	0.012	98	Paved parking, HSG A
*	7.727	50	>75% Grass cover, Good, HSG A-B
*	0.507	68	>75% Grass cover, Good, HSG B-C
	0.731	61	>75% Grass cover, Good, HSG B
	10.418		Weighted Average
	10.406		99.88% Pervious Area
	0.012		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.3500	0.22		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
6.0	800	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.8	850	Total			

Subcatchment PR-5: Subcat PR-5



Summary for Subcatchment PR-6: Subcat PR-6

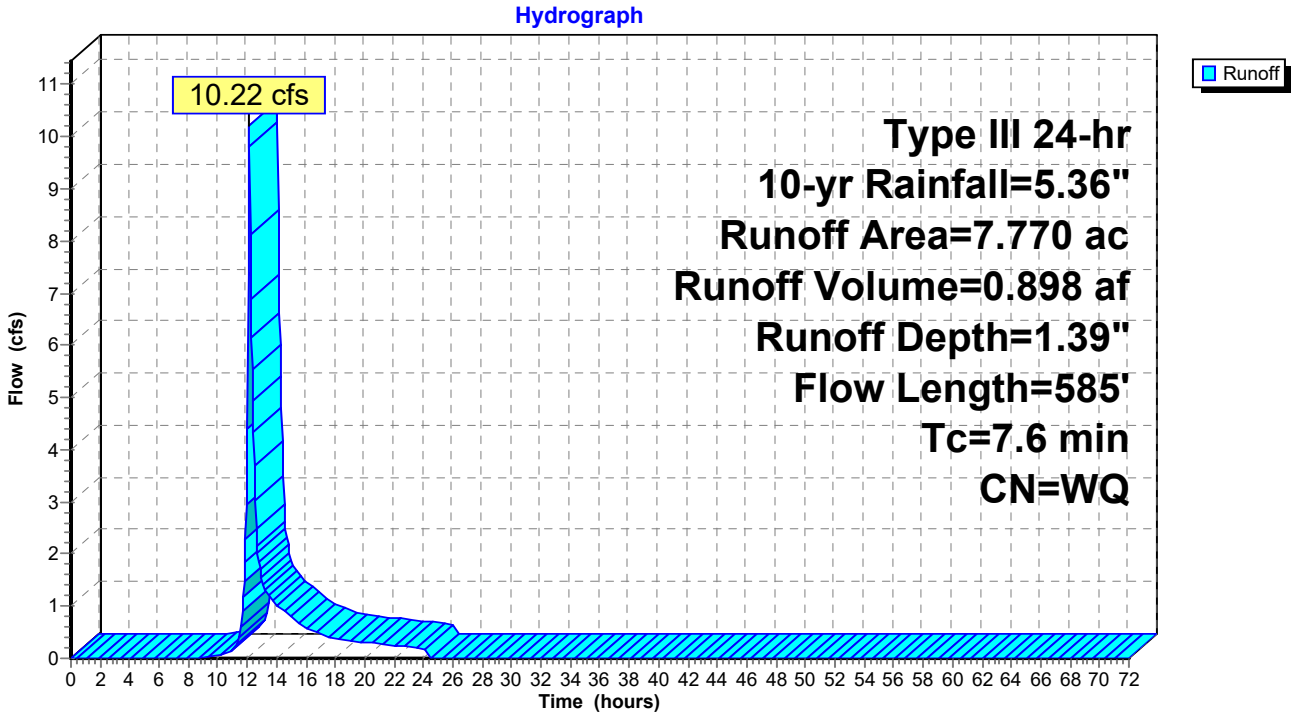
Runoff = 10.22 cfs @ 12.12 hrs, Volume= 0.898 af, Depth= 1.39"
Routed to Pond SB-3 : Stormwater Basin #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.36"

	Area (ac)	CN	Description
	0.009	98	Paved parking, HSG A
	0.039	96	Gravel surface, HSG A
*	3.654	50	>75% Grass cover, Good, HSG A-B
	0.445	39	>75% Grass cover, Good, HSG A
	0.058	96	Gravel surface, HSG B
*	2.504	68	>75% Grass cover, Good, HSG B-C
	1.061	61	>75% Grass cover, Good, HSG B
	7.770		Weighted Average
	7.761		99.88% Pervious Area
	0.009		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1350	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
5.0	535	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.6	585	Total			

Subcatchment PR-6: Subcat PR-6



Summary for Pond SB-1: Stormwater Basin #1

Inflow Area = 2.035 ac, 0.00% Impervious, Inflow Depth = 0.40" for 10-yr event
Inflow = 0.33 cfs @ 12.15 hrs, Volume= 0.068 af
Outflow = 0.06 cfs @ 16.61 hrs, Volume= 0.068 af, Atten= 82%, Lag= 267.4 min
Discarded = 0.06 cfs @ 16.61 hrs, Volume= 0.068 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-2 : South

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 186.44' @ 16.61 hrs Surf.Area= 2,510 sf Storage= 1,031 cf

Plug-Flow detention time= 211.5 min calculated for 0.068 af (100% of inflow)
Center-of-Mass det. time= 211.6 min (1,158.5 - 946.9)

Volume	Invert	Avail.Storage	Storage Description
#1	186.00'	16,621 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

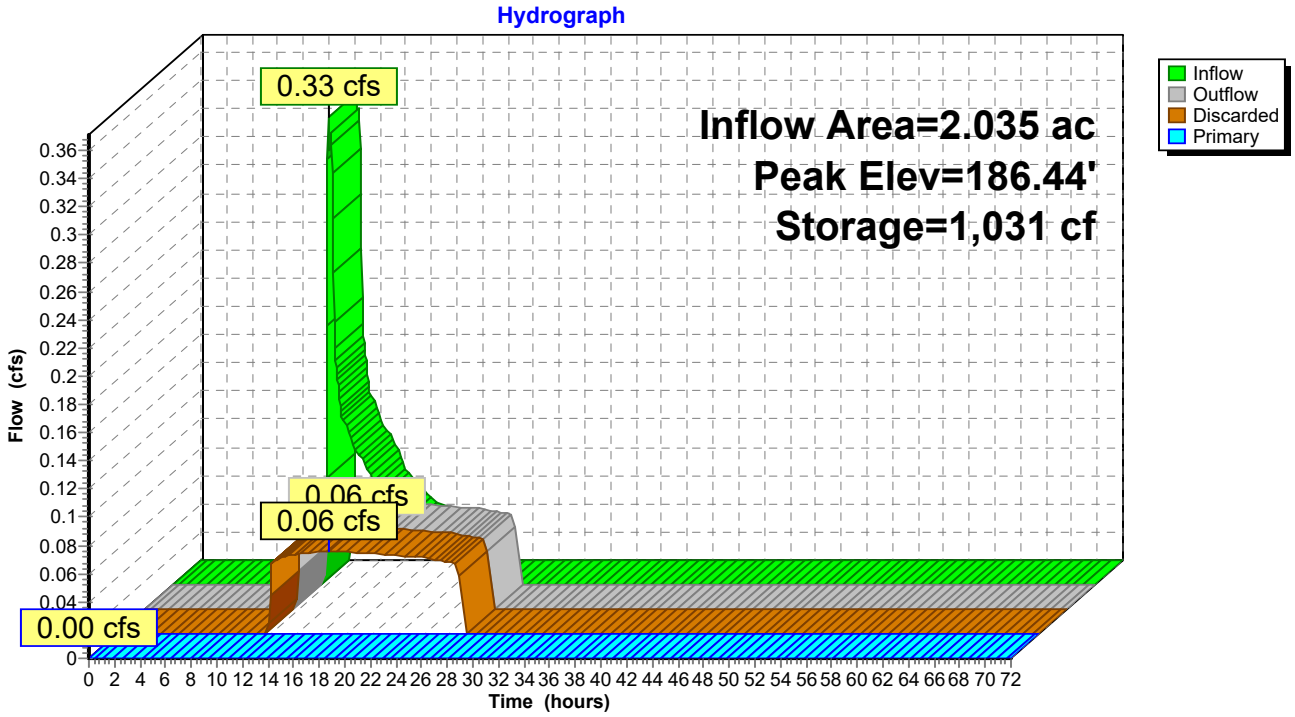
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
186.00	2,137	317.4	0.0	0	0	2,137
190.00	6,579	392.8	100.0	16,621	16,621	6,629

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	189.00'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.06 cfs @ 16.61 hrs HW=186.44' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=186.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-1: Stormwater Basin #1



Summary for Pond SB-2: Stormwater Basin #2

Inflow Area = 10.418 ac, 0.12% Impervious, Inflow Depth = 0.88" for 10-yr event
Inflow = 6.80 cfs @ 12.17 hrs, Volume= 0.764 af
Outflow = 0.31 cfs @ 19.92 hrs, Volume= 0.764 af, Atten= 95%, Lag= 464.8 min
Discarded = 0.31 cfs @ 19.92 hrs, Volume= 0.764 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 153.88' @ 19.92 hrs Surf.Area= 13,432 sf Storage= 20,102 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 710.8 min (1,611.0 - 900.2)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	55,961 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

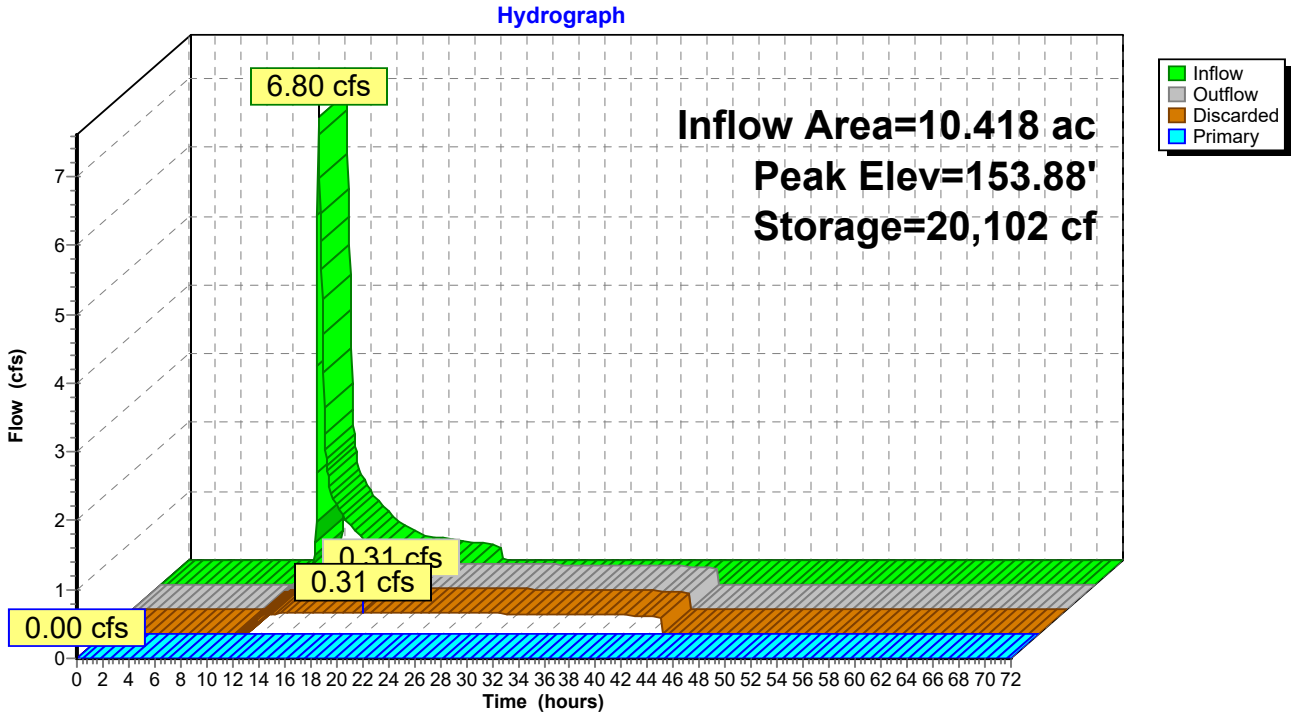
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	11,311	424.0	0.0	0	0	11,311
156.25	16,853	500.0	100.0	55,961	55,961	17,197

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.31 cfs @ 19.92 hrs HW=153.88' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=152.25' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-2: Stormwater Basin #2



Summary for Pond SB-3: Stormwater Basin #3

Inflow Area = 7.770 ac, 0.12% Impervious, Inflow Depth = 1.39" for 10-yr event
Inflow = 10.22 cfs @ 12.12 hrs, Volume= 0.898 af
Outflow = 0.57 cfs @ 16.08 hrs, Volume= 0.898 af, Atten= 94%, Lag= 237.2 min
Discarded = 0.24 cfs @ 16.08 hrs, Volume= 0.816 af
Primary = 0.32 cfs @ 16.08 hrs, Volume= 0.082 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.31' @ 16.08 hrs Surf.Area= 10,581 sf Storage= 24,845 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,029.0 min (1,896.1 - 867.1)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	35,578 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

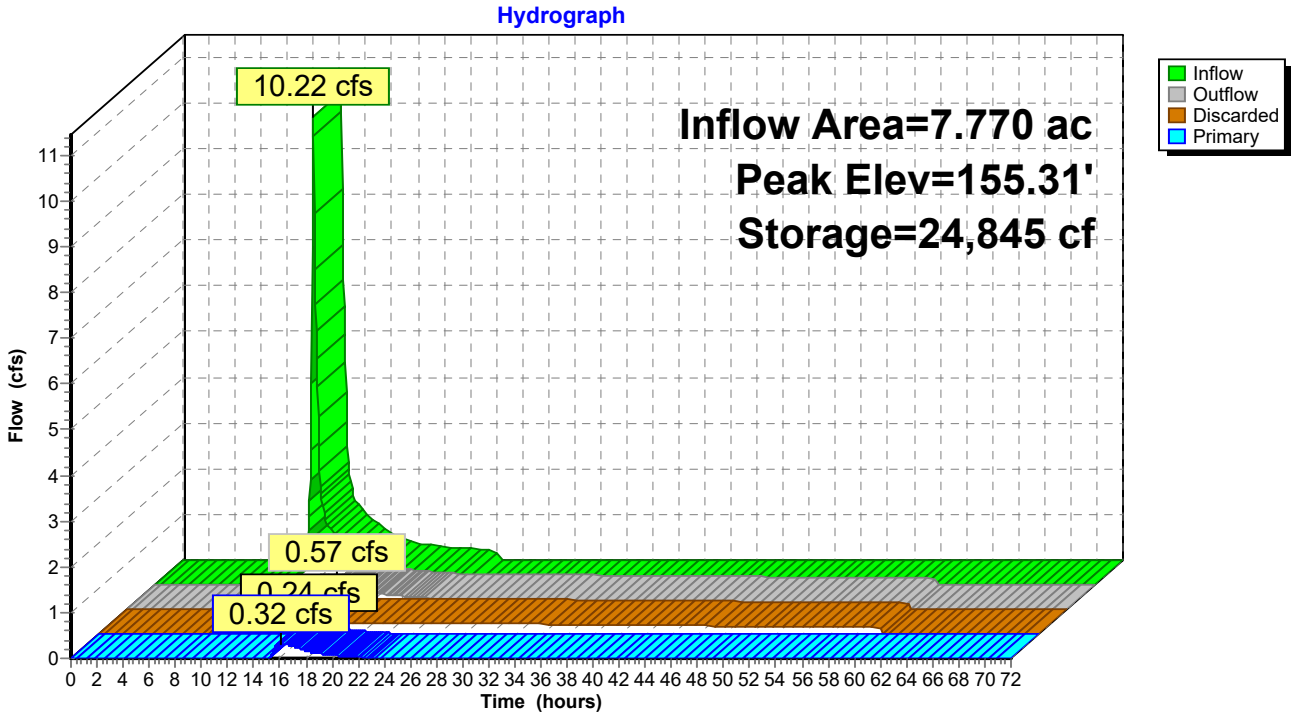
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	5,881	497.0	0.0	0	0	5,881
156.25	12,298	573.0	100.0	35,578	35,578	12,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.24 cfs @ 16.08 hrs HW=155.31' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.32 cfs @ 16.08 hrs HW=155.31' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.32 cfs @ 0.58 fps)

Pond SB-3: Stormwater Basin #3

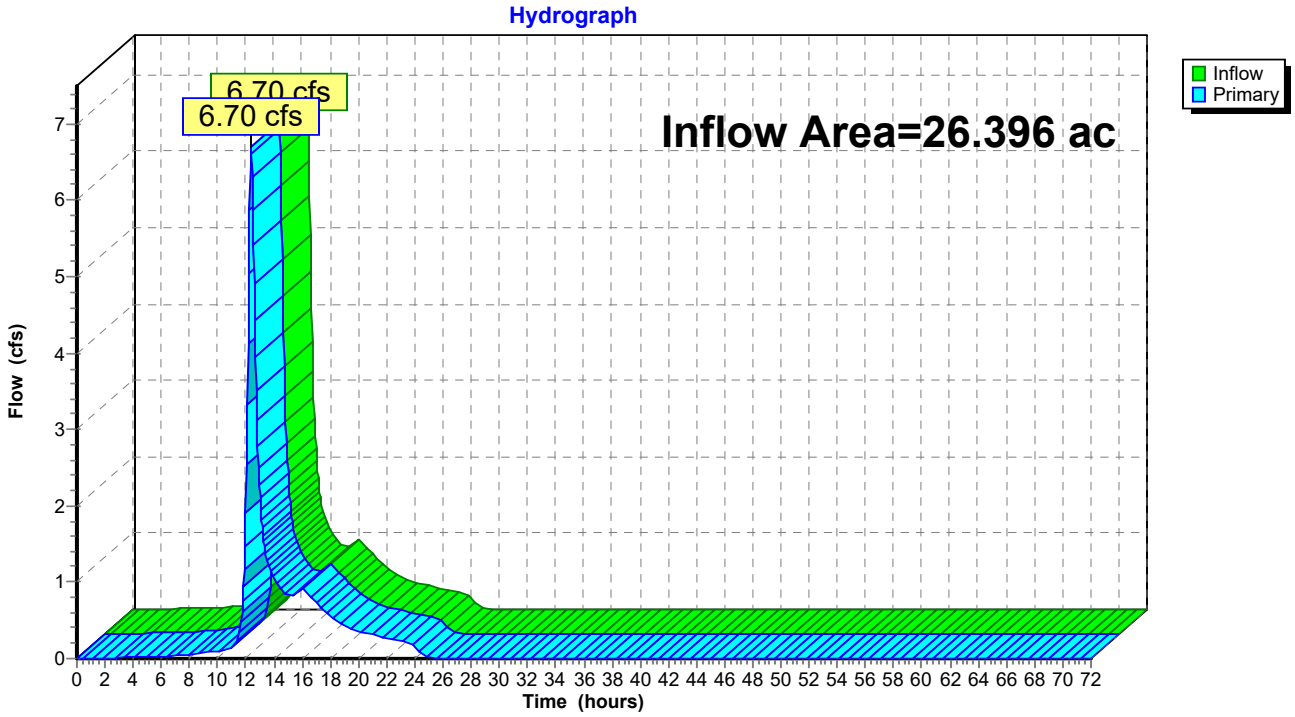


Summary for Link DP-1: North Wetland

Inflow Area = 26.396 ac, 1.50% Impervious, Inflow Depth = 0.45" for 10-yr event
Inflow = 6.70 cfs @ 12.36 hrs, Volume= 0.986 af
Primary = 6.70 cfs @ 12.36 hrs, Volume= 0.986 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

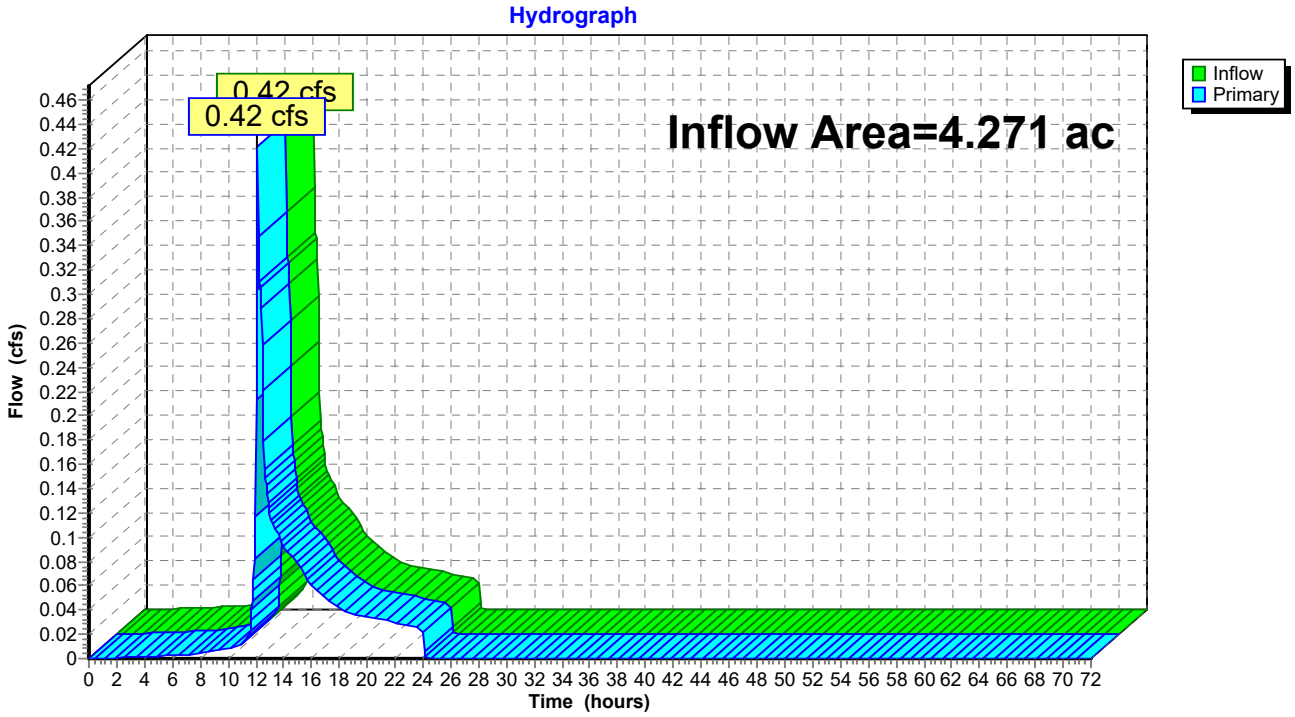


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 0.77% Impervious, Inflow Depth = 0.20" for 10-yr event
Inflow = 0.42 cfs @ 12.10 hrs, Volume= 0.071 af
Primary = 0.42 cfs @ 12.10 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Subcat PR-1 Runoff Area=286,141 sf 4.26% Impervious Runoff Depth=2.28"
Flow Length=910' Tc=24.3 min CN=WQ Runoff=10.04 cfs 1.250 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=2.236 ac 1.48% Impervious Runoff Depth=0.74"
Flow Length=460' Tc=5.0 min CN=WQ Runoff=1.09 cfs 0.138 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=2.035 ac 0.00% Impervious Runoff Depth=0.81"
Flow Length=550' Tc=7.4 min CN=WQ Runoff=1.04 cfs 0.138 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=1.639 ac 5.85% Impervious Runoff Depth=0.94"
Flow Length=360' Tc=6.7 min CN=WQ Runoff=1.07 cfs 0.129 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=10.418 ac 0.12% Impervious Runoff Depth=1.49"
Flow Length=850' Tc=9.8 min CN=WQ Runoff=13.34 cfs 1.295 af

Subcatchment PR-6: Subcat PR-6 Runoff Area=7.770 ac 0.12% Impervious Runoff Depth=2.15"
Flow Length=585' Tc=7.6 min CN=WQ Runoff=16.84 cfs 1.390 af

Pond SB-1: Stormwater Basin #1 Peak Elev=187.20' Storage=3,186 cf Inflow=1.04 cfs 0.138 af
Discarded=0.07 cfs 0.138 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.138 af

Pond SB-2: Stormwater Basin #2 Peak Elev=155.26' Storage=40,050 cf Inflow=13.34 cfs 1.295 af
Discarded=0.36 cfs 1.283 af Primary=0.07 cfs 0.012 af Outflow=0.42 cfs 1.295 af

Pond SB-3: Stormwater Basin #3 Peak Elev=155.48' Storage=26,619 cf Inflow=16.84 cfs 1.390 af
Discarded=0.25 cfs 0.838 af Primary=2.31 cfs 0.551 af Outflow=2.57 cfs 1.390 af

Link DP-1: North Wetland Inflow=10.66 cfs 1.942 af
Primary=10.66 cfs 1.942 af

Link DP-2: South Inflow=1.09 cfs 0.138 af
Primary=1.09 cfs 0.138 af

Total Runoff Area = 30.667 ac Runoff Volume = 4.340 af Average Runoff Depth = 1.70"
98.60% Pervious = 30.237 ac 1.40% Impervious = 0.430 ac

Summary for Subcatchment PR-1: Subcat PR-1

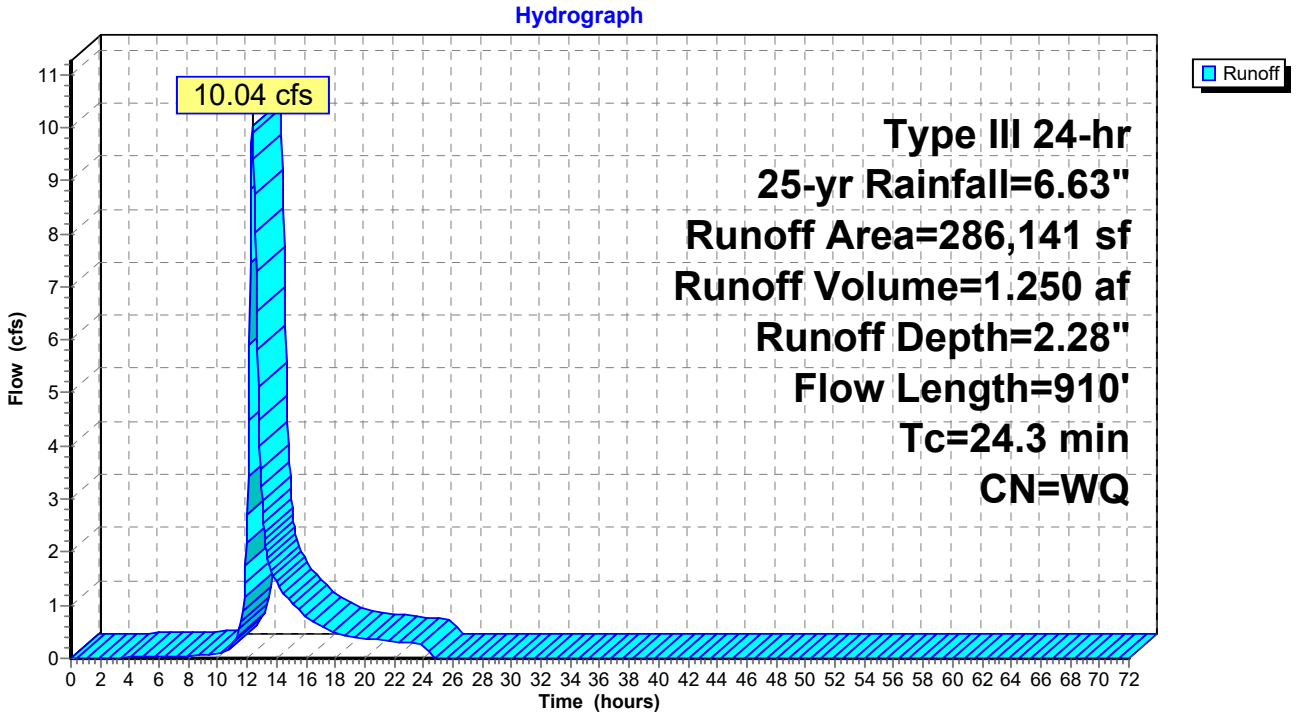
Runoff = 10.04 cfs @ 12.36 hrs, Volume= 1.250 af, Depth= 2.28"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

Area (sf)	CN	Description
48,008	39	>75% Grass cover, Good, HSG A
2,354	30	Woods, Good, HSG A
11,190	55	Woods, Good, HSG B
9,430	98	Paved parking, HSG B
1,431	96	Gravel surface, HSG B
210,964	61	>75% Grass cover, Good, HSG B
2,764	98	Paved parking, HSG A
286,141		Weighted Average
273,947		95.74% Pervious Area
12,195		4.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0460	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.4	480	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.3	910	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

[49] Hint: Tc<2dt may require smaller dt

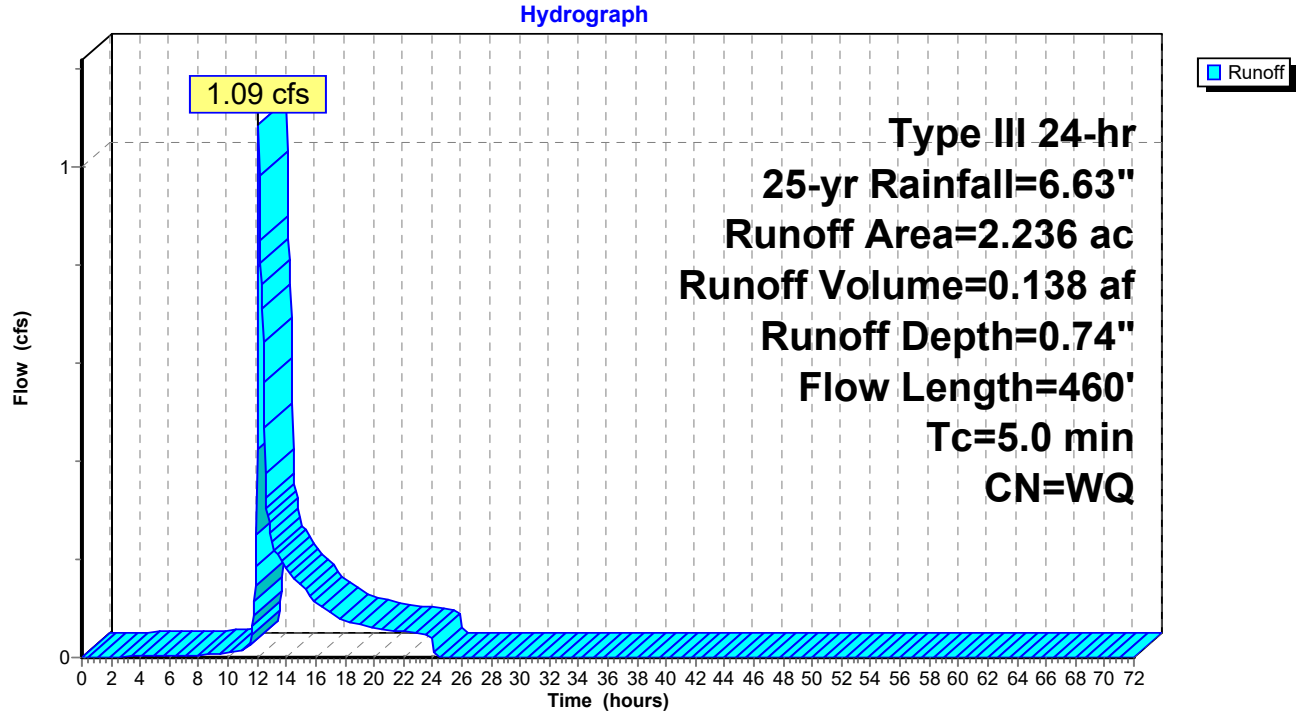
Runoff = 1.09 cfs @ 12.11 hrs, Volume= 0.138 af, Depth= 0.74"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

	Area (ac)	CN	Description
	0.539	30	Woods, Good, HSG A
	1.302	39	>75% Grass cover, Good, HSG A
	0.033	98	Paved parking, HSG A
*	0.362	50	>75% Grass cover, Good, HSG A-B
	2.236		Weighted Average
	2.203		98.52% Pervious Area
	0.033		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.2000	2.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	410	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.0	460	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

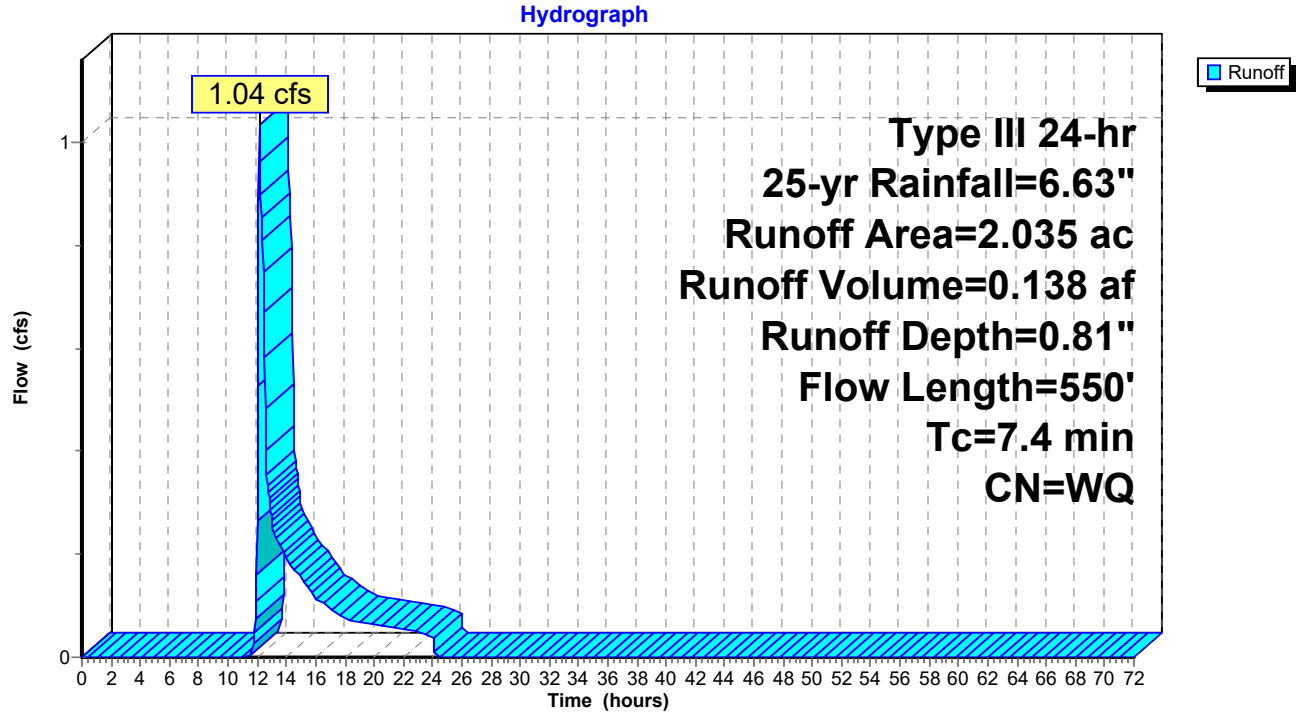
Runoff = 1.04 cfs @ 12.16 hrs, Volume= 0.138 af, Depth= 0.81"
Routed to Pond SB-1 : Stormwater Basin #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

	Area (ac)	CN	Description
	1.371	39	>75% Grass cover, Good, HSG A
	0.149	30	Woods, Good, HSG A
*	0.515	50	>75% Grass cover, Good, HSG A-B
	2.035		Weighted Average
	2.035		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.3350	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
3.5	500	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.4	550	Total			

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

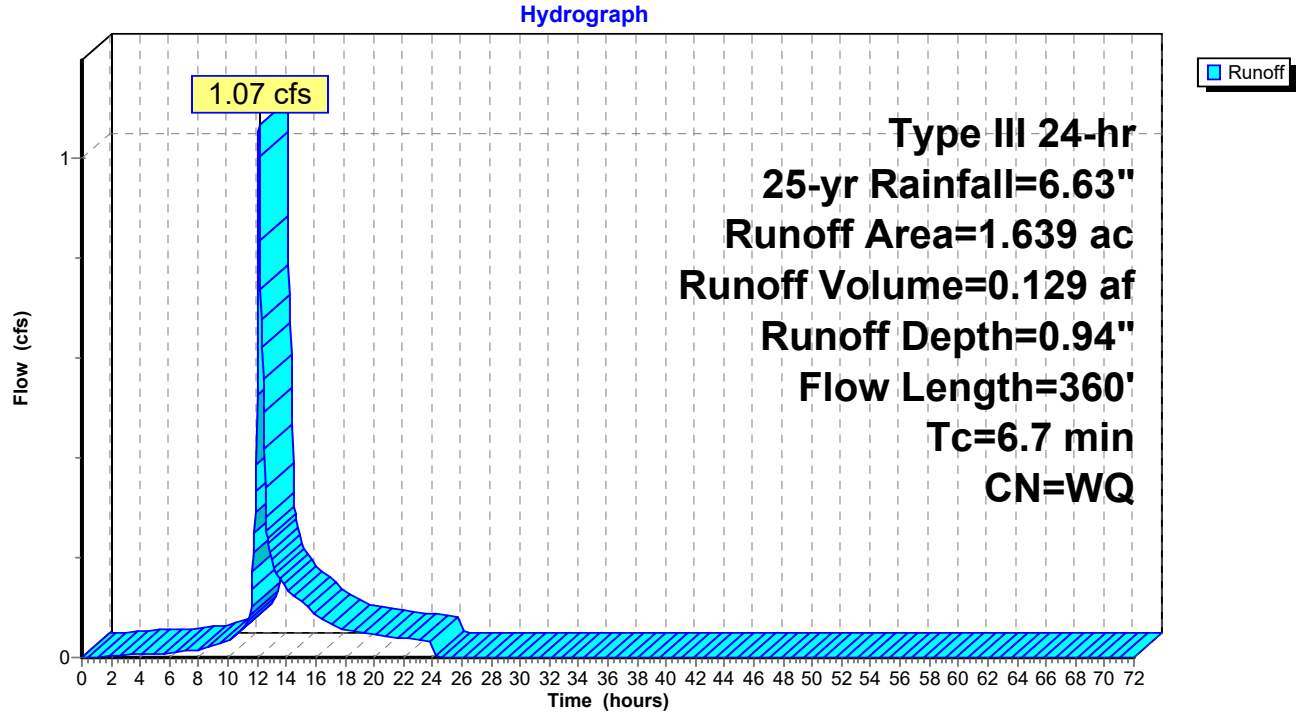
Runoff = 1.07 cfs @ 12.12 hrs, Volume= 0.129 af, Depth= 0.94"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

Area (ac)	CN	Description
0.096	98	Paved parking, HSG A
0.518	30	Woods, Good, HSG A
0.950	39	>75% Grass cover, Good, HSG A
0.075	70	Woods, Good, HSG C
1.639		Weighted Average
1.543		94.15% Pervious Area
0.096		5.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.3000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	360	Total			

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

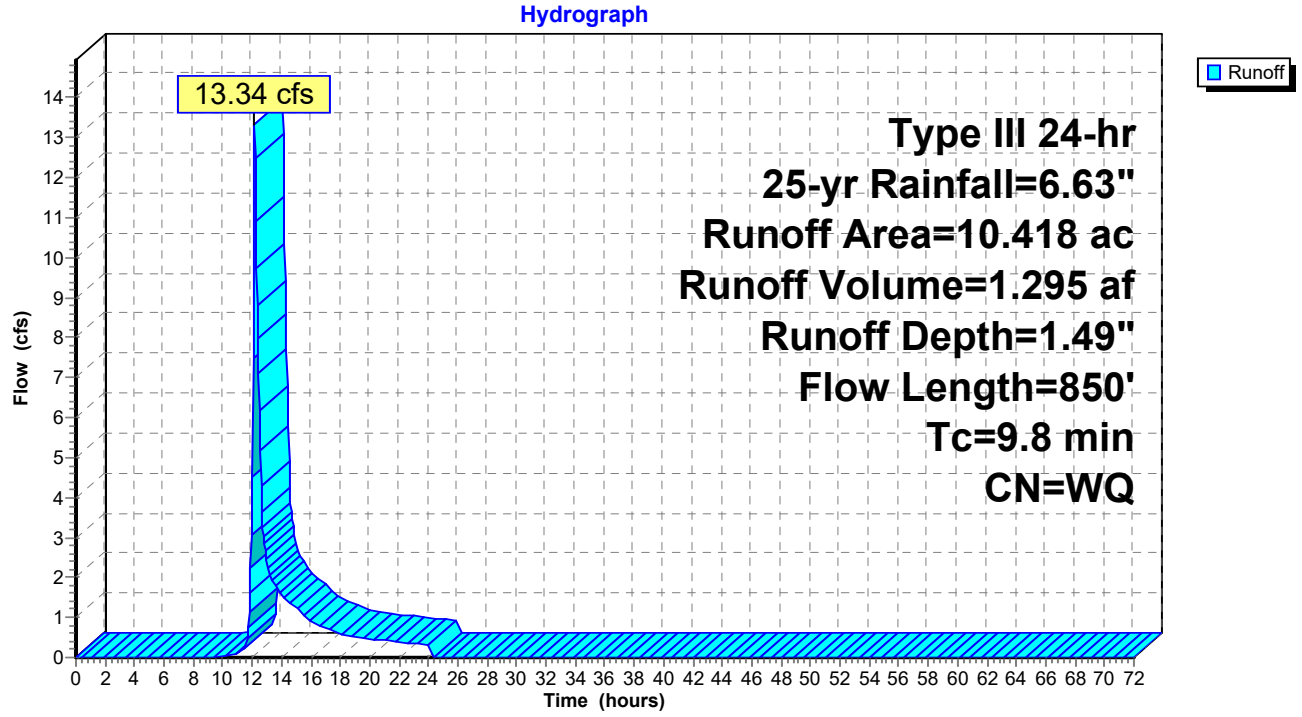
Runoff = 13.34 cfs @ 12.16 hrs, Volume= 1.295 af, Depth= 1.49"
Routed to Pond SB-2 : Stormwater Basin #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

	Area (ac)	CN	Description
	0.298	30	Woods, Good, HSG A
	1.143	39	>75% Grass cover, Good, HSG A
	0.012	98	Paved parking, HSG A
*	7.727	50	>75% Grass cover, Good, HSG A-B
*	0.507	68	>75% Grass cover, Good, HSG B-C
	0.731	61	>75% Grass cover, Good, HSG B
	10.418		Weighted Average
	10.406		99.88% Pervious Area
	0.012		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.3500	0.22		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
6.0	800	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.8	850	Total			

Subcatchment PR-5: Subcat PR-5



Summary for Subcatchment PR-6: Subcat PR-6

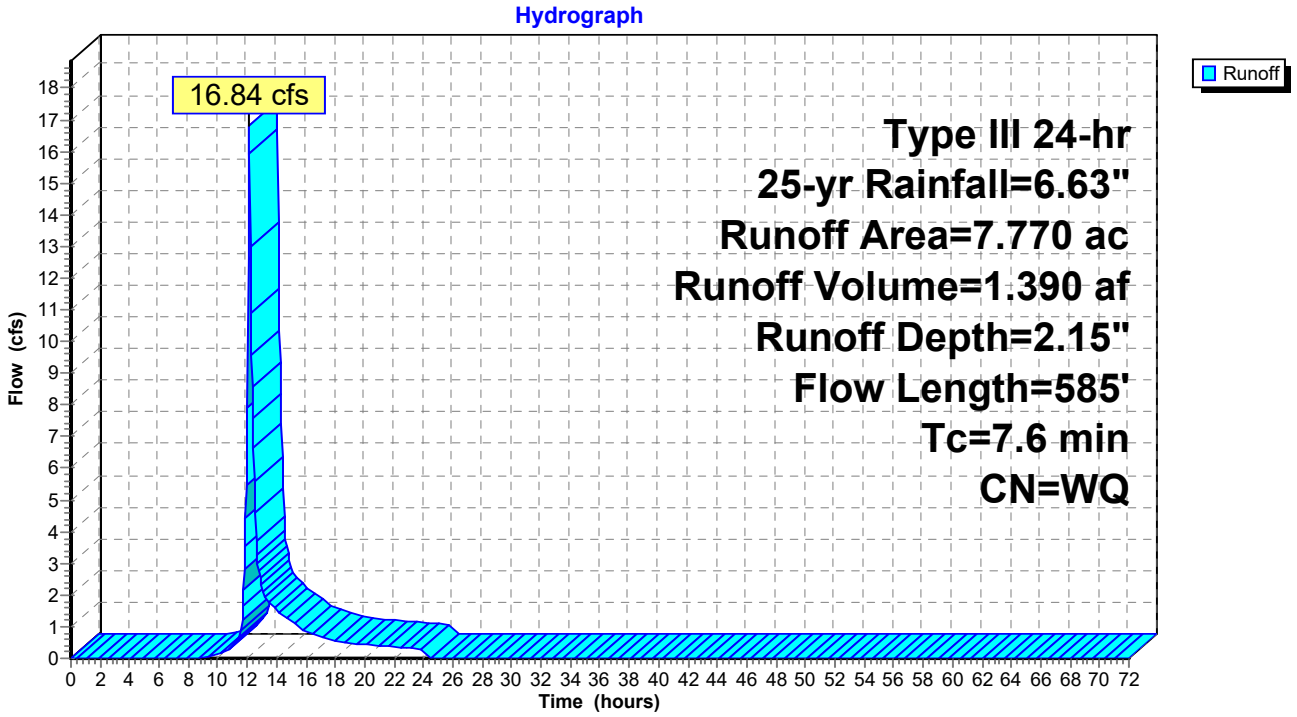
Runoff = 16.84 cfs @ 12.12 hrs, Volume= 1.390 af, Depth= 2.15"
Routed to Pond SB-3 : Stormwater Basin #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.63"

	Area (ac)	CN	Description
	0.009	98	Paved parking, HSG A
	0.039	96	Gravel surface, HSG A
*	3.654	50	>75% Grass cover, Good, HSG A-B
	0.445	39	>75% Grass cover, Good, HSG A
	0.058	96	Gravel surface, HSG B
*	2.504	68	>75% Grass cover, Good, HSG B-C
	1.061	61	>75% Grass cover, Good, HSG B
	7.770		Weighted Average
	7.761		99.88% Pervious Area
	0.009		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1350	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
5.0	535	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.6	585	Total			

Subcatchment PR-6: Subcat PR-6



Summary for Pond SB-1: Stormwater Basin #1

Inflow Area = 2.035 ac, 0.00% Impervious, Inflow Depth = 0.81" for 25-yr event
Inflow = 1.04 cfs @ 12.16 hrs, Volume= 0.138 af
Outflow = 0.07 cfs @ 18.06 hrs, Volume= 0.138 af, Atten= 93%, Lag= 354.0 min
Discarded = 0.07 cfs @ 18.06 hrs, Volume= 0.138 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-2 : South

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 187.20' @ 18.06 hrs Surf.Area= 3,213 sf Storage= 3,186 cf

Plug-Flow detention time= 512.9 min calculated for 0.138 af (100% of inflow)
Center-of-Mass det. time= 513.4 min (1,431.4 - 917.9)

Volume	Invert	Avail.Storage	Storage Description
#1	186.00'	16,621 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

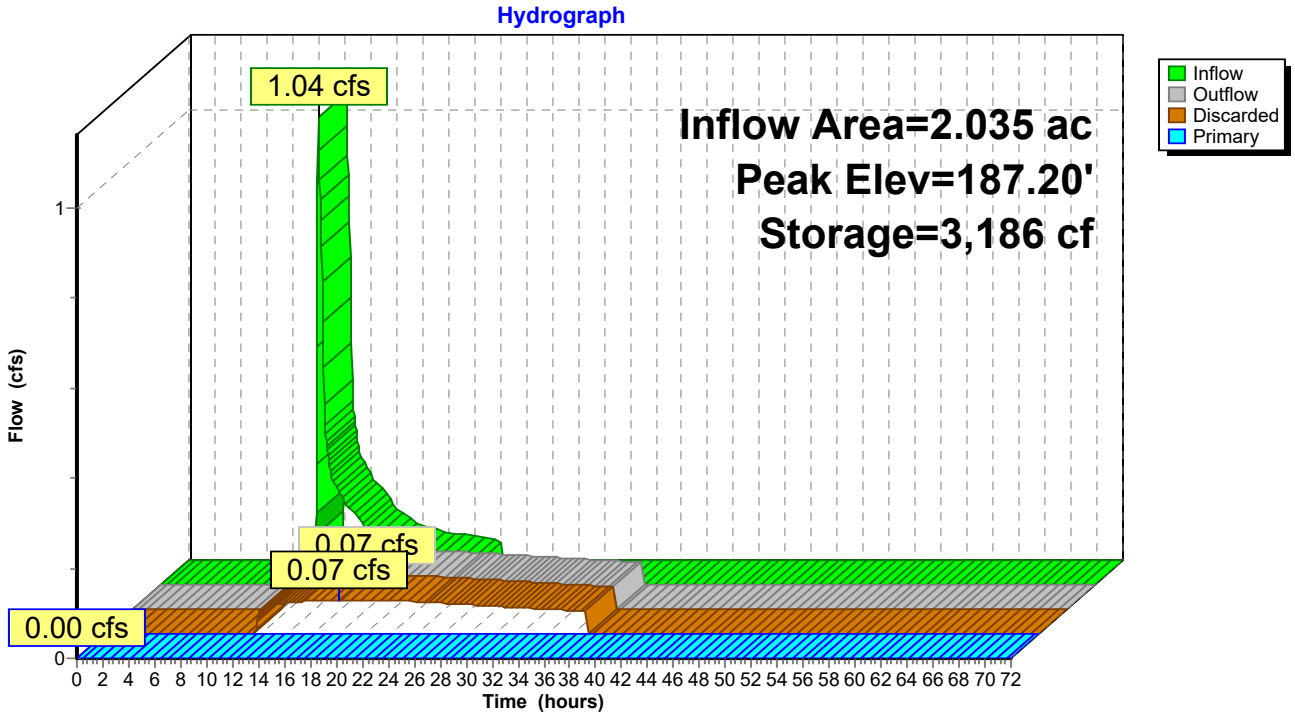
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
186.00	2,137	317.4	0.0	0	0	2,137
190.00	6,579	392.8	100.0	16,621	16,621	6,629

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	189.00'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.07 cfs @ 18.06 hrs HW=187.20' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=186.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-1: Stormwater Basin #1



Summary for Pond SB-2: Stormwater Basin #2

Inflow Area = 10.418 ac, 0.12% Impervious, Inflow Depth = 1.49" for 25-yr event
Inflow = 13.34 cfs @ 12.16 hrs, Volume= 1.295 af
Outflow = 0.42 cfs @ 21.20 hrs, Volume= 1.295 af, Atten= 97%, Lag= 542.1 min
Discarded = 0.36 cfs @ 21.20 hrs, Volume= 1.283 af
Primary = 0.07 cfs @ 21.20 hrs, Volume= 0.012 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.26' @ 21.20 hrs Surf.Area= 15,382 sf Storage= 40,050 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,179.7 min (2,062.6 - 882.8)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	55,961 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

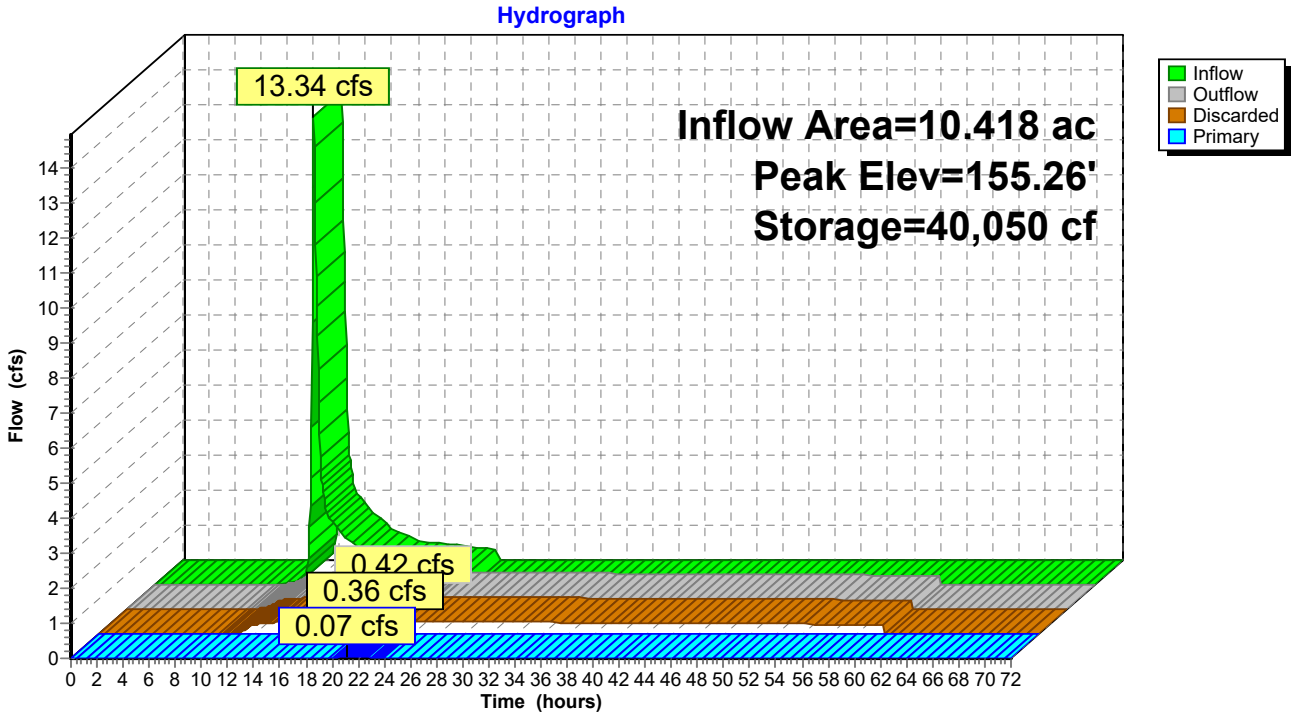
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	11,311	424.0	0.0	0	0	11,311
156.25	16,853	500.0	100.0	55,961	55,961	17,197

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.36 cfs @ 21.20 hrs HW=155.26' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.36 cfs)

Primary OutFlow Max=0.07 cfs @ 21.20 hrs HW=155.26' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.07 cfs @ 0.26 fps)

Pond SB-2: Stormwater Basin #2



Summary for Pond SB-3: Stormwater Basin #3

Inflow Area = 7.770 ac, 0.12% Impervious, Inflow Depth = 2.15" for 25-yr event
Inflow = 16.84 cfs @ 12.12 hrs, Volume= 1.390 af
Outflow = 2.57 cfs @ 12.87 hrs, Volume= 1.390 af, Atten= 85%, Lag= 45.1 min
Discarded = 0.25 cfs @ 12.87 hrs, Volume= 0.838 af
Primary = 2.31 cfs @ 12.87 hrs, Volume= 0.551 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.48' @ 12.87 hrs Surf.Area= 10,874 sf Storage= 26,619 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 694.6 min (1,550.2 - 855.6)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	35,578 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

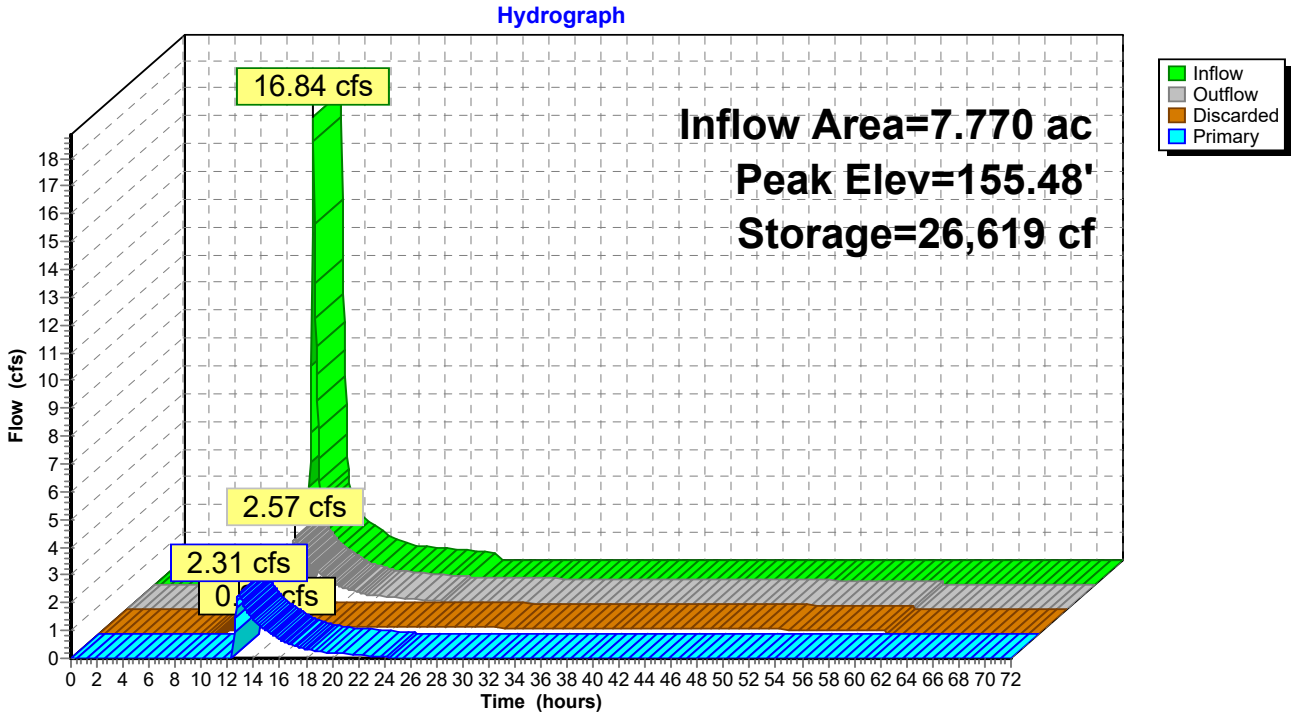
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	5,881	497.0	0.0	0	0	5,881
156.25	12,298	573.0	100.0	35,578	35,578	12,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.25 cfs @ 12.87 hrs HW=155.48' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=2.31 cfs @ 12.87 hrs HW=155.48' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 2.31 cfs @ 1.14 fps)

Pond SB-3: Stormwater Basin #3

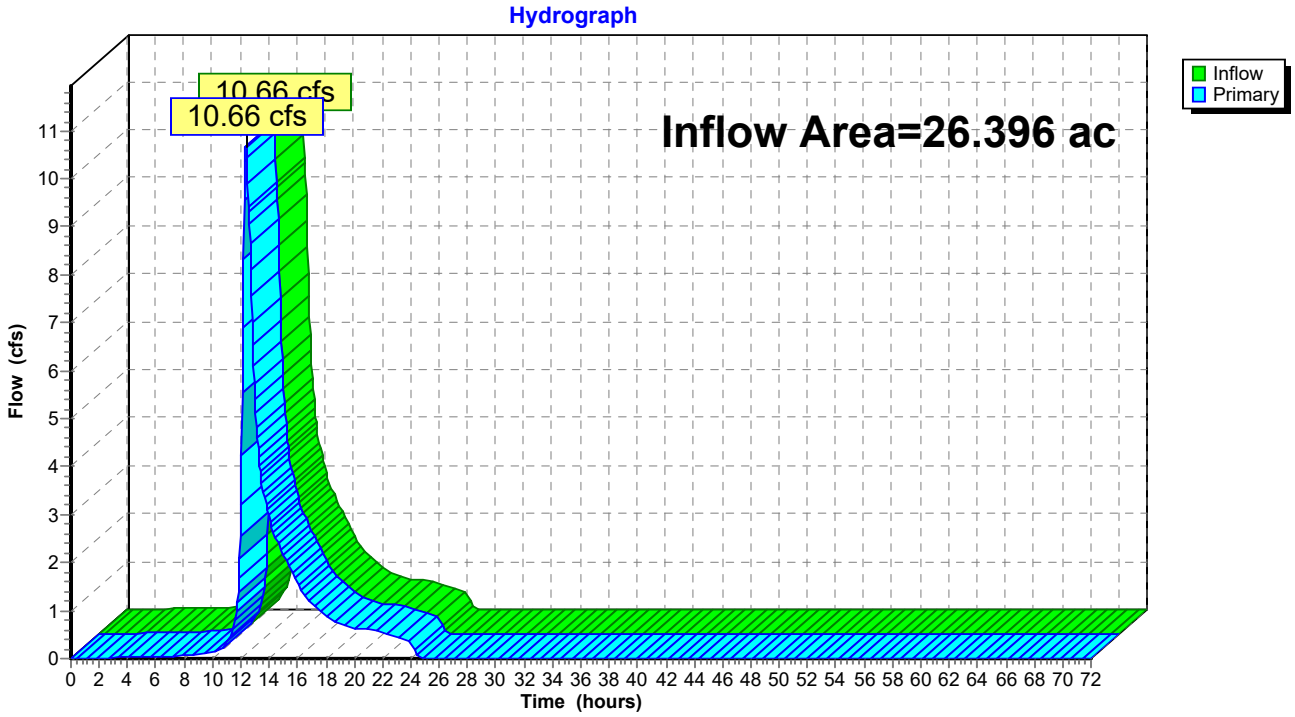


Summary for Link DP-1: North Wetland

Inflow Area = 26.396 ac, 1.50% Impervious, Inflow Depth = 0.88" for 25-yr event
Inflow = 10.66 cfs @ 12.35 hrs, Volume= 1.942 af
Primary = 10.66 cfs @ 12.35 hrs, Volume= 1.942 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

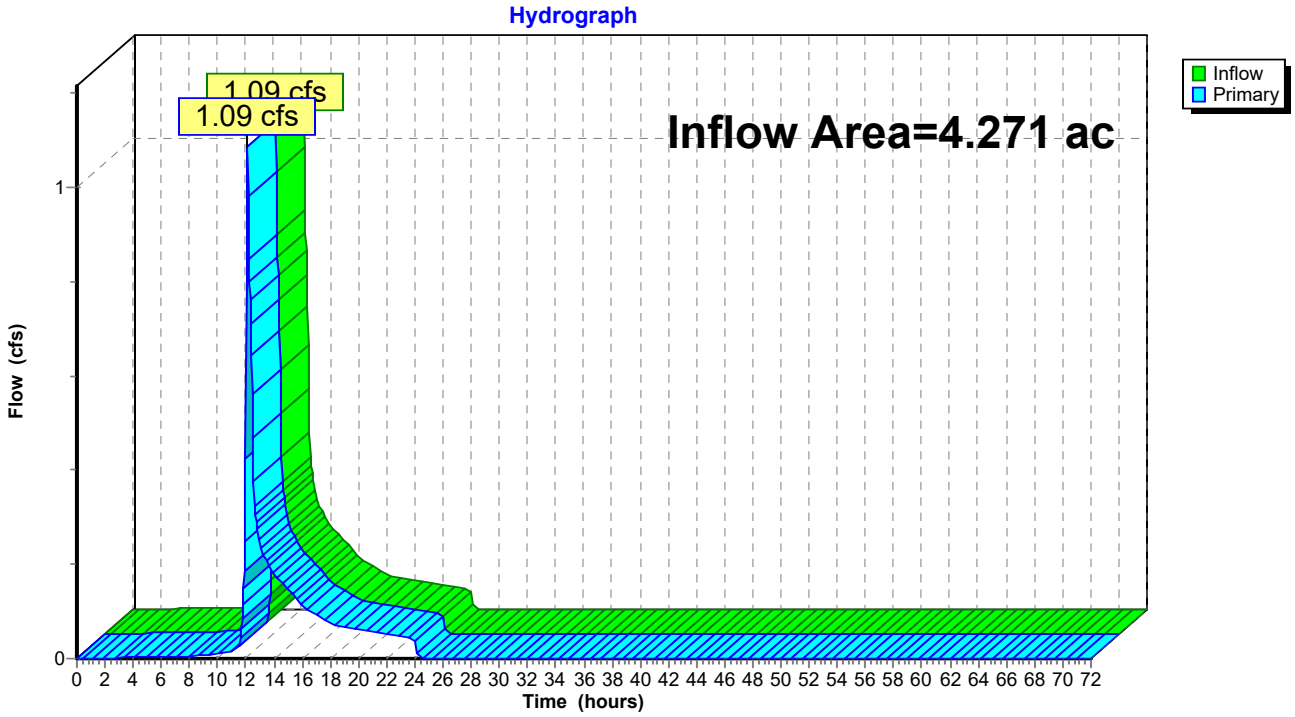


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 0.77% Impervious, Inflow Depth = 0.39" for 25-yr event
Inflow = 1.09 cfs @ 12.11 hrs, Volume= 0.138 af
Primary = 1.09 cfs @ 12.11 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Subcat PR-1 Runoff Area=286,141 sf 4.26% Impervious Runoff Depth=2.90"
Flow Length=910' Tc=24.3 min CN=WQ Runoff=13.01 cfs 1.587 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=2.236 ac 1.48% Impervious Runoff Depth=1.07"
Flow Length=460' Tc=5.0 min CN=WQ Runoff=1.87 cfs 0.200 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=2.035 ac 0.00% Impervious Runoff Depth=1.18"
Flow Length=550' Tc=7.4 min CN=WQ Runoff=1.81 cfs 0.200 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=1.639 ac 5.85% Impervious Runoff Depth=1.28"
Flow Length=360' Tc=6.7 min CN=WQ Runoff=1.58 cfs 0.175 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=10.418 ac 0.12% Impervious Runoff Depth=2.00"
Flow Length=850' Tc=9.8 min CN=WQ Runoff=18.89 cfs 1.736 af

Subcatchment PR-6: Subcat PR-6 Runoff Area=7.770 ac 0.12% Impervious Runoff Depth=2.75"
Flow Length=585' Tc=7.6 min CN=WQ Runoff=22.15 cfs 1.782 af

Pond SB-1: Stormwater Basin #1 Peak Elev=187.78' Storage=5,233 cf Inflow=1.81 cfs 0.200 af
Discarded=0.09 cfs 0.200 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.200 af

Pond SB-2: Stormwater Basin #2 Peak Elev=155.35' Storage=41,389 cf Inflow=18.89 cfs 1.736 af
Discarded=0.36 cfs 1.303 af Primary=1.48 cfs 0.433 af Outflow=1.84 cfs 1.736 af

Pond SB-3: Stormwater Basin #3 Peak Elev=155.71' Storage=29,226 cf Inflow=22.15 cfs 1.782 af
Discarded=0.26 cfs 0.849 af Primary=7.25 cfs 0.933 af Outflow=7.51 cfs 1.782 af

Link DP-1: North Wetland Inflow=20.01 cfs 3.128 af
Primary=20.01 cfs 3.128 af

Link DP-2: South Inflow=1.87 cfs 0.200 af
Primary=1.87 cfs 0.200 af

Total Runoff Area = 30.667 ac Runoff Volume = 5.680 af Average Runoff Depth = 2.22"
98.60% Pervious = 30.237 ac 1.40% Impervious = 0.430 ac

Summary for Subcatchment PR-1: Subcat PR-1

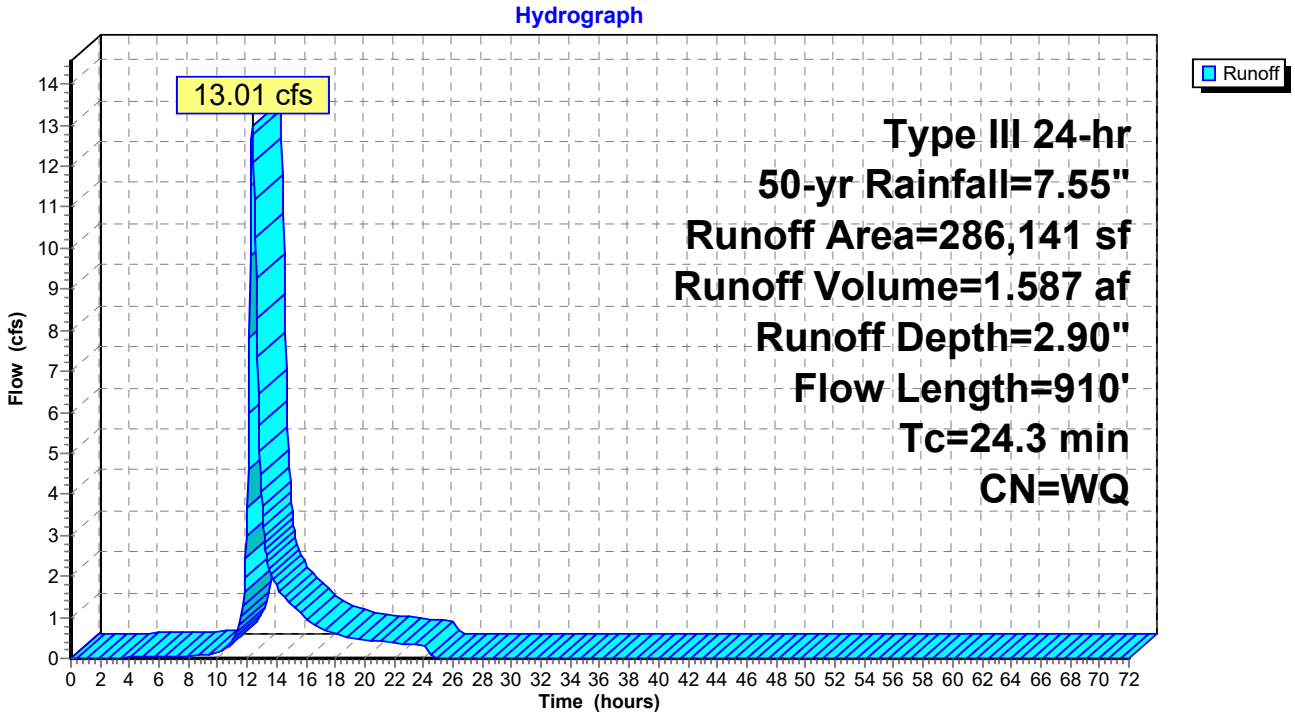
Runoff = 13.01 cfs @ 12.36 hrs, Volume= 1.587 af, Depth= 2.90"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

Area (sf)	CN	Description
48,008	39	>75% Grass cover, Good, HSG A
2,354	30	Woods, Good, HSG A
11,190	55	Woods, Good, HSG B
9,430	98	Paved parking, HSG B
1,431	96	Gravel surface, HSG B
210,964	61	>75% Grass cover, Good, HSG B
2,764	98	Paved parking, HSG A
286,141		Weighted Average
273,947		95.74% Pervious Area
12,195		4.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0460	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.4	480	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.3	910	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

[49] Hint: Tc<2dt may require smaller dt

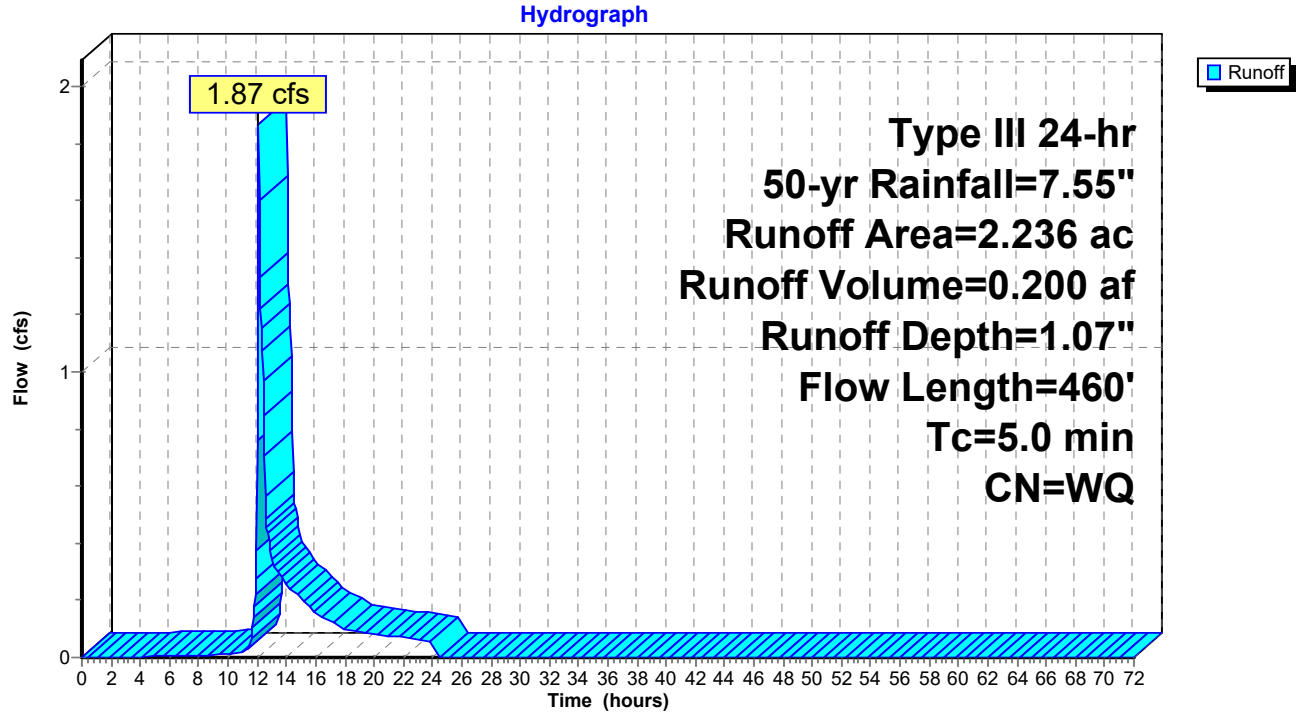
Runoff = 1.87 cfs @ 12.10 hrs, Volume= 0.200 af, Depth= 1.07"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

	Area (ac)	CN	Description
	0.539	30	Woods, Good, HSG A
	1.302	39	>75% Grass cover, Good, HSG A
	0.033	98	Paved parking, HSG A
*	0.362	50	>75% Grass cover, Good, HSG A-B
	2.236		Weighted Average
	2.203		98.52% Pervious Area
	0.033		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.2000	2.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	410	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.0	460	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

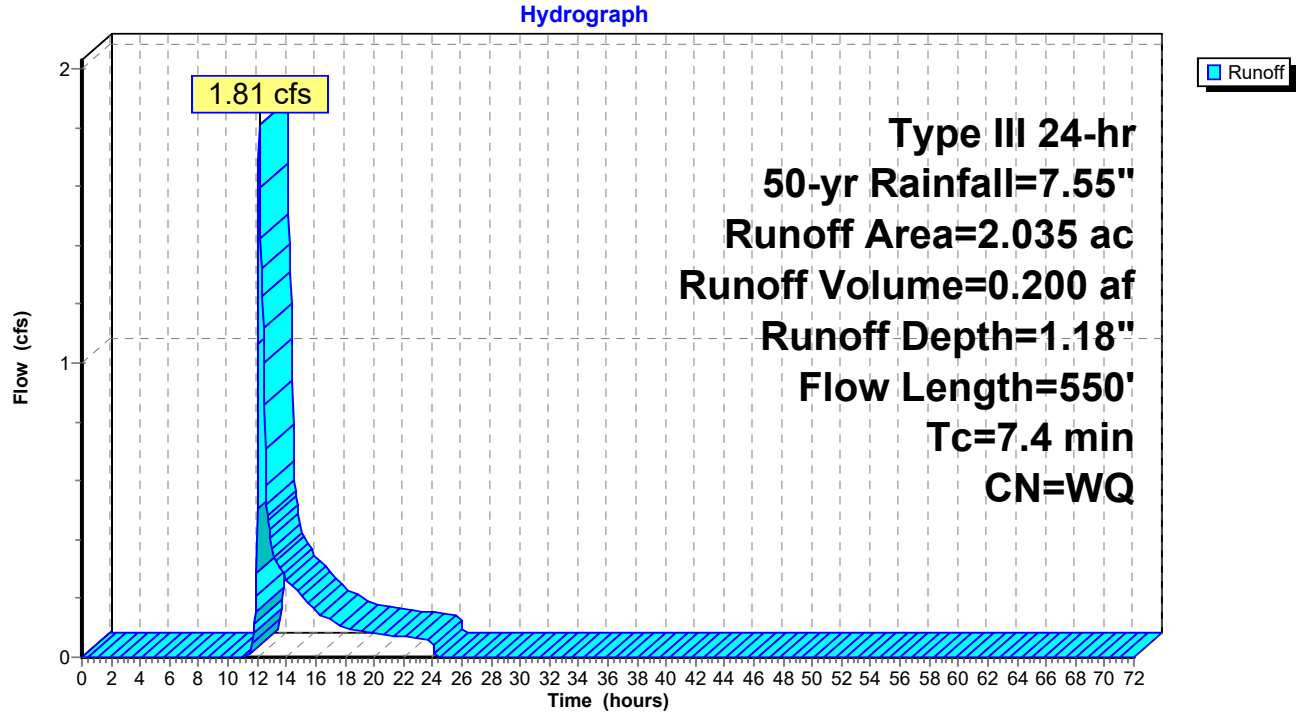
Runoff = 1.81 cfs @ 12.14 hrs, Volume= 0.200 af, Depth= 1.18"
Routed to Pond SB-1 : Stormwater Basin #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

	Area (ac)	CN	Description
	1.371	39	>75% Grass cover, Good, HSG A
	0.149	30	Woods, Good, HSG A
*	0.515	50	>75% Grass cover, Good, HSG A-B
	2.035		Weighted Average
	2.035		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.3350	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
3.5	500	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.4	550	Total			

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

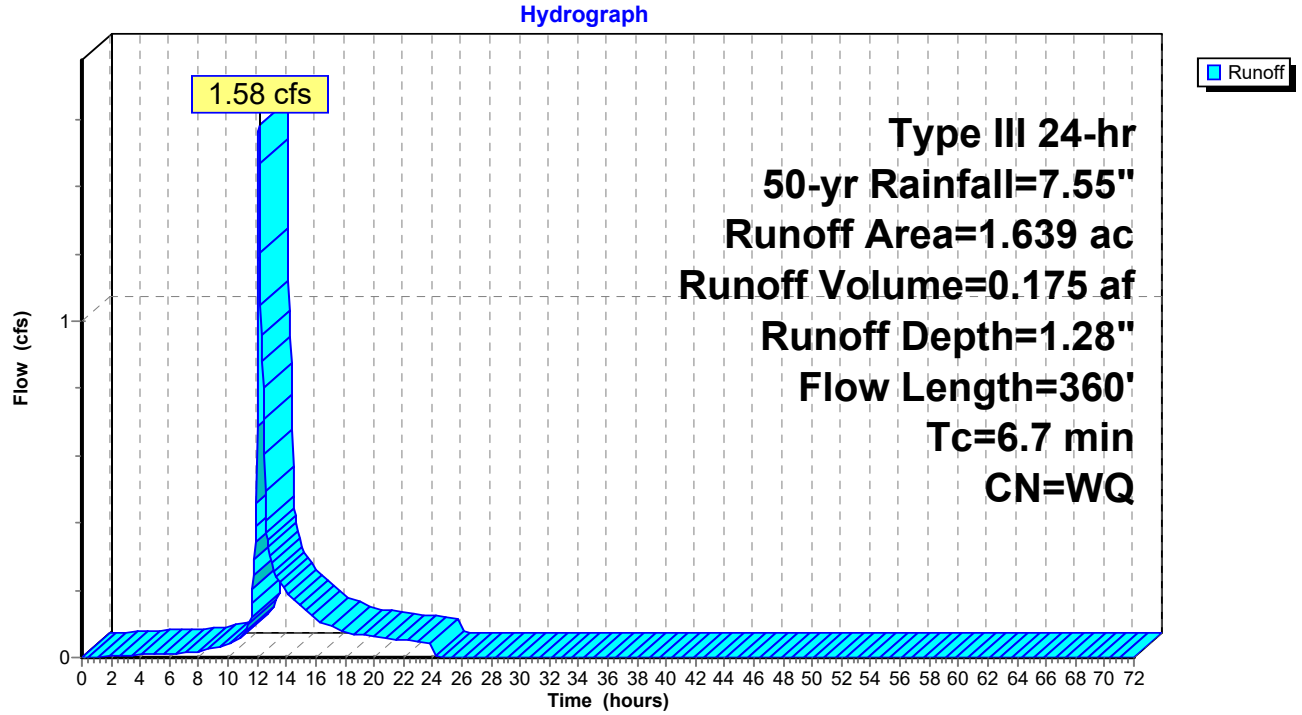
Runoff = 1.58 cfs @ 12.12 hrs, Volume= 0.175 af, Depth= 1.28"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

Area (ac)	CN	Description
0.096	98	Paved parking, HSG A
0.518	30	Woods, Good, HSG A
0.950	39	>75% Grass cover, Good, HSG A
0.075	70	Woods, Good, HSG C
1.639		Weighted Average
1.543		94.15% Pervious Area
0.096		5.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.3000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	360	Total			

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

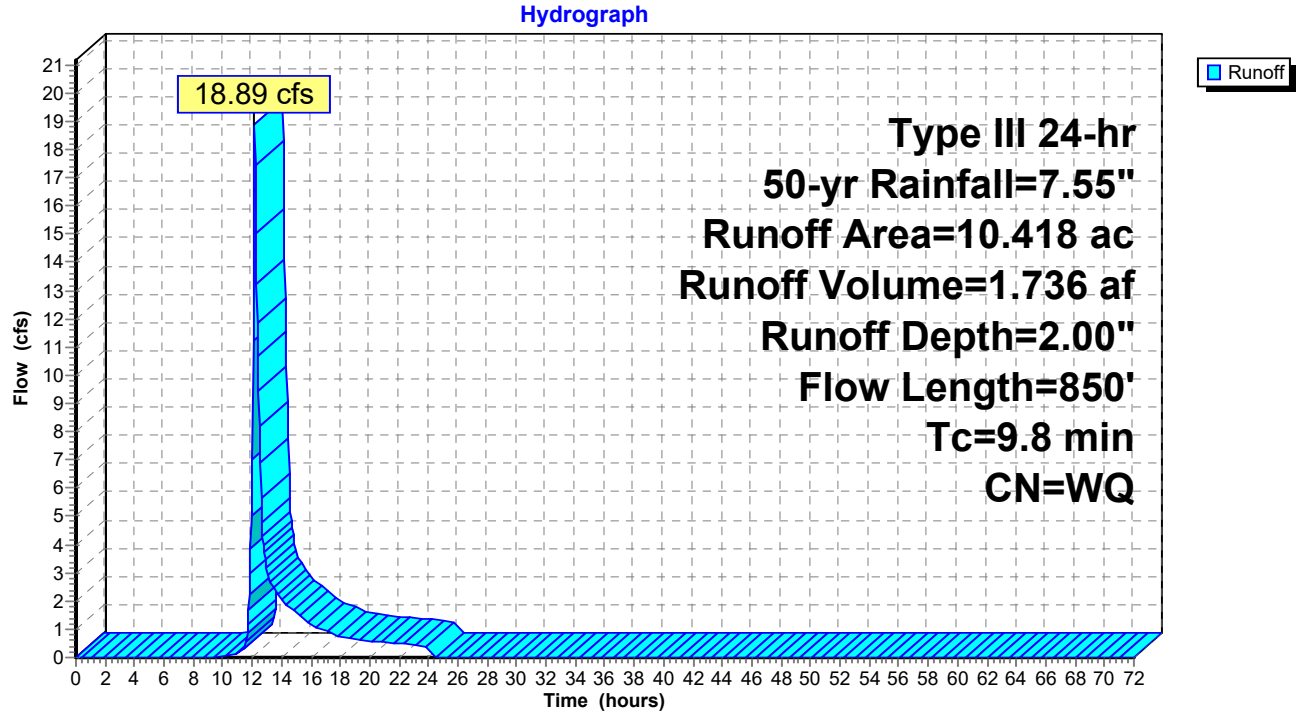
Runoff = 18.89 cfs @ 12.16 hrs, Volume= 1.736 af, Depth= 2.00"
Routed to Pond SB-2 : Stormwater Basin #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

	Area (ac)	CN	Description
	0.298	30	Woods, Good, HSG A
	1.143	39	>75% Grass cover, Good, HSG A
	0.012	98	Paved parking, HSG A
*	7.727	50	>75% Grass cover, Good, HSG A-B
*	0.507	68	>75% Grass cover, Good, HSG B-C
	0.731	61	>75% Grass cover, Good, HSG B
	10.418		Weighted Average
	10.406		99.88% Pervious Area
	0.012		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.3500	0.22		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
6.0	800	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.8	850	Total			

Subcatchment PR-5: Subcat PR-5



Summary for Subcatchment PR-6: Subcat PR-6

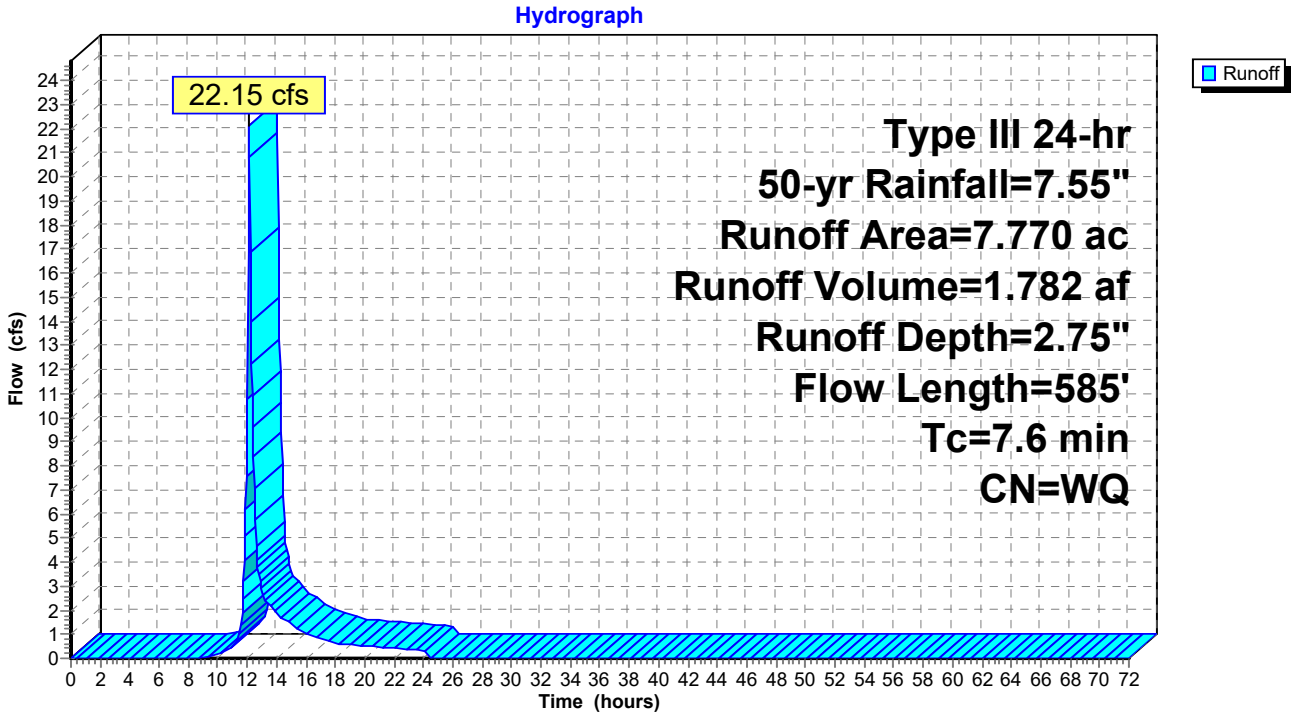
Runoff = 22.15 cfs @ 12.12 hrs, Volume= 1.782 af, Depth= 2.75"
Routed to Pond SB-3 : Stormwater Basin #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=7.55"

	Area (ac)	CN	Description
	0.009	98	Paved parking, HSG A
	0.039	96	Gravel surface, HSG A
*	3.654	50	>75% Grass cover, Good, HSG A-B
	0.445	39	>75% Grass cover, Good, HSG A
	0.058	96	Gravel surface, HSG B
*	2.504	68	>75% Grass cover, Good, HSG B-C
	1.061	61	>75% Grass cover, Good, HSG B
	7.770		Weighted Average
	7.761		99.88% Pervious Area
	0.009		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1350	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
5.0	535	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.6	585	Total			

Subcatchment PR-6: Subcat PR-6



Summary for Pond SB-1: Stormwater Basin #1

Inflow Area = 2.035 ac, 0.00% Impervious, Inflow Depth = 1.18" for 50-yr event
Inflow = 1.81 cfs @ 12.14 hrs, Volume= 0.200 af
Outflow = 0.09 cfs @ 19.36 hrs, Volume= 0.200 af, Atten= 95%, Lag= 433.1 min
Discarded = 0.09 cfs @ 19.36 hrs, Volume= 0.200 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-2 : South

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 187.78' @ 19.36 hrs Surf.Area= 3,816 sf Storage= 5,233 cf

Plug-Flow detention time= 706.5 min calculated for 0.200 af (100% of inflow)
Center-of-Mass det. time= 707.1 min (1,610.7 - 903.6)

Volume	Invert	Avail.Storage	Storage Description
#1	186.00'	16,621 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

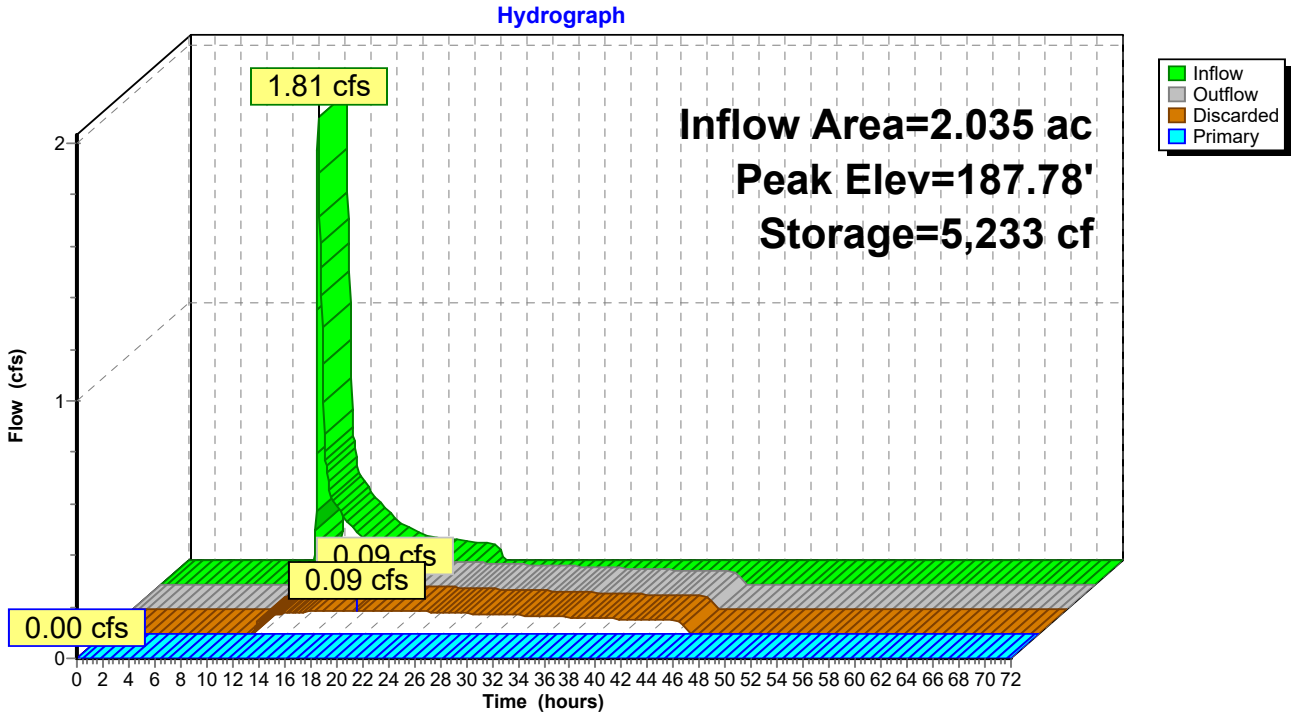
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
186.00	2,137	317.4	0.0	0	0	2,137
190.00	6,579	392.8	100.0	16,621	16,621	6,629

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	189.00'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.09 cfs @ 19.36 hrs HW=187.78' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=186.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-1: Stormwater Basin #1



Summary for Pond SB-2: Stormwater Basin #2

Inflow Area = 10.418 ac, 0.12% Impervious, Inflow Depth = 2.00" for 50-yr event
Inflow = 18.89 cfs @ 12.16 hrs, Volume= 1.736 af
Outflow = 1.84 cfs @ 14.36 hrs, Volume= 1.736 af, Atten= 90%, Lag= 132.1 min
Discarded = 0.36 cfs @ 14.36 hrs, Volume= 1.303 af
Primary = 1.48 cfs @ 14.36 hrs, Volume= 0.433 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.35' @ 14.36 hrs Surf.Area= 15,509 sf Storage= 41,389 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 920.9 min (1,794.7 - 873.8)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	55,961 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

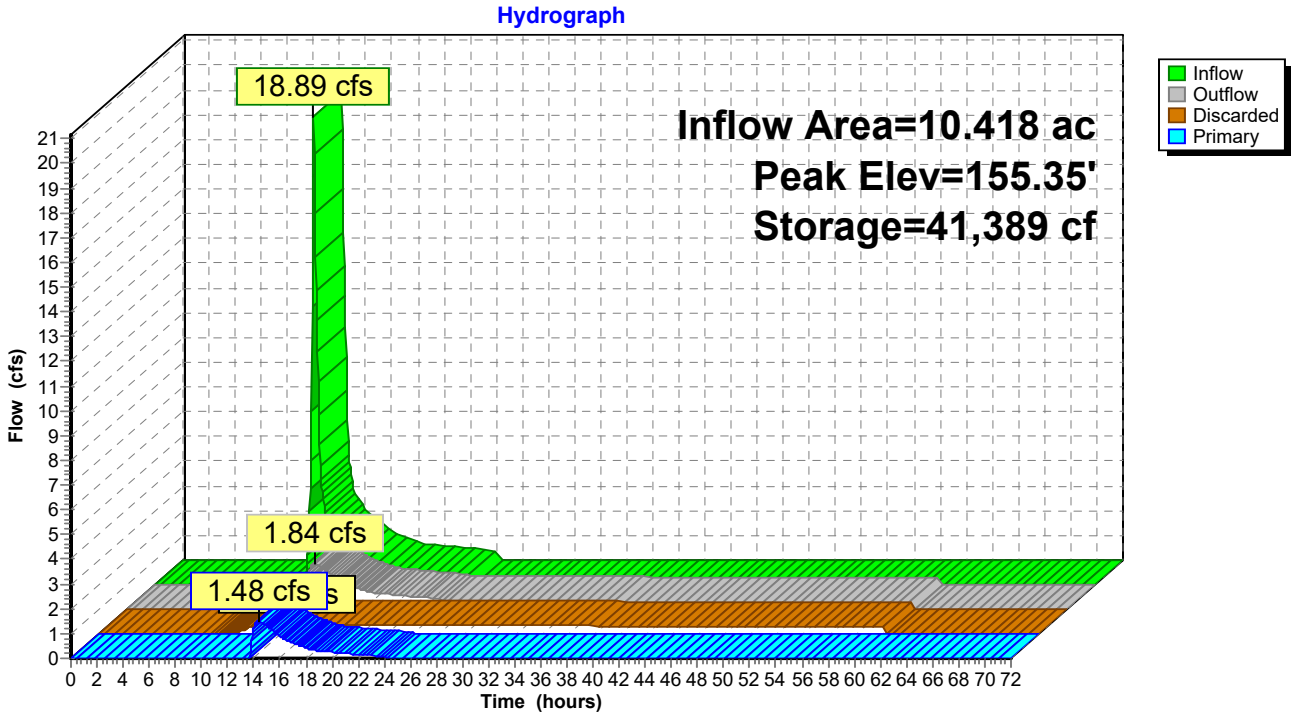
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	11,311	424.0	0.0	0	0	11,311
156.25	16,853	500.0	100.0	55,961	55,961	17,197

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.36 cfs @ 14.36 hrs HW=155.35' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.36 cfs)

Primary OutFlow Max=1.48 cfs @ 14.36 hrs HW=155.35' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 1.48 cfs @ 0.75 fps)

Pond SB-2: Stormwater Basin #2



Summary for Pond SB-3: Stormwater Basin #3

Inflow Area = 7.770 ac, 0.12% Impervious, Inflow Depth = 2.75" for 50-yr event
Inflow = 22.15 cfs @ 12.12 hrs, Volume= 1.782 af
Outflow = 7.51 cfs @ 12.49 hrs, Volume= 1.782 af, Atten= 66%, Lag= 22.2 min
Discarded = 0.26 cfs @ 12.49 hrs, Volume= 0.849 af
Primary = 7.25 cfs @ 12.49 hrs, Volume= 0.933 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.71' @ 12.49 hrs Surf.Area= 11,298 sf Storage= 29,226 cf

Plug-Flow detention time= 548.1 min calculated for 1.781 af (100% of inflow)
Center-of-Mass det. time= 549.3 min (1,398.5 - 849.2)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	35,578 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

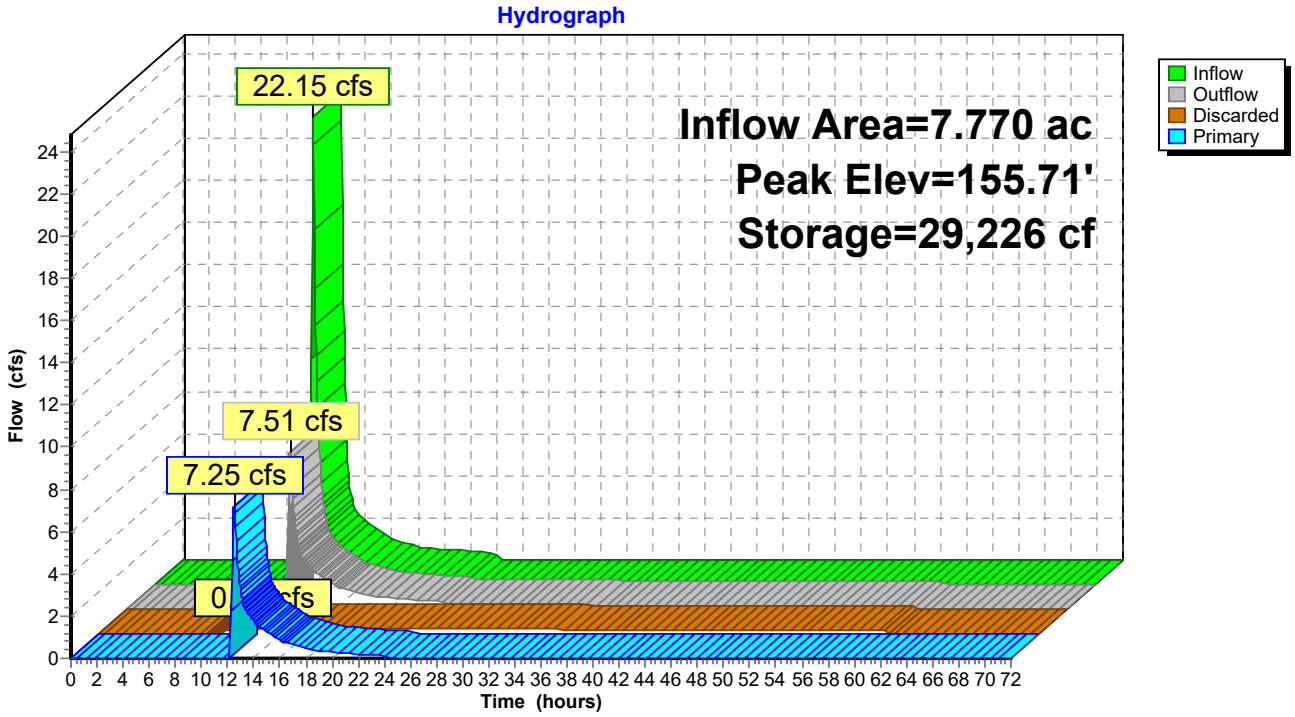
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	5,881	497.0	0.0	0	0	5,881
156.25	12,298	573.0	100.0	35,578	35,578	12,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.26 cfs @ 12.49 hrs HW=155.71' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=7.20 cfs @ 12.49 hrs HW=155.71' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 7.20 cfs @ 1.74 fps)

Pond SB-3: Stormwater Basin #3

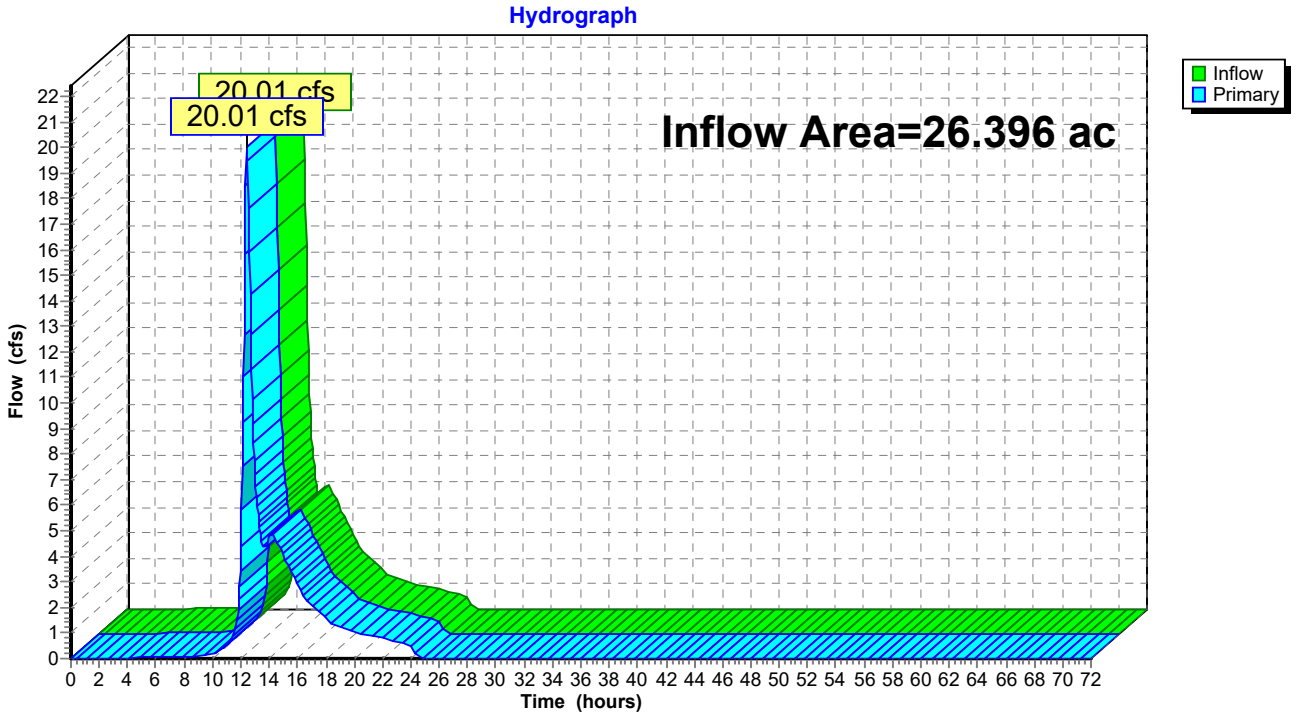


Summary for Link DP-1: North Wetland

Inflow Area = 26.396 ac, 1.50% Impervious, Inflow Depth = 1.42" for 50-yr event
Inflow = 20.01 cfs @ 12.43 hrs, Volume= 3.128 af
Primary = 20.01 cfs @ 12.43 hrs, Volume= 3.128 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

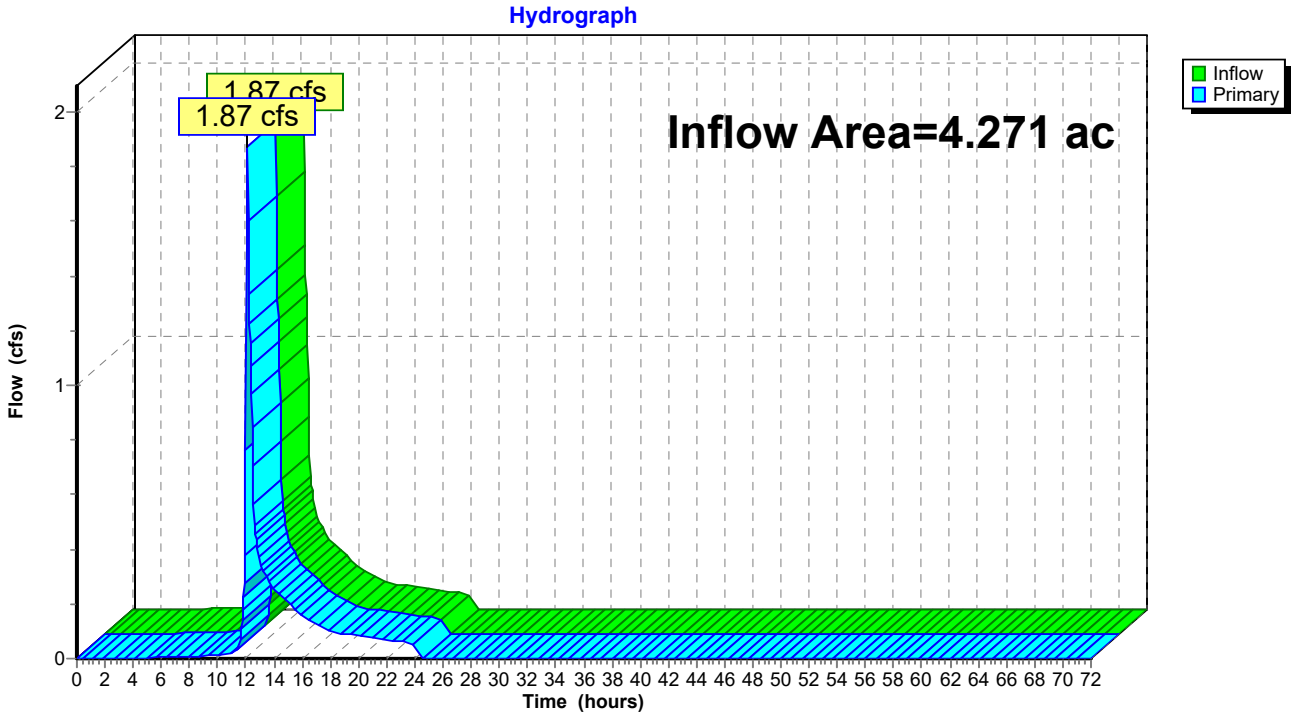


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 0.77% Impervious, Inflow Depth = 0.56" for 50-yr event
Inflow = 1.87 cfs @ 12.10 hrs, Volume= 0.200 af
Primary = 1.87 cfs @ 12.10 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-2: South



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR-1: Subcat PR-1 Runoff Area=286,141 sf 4.26% Impervious Runoff Depth=3.63"
Flow Length=910' Tc=24.3 min CN=WQ Runoff=16.54 cfs 1.988 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=2.236 ac 1.48% Impervious Runoff Depth=1.50"
Flow Length=460' Tc=5.0 min CN=WQ Runoff=2.89 cfs 0.280 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=2.035 ac 0.00% Impervious Runoff Depth=1.65"
Flow Length=550' Tc=7.4 min CN=WQ Runoff=2.85 cfs 0.280 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=1.639 ac 5.85% Impervious Runoff Depth=1.71"
Flow Length=360' Tc=6.7 min CN=WQ Runoff=2.26 cfs 0.233 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=10.418 ac 0.12% Impervious Runoff Depth=2.62"
Flow Length=850' Tc=9.8 min CN=WQ Runoff=25.69 cfs 2.275 af

Subcatchment PR-6: Subcat PR-6 Runoff Area=7.770 ac 0.12% Impervious Runoff Depth=3.47"
Flow Length=585' Tc=7.6 min CN=WQ Runoff=28.47 cfs 2.250 af

Pond SB-1: Stormwater Basin #1 Peak Elev=188.43' Storage=7,934 cf Inflow=2.85 cfs 0.280 af
Discarded=0.11 cfs 0.280 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.280 af

Pond SB-2: Stormwater Basin #2 Peak Elev=155.44' Storage=42,845 cf Inflow=25.69 cfs 2.275 af
Discarded=0.36 cfs 1.318 af Primary=4.01 cfs 0.957 af Outflow=4.37 cfs 2.275 af

Pond SB-3: Stormwater Basin #3 Peak Elev=155.92' Storage=31,677 cf Inflow=28.47 cfs 2.250 af
Discarded=0.27 cfs 0.858 af Primary=13.43 cfs 1.391 af Outflow=13.70 cfs 2.250 af

Link DP-1: North Wetland Inflow=31.22 cfs 4.570 af
Primary=31.22 cfs 4.570 af

Link DP-2: South Inflow=2.89 cfs 0.280 af
Primary=2.89 cfs 0.280 af

Total Runoff Area = 30.667 ac Runoff Volume = 7.306 af Average Runoff Depth = 2.86"
98.60% Pervious = 30.237 ac 1.40% Impervious = 0.430 ac

Summary for Subcatchment PR-1: Subcat PR-1

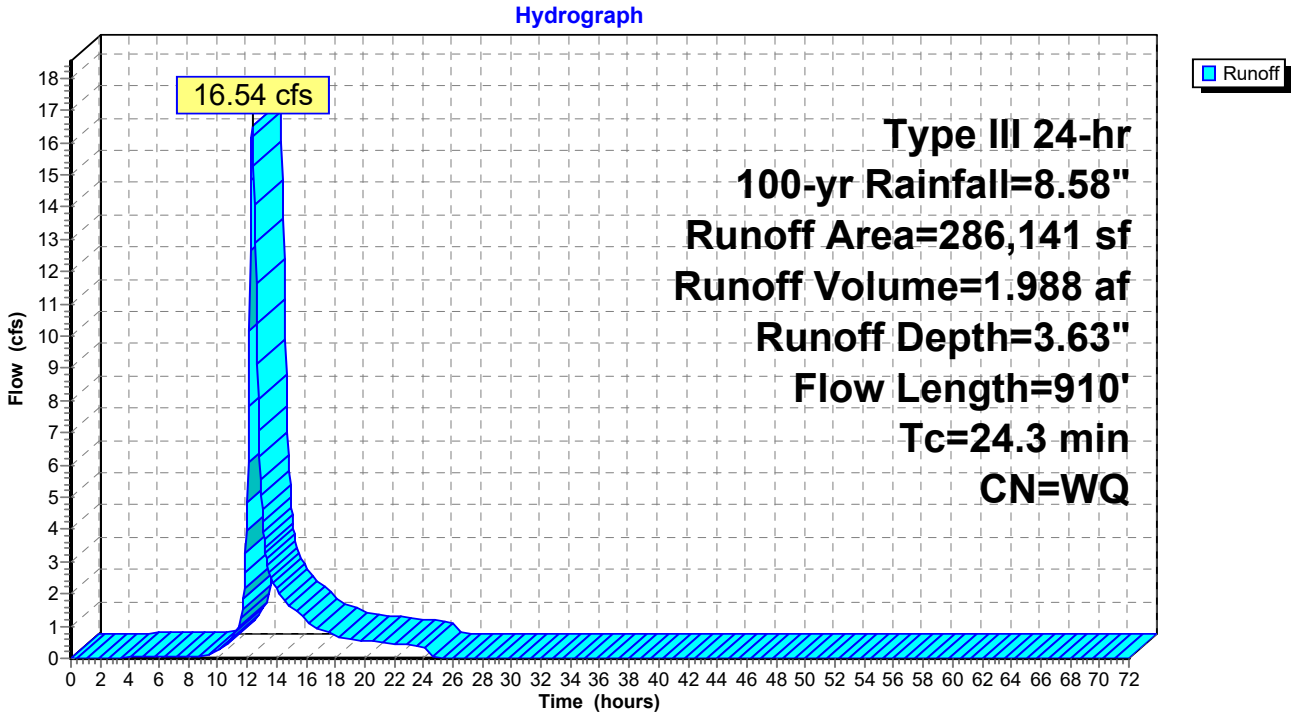
Runoff = 16.54 cfs @ 12.35 hrs, Volume= 1.988 af, Depth= 3.63"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

Area (sf)	CN	Description
48,008	39	>75% Grass cover, Good, HSG A
2,354	30	Woods, Good, HSG A
11,190	55	Woods, Good, HSG B
9,430	98	Paved parking, HSG B
1,431	96	Gravel surface, HSG B
210,964	61	>75% Grass cover, Good, HSG B
2,764	98	Paved parking, HSG A
286,141		Weighted Average
273,947		95.74% Pervious Area
12,195		4.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0460	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.4	480	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.3	910	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

[49] Hint: Tc<2dt may require smaller dt

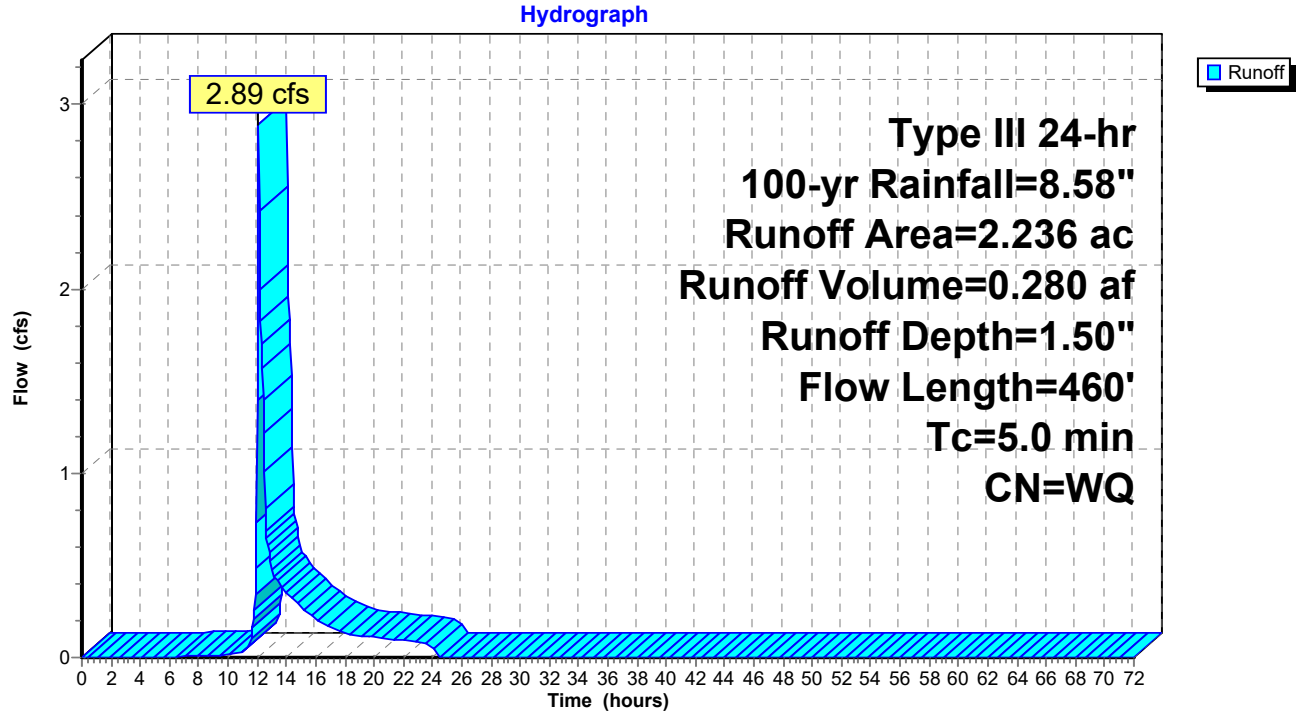
Runoff = 2.89 cfs @ 12.10 hrs, Volume= 0.280 af, Depth= 1.50"
Routed to Link DP-2 : South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

	Area (ac)	CN	Description
	0.539	30	Woods, Good, HSG A
	1.302	39	>75% Grass cover, Good, HSG A
	0.033	98	Paved parking, HSG A
*	0.362	50	>75% Grass cover, Good, HSG A-B
	2.236		Weighted Average
	2.203		98.52% Pervious Area
	0.033		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.2000	2.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	410	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.0	460	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

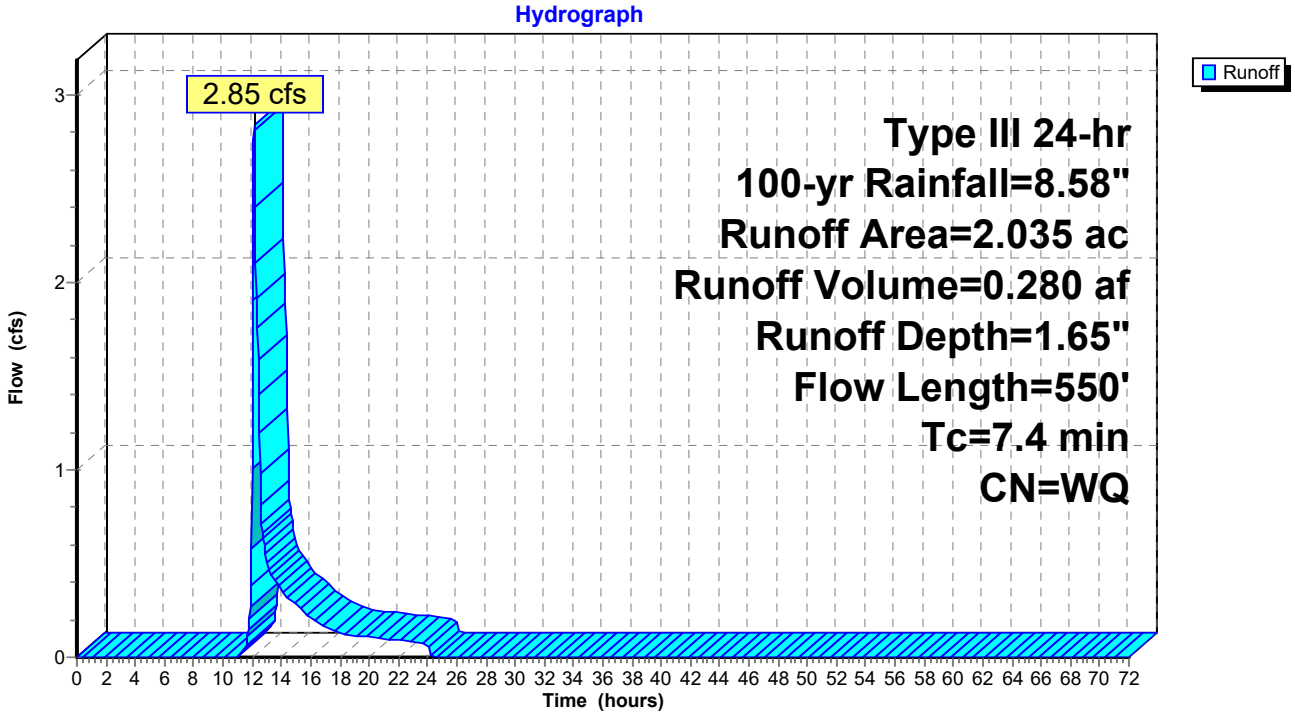
Runoff = 2.85 cfs @ 12.13 hrs, Volume= 0.280 af, Depth= 1.65"
Routed to Pond SB-1 : Stormwater Basin #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

	Area (ac)	CN	Description
	1.371	39	>75% Grass cover, Good, HSG A
	0.149	30	Woods, Good, HSG A
*	0.515	50	>75% Grass cover, Good, HSG A-B
	2.035		Weighted Average
	2.035		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.3350	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
3.5	500	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.4	550	Total			

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

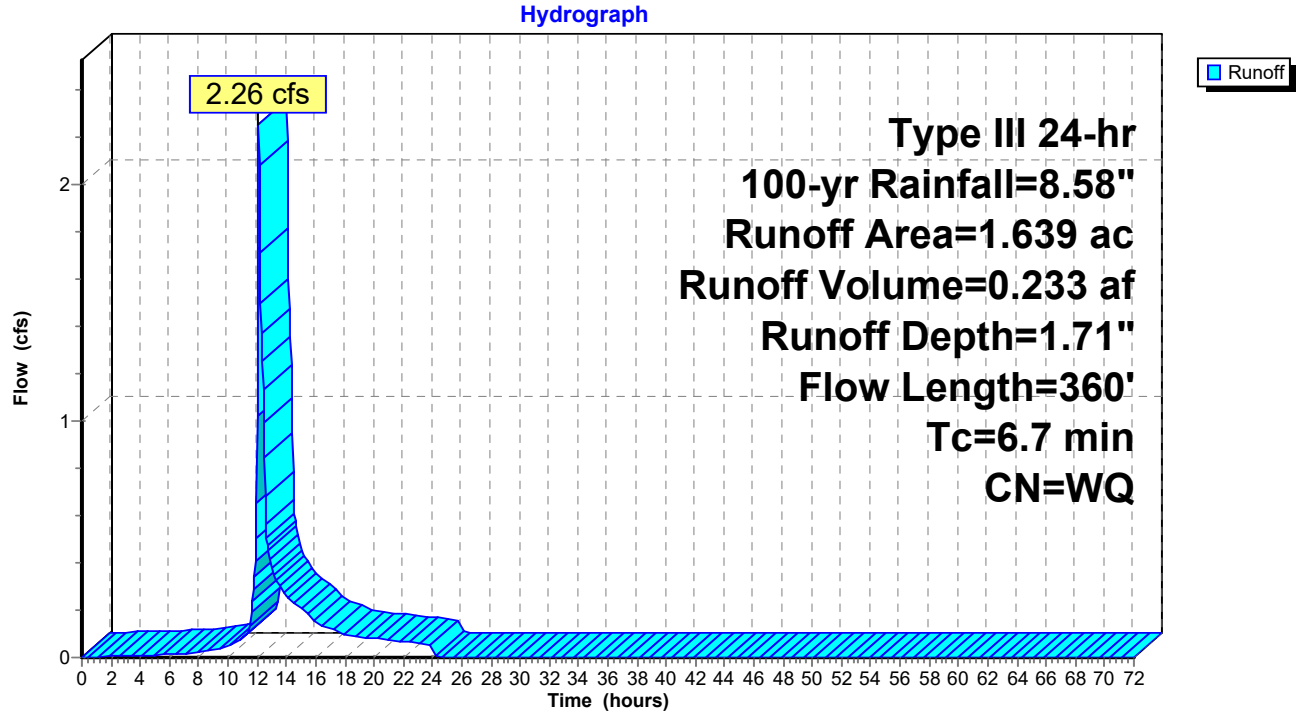
Runoff = 2.26 cfs @ 12.11 hrs, Volume= 0.233 af, Depth= 1.71"
Routed to Link DP-1 : North Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

Area (ac)	CN	Description
0.096	98	Paved parking, HSG A
0.518	30	Woods, Good, HSG A
0.950	39	>75% Grass cover, Good, HSG A
0.075	70	Woods, Good, HSG C
1.639		Weighted Average
1.543		94.15% Pervious Area
0.096		5.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.3000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	360	Total			

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

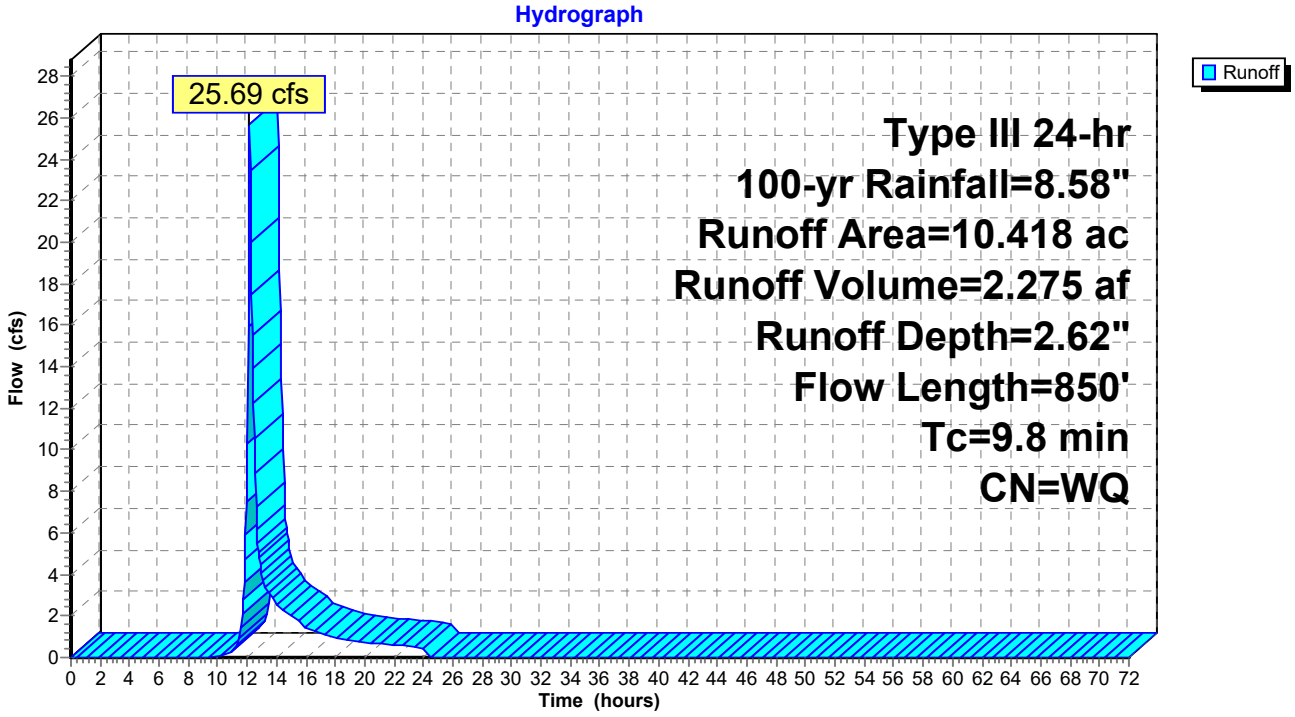
Runoff = 25.69 cfs @ 12.15 hrs, Volume= 2.275 af, Depth= 2.62"
Routed to Pond SB-2 : Stormwater Basin #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

	Area (ac)	CN	Description
	0.298	30	Woods, Good, HSG A
	1.143	39	>75% Grass cover, Good, HSG A
	0.012	98	Paved parking, HSG A
*	7.727	50	>75% Grass cover, Good, HSG A-B
*	0.507	68	>75% Grass cover, Good, HSG B-C
	0.731	61	>75% Grass cover, Good, HSG B
	10.418		Weighted Average
	10.406		99.88% Pervious Area
	0.012		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.3500	0.22		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.34"
6.0	800	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.8	850	Total			

Subcatchment PR-5: Subcat PR-5



Summary for Subcatchment PR-6: Subcat PR-6

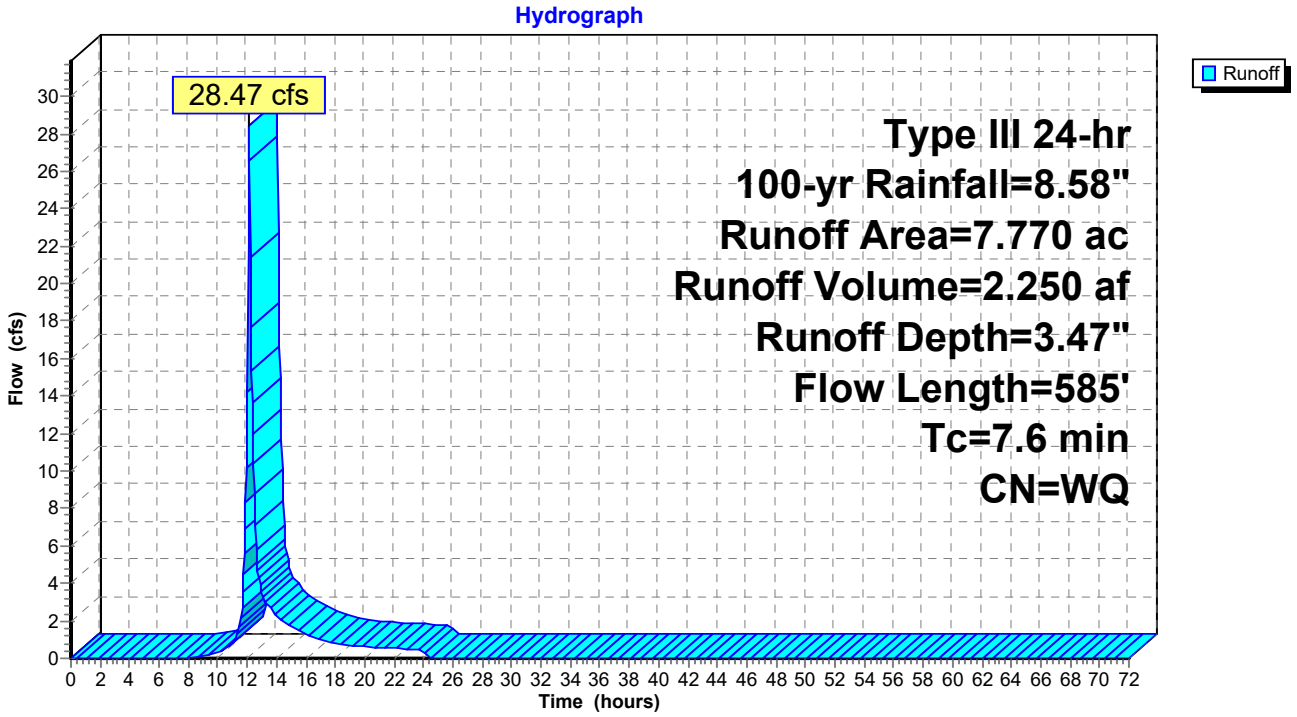
Runoff = 28.47 cfs @ 12.12 hrs, Volume= 2.250 af, Depth= 3.47"
Routed to Pond SB-3 : Stormwater Basin #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.58"

	Area (ac)	CN	Description
	0.009	98	Paved parking, HSG A
	0.039	96	Gravel surface, HSG A
*	3.654	50	>75% Grass cover, Good, HSG A-B
	0.445	39	>75% Grass cover, Good, HSG A
	0.058	96	Gravel surface, HSG B
*	2.504	68	>75% Grass cover, Good, HSG B-C
	1.061	61	>75% Grass cover, Good, HSG B
	7.770		Weighted Average
	7.761		99.88% Pervious Area
	0.009		0.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1350	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.34"
5.0	535	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.6	585	Total			

Subcatchment PR-6: Subcat PR-6



Summary for Pond SB-1: Stormwater Basin #1

Inflow Area = 2.035 ac, 0.00% Impervious, Inflow Depth = 1.65" for 100-yr event
Inflow = 2.85 cfs @ 12.13 hrs, Volume= 0.280 af
Outflow = 0.11 cfs @ 20.26 hrs, Volume= 0.280 af, Atten= 96%, Lag= 487.9 min
Discarded = 0.11 cfs @ 20.26 hrs, Volume= 0.280 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-2 : South

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 188.43' @ 20.26 hrs Surf.Area= 4,545 sf Storage= 7,934 cf

Plug-Flow detention time= 899.2 min calculated for 0.280 af (100% of inflow)
Center-of-Mass det. time= 899.9 min (1,791.5 - 891.6)

Volume	Invert	Avail.Storage	Storage Description
#1	186.00'	16,621 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

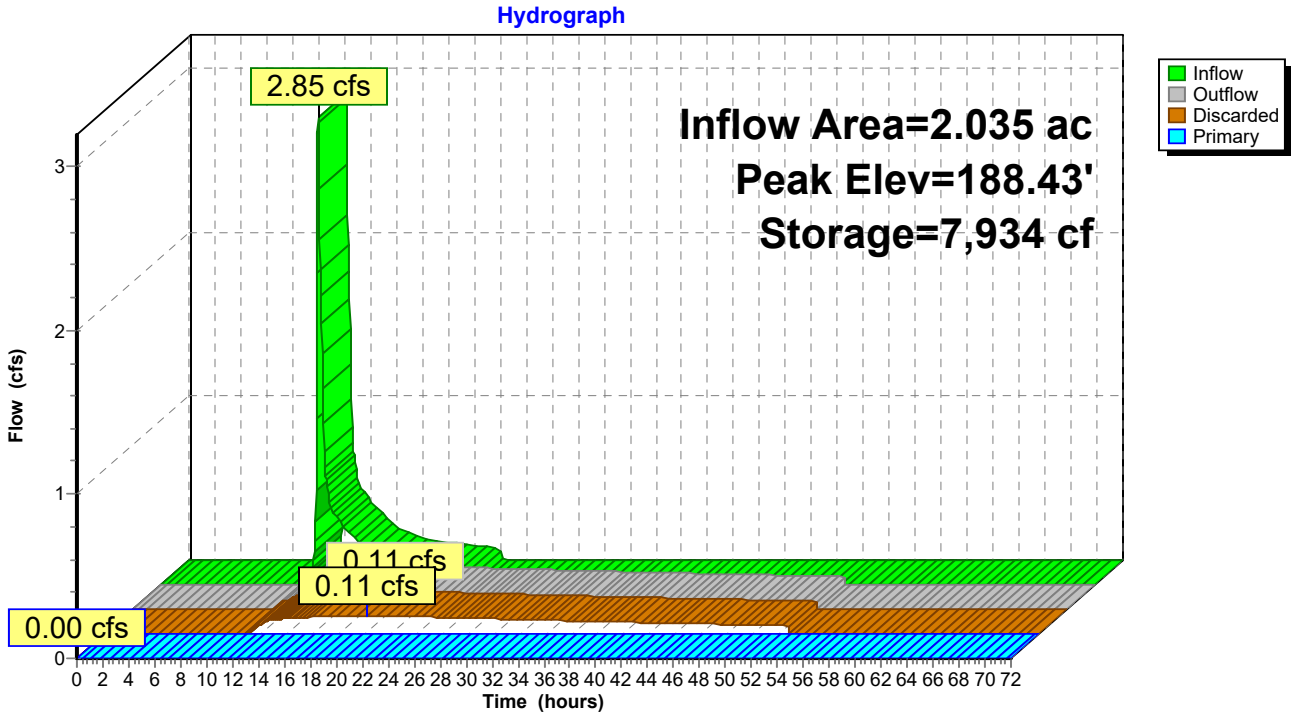
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
186.00	2,137	317.4	0.0	0	0	2,137
190.00	6,579	392.8	100.0	16,621	16,621	6,629

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	189.00'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.11 cfs @ 20.26 hrs HW=188.43' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=186.00' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SB-1: Stormwater Basin #1



Summary for Pond SB-2: Stormwater Basin #2

Inflow Area = 10.418 ac, 0.12% Impervious, Inflow Depth = 2.62" for 100-yr event
Inflow = 25.69 cfs @ 12.15 hrs, Volume= 2.275 af
Outflow = 4.37 cfs @ 12.90 hrs, Volume= 2.275 af, Atten= 83%, Lag= 44.8 min
Discarded = 0.36 cfs @ 12.90 hrs, Volume= 1.318 af
Primary = 4.01 cfs @ 12.90 hrs, Volume= 0.957 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.44' @ 12.90 hrs Surf.Area= 15,646 sf Storage= 42,845 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 714.4 min (1,580.1 - 865.7)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	55,961 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

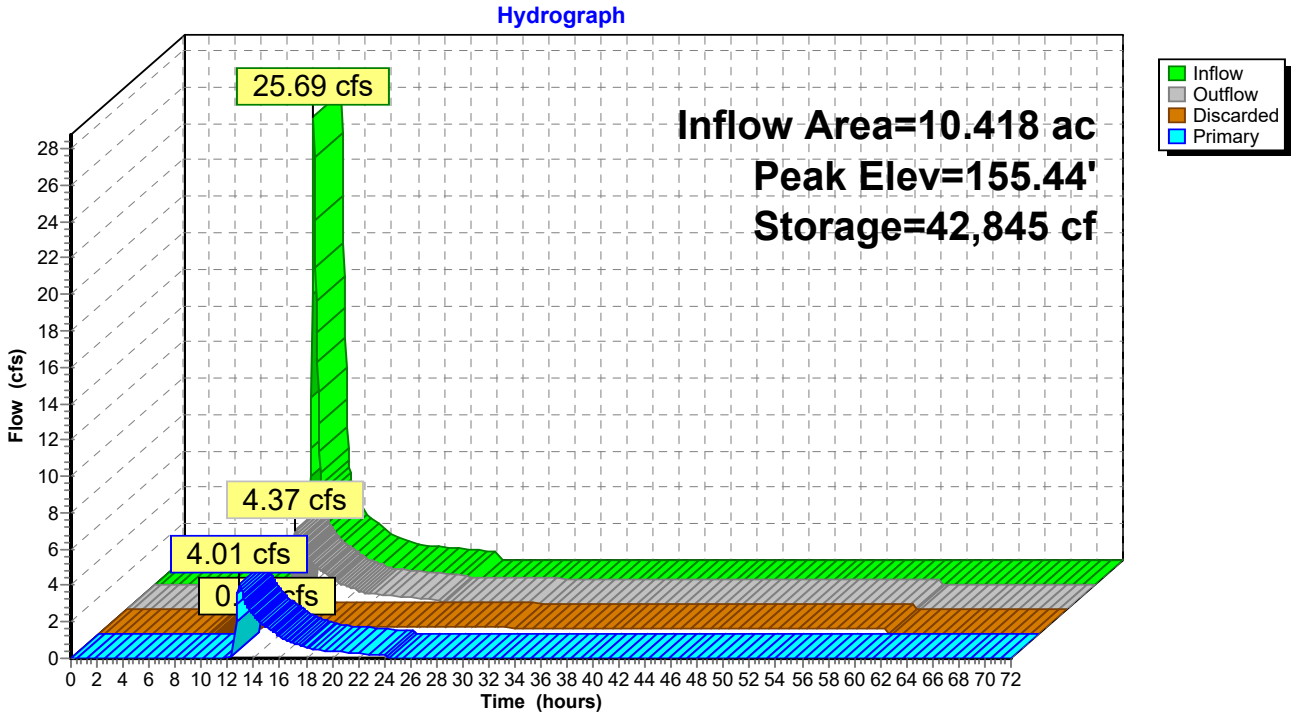
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	11,311	424.0	0.0	0	0	11,311
156.25	16,853	500.0	100.0	55,961	55,961	17,197

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.36 cfs @ 12.90 hrs HW=155.44' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.36 cfs)

Primary OutFlow Max=4.01 cfs @ 12.90 hrs HW=155.44' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 4.01 cfs @ 1.04 fps)

Pond SB-2: Stormwater Basin #2



Summary for Pond SB-3: Stormwater Basin #3

Inflow Area = 7.770 ac, 0.12% Impervious, Inflow Depth = 3.47" for 100-yr event
Inflow = 28.47 cfs @ 12.12 hrs, Volume= 2.250 af
Outflow = 13.70 cfs @ 12.35 hrs, Volume= 2.250 af, Atten= 52%, Lag= 14.4 min
Discarded = 0.27 cfs @ 12.35 hrs, Volume= 0.858 af
Primary = 13.43 cfs @ 12.35 hrs, Volume= 1.391 af
Routed to Link DP-1 : North Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 155.92' @ 12.35 hrs Surf.Area= 11,689 sf Storage= 31,677 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 440.5 min (1,283.7 - 843.1)

Volume	Invert	Avail.Storage	Storage Description
#1	152.25'	35,578 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

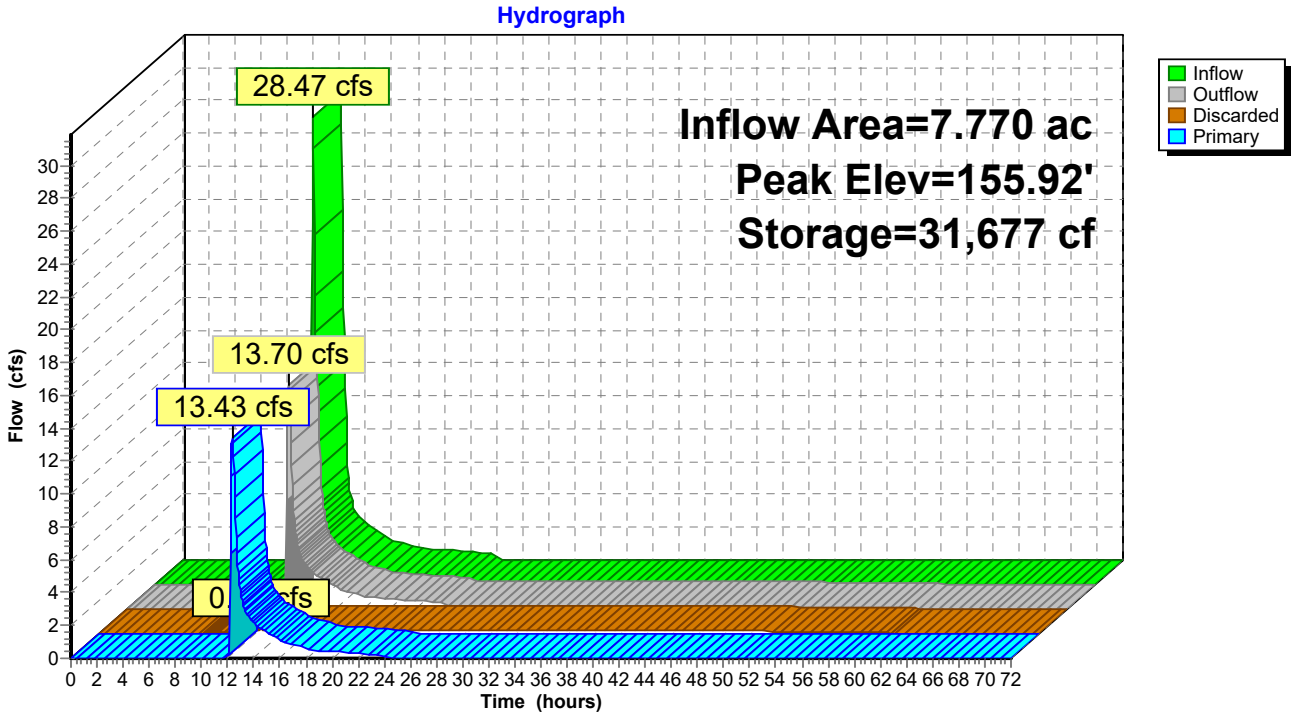
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.25	5,881	497.0	0.0	0	0	5,881
156.25	12,298	573.0	100.0	35,578	35,578	12,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	152.25'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	155.25'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.27 cfs @ 12.35 hrs HW=155.92' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=13.40 cfs @ 12.35 hrs HW=155.92' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 13.40 cfs @ 2.21 fps)

Pond SB-3: Stormwater Basin #3

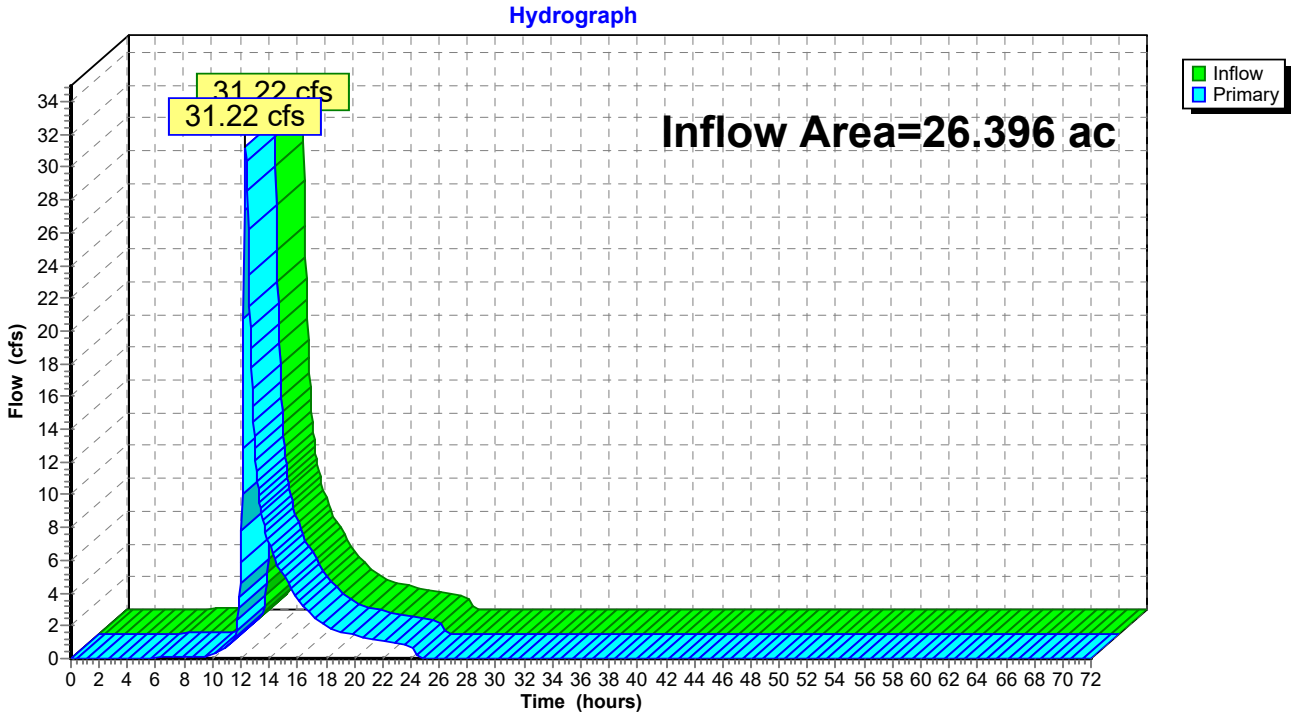


Summary for Link DP-1: North Wetland

Inflow Area = 26.396 ac, 1.50% Impervious, Inflow Depth = 2.08" for 100-yr event
Inflow = 31.22 cfs @ 12.35 hrs, Volume= 4.570 af
Primary = 31.22 cfs @ 12.35 hrs, Volume= 4.570 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: North Wetland

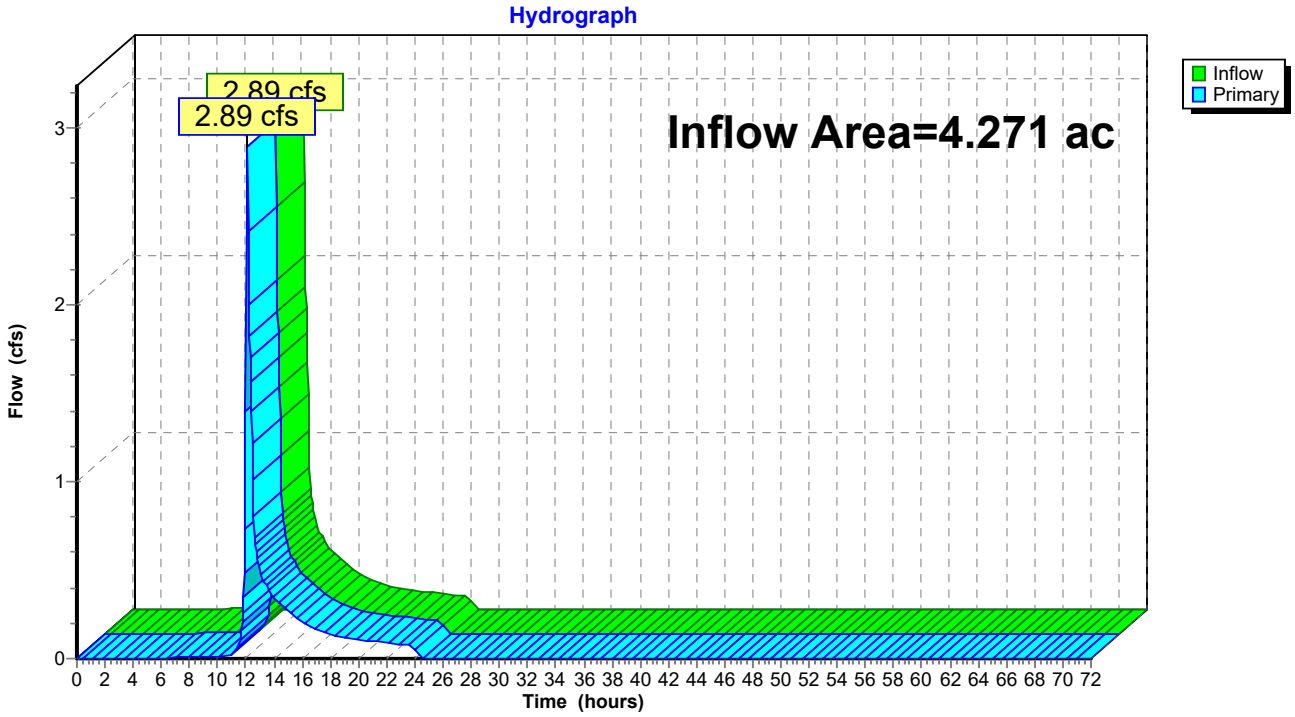


Summary for Link DP-2: South

Inflow Area = 4.271 ac, 0.77% Impervious, Inflow Depth = 0.79" for 100-yr event
Inflow = 2.89 cfs @ 12.10 hrs, Volume= 0.280 af
Primary = 2.89 cfs @ 12.10 hrs, Volume= 0.280 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-2: South



NOAA Rainfall Data

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NOAA Atlas 14, Volume 10, Version 3
Location name: Weatogue, Connecticut, USA*
Latitude: 41.8289°, Longitude: -72.8091°
Elevation: 159 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.348** (0.268-0.449)	**0.417** (0.321-0.539)	**0.530** (0.405-0.687)	**0.624** (0.476-0.814)	**0.754** (0.557-1.03)	**0.852** (0.618-1.19)	**0.954** (0.673-1.38)	**1.07** (0.716-1.59)	**1.23** (0.795-1.90)	**1.36** (0.861-2.15)
10-min	**0.493** (0.379-0.636)	**0.591** (0.454-0.764)	**0.751** (0.576-0.974)	**0.885** (0.674-1.15)	**1.07** (0.790-1.46)	**1.21** (0.874-1.68)	**1.35** (0.953-1.96)	**1.51** (1.01-2.25)	**1.74** (1.13-2.69)	**1.93** (1.22-3.05)
15-min	**0.580** (0.446-0.748)	**0.696** (0.534-0.898)	**0.885** (0.678-1.15)	**1.04** (0.793-1.36)	**1.26** (0.929-1.72)	**1.42** (1.03-1.98)	**1.59** (1.12-2.31)	**1.78** (1.19-2.65)	**2.05** (1.33-3.17)	**2.27** (1.44-3.58)
30-min	**0.784** (0.603-1.01)	**0.943** (0.724-1.22)	**1.20** (0.920-1.56)	**1.42** (1.08-1.85)	**1.71** (1.27-2.34)	**1.94** (1.40-2.70)	**2.17** (1.53-3.15)	**2.43** (1.63-3.62)	**2.80** (1.81-4.33)	**3.10** (1.96-4.89)
60-min	**0.988** (0.760-1.28)	**1.19** (0.914-1.54)	**1.52** (1.16-1.97)	**1.79** (1.36-2.34)	**2.17** (1.60-2.96)	**2.45** (1.78-3.42)	**2.75** (1.94-3.99)	**3.08** (2.06-4.58)	**3.55** (2.30-5.48)	**3.93** (2.49-6.21)
2-hr	**1.28** (0.987-1.64)	**1.53** (1.18-1.96)	**1.95** (1.50-2.51)	**2.29** (1.76-2.97)	**2.77** (2.06-3.77)	**3.12** (2.28-4.36)	**3.50** (2.50-5.10)	**3.95** (2.66-5.86)	**4.62** (3.00-7.11)	**5.18** (3.29-8.14)
3-hr	**1.47** (1.14-1.88)	**1.77** (1.37-2.26)	**2.25** (1.74-2.89)	**2.65** (2.04-3.42)	**3.20** (2.40-4.36)	**3.61** (2.66-5.04)	**4.06** (2.92-5.92)	**4.59** (3.10-6.80)	**5.41** (3.52-8.32)	**6.11** (3.89-9.59)
6-hr	**1.85** (1.45-2.35)	**2.24** (1.75-2.85)	**2.88** (2.25-3.68)	**3.42** (2.64-4.38)	**4.15** (3.13-5.62)	**4.68** (3.47-6.52)	**5.28** (3.82-7.69)	**6.01** (4.07-8.86)	**7.15** (4.66-10.9)	**8.14** (5.19-12.7)
12-hr	**2.28** (1.79-2.87)	**2.80** (2.20-3.53)	**3.66** (2.87-4.63)	**4.37** (3.41-5.57)	**5.35** (4.06-7.22)	**6.07** (4.53-8.41)	**6.86** (5.01-9.98)	**7.85** (5.34-11.5)	**9.42** (6.16-14.4)	**10.8** (6.90-16.8)
24-hr	**2.66** (2.11-3.33)	**3.34** (2.64-4.18)	**4.44** (3.51-5.59)	**5.36** (4.21-6.79)	**6.63** (5.07-8.92)	**7.55** (5.68-10.5)	**8.58** (6.33-12.5)	**9.92** (6.76-14.5)	**12.1** (7.92-18.3)	**14.0** (8.96-21.6)
2-day	**2.97** (2.37-3.69)	**3.80** (3.04-4.73)	**5.16** (4.10-6.45)	**6.29** (4.97-7.91)	**7.85** (6.05-10.5)	**8.97** (6.82-12.4)	**10.2** (7.65-15.0)	**12.0** (8.18-17.4)	**14.8** (9.76-22.4)	**17.4** (11.2-26.9)
3-day	**3.23** (2.59-4.00)	**4.15** (3.32-5.14)	**5.65** (4.51-7.03)	**6.89** (5.47-8.64)	**8.61** (6.67-11.5)	**9.84** (7.51-13.6)	**11.2** (8.44-16.5)	**13.2** (9.03-19.1)	**16.4** (10.8-24.8)	**19.3** (12.5-29.8)
4-day	**3.48** (2.80-4.29)	**4.46** (3.58-5.51)	**6.06** (4.85-7.52)	**7.38** (5.87-9.22)	**9.21** (7.16-12.3)	**10.5** (8.05-14.5)	**12.0** (9.05-17.6)	**14.1** (9.67-20.4)	**17.5** (11.6-26.4)	**20.7** (13.4-31.8)
7-day	**4.16** (3.36-5.10)	**5.26** (4.25-6.46)	**7.06** (5.68-8.71)	**8.55** (6.84-10.6)	**10.6** (8.27-14.1)	**12.1** (9.28-16.6)	**13.8** (10.4-20.0)	**16.1** (11.1-23.2)	**19.8** (13.1-29.8)	**23.3** (15.1-35.6)
10-day	**4.84** (3.93-5.92)	**6.00** (4.86-7.35)	**7.90** (6.38-9.72)	**9.48** (7.61-11.7)	**11.6** (9.10-15.4)	**13.2** (10.2-18.0)	**15.0** (11.3-21.6)	**17.3** (12.0-25.0)	**21.2** (14.1-31.8)	**24.7** (16.0-37.7)
20-day	**6.99** (5.71-8.49)	**8.20** (6.69-9.97)	**10.2** (8.28-12.4)	**11.8** (9.56-14.5)	**14.1** (11.0-18.3)	**15.7** (12.1-21.1)	**17.6** (13.2-24.8)	**19.9** (13.8-28.4)	**23.6** (15.7-35.1)	**26.8** (17.4-40.8)
30-day	**8.79** (7.22-10.6)	**10.0** (8.22-12.1)	**12.0** (9.83-14.6)	**13.7** (11.1-16.8)	**16.0** (12.6-20.6)	**17.7** (13.6-23.5)	**19.5** (14.6-27.1)	**21.7** (15.2-30.9)	**25.1** (16.8-37.2)	**27.9** (18.2-42.4)
45-day	**11.0** (9.10-13.3)	**12.3** (10.1-14.8)	**14.4** (11.8-17.4)	**16.1** (13.1-19.6)	**18.5** (14.5-23.6)	**20.3** (15.5-26.5)	**22.1** (16.4-30.2)	**24.1** (16.9-34.1)	**27.0** (18.1-39.8)	**29.2** (19.1-44.2)
60-day	**12.9** (10.7-15.5)	**14.2** (11.7-17.1)	**16.4** (13.5-19.8)	**18.2** (14.8-22.1)	**20.6** (16.2-26.2)	**22.5** (17.3-29.3)	**24.4** (18.0-32.9)	**26.3** (18.5-37.0)	**28.7** (19.3-42.2)	**30.4** (19.9-45.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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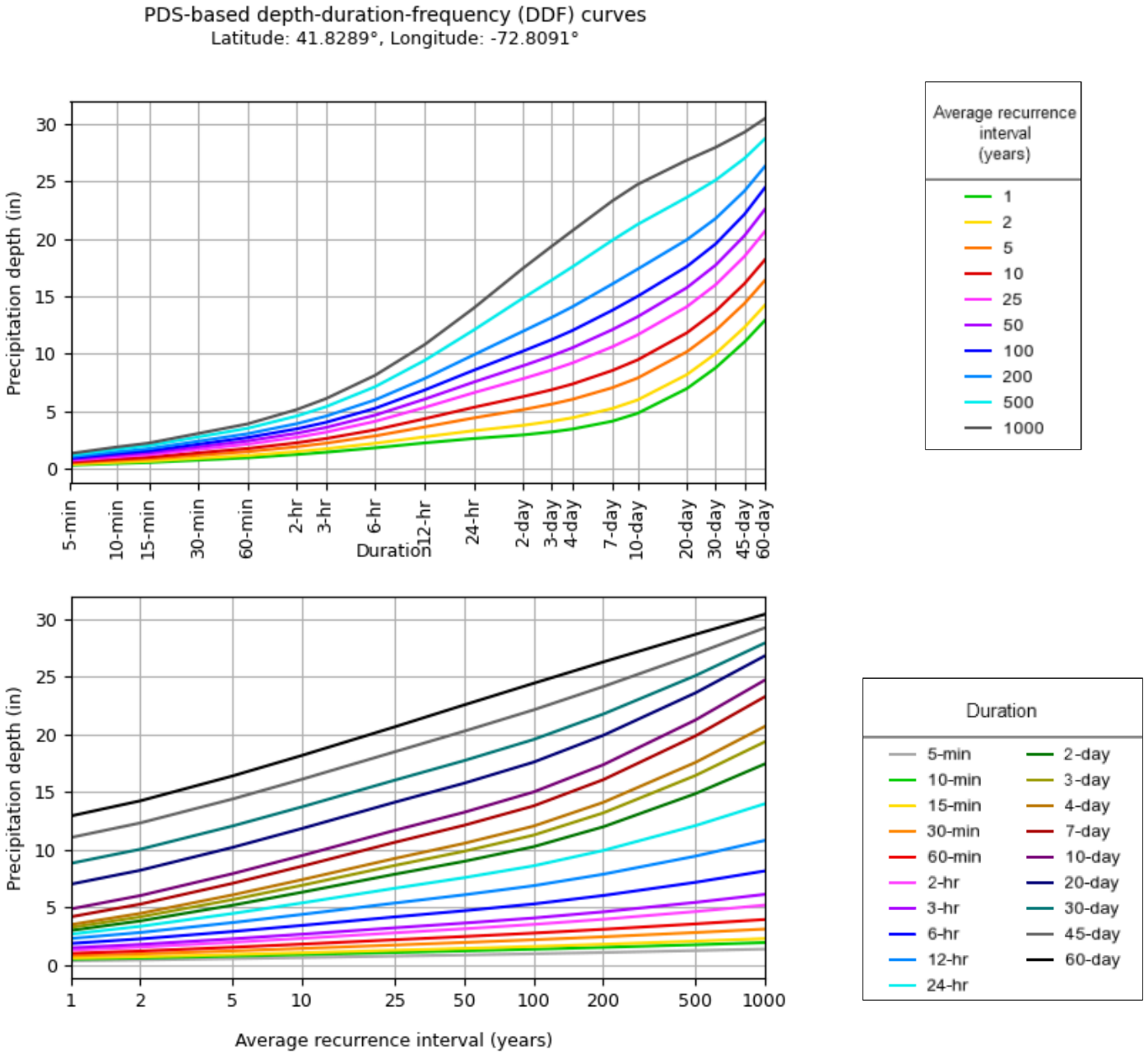
PF graphical



NOAA Atlas 14, Volume 10, Version 3 Created (GMT): Thu Jun 26 20:28:08 2025

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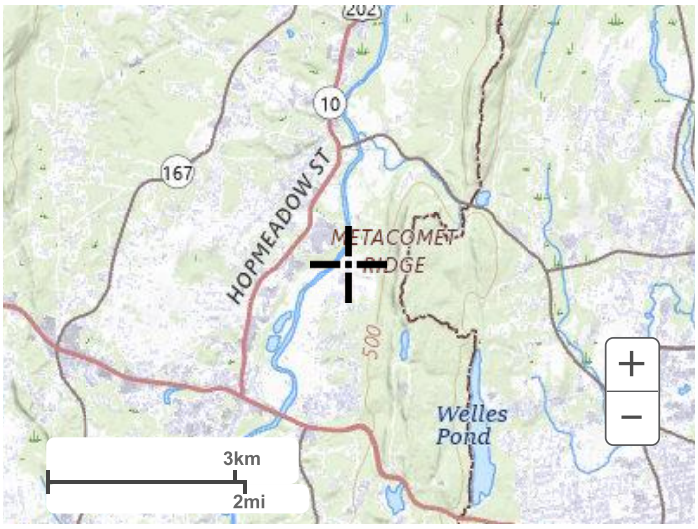
Maps & aerials

Small scale terrain



Large scale terrain

Large scale map

Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Water Quality Volume Calculations

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Water Quality Volume Calculations

Project: Nod Road Solar Project By: TMD Date: 8/4/25
Location: 140 Nod Road, Simsbury, CT Checked: SK Date: 8/4/25

Basin Name	Drainage Area 3	Drainage Area 5	Drainage Area 6			
Rainfall, P	1.3 in.	1.3 in.	1.3 in.	in.		a
Area, A	0.68 ac	9.77 ac	7.31 ac	ac		b
Impervious Cover Area	0.00 ac	0.00 ac	0.11 ac	ac		c
% Impervious, I	0 %	0 %	2 %	%		
Volumetric Runoff Coeff., R	0.050	0.050	0.064			d
Water Quality Volume Req'd, WQV	0.004 ac-ft	0.053 ac-ft	0.051 ac-ft	ac-ft		e
	159 cf	2,306 cf	2,213 cf	cf		
Water Quality Volume Provided, WQV						
	10,724 cf	39,858 cf	24,204 cf	cf		f

a First 1.3 inches of rainfall; 2024 Connecticut Stormwater Quality Manual

b Area tributary to the stormwater management basin

c Impervious cover area tributary to the stormwater management basin

d R=0.05+0.009*I; Chapter 4 from 2024 Connecticut Stormwater Quality Manual

e WQV=P*R*A/12; Chapter 4 from 2024 Connecticut Stormwater Quality Manual

f Volume below the crest of the spillway

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Sediment Trap Sizing Calculations

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Sediment Trap Sizing

Project:	Project: Nod Road Solar Project		By: TMD	Date:	8/4/2025
Location:	Location: 140 Nod Road, Simsbury, CT		Checked: SK	Date:	8/4/2025

TST #	Tributary Acreage, ac	Volume Required Below Top of Spillway, cf *(134 cy / acre)**	Volume Provided in Permanent Basin Below Top of Spillway, cf
1	0.68	2,443	10,724
2	9.77	35,357	39,858
3	7.31	26,454	24,204

* Per 2024 Connecticut Guidelines for Soil Erosion and Sediment Control

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Appendix B: Additional Mapping

- NRCS Web Soil Survey Mapping
- FEMA Flood Insurance Rate Map
- CTDEEP Groundwater Classification Map

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NCRS Web Soil Survey Mapping

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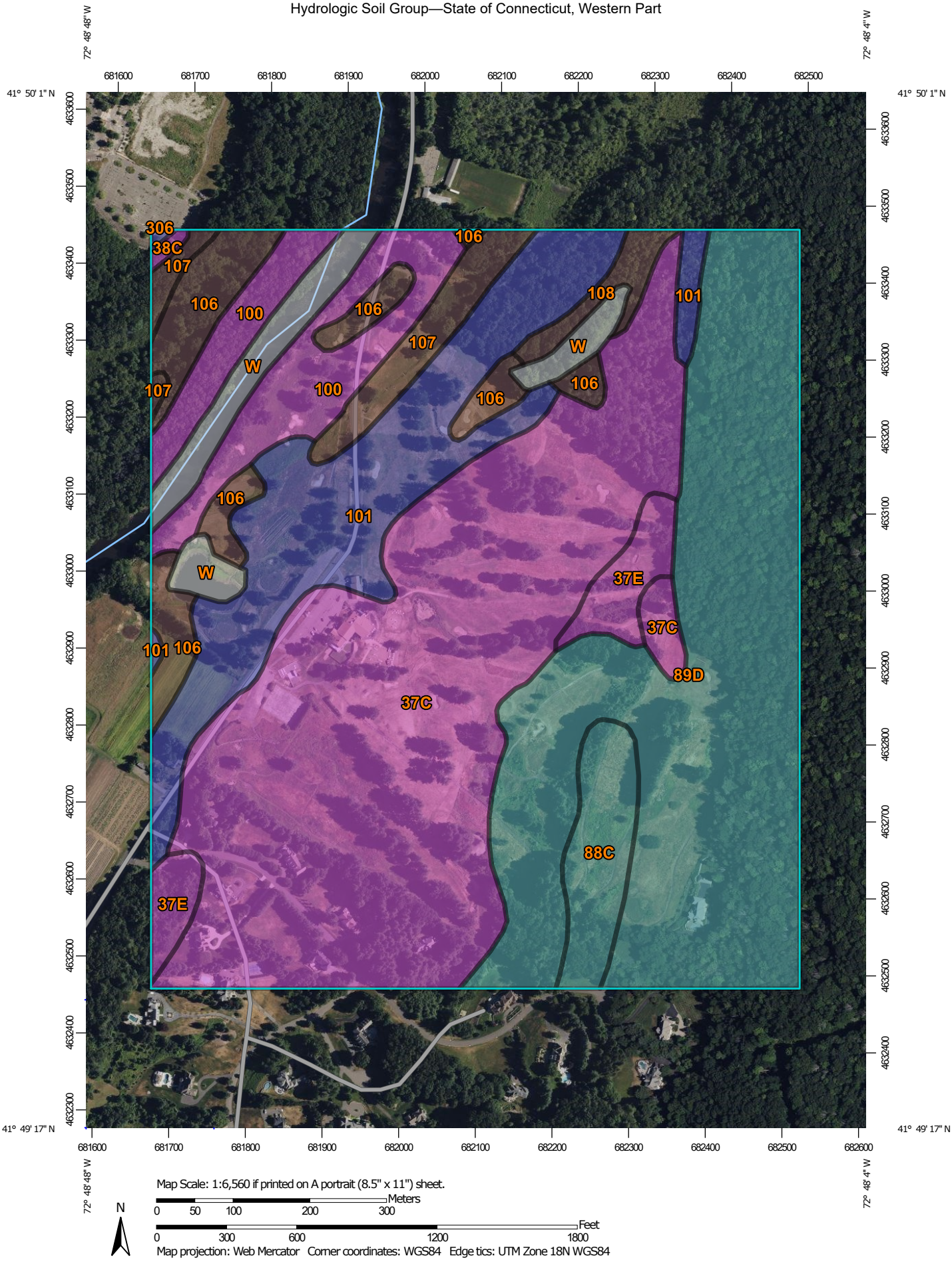
72° 48' 48" W
72° 48' 4" W
41° 50' 1" N
41° 49' 17" N
681600
681700
681800
681900
682000
682100
682200
682300
682400
682500
682600
4633600
4633500
4633400
4633300
4633200
4633100
4633000
4632900
4632800
4632700
4632600
4632500
4632400
4632300
306
38C
107
106
100
W
101
108
37E
37C
89D
88C
Map Scale: 1:6,560 if printed on A portrait (8.5" x 11") sheet.
Meters
0 50 100 200 300
Feet
0 300 600 1200 1800
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 2, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	A	71.7	34.7%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	A	5.2	2.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	0.3	0.1%
88C	Wethersfield loam, 8 to 15 percent slopes, very stony	C	6.3	3.0%
89D	Wethersfield loam, 15 to 35 percent slopes, extremely stony	C	56.6	27.4%
100	Suncook loamy fine sand	A	14.0	6.7%
101	Occum fine sandy loam	B	26.4	12.8%
106	Winooski silt loam	B/D	10.9	5.3%
107	Limerick and Lim soils, 0 to 3 percent slopes, frequently flooded	B/D	5.6	2.7%
108	Saco silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded	B/D	2.2	1.1%
306	Udorthents-Urban land complex	B	0.1	0.1%
W	Water		7.6	3.7%
Totals for Area of Interest			**206.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

FEMA Flood Insurance Rate Map

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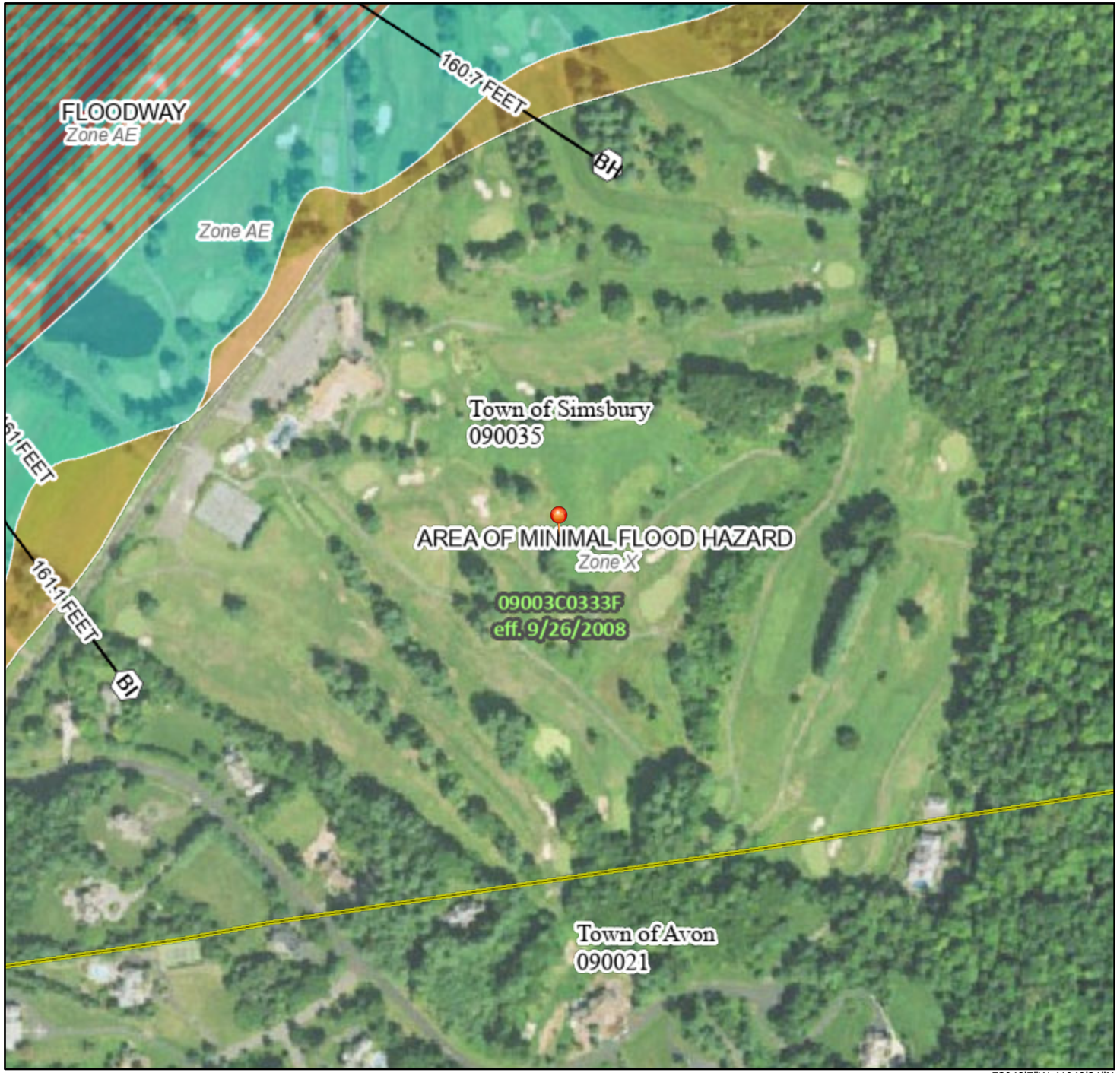
National Flood Hazard Layer FIRMette

FEMA

72°48'45"W 41°49'48"N



72°48'7"W 41°49'21"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/27/2025 at 6:03 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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CTDEEP Groundwater Classification Map

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WATER QUALITY CLASSIFICATIONS
SIMSBURY, CT

SURFACE WATER QUALITY CLASSES

A	A
AA	AA
B, B*	B, B*
SA	SA
SB	SB

NOTES:
Surface Water Classifications beginning with S refer to Coastal and Marine Surface Water.
B* is a subset of Class B where no direct wastewater discharges are allowed other than those consistent with Class AA, A and SA surface waters.

GROUND WATER QUALITY CLASSES

GA (white background)

GAA, GAAs

GA, GAA may not meet current standards

GB

GC

Area of Contribution to Public Supply Well

Final Aquifer Protection Area (Level A)

Major Basin Boundary

EXPLANATION

WATER QUALITY CLASSIFICATIONS (WQC) MAPS are one of the elements of the Water Quality Standards (WQS) for the State of Connecticut. The WQS are a part of Connecticut's clean water program and are essential for protecting and improving water quality. The WQS follow the principles of Connecticut's Clean Water Act which is in Chapter 446K of the Connecticut General Statutes. The WQS provide policy guidance in many areas, for example decisions on acceptable discharges to water resources, siting of landfills, remediation or prioritization of municipal sewerage system projects. The first two elements of the WQS are the Standards, which set an overall policy for management of water quality, and the Criteria, which are descriptive and numerical standards that describe the allowable parameters and goals for various water quality classifications. A discussion of these two elements is found in the Water Quality Standards document available on the CT DEEP website. The third element is the Classifications and the Water Quality Classification Maps which show the Classification assigned to each surface and groundwater resource throughout the State. The WQS are adopted using a public participation process. The WQC maps are also adopted using a public participation process but go through hearings separately from the Standards and Criteria hearings. Revision and adoption of the WQC data occurs in accordance with the public participation procedures contained in Section 22a-426 of the Connecticut General Statutes. Ground WQC is subject to Connecticut regulation and changes must be reviewed and adopted. All changes to the Surface WQC require an adoption process which is subject to federal review and approval in addition to CT regulation. The adoption dates for the WQC by major drainage basin are: Housatonic River, Hudson River and Southwest Coastal Basins - March 1999; Connecticut River and South Central Coastal Basins - February 1993; Thames River, Pawcatuck River and Southeast Coastal Basins - December 1986. Surface Water Classifications do not change after the adoption date until the next major revision. Ground Water Classifications may change after the adoption date under specific circumstances. The map may have more than one WQC adoption date because a town may be in more than one major drainage basin.

SURFACE WATERS in Connecticut are divided into freshwater classified as AA, A, B or B* and saline waters classified as SA or SB. Class AA designated uses are existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture. Class A designated uses are habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture. Class SA designated uses are habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption; recreation; industrial water supply; and navigation. Class B designated uses are habitat for fish and aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply. Class B*, applicable to Candlewood Lake, is a subset of Class B and is identical in all ways to the designated uses, criteria and standards for Class B waters except for the restriction on direct discharges. Class SB designated uses are habitat for marine fish and aquatic life and wildlife; commercial shellfish harvesting; recreation; industrial water supply; and navigation.

Surface waters which are not specifically classified shall be considered as Class A or Class AA. Surface waters in GA ground water areas are assumed Class A or Class SA unless otherwise indicated. Surface waters in GAA ground water areas are assumed Class AA unless otherwise indicated.

On the WQC map a surface water quality goal of A is represented by blue colored water bodies. Surface water quality goal of AA is represented by purple colored water bodies. Surface water quality goal of B is represented by gold colored water bodies.

GROUND WATERS in Connecticut are classified as GAA, GA, GB and GC. Class GAA designated uses are existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. The Class GAAs is a subclass of GAA for ground water that is tributary to a public water supply reservoir. The area of contribution to a public water supply well is represented by a 500-foot radius around the well and is assumed to be Class GAA unless otherwise classified. Class GA designated uses are existing private and potential public or private supplies of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. All ground waters not specifically classified are considered as Class GA. Class GB designated uses are industrial process water and cooling waters and baseflow for hydraulically-connected water bodies and is presumed not suitable for human consumption without treatment. Class GC designated uses are assimilation of discharges authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes.

On the WQC map GA is represented by white colored land areas. Class GAA and class GAAs are represented by blue colored land areas. The area of contribution to a public water supply well is shown by a blue cross-hatch overprint. A notation of GAA followed by a state abbreviation indicates a watershed that contributes to the public water supply for a state other than Connecticut. Class GA or Class GAA areas that currently may not be meeting the GA or GAA standards are represented on the WQC maps by tan colored land areas. Class GB is represented by green colored land areas. Class GC is represented by magenta colored land areas.

FINAL AQUIFER PROTECTION AREAS (Level A) are included on the WQC maps for informational purposes. These areas are anticipated to be reclassified GAA during the next major basin updates, subject to public participation. The Aquifer Protection Program helps protect Connecticut's public drinking water resources by delineating aquifer protection areas (also called wellhead protection areas) for public supply wells and establishing land use regulations within these areas. These areas represent the land area contributing ground water to active public water supply wells or well fields that serve more than 1000 people and are set in sand and gravel aquifers (stratified drift deposits).

DATA SOURCES

WATER QUALITY CLASSIFICATIONS DATA – Water quality classifications shown on this map are based on information from the following digital spatial datasets that are typically shown together – Ground Water Quality Classifications Poly, Surface Water Quality Classifications Line, and Surface Water Quality Classifications Poly. The map legend above reflects the content of these three data sources. These WQC data were initially compiled on 1:24,000-scale 7.5 minute USGS topographic quadrangle maps and later digitized at 1:24,000 scale. For example, the Surface Water Quality Classifications Line and Surface Water Quality Classifications Poly digital data assigns surface water quality classifications to water bodies such as rivers, streams, reservoirs, lakes, ponds and coves found in 1:24,000-scale hydrography data available from CT DEEP. The hydrography may not include all the waterbodies in Connecticut. The Ground Water Quality Classifications Poly data assigns ground water quality classifications, at 1:24,000 scale, to the remaining land areas in Connecticut.

AQUIFER PROTECTION AREA DATA – Aquifer Protection Areas shown on this map are from the Aquifer Protection Area digital dataset which contains polygon data intended to be used at 1:24,000 scale. The dataset contains regulated areas classified as Level A Aquifer Protection Area (Final) and Level B Aquifer Protection Area (Preliminary). The Level B areas are not shown on the WQC maps. The data was collected from 1991 to the present and is actively updated as Final area mapping replaces earlier Preliminary areas. The Aquifer Protection Areas are delineated by the individual water companies owning the well fields and submitted to the CT DEEP for approval. Preliminary mapping provides a general estimate of the area contributing ground water to the well field. Final mapping is based on extensive, site-specific, detailed modeling of the ground water flow system. CT DEEP may adjust Final area boundaries to be consistent with 1:24,000 scale topography and base map data where appropriate during the approval process.

MAJOR DRAINAGE BASIN DATA – Major drainage basins shown on this map are from Major Basin Line data developed by CT DEEP and intended to be used at 1:24,000 scale.

BASE MAP DATA - Based on data originally from 1:24,000-scale USGS 7.5 minute topographic quadrangle maps published between 1969 and 1992. It includes political boundaries, railroads, airports, hydrography, geographic names and geographic places. Streets and street names are from Tele Atlas® copyrighted data. Base map information is neither current nor complete.

RELATED INFORMATION
This map is intended to be printed at its original dimensions in order to maintain the 1:24,000 scale (1 inch = 2000 feet).
WATER QUALITY STANDARDS - Go to the CT DEEP website for a summary and the full text of the "Water Quality Standards" and for other information on water quality.
AQUIFER PROTECTION AREAS - Go to the CT DEEP website for more information.

ADOPTED DATES

Water Quality Standards
February 25, 2011

Thames River, Pawcatuck River and Southeast Coastal Basins: December 1986

Connecticut River and South Central Coastal Basins: February 1993

Housatonic River, Hudson River and Southwest Coastal Basins: March 1999

MAJOR BASINS

1 Pawcatuck
2 Southeast Coast
3 Thames
4 Connecticut
5 South Central Coast
6 Housatonic
7 Southwest Coast
8 Hudson

MAP LOCATION

State Plane Coordinate System of 1983, Zone 3526
Lambert Conformal Conic Projection
North American Datum of 1983

0 0.5 1 Miles
0 1000 2000 3000 4000 5000 6000 7000 Feet
0 0.5 0 1 Kilometers

SCALE 1:24,000 (1 inch = 2000 feet) when map is printed at original size

STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Map created by CT DEEP
October 2018

Map is not colorfast
Protect from light and moisture

SITE

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Appendix C: Operation and Maintenance Plan

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Project Information

Project Name:	Nod Road Solar Project
Address or Locus:	140 Nod Road
City, State & Zip:	Simsbury, Connecticut 06070

Developer

Client Name:	LSE Lynx, LLC
Client Address:	18 North Main Street, 2nd Floor
Client City, State & Zip:	West Hartford, CT 06107
Client Telephone No.:	
Client Cell Phone:	
Client E-Mail:	

Site Supervisor

Site Manager Name:	TBD
Site Manager Address:	
Site Manager City, State & Zip:	
Site Manager Telephone No.:	
Site Manager Cell Phone:	
Site Manager E-Mail:	

Long Term Stormwater Maintenance Measures

The following maintenance program is proposed to ensure the continued effectiveness of the structural water quality controls:

- Inspect infiltration basins once annually, in the spring, for accumulated sediment. Necessary sediment removal, and/or repair will be performed immediately upon identification.
- Paved areas will be swept, at a minimum, two (2) times per year.
- Routinely pick up and remove litter from the parking areas, islands and perimeter landscape areas in addition to regular pavement sweeping.

Structural Stormwater Management Devices

Stormwater Outfalls

- Inspect outfall locations monthly for the first three months after construction to ensure proper functioning and correct any areas that have settled or experienced washouts.
- Inspect outfalls annually after initial three-month period.
- Annual inspections should be supplemented after large storms when washouts may occur.
- Maintain vegetation around outfalls to prevent blockages at the outfall.
- Maintain rip rap pad below each outfall and replace any washouts.
- Remove and dispose of any trash or debris at the outfall.

Infiltration Basins

- Inspect monthly for the first three months after construction.
- After initial three-month period, basins are to be inspected once per year and cleaned a minimum of at least once per year or when sediment reaches 8" in depth.

Best Management Practices – Maintenance/ Evaluation Checklists

LSE Nod Road Solar Project – Nod Road – Simsbury, CT

Best Management Practices – Maintenance/ Evaluation Checklist

Construction Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐yes ☐no (List Items)	Date of Cleaning/ Repair	Performed by
Silt Fencing	Once per week or after a 0.5" or greater storm event						
Compost Filter Sock	Once per week or after a 0.5" or greater storm event						
Straw Wattles	Once per week or after a 0.5" or greater storm event						
Stabilized Construction Entrance/Exit	Once per week or after a 0.5" or greater storm event						
Temporary Sediment Trap/Basin & Diversion Swales	Once per week or after a 0.5" or greater storm event						

Vegetated Slope Stabilization	Once per week or after a 0.5" or greater storm event						
Energy Dissipators	Once per week or after a 0.5" or greater storm event						

Stormwater Control Manager _____

LSE Nod Road Solar Project – Nod Road – Simsbury, CT

Best Management Practices – Maintenance/ Evaluation Checklist

Long Term Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐yes ☐no (List Items)	Date of Cleaning/ Repair	Performed by
Trash/Litter	Routinely pick up and remove litter from entire property as required						
Vegetated Areas	Inspect bi-annually Replant bare areas upon identification						
Energy Dissipators	Inspect monthly for the first 3 months and after any rain event exceeding 0.5" Inspect 2x a year thereafter.						
Diversion Swales	Inspect monthly for the first 3 months and after any rain event exceeding 0.5"						

	Inspect 2x a year thereafter.						
Infiltration Basins	Inspect monthly for the first 3 months and after any rain event exceeding 0.5" Inspect 2x a year thereafter.						

Stormwater Control Manager _____

Appendix C Phase 1A Cultural Resources Report

JUNE 2025

PHASE IA CULTURAL RESOURCES ASSESSMENT SURVEY OF A PROPOSED SOLAR CENTER AT 140 NOD ROAD IN SIMSBURY, CONNECTICUT

PREPARED FOR:

100 GREAT MEADOW ROAD, #200
WETHERSFIELD, CONNECTICUT 06109

PREPARED BY:

830 BERLIN TURNPIKE
BERLIN, CONNECTICUT 06037

ABSTRACT

This report presents the results of a Phase IA Cultural Resources Assessment survey for a proposed solar project (the Project) located at 140 Nod Road in Simsbury, Connecticut. Development of the Project area will include the construction of solar array and associated infrastructure including an access road. The larger Project parcel encompasses approximately 120.2 acres of land, but the Project area only contains 37.1 acres. Heritage Consultants, LLC completed the Phase IA cultural resources assessment survey of this area behalf of Vanasse Hangen Brustlin, Inc. in May of 2025. Pedestrian survey and sediment coring within the Project area revealed that approximately 27.3 acres of land in the Project area were characterized by wetlands, steep sloping topography, and areas of previous disturbances. These areas retain a no/low archaeological sensitivity and no additional archaeological examination of them is recommended. The remaining 9.8 acres were determined to possess moderate/high archaeological sensitivity due to the presence of gently sloping topography, well drained soils, and proximity to freshwater sources. It was designated as Sensitivity Area SA-1. Heritage recommends that the portions of Sensitivity Area SA-1 that are scheduled to be impacted by construction be subjected to Phase IB subsurface testing prior to construction.

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Figure 2. Digital map depicting the client's plans for the solar Project in Simsbury, Connecticut.

Figure 3. Digital map depicting the soil types present in the vicinity of the solar Project in Simsbury, Connecticut.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IA Cultural Resources Assessment survey of a proposed solar facility (the Project) located at 140 Nod Road in Simsbury, Connecticut. Development of the property will include the construction of solar array and associated infrastructure, including an access road (Figures 1 and 2). The larger Project parcel encompasses approximately 120.2 acres of land and the proposed Project area includes 37.1 acres of in the northern portion of the parcel. Heritage Consultants, LLC, (Heritage) completed the Phase IA survey on behalf of Vanasse Hangen Brustlin, Inc. (VHB) in May of 2025. All work associated with this survey was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The proposed Project at 140 Nod Road in Simsbury, Connecticut will consist of a solar array and associated infrastructure, including an access road. The current use of the land on which the Project parcel is situated is a disc golf course. The Project parcel is situated at elevations ranging from 48.8 to 228.6 m (160 to 750 ft) NGVD, with an increase in elevation to the east towards Talcott Mountain. It is bounded to the north and south by deciduous forest and residential properties, to the east by Talcott Mountain, and to the west by Nod Road.

The Phase IA cultural resources assessment survey consisted of the completion of the following tasks: 1) a contextual overview of the region's precontact era, post-European Contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Project area; 3) a review of readily available maps and aerial imagery depicting the Project area in order to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey, soil probing, and photo-documentation of the Project area in order to assess its archaeological sensitivity.

Project Results and Management Recommendations Overview

The review of maps and aerial images depicting the Project area and files maintained by the CT-SHPO resulted in the identification of 10 previously identified precontact era archaeological sites, two State Register of Historic Places (SRHP) properties, and one National Register of Historic Places (NRHP) property located within 1.6 kilometers (1 mile) of the Project area. These are discussed in Chapter V and provide a cultural context for the Project area.

The pedestrian survey of the Project area was completed in May of 2025. In addition 10 hand-powered 1-inch sediment cores were taken across the Project area to assess the landscape for intact soil stratigraphy. Of the 37.1 acres examined, 27.3 acres were determined to possess no/low archaeological sensitivity due to the presence of wetlands, steep sloping topography, or areas characterized by previous disturbances. The remaining 9.8 acres of the Project area were characterized by low sloping topography and intact well drained subsoils beneath the existing golf course. This area, which was designated as Sensitivity Area SA-1, was determined to possess moderate/high archaeological sensitivity. Heritage recommends that the portions of Sensitivity Area SA-1 that are scheduled to be impacted by construction be subjected to Phase IB subsurface testing prior to construction. No additional archaeological examination of the no/low sensitivity areas is recommended.

Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Eric M. Heffter, Ph.D., R.P.A (Project Manager); Stephanie Scialo, M.A., (Project Archaeologist/Field Supervisor); William Yerxa, M.A. (Historian); Susy Goeters, B.A. (Lab Supervisor); and Kody Messier, B.A. (GIS Specialist).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Project in Simsbury, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both precontact era and post-European Contact period site selection. These include general ecological conditions, as well as types of fresh water sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within the Project area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the "regionalization" of Connecticut's modern environment. It is clear, for example, that the northwestern portion of the state has different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

> "An area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota."

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). The Project area exists in the North-Central Lowlands ecoregion. A summary of this ecoregion is presented below and is followed by a discussion of hydrology and soils found in and adjacent to the Project area.

North-Central Lowlands Ecoregion

The North-Central Lowlands ecoregion consists of a broad valley located between 40.2 and 80.5 km (25 and 50 mi) to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by extensive floodplains, backwater swamps, and lowland areas situated near large rivers and tributaries. Physiography in this region is composed of a series of north-trending ridge systems, the easternmost of which is referred to as the Bolton Range (Bell 1985:45). These ridge systems comprise portions of the terraces that overlook the larger rivers such as the Connecticut and Farmington Rivers. The bedrock of the region is composed of Triassic sandstone, interspersed with very durable basalt or "traprock" (Bell 1985). Soils found in the upland portion of this ecoregion are developed on red, sandy to clayey glacial till, while those soils situated nearest to the rivers are situated on widespread deposits of stratified sand, gravel, silt, and alluvium resulting from the impoundment of glacial Lake Hitchcock.

Hydrology of the Study Region

The Project area is located within close proximity to several waterways and wetlands, most of which are tributaries to the Farmington River, which is located to the near west of the western Project boundary. These include Minister Brook, Russell Brook, King Philips Brook, and Nod Brook, as well as several unnamed streams and wetlands. The Farmington River flows northeast into the Connecticut River, which in turn flows

south into the Long Island Sound. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact era occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Project Area

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing, and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present within the Project area. In contrast, acidic soils enhance the preservation of charred plant remains.

A total of four soil types were identified within the Project area (Figure 3). They include Manchester; Limerick and Lim; Occum; and Winooski soils. When well drained soils such as those found within the Project area remain undisturbed and on less than eight percent slope, they are generally well correlated with precontact era and post-European Contact period site locations and are considered to have higher archaeological sensitivity. Below is a summary of each specific soil type identified within the Project area.

<u>Limerick and Lim Series Soils (Soil Code 107)</u>

The Limerick series consists of very deep, poorly drained soils on flood plains. They formed in loamy alluvium. Saturated hydraulic conductivity is moderately high or high. Typical sequence, depth, and composition of this soil is as follows: **Ap**-- 0 to 8 inches (0 to 20 centimeters); dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; common very fine and fine and few medium roots; moderately acid; clear smooth boundary; **BCg1**-- 8 to 20 inches (20 to 50 centimeters); olive gray (5Y 4/2) silt loam; massive; friable; few very fine and fine roots; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; moderately acid; clear smooth boundary; **BCg2**-- 20 to 36 inches (50 to 91 centimeters); olive gray (5Y 4/2) silt loam; massive; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; moderately acid; clear smooth boundary; **BCg3**-- 36 to 54 inches; (91 to 137 centimeters) dark gray (5Y 4/1) silt loam; massive; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; moderately acid; clear smooth boundary; and **Cg**-- 54 to 65 inches (137 to 165 centimeters); dark greenish gray (5GY 4/1) silt loam; massive; few, fine prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; neutral.

The Lim series consists of very deep, poorly drained loamy soils formed in alluvial sediments. Typical sequence, depth, and composition of this soil is as follows: **A**--0 to 6 inches; very dark grayish brown (2.5Y 3/2) very fine sandy loam; light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many very fine and common fine and medium roots; neutral; clear smooth boundary; **Bg1**--6 to 11 inches; dark grayish brown (10YR 4/2) very fine sandy loam; massive; friable; common fine and medium roots; common fine prominent yellowish brown (10YR 5/6) and common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and common fine prominent light olive gray (5Y 6/2) iron

depletions; neutral; clear smooth boundary; **Bg2**--11 to 15 inches; dark grayish brown (2.5Y 4/2) very fine sandy loam; massive; friable; few fine, medium and coarse roots; few fine prominent yellowish brown (10YR 5/6) few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and few fine prominent light olive gray (5Y 6/2) iron depletions; common pieces of slightly decomposed herbaceous plant materials; neutral; clear smooth boundary; **Bg3**--15 to 22 inches; dark gray (10YR 4/1) silt loam; massive; friable; few fine roots; common fine prominent strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; common pieces of slightly decomposed herbaceous plant materials; neutral; abrupt smooth boundary; **Bg4**--22 to 29 inches; gray (5Y 5/1) and olive gray (5Y 5/2) fine sandy loam; massive; friable; many coarse prominent yellowish brown (10YR 5/6 and 10YR 5/8) and dark yellowish brown (10YR 4/4) masses of iron accumulation; common pieces of slightly decomposed herbaceous plant materials; neutral; clear smooth boundary; **CBg**--29 to 42 inches; gray (5Y 5/1 and 5Y 6/1) loamy fine sand; massive; very friable; few medium prominent brown (7.5YR 4/4) masses of iron accumulation; few pieces of slightly decomposed herbaceous plant materials; neutral; clear smooth boundary; **Cg1**--42 to 50 inches; olive gray (5Y 5/2) sand; loose; many fine prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) masses of iron accumulation; single grain; few pieces of slightly decomposed herbaceous and woody plant materials; neutral; abrupt smooth boundary; **Cg2**--50 to 57 inches; dark gray (10YR 4/1) loamy sand; single grain; loose; few thin black (10YR 2/1) silt loam lenses high in organic matter; few pieces of slightly decomposed herbaceous and woody plant materials; neutral; abrupt smooth boundary; and **Cg3**--57 to 65 inches; dark gray (5Y 4/1) sand; single grain; loose; few slightly decomposed pieces of herbaceous and woody plant materials; neutral.

Manchester Soils (Soil Code 37C; E)

The Manchester series consists of very deep, excessively drained soils formed in sandy and gravelly glacial outwash and stratified drift. They are nearly level to steep soils on outwash plains, terraces, kames, deltas and eskers. A typical soil profile is as follows: **Ap**--0 to 9 inches; dark brown (7.5YR 3/2) gravelly sandy loam; weak medium granular structure; very friable; many fine and common medium roots; 20 percent gravel; strongly acid; clear smooth boundary; **Bw**--9 to 18 inches; reddish brown (5YR 4/3) gravelly loamy sand; very weak fine and medium granular structure; very friable; few fine roots; 25 percent gravel; strongly acid; clear wavy boundary; and **C**--18 to 65 inches; reddish brown (5YR 4/4) very gravelly sand; single grain; loose; 50 percent gravel; very strongly acid.

Occum Series Soils (Soil Code 101)

The Occum series consists of very deep, well drained loamy soils formed in alluvial sediments. They are nearly level soils on flood plains, subject to common flooding. Typical sequence, depth, and composition of this soil is as follows: **Ap**--0 to 10 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; very friable; many very fine and fine roots; moderately acid; clear smooth boundary; **Bw1**--10 to 17 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; common very fine and fine roots; moderately acid; clear smooth boundary; **Bw2**--17 to 28 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; very friable; few very fine and fine roots; moderately acid; clear smooth boundary; **C1**--28 to 32 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; moderately acid; clear smooth boundary; and **C2**--32 to 42 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) sand; single grain; loose; 10 percent gravel; moderately acid; clear smooth boundary. **C3**--42 to 65 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) very gravelly coarse sand; single grain; loose; 35 percent gravel; moderately acid.

Winooski Soils (Soil Code 106)

The Winooski series consists of very deep, moderately well drained soils formed in alluvial material. These soils are on nearly level flood plains. Typical sequence, depth, and composition of this soil is as follows: **Ap** -- 0 to 8 inches (0 to 20 centimeters); very dark grayish brown (10YR 3/2) very fine sandy loam; weak fine granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary. (4 to 18 inches; **Bw1** -- 8 to 18 inches (20 to 46 centimeters); brown (10YR 4/3) very fine sandy loam; massive; friable; many fine roots; strongly acid; abrupt smooth boundary; **Bw2** -- 18 to 26 inches (46 to 66 centimeters); olive brown (2.5Y 4/4) very fine sandy loam, common medium prominent pinkish gray (5YR 7/2) and faint brown (10YR 5/3) areas of iron depletion; massive; friable; few fine roots; strongly acid; abrupt smooth boundary; **BC** -- 26 to 43 inches (66 to 109 centimeters); olive gray (5Y 5/2) very fine sandy loam; massive; friable; common medium faint light gray (5Y 7/2) areas of iron depletion and faint brown (10YR 5/3) masses of iron accumulation; moderately acid; clear smooth boundary; and **C** -- 43 to 65 inches (109 to 165 centimeters); olive (5Y 5/3) loamy very fine sand; massive; friable; common medium distinct light brownish gray (10YR 6/2) iron depletions and prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater sources suggests that portions of the Project area appear to be amenable to both precontact era and post-European Contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits.

CHAPTER III
PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact period of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact period of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by precontact Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the precontact era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the precontact period of Connecticut. The remainder of this chapter provides an overview of the precontact setting of the region encompassing the Project parcel.

Paleoindian Period (12,000 to 10,000 Before Present [B.P.])

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleoindians, arrived in the area by ca., 13,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleoindians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals. While there have been over 50 surface finds of Paleoindian projectile points throughout the State of Connecticut (Bellantoni 1995), only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small, fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that most tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the

upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleoindian era. Recovered Paleoindian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleoindian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creating of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. One hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL BP) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers represented at least two temporally discrete Paleoindian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz (Leslie 2023). They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and a drilled stone pendant fragment. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanicals recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood (Leslie 2023). Approximately 15,000 artifacts were collected from the site.

The scarcity of identified Paleoindian sites suggests a low population density during this period. The small size of most Paleoindian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleoindian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleoindian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archeologists recently have recognized a final “transitional” Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer 1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, very few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969), have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleoindian Period, as well as a population decrease from earlier times; however, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleoindian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are identified on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, the recovery of these projectile points has rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, are represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 14C BP, is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Peterson 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68) may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P.

Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96).

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite, and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m^2 (5,383 ft^2). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed Tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

The Narrow-Stemmed Tradition also marks one of the most prevalent manifestations of the archaeological record in southern New England, narrow-stemmed projectile points, often untyped, or typed as Lamoka, Wading River, or Squibnocket Stemmed forms. These are generally attributed to a form of projectile technology, but some (Boudreau 2008), have suggested that these tool forms might not be related to projectile technology, and may instead relate to graver or drill functions. Boudreau (2008) also drew important connections to the forms of these narrow-stemmed points with later Woodland era forms, such as Rossville points, which are nearly identical. Others (Lavin 2013; Zoto 2019) have similarly suggested a continuation of the Narrow-Stemmed Tradition into the Woodland era, with most of this evidence originating at coastal sites in southern New England. The vast majority of Narrow-Stemmed projectile points that are associated with cultural features suitable for radiocarbon dating, particularly Lamoka style projectile points, are associated with Late Archaic date ranges (Lavin 2013).

Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England precontact periods. Originally termed the "Transitional Archaic" by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archaeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high-quality raw materials for stone tool production and a settlement pattern different from the "coeval" Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic that interior cord marked, grit tempered, thick-walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region, and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation of subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern was still diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish, and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut, and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and was thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper. Archaeological investigations of Early Woodland sites in

southern New England resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of white-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicate that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types that are indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are

more stylistically diverse than their predecessors with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Precontact Period

The precontact period of Connecticut spans from ca. 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the precontact period shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region that includes the proposed Project area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleoindian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN CONTACT PERIOD OVERVIEW

Introduction

The proposed Project is located at 140 Nod Road in Simsbury, which is in Hartford County, Connecticut. Most Connecticut towns, including Simsbury, originated as Indigenous settlements and later became English colonial villages. Simsbury was settled and incorporated in 1670, and it retained a small population that primarily consisted of farmers. The town remained relatively rural throughout the nineteenth and early twentieth centuries, with some growth in the nineteenth century in manufacturing, particularly in the village of Tariffville. The mid-twentieth century saw Simsbury develop into a residential and suburban area outside of Hartford. Today, the town remains a residential suburb that has retained some of its agricultural character. This chapter provides an overview of the history of Hartford County and the Town of Simsbury, as well as data specific to the Project area.

Hartford County

Hartford was one of the four original counties established in 1666 following the merger of Connecticut Colony and New Haven Colony (Van Dusen 1961). Located in central-northern Connecticut, it is bounded to the north by the State of Massachusetts, to the east by Tolland County, to the south by Windham, Middlesex, and New Haven Counties and to the west by New Haven and Litchfield Counties. Bisected by the Connecticut River, the county is also the location of the City of Hartford, the capital of Connecticut. Although Hartford has the highest population in the county (an estimated 126,443 as of 2020), Glastonbury has the largest land area (52.3 sq. mi.) (Connecticut 2021). Hartford County is in the lower central Connecticut River Valley and the land rises in the western portion of the county on a low mountain range known as the Metacomet Range (Bell 1985). The landscape varies from densely populated urban areas in most of the county to rich farmland regions in its northern bounds and includes a long stretch of the Connecticut River as well as other significant freshwater rivers. Important waterways associated with Hartford County include the Connecticut, Farmington, Hockanum, Podunk, and Scantic Rivers (Trumbull 1886). The county's three largest cities are Hartford, New Britain, and West Hartford while other important population centers are located at Bristol, Manchester, East Hartford, and Glastonbury (Connecticut 2021).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3000 to 500 years ago) the Indigenous peoples who resided in the present-day Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian (SNEA) languages and resided in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Native people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times (Lavin 2013). In addition, these communities came together in large groups to hunt deer in the fall and winter. Indigenous peoples lived with their immediate or extended families in large settlements often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their habitations, known as a *weetu* or *wigwam,* were generally constructed of a tree sapling frame and covered in reed matting during warm months and tree bark throughout the winter.

These varied in size from a small, individual dwelling to an expansive "long house" which could accommodate several families.

Native communities commonly traded among both their immediate neighbors and often maintained long-distance networks as well (Lavin 2013). At the time of contact, a large Native American population was located at Massacoe, in northern Connecticut in what are now Simsbury and Granby. They maintained several villages and cornfields along the banks of the Farmington River. It is thought that the Simsbury Native Americans were part of the Tunxis or Farmington tribe, which occupied areas to the south, but the relationships among contact-era Native American groups are poorly understood and sometimes interpreted to help justify past land seizures by the colonists. De Forest, for example, asserts that the Massacoe group was part of the Tunxis people further south in Farmington, probably on the assumption that a group "few in number" must have been politically bound to a larger group and not independent (De Forest 1852).

Seventeenth Century through Eighteenth Century

As Native communities maintained oral tradition rather than a written record, most surviving information of the Indigenous people of Connecticut was recorded by European observers (Lavin 2013). In ca., 1614, Dutch traders sailing under Captain Adrian Block were the earliest Europeans known to have sailed along Long Island Sound and up the Connecticut River where they initiated contact and trade with the Indigenous people of the Connecticut River Valley (De Forest 1852; Larned 1874; Lavin 2013). Following that voyage, Block created a figurative map of the region which clearly depicted the Connecticut River, which the Dutch named the *Versche Rivier* (Fresh River) due to it being a freshwater river. It was during this voyage that Dutch traders learned the significance of *wampum,* polished tubular shell beads created from the white *whelk* shell and the purple *quahog* shell (Hauptman and Wherry 2009; McBride 2013). They found they could exchange wampum for valuable furs from Native peoples north along the Hudson River. By the early 1620s, the Dutch and Pequot of present-day southeastern Connecticut entered a trade partnership in which the Pequot supplied wampum and furs in return for European goods. In 1624, the Dutch established New Netherland Colony on the Hudson River with its eastern bounds extending as far as Cape Cod, including the Connecticut River (Jacobs 2009). The Pequot accessed a variety of trade goods they distributed to tributaries and other groups in the region. They extended their dominance over the Connecticut shoreline, eastern Long Island, and the lower Connecticut River Valley bringing Native nations there into a tributary relationship under their leadership (Hauptman and Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a fortified post, the *Huys de Hoop,* on the Connecticut River at the site of present-day Hartford to further cement both parties' domination over the flow of wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who settled Windsor (1633), Wethersfield (1634), and Hartford (1635) (Van Dusen 1961; Barry 1985). Increased interactions with Europeans resulted in exposure to epidemics Native people never encountered and to which they had no natural immunity. Illnesses such as smallpox, measles, tuberculosis, and cholera devastated Native communities. In the winter of 1633-1634, one such epidemic spread to the people of the Connecticut River Valley (Trumbull 1886). Tensions between Native and European groups in the region resulted in the death of several English traders in 1634 and 1636, which were blamed on the Pequot. In retaliation English forces from Massachusetts Bay destroyed Pequot and Nehantic villages on the Pequot (Thames) River in August 1636, which began the Pequot War. The Pequot laid siege to Saybrook Fort at the mouth of the Connecticut River during the winter of 1636-1637 and attacked Wethersfield in April 1637. Connecticut Colony declared war on the Pequot and was joined by Native warriors from the Connecticut River area as well as Mohegans under the Sachem Uncas (Oberg 2006). In May of 1637, English forces led by Captain John Mason of Windsor destroyed the fortified Pequot village at Mistick, and

in July, they pursued refugees west where the Pequot were defeated in present-day Fairfield and the war soon ended (Cave 1996). Pequot territory was considered conquered land claimed by Connecticut Colony. Meanwhile, settlers from Massachusetts Bay formed New Haven Colony at Quinnipiac in late 1638. In 1652, the Dutch lost the *Huys de Hoop* at Hartford during the First Anglo-Dutch War (Trumbull 1886).

At the time of contact, the Native Americans at Massacoe (future Simsbury) were numerous, and they maintained villages and cornfields along the banks of the Farmington River. Details of the location or the precise numbers of Native Americans at Massacoe are unknown. A European resident named John Griffin had been living at Massacoe as early as 1643 through an informal deed with the Native Americans there. The Connecticut Colony's first gesture toward acquiring the Massacoe territory came in 1642, when the General Court gave the Governor permission to distribute Massacoe territory to any Windsor inhabitants he chose (Barber 1886). In 1647, a committee was established to undertake the purchase and distribution of Massacoe land, again with little result. In 1653, and again in 1663, the legislature made grants of land at Massacoe to individuals, and again established committees to distribute the rest of the lands. The absence of significant settlement after these actions suggests uncertainty about the legitimacy of the English claim to this area or about the potential risks of moving so far west of Windsor. The fact that the Farmington River was only fordable at a point near the northern boundary of the area may have been a factor as well. Ultimately, in 1667 a distribution of meadow lands along the river was made to some 20 colonists. Those who received land in "Meadow Plain" included John Gillett, Samuel Wilcoxson, John Case, and John Pettibone. In 1668, the legislature issued an order that this land should be organized into a new town, and a formal proprietors' meeting was held. In 1669, it appears there were 13 families whose residence was in Massacoe, and John Case was appointed constable (Phelps 1845). In 1670, the area was formally made into a town and named Simsbury.

At the start of King Philip's War (1675-1676), those Native Americans living in what was then Hartford County agreed to an alliance and peace treaty with the Connecticut Colony. However, as hostilities mounted, the Indigenous population at Massacoe fled the area, perhaps taking refuge with neighbors or moving westward to what is now Salisbury, Connecticut. On March 26, 1676, a band of Native Americans who were fighting the English in the war burned all of Simsbury's buildings. At the time there were some 40 houses in the town, however, no lives were lost because the inhabitants had evacuated to Windsor beforehand. The inhabitants did not return until 1677, and some tried to abandon their holdings. In response, in 1679 the General Court ordered the remainder to return, and appointed a committee to decide where they should build their new houses. Four inhabitants were ordered to build at Weatauge on the west side of the river, and several were prosecuted and fined for not building their houses on time. In that year, the first gristmills and sawmills were built on Hop Brook. Several years after the war, in 1680, the first correct deed which was properly approved by the colonial government was executed by nine Native Americans (including two women), and the line between Windsor and Simsbury was settled (Phelps 1845). At its start, the document referred to the two previous transactions involving two different parcels of land. It claimed rights of ownership to the whole of Massacoe for the sellers, although it did not specify if the Indigenous population lived there anymore. The area described extended ten miles north from the northern boundary of Farmington and ten miles west from the western boundary of Windsor. The deed excluded from sale a two-acre parcel and also reserved the Native Americans' right to "hunt, fowl and fish" within all the territory conveyed (Phelps 1845). Despite the sale of their lands and the flight of many of their numbers in 1675, it appears that some of the Indigenous people at Massacoe continued to live in Simsbury, with "a few families" still residing there after 1710 (Phelps 1845).

In 1681, the colonial residents established a Congregational Church, but it was only after some dispute that its meeting house was finally built on the west side of the Farmington River, at Hop Meadow, in 1683.

A decision was reached in 1736 to divide the town into three ecclesiastical societies; two in the north, which would later become Granby, and one in the south. The First Society built a new meeting house a short distance from the old one at that time. A census of the state taken in 1756 found 2,245 residents, and in the same year a private ferry across the Farmington River opened (Phelps 1845). In the northeastern section of Simsbury (now East Granby) copper ore was discovered and by 1705, copper mines were in place. Copper Hill, as the area was known, became the location of a small smelting and refining industry (Phelps 1845). The mines remained active until about 1750. For many years, the town had a productive salmon and shad fishery on Salmon Brook, but after 1740, overfishing and increasing construction of dams and mills on the rivers led to its decline and eventual disappearance. Pitch and tar, made from pine trees, were made in town, as well as turpentine. In 1734, a toll bridge was built across the Farmington River at Weatogue, where there had long been a crossing place. Other bridges followed, making access to the two sides of the river much more convenient. In 1756, during the French and Indian War (1754-1763), the town raised a company to serve. In 1762, 47 Simsbury men traveled on the military expedition to Havana, of which perhaps one-third returned home, most having died of illness on the campaign (Phelps 1845). During the Revolutionary War (1775-1783), a number of companies were raised in Simsbury. One was activated in May 1775 and went to Boston under Captain Abel Pettibone; there some members joined in the Battle of Bunker Hill. Another was raised shortly after that, and seventy-five men and five officers went to Boston where they stayed until December (Phelps 1845).

Slavery existed in Hartford County during the eighteenth century and was primarily practiced by wealthy families, merchants, and ministers in larger towns. The 1774 Connecticut colonial census recorded a "White" population of 3,671, an African American population of 29, and no Native Americans in Simsbury, but the number of enslaved individuals was not noted (Hoadly 1887). It was not until 1784 that the State passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). In 1773, the Connecticut General Assembly converted the mines in what was then northeastern Simsbury (now East Granby) into Newgate Prison, the first state prison, which held deserters and Loyalists. After a fire in 1782, Newgate was abandoned until 1790, when the state reopened the prison (Springman and Guinan 1983). After the Revolution, Hartford County recovered from wartime economic disruptions due to its robust agricultural production. On January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961). In 1781, residents of the Salmon Brook Ecclesiastical Society and the Turkey Hills Ecclesiastical Society, located in the northern section of Simsbury, began to petition the General Assembly to separate Simsbury into two. Simsbury was very large geographically and the residents of these northern communities found they had to travel long distances to attend town meetings or to vote. In 1786, these two northern parishes became incorporated as the town of Granby (Springman and Guinan 1983). This reduced a large percentage of Simsbury's recorded population, leaving the town with 2,576 people as of 1790 (Table 1; Connecticut 2024a; Phelps 1845).

Nineteenth to Twenty-first Century

In 1806, the western portion of Simsbury separated to become the town of Canton, leading to another reduction in Simsbury's population down to 1,966 by the 1810 census (Table 1; Connecticut 2024a; Phelps 1845). During the War of 1812, the firm of Allyn and Phelps built an iron wire factory at Tariffville, a village located in the northeastern corner of Simsbury on the Farmington River. The factory used iron sourced from Salisbury, Connecticut, to make wire of various kinds. This factory remained in operation for many years (Phelps 1845). An 1819 gazetteer reported that the colonial-era fisheries on the rivers in town had ceased, but noted the existence in Simsbury of three wire factories, a small cotton factory, three tinware factories, and two each of distilleries and tanneries. The processing needs of the town's agricultural production were met by two facilities for carding wool, three grist mills, and four sawmills; there were also four general stores. Churches in the town at that time included one Congregational and one Episcopal

church, only one of which apparently had a full-time clergyman. The 1819 gazetteer also records one physician and one lawyer (Pease and Niles 1819). In the 1830s, the village of Tariffville had its own post office, two taverns, and the New England Carpet Company, which employed 175 workers (Barber 1836). In 1850, there were several small and two large industrial enterprises in Simsbury. Three carriage-makers employed ten men in that business; a cooper employed two; a tinner three; and two pump and plumbing makers employed another four. The Bacon & Bickford company of safety fuse makers employed three men and 15 women making $35,000 in fuses that year. Finally, the Tariffville Manufacturing Company employed 329 male and 326 female employees in making eight different varieties of carpet (USCB 1850a). The latter company was begun in c. 1825 and by 1845 was one of the largest in the country. The fuse company was located at East Weatauge; its fuses were made for blasting rock and in 1845 it was the only one of its kind in the world (Phelps 1845).

During the first half of the nineteenth century, the Farmington Canal was built and passed through Simsbury on the west side of the Farmington River. Extending from New Haven to Suffield at the Massachusetts border, the Farmington canal bypassed Hartford and the navigation-blocking falls at Enfield, and thus boosted commercial and manufacturing interests along its route. Other transportation improvements in Simsbury during this era included two turnpikes. The Granby Turnpike was incorporated in 1800, and it ran from Hartford through Tariffville and Granby and to the Massachusetts line; it continued in business until 1854. In 1801 the Torrington Turnpike was chartered, and the company built a road from West Simsbury through Torrington to Litchfield. In 1838 the eastern end of the Torrington Turnpike was made public, and in 1861 the charter was surrendered (Wood 1919). Most turnpikes in the state were unable to compete with the railroads, and went out of business around the same time that railroads were being built.

Throughout the rest of the nineteenth century and well into the twentieth century, Simsbury's economic and population characteristics remained mostly the same. In 1881, the carpet factory at Tariffville was bought by the Auer Silk Manufacturing Company, which later changed its name to the Hartford Silk Company and shifted to manufacturing dress goods and tapestries. The fuse factory was moved to Hop Brook and changed its name to Toy, Bickford & Company; it employed approximately 100 people as of the 1880s. During the late nineteenth century, the town's soil was thought to be particularly good for Indian corn and for tobacco. The latter was important even in the mid-eighteenth century, when the town appointed men to supervise the packing of tobacco, and in the late nineteenth century the business continued unabated. The raising of beef stock and dairying was also important, and a creamery was established in 1882 (Barber 1886). Despite these various enterprises, however, the population figures for Simsbury show that the town did not experience large population growth. The population fell below 2,500 after 1850 and did not regain that number until 1910 (Keegan 2012). The Canal Railroad was a busy and prosperous rail line in 1874, with 20 locomotives and 400 employees, moving people and goods between New Haven and locations to the north. In 1887 it was leased to and owned by the New Haven railroad. In the twentieth century, as transportation shifted from rail to road, the line was abandoned, and in 1985 the tracks in the section between Avon and Granby (including Simsbury) were removed (Turner and Jacobus 1989). In 1932, the town of Simsbury's main industries were "agriculture and the manufacture of safety fuses" (Connecticut 1932). The population had slowly been rising since 1890, but the town still included only 3,625 residents in 1930 (Keegan 2012). Nonetheless, by the 1930s the town was changing from a rural to a more residential landscape (Ellsworth 1935).

Table 1: Population of Simsbury, Connecticut 1790-2020 (Connecticut 2024a-d; AdvanceCT and CT Data Collaborative 2023)

Town	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
Simsbury, Hartford County, Connecticut	2,576	2,956	1,966	1,954	2,221	1,895	2,727	2,410	2,051	1,830	1,874	2,094
	1910	**1920**	**1930**	**1940**	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	2,537	2,958	3,625	3,941	4,822	10,138	17,475	21,161	22,023	23,234	23,511	24,517

After 1950, Simsbury's population began to increase substantially. In the 20 years between 1950 and 1970, the town's population increased from just under 5,000 residents to nearly 17,500 residents. The rate of growth slowed after 1970, and by 2000 had reached 23,234 residents. In 2010, the population was slightly lower at 23,220 residents (Keegan 2012). This pattern of post-1950 growth is consistent with the residential development of places within driving distance of cities during the wave of suburbanization in the mid-twentieth century. Like many places in Connecticut, Simsbury became a suburban town, and over time a number of new firms, mostly non-industrial, started or moved there. As of 2005, only 2.1 percent of the town's workers were employed in agriculture; the 8.1 percent of workers that were engaged in manufacturing was larger than the average for Connecticut, and was due to presence of the Ensign-Bickford Companies (CERC 2008). As of 2014, the proportion of manufacturing jobs had fallen to 5.4 percent. In contrast, 25 percent of jobs were in the finance and insurance subcategory, and three out of five major employers were finance or insurance companies. The flattening of Simsbury's population growth suggests that the town had nearly reached full buildout by 2000. The town's 2024 plan of conservation and development places strong emphasis on preserving the town's appearance in terms of open space, scenic resources, and historic resources while planning for sustainable development (Simsbury 2024).

History of the Project Parcel

According to Smith's 1855, Nod Road was in place at that time and formed the western boundary of the Project area (Figure 4). Within the Project area, the residence of "J. Edward Miller" is listed on this map. The residence of "Pliny Phelps" is shown directly to the south within the larger Project parcel. While Miller appears to be absent from census records at that place and time, the individual recorded as Pliny Phelps may be in reference to Daniel Pliney Phelps, who is recorded on the 1850 federal census as a farmer (USCB 1850b). Subsequent mapping from 1869 continues to show the Pliny Phelps residence at the southwest of the Project area (Figure 5). The residence to the north of this within the Project area, which formerly was listed as J. Miller, is shown on this map as "Guy R. Phelps" and "H.F. & G.M. Phelps occupants." Dr. Guy Rowland Phelps was a successful businessman from Simsbury who established one of the first life insurance firms in the United States, known as the Connecticut Mutual Life Insurance Company (Phelps 1899). While Guy Phelps had moved to Hartford prior to the creation of this map, he may have continued to own the property while it was occupied by his relatives. H.F. Phelps most likely refers to Hector F. Phelps, who was the brother of Guy Phelps. Hector Phelps was recorded in the 1870 census as a farmer (USCB 1870).

Aerial imagery from 1934 shows that the Project area was in use as agricultural fields at that time (Figure 6). A long barn was located in the western part of the Project area, and a smaller structure was present directly to the northwest of this barn. Land to the west, north, and south of the Project area was a primarily agricultural landscape located along the Farmington River. Land to the east of the Project area was a forested landscape surrounding Talcott Mountain. By 1941, aerial photography shows that the

above-referenced barn had been demolished, while the smaller structure was still in place (Figure 7). This structure also appears in a subsequent 1957 aerial image, whereas the rest of the Project area was still characterized by agricultural fields (Figure 8). Subsequent aerial photography dating from 1962 shows that this structure had been demolished, and the property was converted into a golf course (Figure 9). The Project area signs of disturbance in 1962, as new terrain and sand traps had been created for the golf course. All remaining agricultural buildings to the southwest of Project area had been demolished by 1962 and a new building and parking lot for the golf course were constructed. By 1967, another building associated with the golf course was constructed to the north of this building and was located in the southwest corner of the Project area (Figure 10). Aerial photography from 1991 shows that the Project area remained mostly the same since the 1960s, with the addition of small groups of coniferous trees on the golf course (Figure 11). Subsequent aerial imagery from 2023 depicts the Project area in its essentially modern state (Figure 12). The Project area is characterized by a golf course with a manicured landscape and some patches of trees. A building and parking lot are located in the southwest corner of the Project area. Land to the east of the Project area remains forested and contains part of Talcott Mountain. The land to the north of the Project area is also forested, whereas land to the south is residential and the land to the southwest is agricultural.

Conclusions

The documentary review indicates that the proposed Project area has the potential to be associated with cultural resources. In the portion that was agricultural fields, there is the possibility of encountering evidence of post-European Contact period farming activities that may be important as a component of a rural historic landscape (*sensu* McClelland et al. 1999). The Project also may contain buried architectural remains and archaeological deposits dating from the nineteenth and associated the Guy R. Phelps, a figure of historical importance.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Project area in Simsbury, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current Phase IA cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the Project area are taken into consideration.

Specifically, this chapter reviews previously identified archaeological sites, and National/State Register of Historic Places properties/districts (NRHP/SRHP) within 1.6 kilometers (1.0 mile) of the Project area. The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office (CT-SHPO) in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during this investigation. Both the quantity and quality of the information contained in the original cultural resources survey reports and State of Connecticut archaeological site forms are reflected below.

Previously Recorded Archaeological Sites and National/State Register of Historic Places Districts/Properties in the Vicinity of the Facility Area

A review of data currently on file at the CT-SHPO, as well as the electronic files maintained by Heritage, resulted in the identification of 10 previously known archaeological sites within 1.6 kilometers (1 mile) of the proposed Project area, all of which date from the precontact era (Figure 13; Table 2). In addition, there were two SRHP properties and one NRHP property located within 1.6 kilometers (1 mile) of the proposed Project parcel (Figure 14). None of the identified resources fall within the boundaries of the proposed Project parcel. A brief summary of these cultural resources Is provided below.

The archaeological sites identified within 1.6 kilometers (1 mile) of the proposed Project area include those listed in Table 2 below. Those sites that can be ascribed to a particular period in the precontact era, date from the Late and Terminal Archaic periods and they include a lithic findspot, lithic scatter, and five camps. These types of sites are typical of the Late and Terminal Archaic periods, as these population moved throughout the region on a seasonal basis depending on the locations of necessary resources. The remainder of the precontact era sites could not be identified as to date of occupation or type. All of these sites suggest that additional precontact era archaeological deposits may be expected in the moderate/high sensitivity portions of the Project area.

Table 2: Archaeological Sites Identified within 1.6 km (1 mi) of the Project Corridor.

Site Number	Site Name	Distance from Project	Period	Site Type
128-011	–	1.5 km	Precontact	Unknown
128-026	Russell Brook Site (S14)	1.1 km	Precontact	Camp
128-027	Minster Brook (S15)	400 m	Precontact	Unknown
128-028	Nod Brook (S16)	765 m	Precontact	Unknown
128-029	Weatogue 34	1.5 km	Late Archaic	Camp
128-036	Weatogue 2	1.15 km	Late/Terminal Archaic	Camp
128-040	Weatogue 3	800 m	Late/Terminal Archaic	Lithic Scatter
128-054	Tower Site	100 m	Late Archaic	Isolated Findspot
128-064	Senior Care I	850 m	Precontact	Camp
128-065	Senior Care II	800 m	Precontact	Camp

Joseph Mills House

The Joseph Mills House, which is also known as "The Old Red House" is an eighteenth century farm house located at 5 Hamilton Lane in Simsbury, Connecticut. It was listed to the SRHP in August of 1966 by John L. Beringer and Michael Weinberg, then of the Connecticut Historical Commission. The structure, which was constructed by Joseph Mills in cc,. 1740, is a two-story Colonial style farm house with a central chimney and hewn overhang on both levels. Its location was along the original main highway through the region before the establishment of Route 10 in the 1920s. The Joseph Mills House is located approximately 1.3 kilometer (0.8 miles) to the northwest of the Project area and will not be impacted by any associated construction.

191 Nod Road

Located at 191 Nod Road in Simsbury, Connecticut, this structure was constructed in ca., 1880 with a Shingle style inspiration. Listed to the SRHP in August of 1966 by Susan Van Rensselar and Henry Simon, then of the Connecticut Historical Commission, the two-and-a-half story Queen Anne home features characteristic qualities on the exterior, including triple overhangs, leaded sash, corner braces, and eave brackets. The building at 191 Nod Road is located approximately 1 kilometer (1.6 miles) to the southwest of the Project area and will not be impacted by any associated construction.

Heublein Tower

The Heublein Tower is the principal structure of a country retreat located on the highest point of Talcott Mountain in Simsbury, Connecticut. The property was listed on the NRHP by Alison Gilchrist of the Connecticut Historical Commission and John Herzan in June of 1983. Constructed in 1915 and owned by Gilbert F. Heublein, a prominent Connecticut businessman, the six story tower provides a 360 degree view of the state. High winds had blown over all previous attempts to build upon the mountain-top, thus leading to Heublein's insistence that the structure be able to withstand 100 mph wind gusts. Heublein, a Bavarian immigrant and co-founder of Heublein Inc. – an international food and beverage importing firm – constructed the retreat for his family and to host guests. The success of the business as a liquor and cocktail provider, particularly after the acquisition of Smirnoff Vodka after World War II, made Heublein and his retreat prominent examples of the American success story. The tower and its associated residence combine both historic and modern qualities, with references to the nineteenth century romanticization of medieval castle and church stone architecture and late Victorian themes of ornate elegance within a rustic setting. Using these combined visions, Heublein could both host outdoor picnics and extravagant interior dinners for his guests. To support the slew of visitors, the retreat features numerous rooms for Heublein and his family, guests, and servants quarters. Heublein Tower is located well away from the Project area and will not be impacted by any associated construction.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IA cultural resources assessment survey of the Project area in Simsbury, Connecticut. The following tasks were completed during this investigation: 1) study of the region's precontact era, post-European Contact period, and natural settings, as presented in Chapters II through IV; 2) a literature search to identify and discuss previously recorded cultural resources in the Project region; 3) a review of historical maps, topographic quadrangles, and aerial imagery depicting the Project area in order to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey, soil probing, and photo-documentation of the Project area in order to determine its archaeological sensitivity.

Research Design

The current Phase IA cultural resources reconnaissance survey was designed to identify all precontact era Native American and post-European Contact period cultural resources located within and near the Project area in Simsbury, Connecticut. The undertaking was comprehensive in nature, and planning considered the distribution of previously recorded cultural resources located within the larger region, local soil conditions, and a visual assessment of the proposed Project area. The methods used to complete this investigation were designed to provide coverage of all portions of the Project area and considered both below and above ground resources. The fieldwork portion of this undertaking entailed pedestrian survey, soil probing, photo-documentation, and mapping.

Archival Research & Literature Review

Background research for this survey included a review of a variety of maps depicting the proposed Facility area; an examination of USGS 7.5' series topographic quadrangles; an examination of aerial images dating from 1934 through 2023; and a review of all archaeological sites and NRHP/SHRP properties/districts on file with the CT-SHPO, as well as electronic cultural resources data maintained by Heritage. The intent of this review was to identify all previously recorded cultural resources situated within and immediately adjacent to the Project area, and to provide a natural and cultural context for the proposed Project area. This information then was used to develop the archaeological context of the Project area, and to assess its sensitivity with respect to the potential for producing intact cultural resources.

Background research materials, including maps, aerial imagery, and information related to previous archaeological investigations, were gathered from the CT-SHPO. Finally, electronic databases and Geographic Information System files maintained by Heritage were employed during the course of this survey, and they provided valuable data related to the Project region, as well as data concerning previously identified archaeological sites and NRHP/SHRP properties/districts within the general vicinity of the development area.

Field Methodology and Data Synthesis

During the pedestrian survey, Heritage staff members visually reconnoitered the Project area, and noted the locations of all above-ground cultural features, standing structures over 50 years old, previous disturbances, wetlands, topographic relief, and locations of freshwater sources. These natural and cultural landscape features were recorded on a survey base map. Any identified cultural resources were recorded using a GPS unit so that their locations could be transferred into the Project GIS. The locations from which

all photos were taken, as well as directional indications, were recorded on a base map of the Project area. The photo-documentation portion of the survey was completed using color digital media. The results of the pedestrian survey were used to stratify the Project area into zones of no/low and moderate/high archaeological sensitivity.

During the course of the pedestrian survey, sediment probes were also taken throughout the Project area to assess sediments within the proposed impact area. These probes were placed at the discretion of Heritage personnel in areas that required further investigation for the potential for intact sediments and archaeological deposits. Sediment probe locations were mapped in place utilizing GPS-recordation. The sediment coring was conducted utilizing a 1 in soil core that was manually operated to examine the stratigraphy across the Project area. Each sediment core extended into sterile glacial C soil deposits or until an impasse such as rocks or water table was encountered. The depth of each identified soil horizon was recorded and Munsell Soil Color Charts were used to record the soil color and soil texture of each soil horizon.

CHAPTER VII
RESULTS OF THE INVESTIGATION & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IA cultural resources assessment survey associated with the proposed solar Project in Simsbury, Connecticut. As stated in the introductory section of this report, the goals of the investigation included completion of the following tasks: 1) a contextual overview of the region's precontact era, post-European contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the project region; 3) a review of readily available maps and aerial imagery depicting the Project area to identify potential post-European Contact period resources and/or areas of past disturbance; and 4) pedestrian survey, soil probing, and photo-documentation of the Project area to determine its depositional integrity, historical associations, and archaeological sensitivity.

Determining Archaeological Sensitivity

The field data associated with soils, slopes, aspect, distance to water, and previous disturbance collected during the pedestrian survey and presented above was used in conjunction with the analysis of maps, aerial images, and data regarding previously identified archaeological sites NRHP/SRHP properties/districts and previously identified standing structures over 50 years old to stratify the project parcel into zones of no/low and/or moderate/high archaeological sensitivity. In general, post-European Contact period archaeological sites are relatively easy to identify on the current landscape because the features associated with them tend to be relatively permanent constructions that extend above the ground surface (i.e., stone foundations, pens, wells, privies, etc.). Archaeological sites dating from the precontact era, on the other hand, are less often identified during pedestrian survey because they are buried, and predicting their locations relies more on the analysis and interpretation of environmental factors that would have informed Native American site choices.

With respect to the potential for identifying precontact archaeological sites, the Project area was divided into areas of no/low and/or moderate/high archaeological potential by analyzing the landform types, slope, aspect, soils contained within them, and their distance to water. In general, areas located less than 300 m (1,000 ft) from a freshwater source and that contain slopes of less than 8 percent and well-drained soils possess a high potential for producing precontact archaeological deposits. Those areas located between 300 and 600 m (1,000 and 2,000 ft) from a freshwater source and well drained soils are considered moderate probability areas. This is in keeping with broadly based interpretations of precontact settlement and subsistence models that are supported by decades of previous archaeological research throughout the region. It is also expected that there may be variability of precontact site types found in the moderate/high sensitivity zones. For example, large Woodland period village sites and Archaic period seasonal camps may be expected along large river floodplains and near stream/river confluences, while smaller temporary or task specific sites may be expected on level areas with well-drained soils that are situated more than 300 m (1,000 ft) but less than 600 m (2,000 ft) from a water source. Finally, steeply sloping areas, poorly drained soils, or areas of previous disturbance are generally deemed to retain a no/low archaeological sensitivity with respect to their potential to contain precontact archaeological sites.

In addition, the potential for a given area to yield evidence of post-European Contact period archaeological deposits is based not only on the above-defined landscape features but also on the

presence or absence of previously identified post-European Contact period archaeological resources as identified during previous archaeological surveys, recorded on historical maps, or captured in aerial images of the region under study. In this case, portions of a proposed Project area that are situated within 100 m (328 ft) of a previously identified post-European Contact period archaeological site or a National or State Register of Historic Places district/individually listed property also may be deemed to retain a moderate/high archaeological sensitivity. In contrast, those areas situated over 100 m (328 ft) from any of the above-referenced properties would be considered to retain a no/low post-European Contact period archaeological sensitivity.

Results of Phase IA Survey and Management Summary

As noted above, the Project parcel encompasses an area of approximately 120.2 acres, while the Project area encompasses 37.1 acres in the northern part of the parcel. The Project parcel is situated at elevations ranging from 48.8 to 228.6 m (160 to 750 ft) NGVD, with an increase in elevation to the east towards Talcott Mountain. The desktop portion of the Phase IA survey revealed 10 previously identified precontact era archaeological sites, two SRHP properties, and one NRHP property have been recorded located within 1.6 km (1 mi) of the Project parcel. While the larger Project has variable topography to the east, the Project area contains a low undulating ground surface, well drained soils, and proximity to freshwater. This indicated that portions of the Project area may have retained the potential to yield intact archaeological deposits from both the precontact era and the post-European Contact period. Therefore, pedestrian survey and soil probing within the Project area were completed, the results of which are discussed below.

Pedestrian survey of the Project area was completed in May of 2025. The survey revealed that the larger Project parcel is characterized by varying terrain from level to steeply sloping topography, and that the Project area itself contained with areas of manicured lawns, deciduous forest, and wetlands associated with the golf course (Figure 15; Photos 1 through 4). A large portion of the southwestern quadrant of the Project area has been previously developed and contains a restaurant, clubhouse, picnic areas, and a man-made pond. The northern part of the Project parcel contains manicured areas separated by lines of pine trees, asphalt walkways, and leveled teeing areas associated with the golf course. Disturbance from constructed mounds and sand traps related to the previous golf course are still clear on the landscape.

In order to confirm the desktop sensitivity results and to determine if intact soil deposits may still remain below the golf course, Heritage personnel completed 10 sediment probes throughout the Project area. This was completed utilizing a hand-powered 1-inch diameter soil auger (Figure 15). In general, two different soil profiles were encountered in the soil project, one reflecting layered Fill deposits clearly associate with golf course construction and the other reflecting intact, natural sediments below the manicured surface. Finally, single sediment probe, Probe P4, resulted in the identification moist wetland soils in the northwest corner of the Project area (Figure 15). The two typical soil profiles from the Project area are detailed below.

A typical intact soil profile encountered in the Project area contained three soil horizons in profile and reached a depth of 50 cmbs (19.7 inbs). The upper A-Horizon was characterized by layer of a dark brown (10YR 3/3) fine sandy loam and reached a depth of 20 cmbs (7.9 inbs). The was related to the golf course and was underlain by an intact B1-Horizon (subsoil), which was defined by a layer of dark yellowish brown (10YR 3/4) fine sandy loam that extended to 40 cmbs (15.7 inbs). The subsequent glacially-derived C-Horizon extended to 50 cmbs (19.7 inbs) and was characterized by a deposit of dark brown (7.5YR 3/4) medium to coarse sand. This soil profile was exemplified in Probe P6, and also reflected in Probes P3, P7, and P8 (Figure 16).

A typical disturbed soil profile in the Project area contained two levels of Fill deposits and reached to a depth of 60 centimeters below surface (cmbs) (23.6 inches below surface [inbs]). The first Fill horizon (Fill 1) was characterized by a deposit of brown (10YR 4/3) loamy fine sand mixed with gravel; it extended to a depth of 30 cmbs (11.8 inbs). It was followed by a second Fill deposit (Fill 2), which was defined as a layer of brown (10YR 5/3) fine sandy silt with arkose. The Fill 2 layer terminated at a depth of 60 cmbs (23.6 inbs). This soil profile was exemplified in Probe P10, with similar profiles reflected in Probes P1, P2, P5, and P9 (Figure 16).

Of the 37.1 acres comprising the Project area, 27.3 acres fell within wetlands, on steep slopes, in areas of previous disturbance, or displayed a disturbed sediment profile. These areas were therefore classified as retaining no/low archaeological sensitivity and thus do not require any further archaeological investigation. The combined results of the pedestrian survey and sediment probing across the Project area also resulted in the identification of an area of level terrain and intact soil stratigraphy within the Project area; it was designated as Sensitivity Areas SA-1. This areas encompasses approximately 9.8 acres of level to low sloping terrain, well drained soils, and a moderate/high potential for archaeological sensitivity. It is recommended that any portion of Sensitivity Area SA-1 that will be affected by ground disturbance be subjected to a Phase IB cultural reconnaissance survey prior to construction.

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APPENDIX A

FIGURES

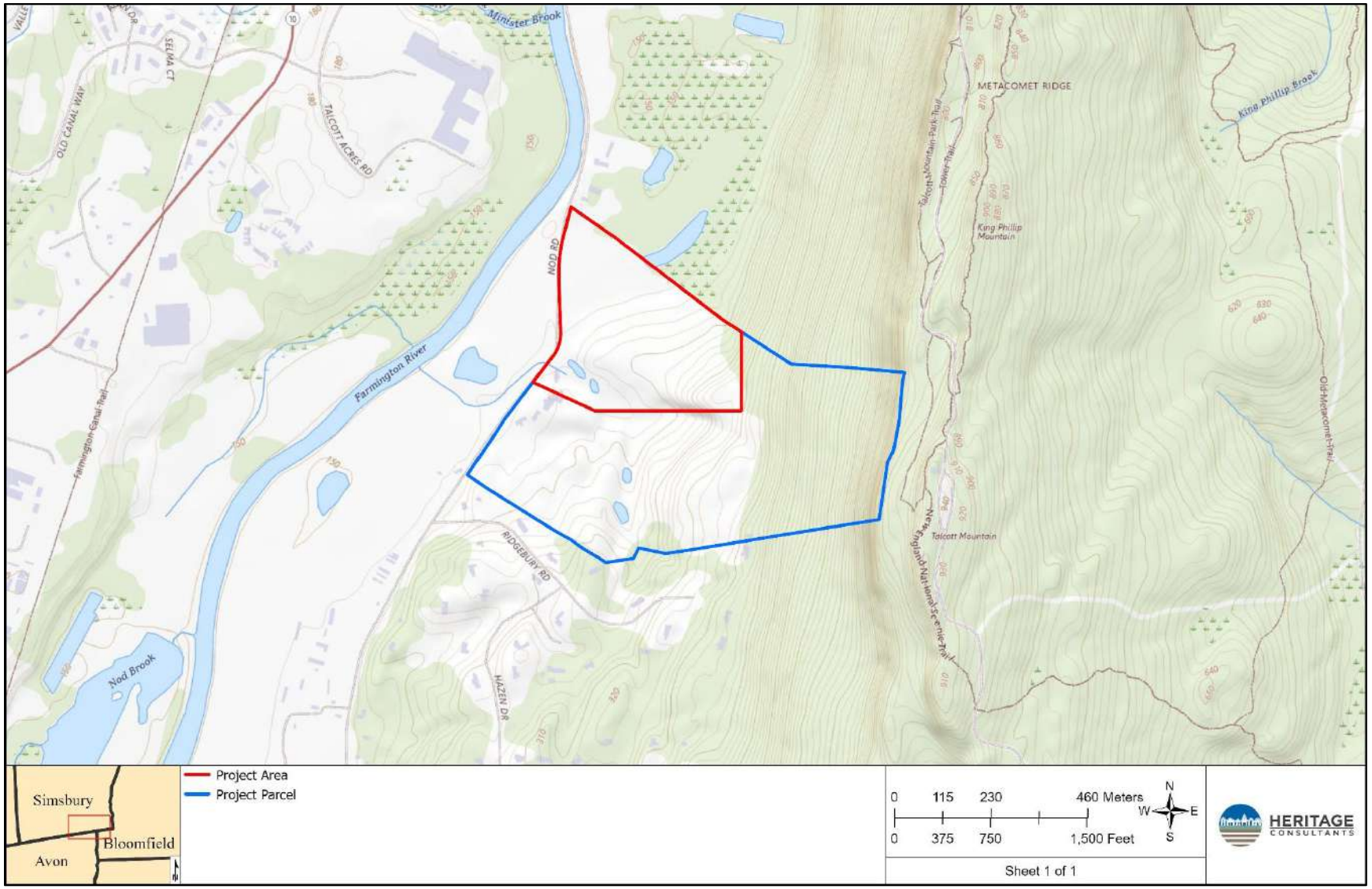

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the Project parcel in Simsbury, Connecticut.

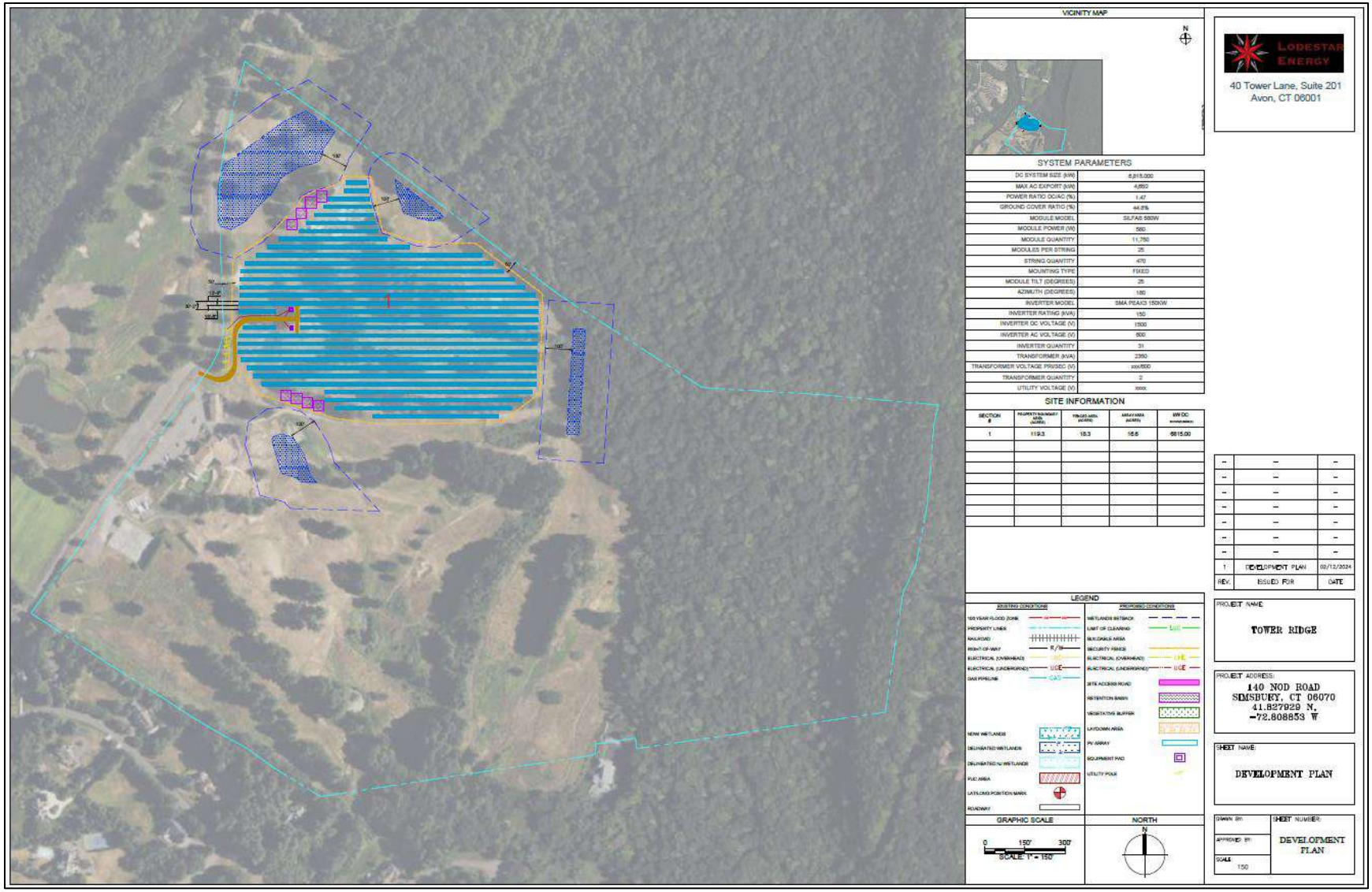

Figure 2. Digital map depicting the client's plans for the Project parcel in Simsbury, Connecticut.

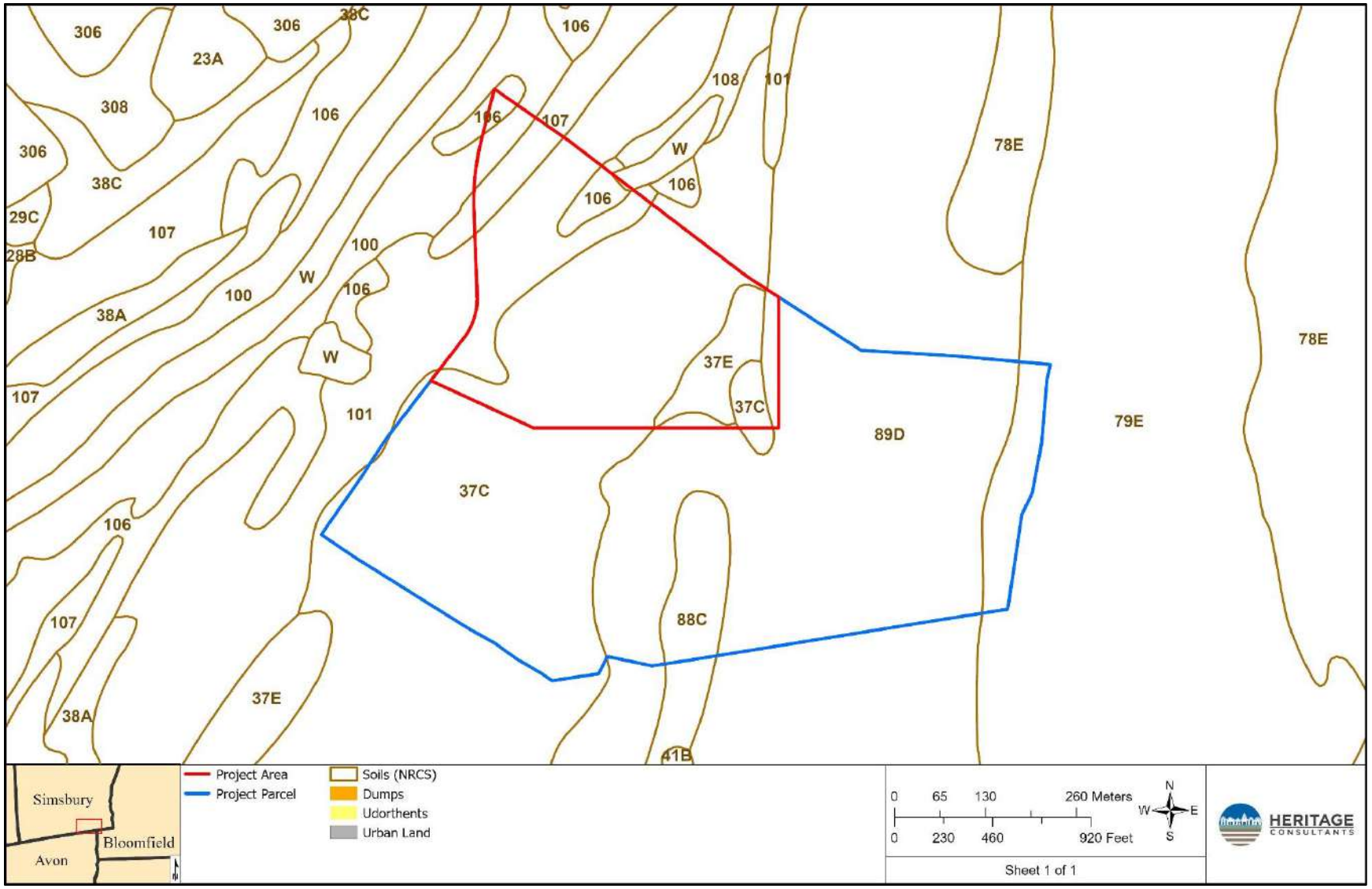

Figure 3. Digital map depicting the soil types present in the vicinity of the Project parcel in Simsbury, Connecticut.

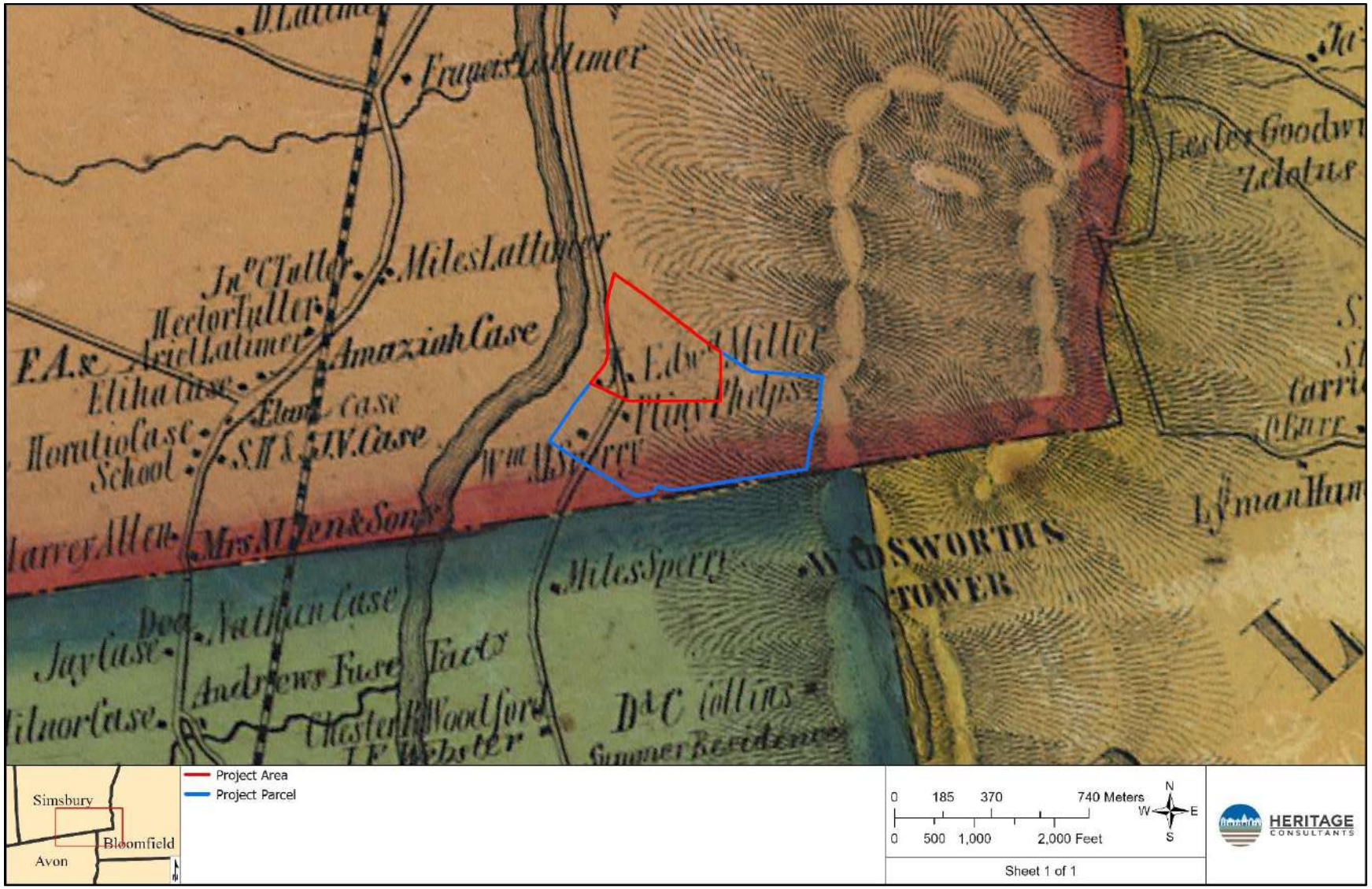

Figure 4. Excerpt from an 1855 map showing the location of the Project parcel in Simsbury, Connecticut.

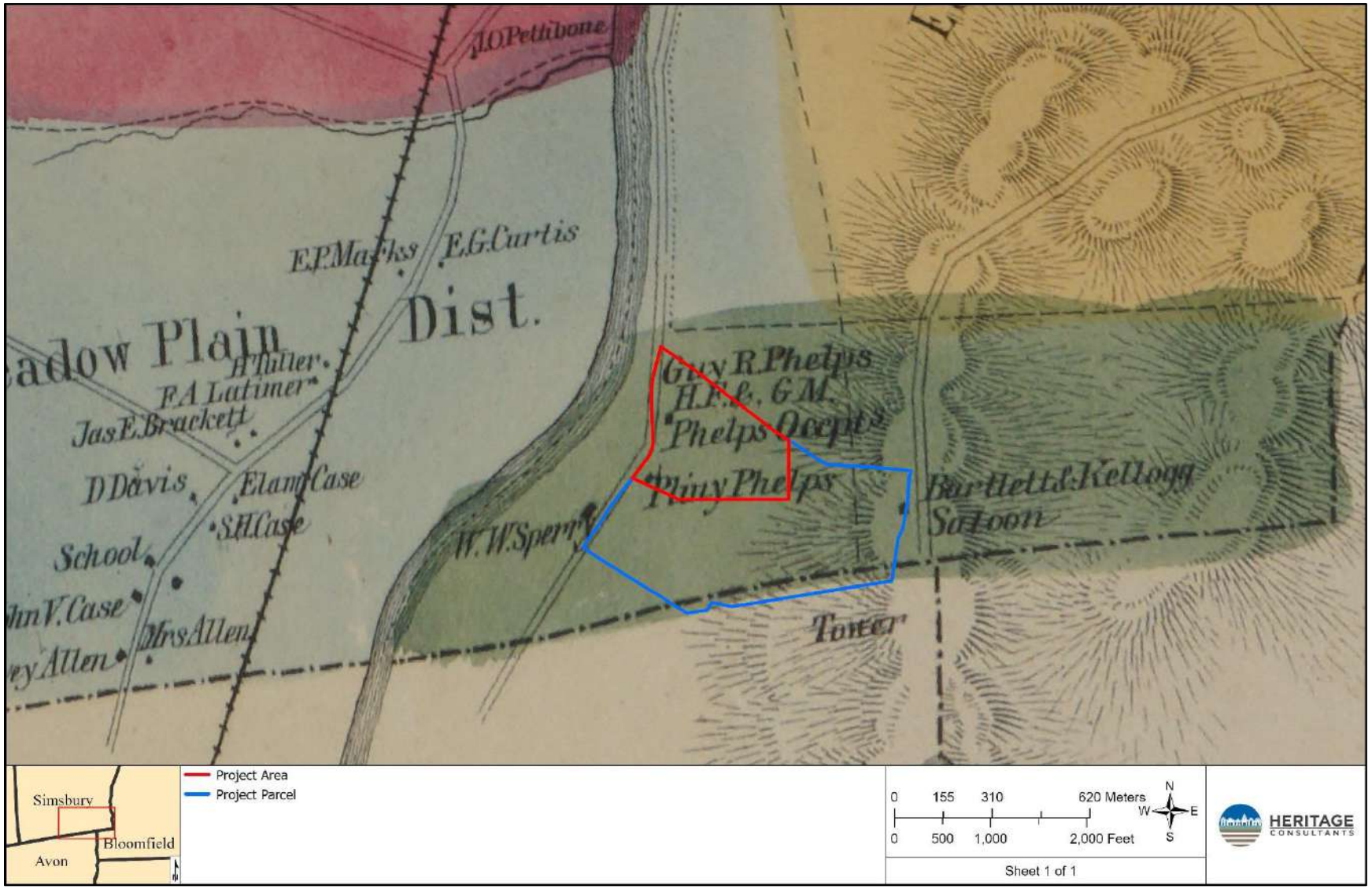

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Figure 8. Excerpt from a 1957 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

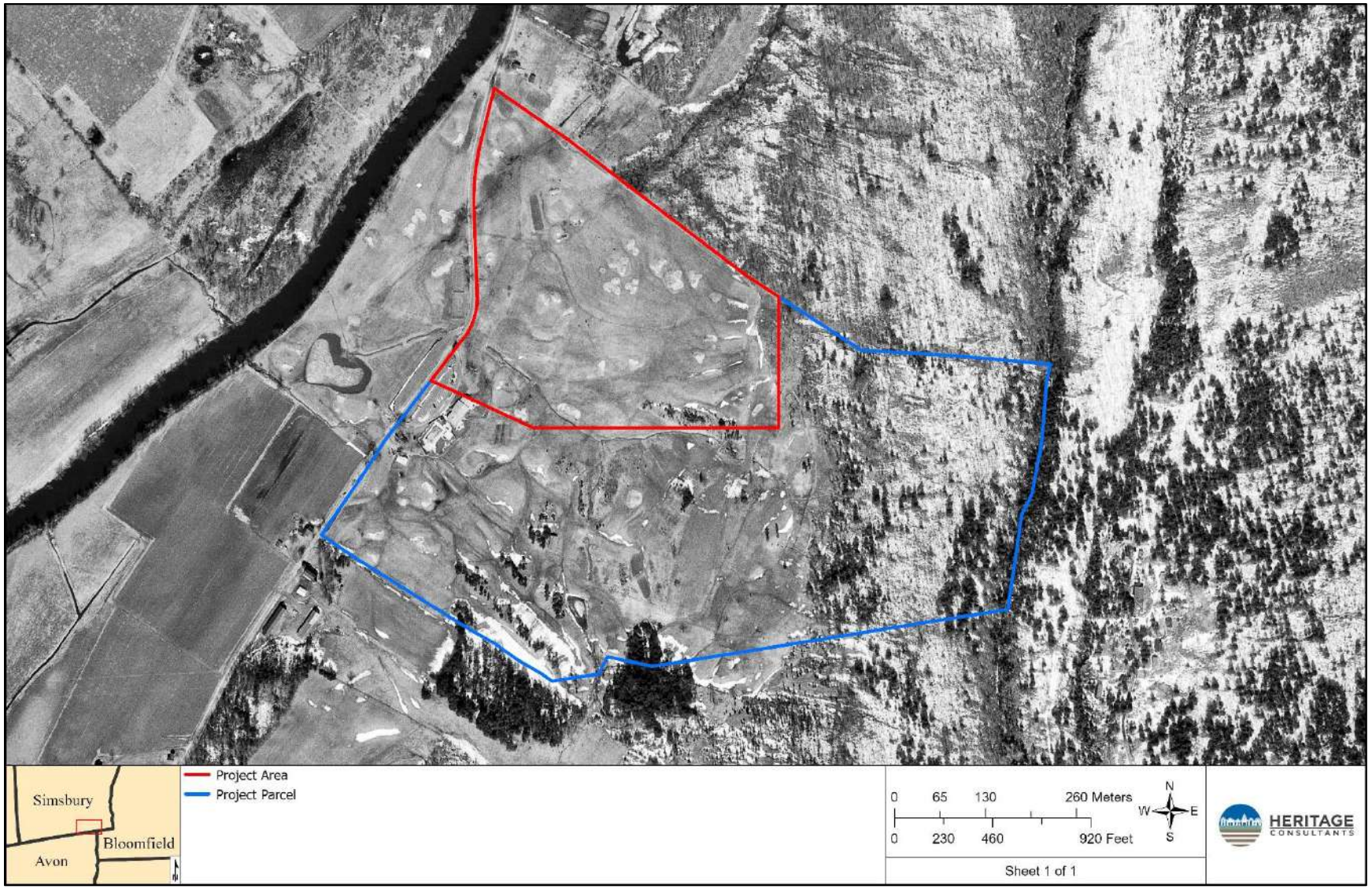
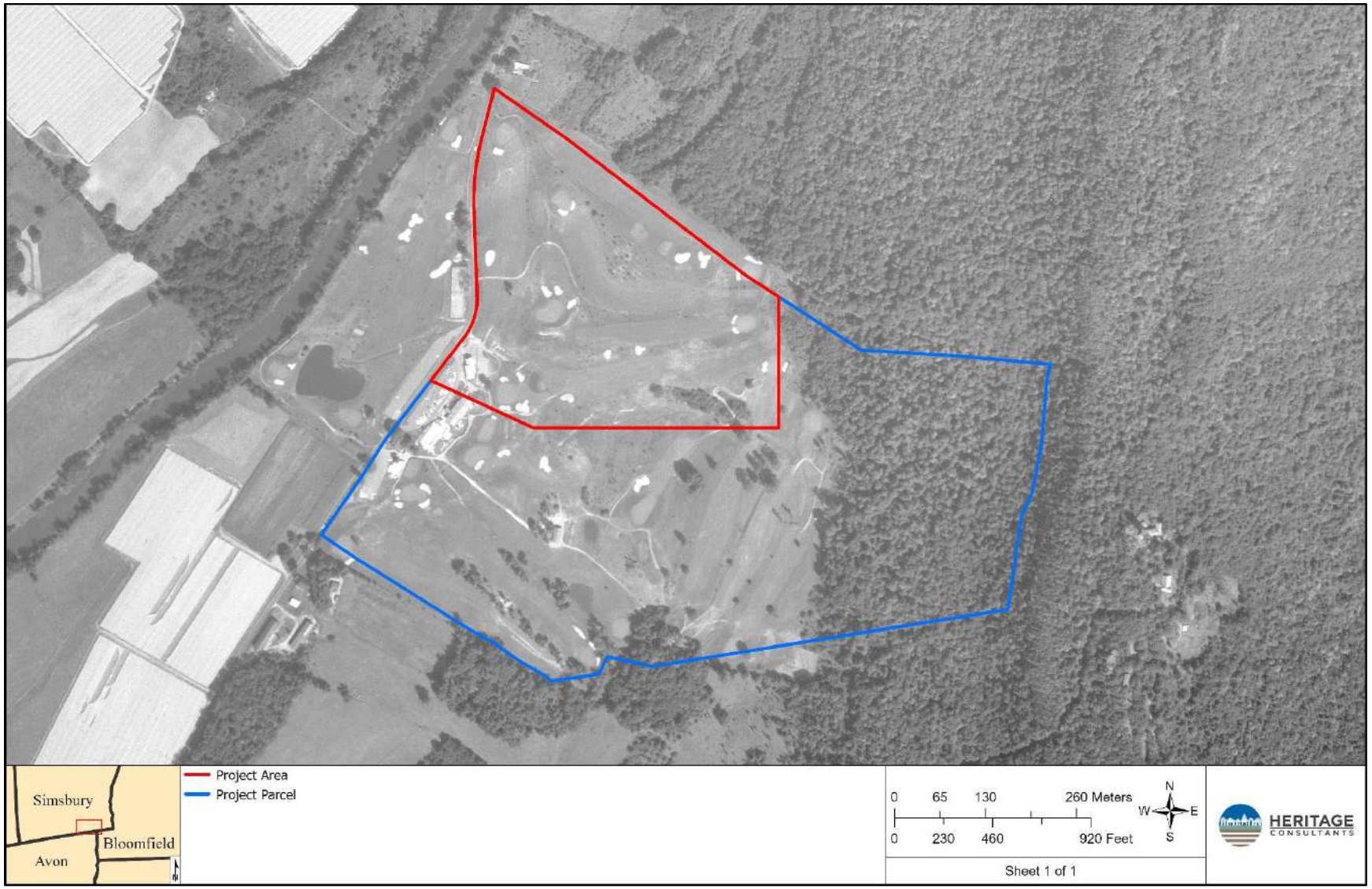


Figure 9. Excerpt from a 1962 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.



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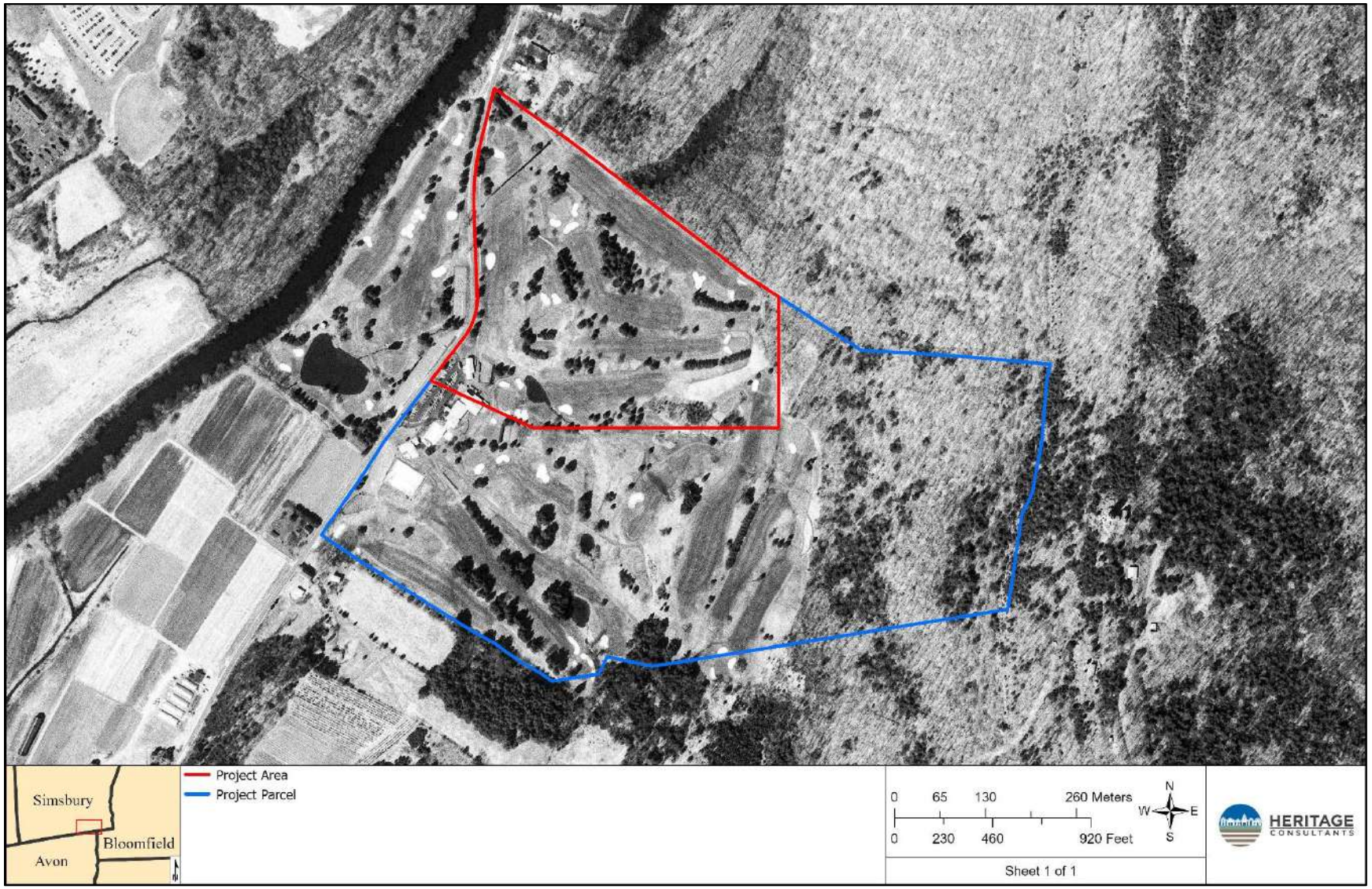

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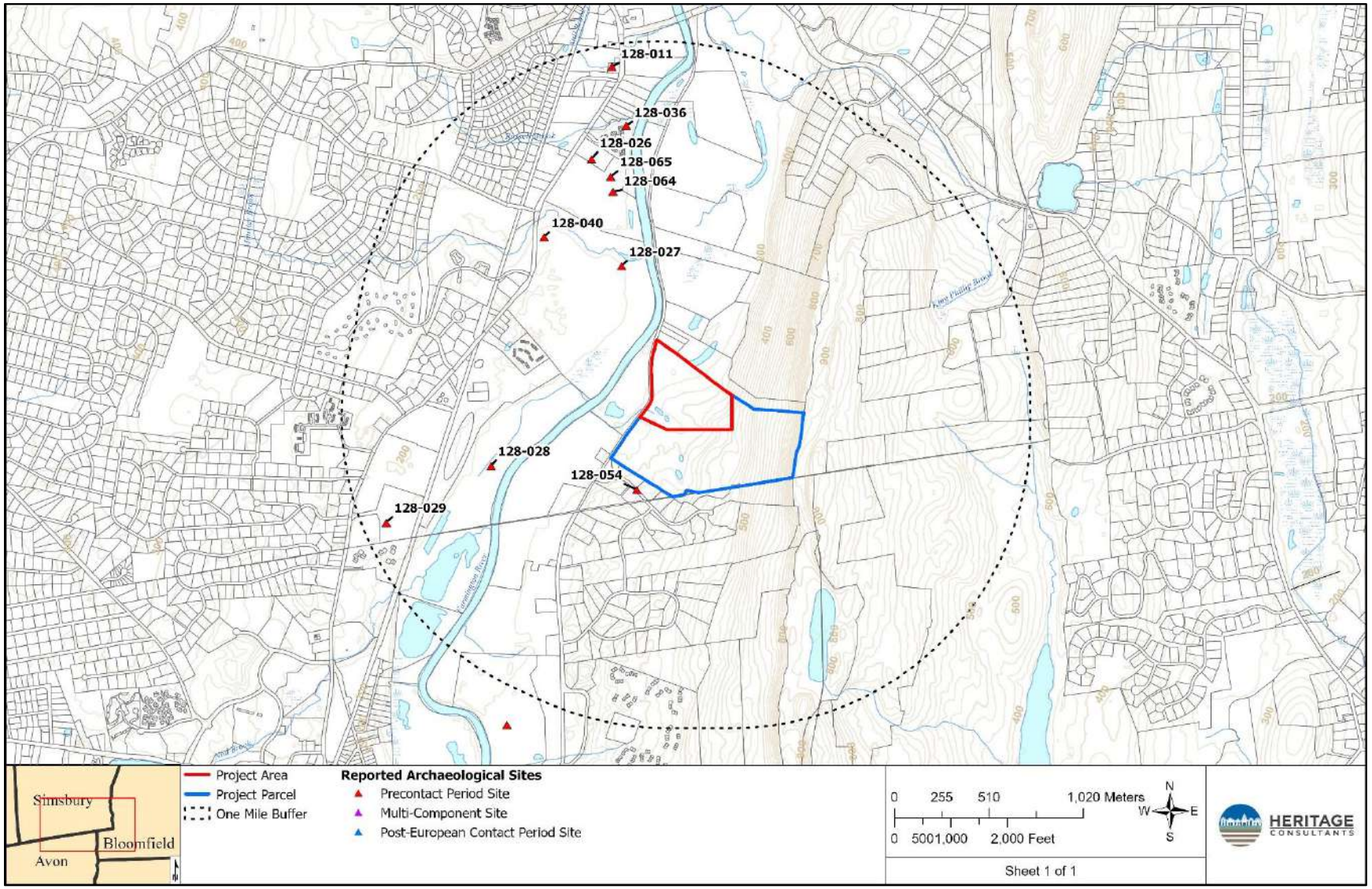
Figure 12. Excerpt from a 2023 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.



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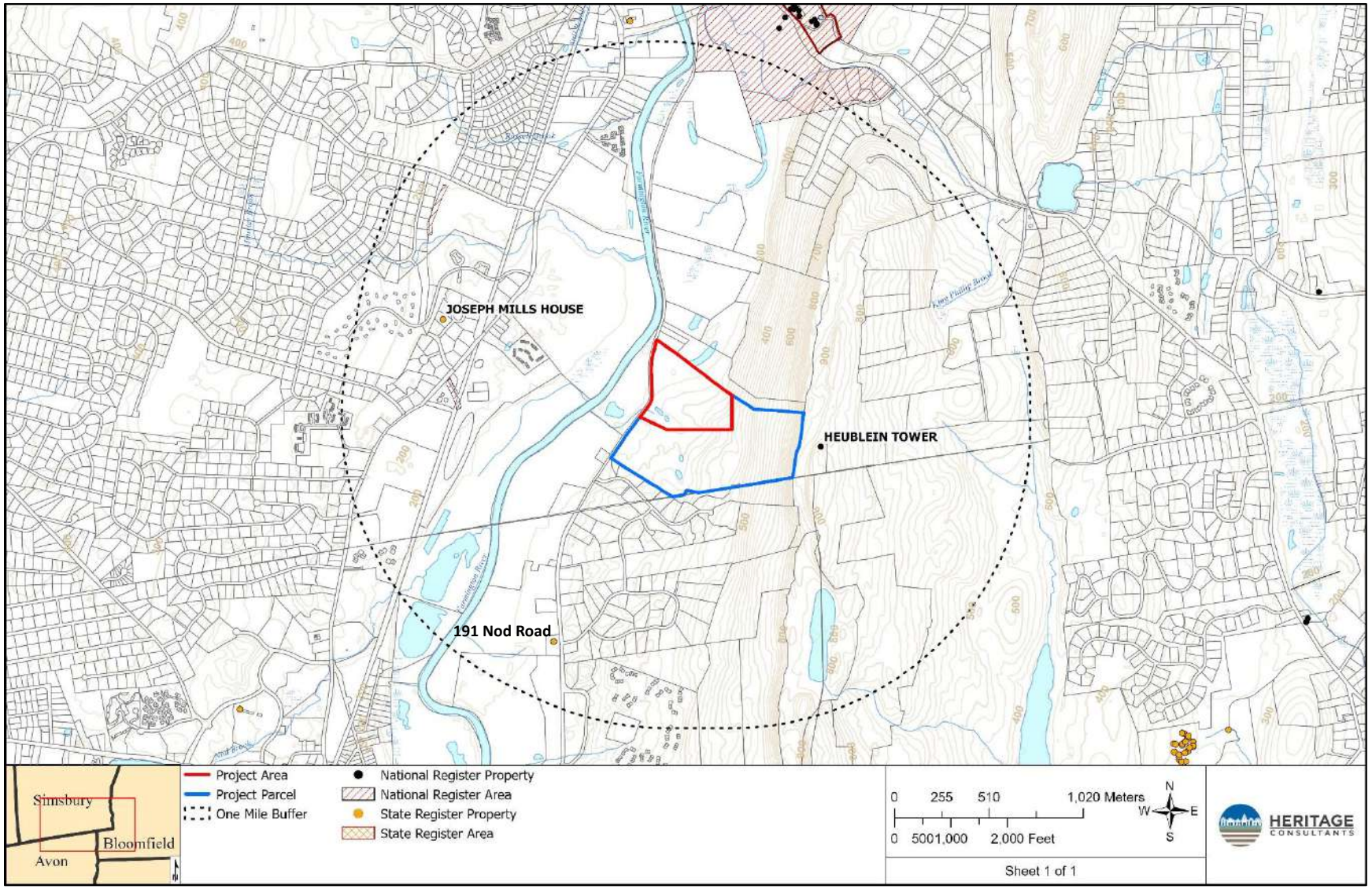
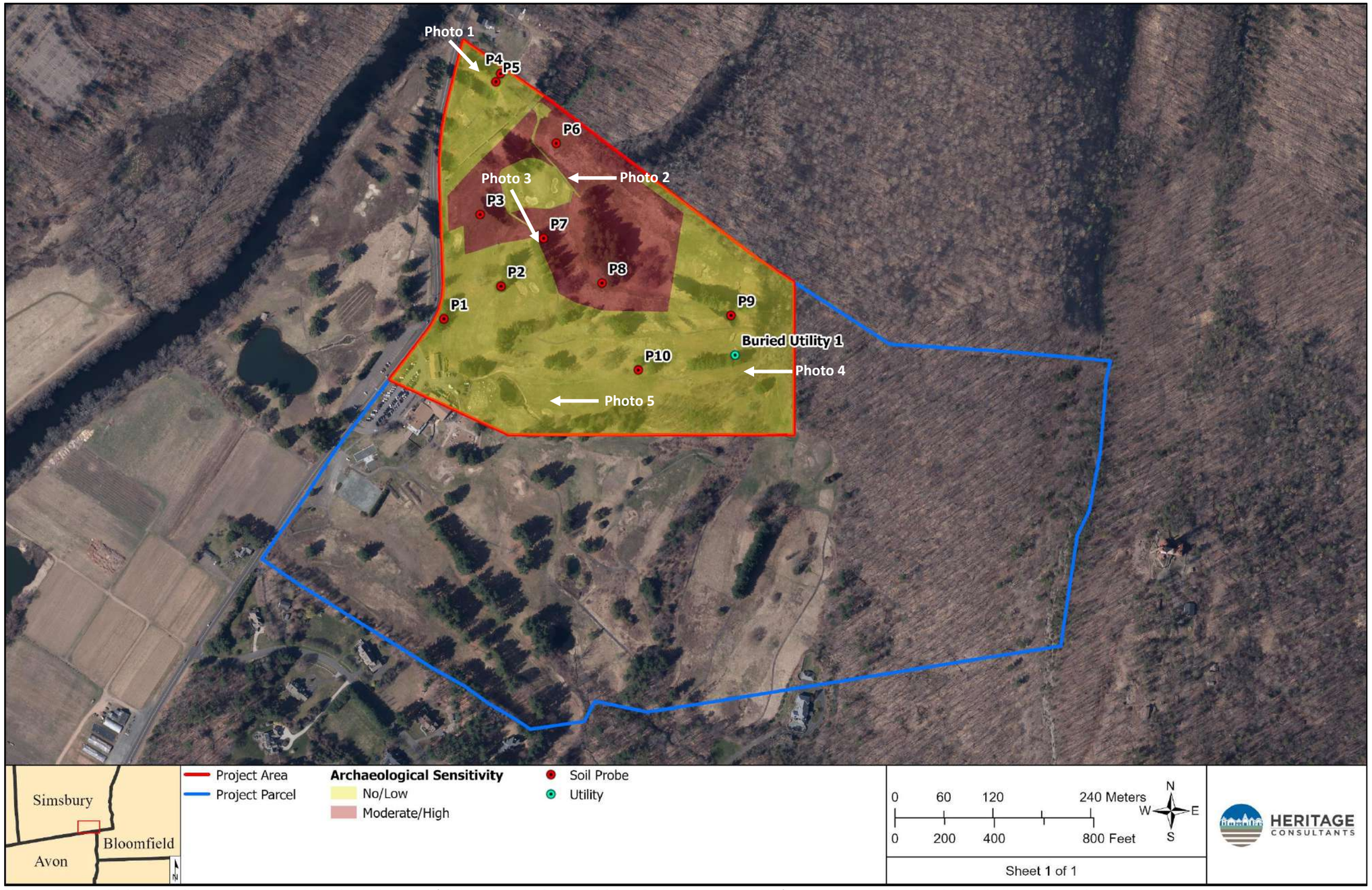


Figure 14. Digital map depicting the locations of previously identified National/State Register of Historic Places districts/properties within the vicinity (1 mi [1.6 m]) of the Project area in Simsbury, Connecticut.



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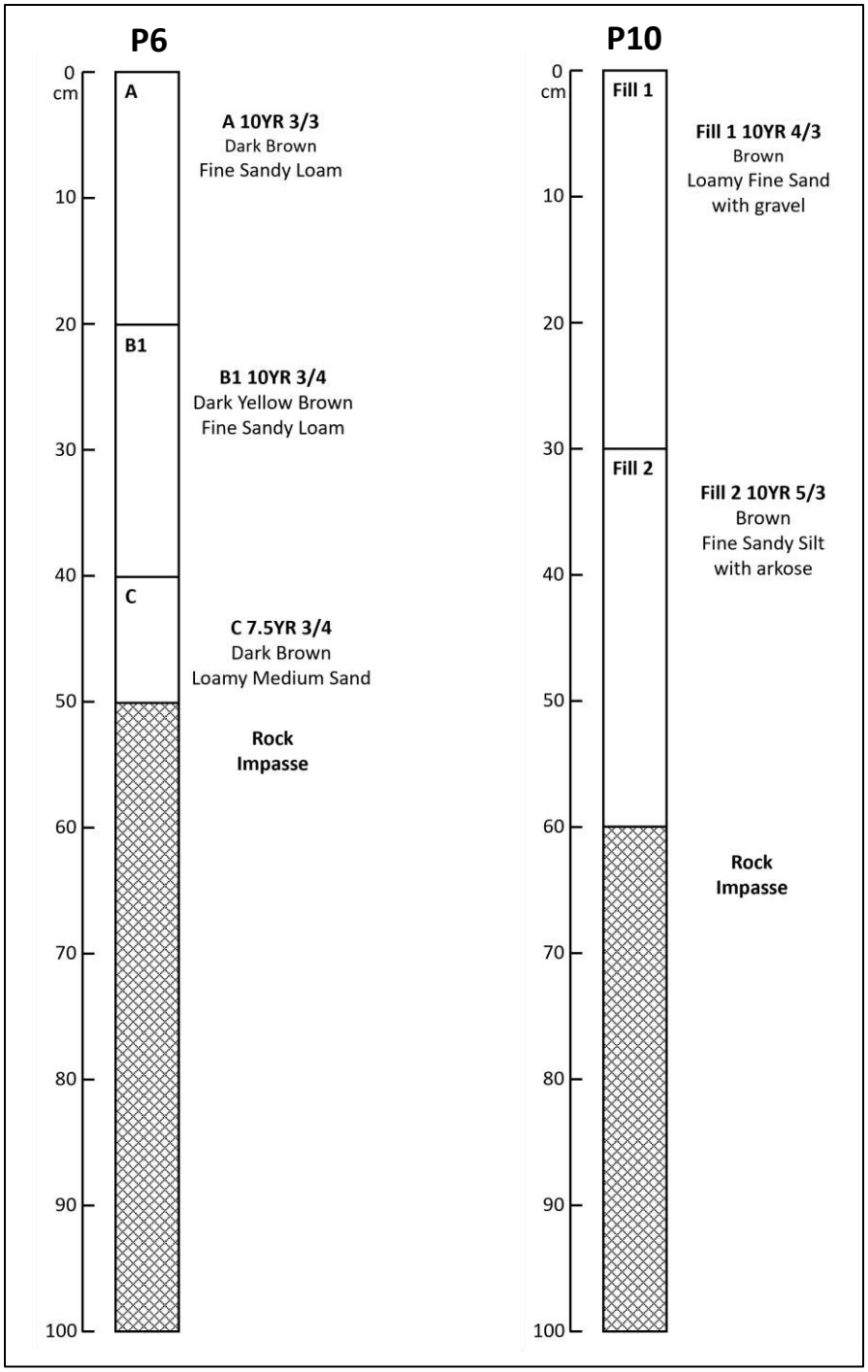

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Appendix D Phase 1B Cultural Resources Reconnaissance Survey Report

August 2025

Phase IB Cultural Resources Reconnaissance Survey of a Proposed Solar Center at 140 Nod Road in Simsbury, Connecticut

Prepared For:

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ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey of a proposed solar project located at 140 Nod Road in Simsbury, Connecticut. Heritage Consultants, LLC completed a previous Phase IA cultural resources assessment survey of the area and determined that portions of it retained moderate/high archaeological sensitivity for archaeological deposits. The subsequent Phase IB reconnaissance survey was completed in July of 2025. It resulted in the recovery of 21 post-European Contact period artifacts and a single precontact era lithic artifact from disturbed soil contexts. The post-European Contact period artifacts had a general date range of nineteenth through twentieth century, whereas the single precontact era lithic artifact could not be assigned to a particular time period. Due to the recovery of the artifacts in low densities and from soils without depositional integrity, as well as the lack of associated above or below ground features, it was determined that the artifact assemblage does not possess research potential. The archaeological deposits were assessed as not eligible for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of the project area is recommended prior to construction.

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CHAPTER I
INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey of a proposed solar Project (the Project) at 140 Nod Road in Simsbury, Connecticut (Figure 1). The Project area, which encompasses 37.1 acres, was subjected to Phase IA cultural resources assessment survey by Heritage Consultants, LLC (Heritage) in May of 2025. Pedestrian survey and sediment coring revealed that 27.3 acres of land within the Project area include wetlands, steep sloping topography, and areas of previous disturbances. These areas retain a no/low archaeological sensitivity and no additional archaeological examination of them is recommended. The remaining 9.8 acres retained a moderate/high archaeological sensitivity due to the presence of gently sloping topography, well drained soils, and proximity to freshwater sources. Vanasse Hangen Brustlin, Inc., (VHB) requested that Heritage complete a Phase IB cultural resources reconnaissance survey of the moderate/high archaeological sensitivity areas prior to construction in July of 2025. All work associated with the Phase IB survey was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

The proposed Project will consist of a solar array, an access road, and associated infrastructure (Figure 2). The portion of the Project area subjected to Phase IB survey is situated at elevations ranging between 48.8 to 57.3 meters (160 to 188 feet) NGVD. It is located to the east of Nod Road and the Farmington River, to the west of Talcott Mountain State Park, to the north of Ridgebury Road, and south of the Metacon Gun Club in Simsbury, Connecticut. The survey area is bounded to the north and east by deciduous forest, to the south by a residential neighborhood, and to the west by agricultural land and the Farmington River. The area currently serves as a Frisbee golf course and contains manicured fairways, deciduous tree, and sand traps.

The area was subjected to Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The pedestrian survey included visual reconnaissance of all areas scheduled for impacts within the moderate/high sensitivity zones. The subsurface examination was completed through the excavation of shovel tests at 15 meter (65.6 feet) intervals along survey transects positioned 20 meters (65.6 feet) apart. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. Each shovel test was excavated in 10 centimeter (3.9 inches) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.635-centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Phase IB Survey results and Management Recommendations

A total of 83 of 83 (100 percent) of planned shovel tests were excavated throughout the Project area. The subsurface investigation resulted in the recovery of 21 artifacts dating from the post-European contact period and a single precontact era lithic artifact. The post-European contact material culture was recovered from 11 shovel tests and had a general date range of nineteenth through twentieth century and consisted of ceramic sherds, glass shards, metal objects, and a piece of coal. As described below, the moderate/high sensitivity area once contained a domestic structure, but it was razed in the

middle of the twentieth century and no trace of it remains on the landscape. The recovered artifacts were once likely associated with this residence. Due to the recovery of the artifacts in low densities from soils that lack depositional integrity, as the lack of associated above or below ground features, the post-European artifact assemblage was classified as unassociated scatter. As a result, these materials lack research potential and the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of the post-European Contact period artifact scatter is recommended prior to construction.

As described above, a single precontact era artifact was recovered during the Phase IB survey. It was identified as a piece of chalcedony angular debris and it was recovered from a disturbed Ap-Horizon (plowzone) along with a piece of coal. It is likely that this artifact originated from the ridgeline forming Talcott Mountain to the east, which is known to contain limited amounts of chalcedony. However, the piece of angular debris was the only precontact era artifacts recovered from the moderate/high sensitivity area. Due to the isolated nature and disturbed context of the find, the precontact era artifact does not retain research potential or qualities of significance for listing to the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional archaeological examination of the precontact era findspot is recommended prior to construction.

Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Brenna Pisanelli, M.A. (Senior Project Manager); Samuel Spitzschuh, B.A. (Project Archaeologist); Samuel Whittaker, B.A. (Field Technician); Bridget Charland, B.A. (Field Technician); Casey Greenbaum, B.A. (Field Technician); Emily Henderson, B.A. (Field Technician); Madisyn Silva, B.A. (Field Technician); William Yerxa, M.A. (Historian); Susy Goeters, B.A. (Laboratory Specialist); and Kody Messier, B.A. (GIS Specialist).

CHAPTER II
NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Project in Simsbury, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both precontact era and post-European Contact period site selection. These include general ecological conditions, as well as types of fresh water sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within the Project area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the "regionalization" of Connecticut's modern environment. It is clear, for example, that the northwestern portion of the state has different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

> "An area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota."

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). The Project area exists in the North-Central Lowlands ecoregion. A summary of this ecoregion is presented below and is followed by a discussion of hydrology and soils found in and adjacent to the Project area.

North-Central Lowlands Ecoregion

The North-Central Lowlands ecoregion consists of a broad valley located between 40.2 and 80.5 km (25 and 50 mi) to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by extensive floodplains, backwater swamps, and lowland areas situated near large rivers and tributaries. Physiography in this region is composed of a series of north-trending ridge systems, the easternmost of which is referred to as the Bolton Range (Bell 1985:45). These ridge systems comprise portions of the terraces that overlook the larger rivers such as the Connecticut and Farmington Rivers. The bedrock of the region is composed of Triassic sandstone, interspersed with very durable basalt or "traprock" (Bell 1985). Soils found in the upland portion of this ecoregion are developed on red, sandy to clayey glacial till, while those soils situated nearest to the rivers are situated on widespread deposits of stratified sand, gravel, silt, and alluvium resulting from the impoundment of glacial Lake Hitchcock.

Hydrology of the Study Region

The Project area is located within close proximity to several waterways and wetlands, most of which are tributaries to the Farmington River, which is located to the not far to the west of the western Project boundary. These include Minister Brook, Russell Brook, King Philips Brook, and Nod Brook, as well as

several unnamed streams and wetlands. The Farmington River flows northeast into the Connecticut River, which in turn flows south into the Long Island Sound. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact era occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources. These water sources also provided the impetus for the construction of water powered mill facilities during the eighteenth and nineteenth centuries.

Soils Comprising the Project Area

Soil formation is the direct result of the interaction of several variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to many diagenic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing, and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils such as those that are present within the Project area. In contrast, acidic soils enhance the preservation of charred plant remains.

A total of four soil types were identified within the Project area (Figure 3). They include Manchester; Limerick and Lim; Occum; and Winooski soils. When well drained soils such as those found within the Project area remain undisturbed and on less than eight percent slope, they are generally well correlated with precontact era and post-European Contact period site locations and are considered to have higher archaeological sensitivity. Below is a summary of each specific soil type identified within the Project area.

<u>Limerick and Lim Series Soils (Soil Code 107)</u>

The Limerick series consists of very deep, poorly drained soils on flood plains. They formed in loamy alluvium. Saturated hydraulic conductivity is moderately high or high. Typical sequence, depth, and composition of this soil is as follows: **Ap**-- 0 to 8 inches (0 to 20 centimeters); dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; common very fine and fine and few medium roots; moderately acid; clear smooth boundary; **BCg1**-- 8 to 20 inches (20 to 50 centimeters); olive gray (5Y 4/2) silt loam; massive; friable; few very fine and fine roots; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; moderately acid; clear smooth boundary; **BCg2**-- 20 to 36 inches (50 to 91 centimeters); olive gray (5Y 4/2) silt loam; massive; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; moderately acid; clear smooth boundary; **BCg3**-- 36 to 54 inches; (91 to 137 centimeters) dark gray (5Y 4/1) silt loam; massive; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; moderately acid; clear smooth boundary; and **Cg**-- 54 to 65 inches (137 to 165 centimeters); dark greenish gray (5GY 4/1) silt loam; massive; few, fine prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4 and 10YR 5/6) soft masses of iron accumulation; neutral.

The Lim series consists of very deep, poorly drained loamy soils formed in alluvial sediments. Typical sequence, depth, and composition of this soil is as follows: **A**--0 to 6 inches; very dark grayish brown (2.5Y 3/2) very fine sandy loam; light brownish gray (10YR 6/2) dry; weak medium granular structure; very friable; many very fine and common fine and medium roots; neutral; clear smooth boundary; **Bg1**-- 6 to 11 inches; dark grayish brown (10YR 4/2) very fine sandy loam; massive; friable; common fine and

medium roots; common fine prominent yellowish brown (10YR 5/6) and common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and common fine prominent light olive gray (5Y 6/2) iron depletions; neutral; clear smooth boundary; **Bg2**--11 to 15 inches; dark grayish brown (2.5Y 4/2) very fine sandy loam; massive; friable; few fine, medium and coarse roots; few fine prominent yellowish brown (10YR 5/6) few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and few fine prominent light olive gray (5Y 6/2) iron depletions; common pieces of slightly decomposed herbaceous plant materials; neutral; clear smooth boundary; **Bg3**--15 to 22 inches; dark gray (10YR 4/1) silt loam; massive; friable; few fine roots; common fine prominent strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) masses of iron accumulation; common pieces of slightly decomposed herbaceous plant materials; neutral; abrupt smooth boundary; **Bg4**--22 to 29 inches; gray (5Y 5/1) and olive gray (5Y 5/2) fine sandy loam; massive; friable; many coarse prominent yellowish brown (10YR 5/6 and 10YR 5/8) and dark yellowish brown (10YR 4/4) masses of iron accumulation; common pieces of slightly decomposed herbaceous plant materials; neutral; clear smooth boundary; **CBg**--29 to 42 inches; gray (5Y 5/1 and 5Y 6/1) loamy fine sand; massive; very friable; few medium prominent brown (7.5YR 4/4) masses of iron accumulation; few pieces of slightly decomposed herbaceous plant materials; neutral; clear smooth boundary; **Cg1**--42 to 50 inches; olive gray (5Y 5/2) sand; loose; many fine prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) masses of iron accumulation; single grain; few pieces of slightly decomposed herbaceous and woody plant materials; neutral; abrupt smooth boundary; **Cg2**--50 to 57 inches; dark gray (10YR 4/1) loamy sand; single grain; loose; few thin black (10YR 2/1) silt loam lenses high in organic matter; few pieces of slightly decomposed herbaceous and woody plant materials; neutral; abrupt smooth boundary; and **Cg3**--57 to 65 inches; dark gray (5Y 4/1) sand; single grain; loose; few slightly decomposed pieces of herbaceous and woody plant materials; neutral.

Manchester Soils (Soil Code 37C; E)

The Manchester series consists of very deep, excessively drained soils formed in sandy and gravelly glacial outwash and stratified drift. They are nearly level to steep soils on outwash plains, terraces, kames, deltas and eskers. A typical soil profile is as follows: **Ap**--0 to 9 inches; dark brown (7.5YR 3/2) gravelly sandy loam; weak medium granular structure; very friable; many fine and common medium roots; 20 percent gravel; strongly acid; clear smooth boundary; **Bw**--9 to 18 inches; reddish brown (5YR 4/3) gravelly loamy sand; very weak fine and medium granular structure; very friable; few fine roots; 25 percent gravel; strongly acid; clear wavy boundary; and **C**--18 to 65 inches; reddish brown (5YR 4/4) very gravelly sand; single grain; loose; 50 percent gravel; very strongly acid.

Occum Series Soils (Soil Code 101)

The Occum series consists of very deep, well drained loamy soils formed in alluvial sediments. They are nearly level soils on flood plains, subject to common flooding. Typical sequence, depth, and composition of this soil is as follows: **Ap**--0 to 10 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; very friable; many very fine and fine roots; moderately acid; clear smooth boundary; **Bw1**--10 to 17 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; common very fine and fine roots; moderately acid; clear smooth boundary; **Bw2**--17 to 28 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; very friable; few very fine and fine roots; moderately acid; clear smooth boundary; **C1**--28 to 32 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; moderately acid; clear smooth boundary; and **C2**--32 to 42 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) sand; single grain; loose; 10 percent gravel; moderately acid; clear smooth boundary. **C3**--42 to 65 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) very gravelly coarse sand; single grain; loose; 35 percent gravel; moderately acid.

Winooski Soils (Soil Code 106)

The Winooski series consists of very deep, moderately well drained soils formed in alluvial material. These soils are on nearly level flood plains. Typical sequence, depth, and composition of this soil is as follows: **Ap** -- 0 to 8 inches (0 to 20 centimeters); very dark grayish brown (10YR 3/2) very fine sandy loam; weak fine granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary. (4 to 18 inches; **Bw1** -- 8 to 18 inches (20 to 46 centimeters); brown (10YR 4/3) very fine sandy loam; massive; friable; many fine roots; strongly acid; abrupt smooth boundary; **Bw2** -- 18 to 26 inches (46 to 66 centimeters); olive brown (2.5Y 4/4) very fine sandy loam, common medium prominent pinkish gray (5YR 7/2) and faint brown (10YR 5/3) areas of iron depletion; massive; friable; few fine roots; strongly acid; abrupt smooth boundary; **BC** -- 26 to 43 inches (66 to 109 centimeters); olive gray (5Y 5/2) very fine sandy loam; massive; friable; common medium faint light gray (5Y 7/2) areas of iron depletion and faint brown (10YR 5/3) masses of iron accumulation; moderately acid; clear smooth boundary; and **C** -- 43 to 65 inches (109 to 165 centimeters); olive (5Y 5/3) loamy very fine sand; massive; friable; common medium distinct light brownish gray (10YR 6/2) iron depletions and prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater sources suggests that portions of the Project area appear to be amenable to both precontact era and post-European Contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact era sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits. Post-European Contact period sites that may exist in the area could be associated with domestic activities, farming, fishing, and riverine industries.

CHAPTER III
PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact period of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact period of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by precontact Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the precontact era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the precontact period of Connecticut. The remainder of this chapter provides an overview of the precontact setting of the region encompassing the Project area.

Paleoindian Period (12,000 to 10,000 Before Present [B.P.])

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleoindians, arrived in the area by ca., 13,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleoindians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals. While there have been over 50 surface finds of Paleoindian projectile points throughout the State of Connecticut (Bellantoni 1995), only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small, fluted points, the Templeton Site produced a stone tool assemblage consisting of gravers, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that most tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). While excavation of the Hidden

Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleoindian era. Recovered Paleoindian artifacts included broken bifaces, side-scrapers, a fluted preform, gravers, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleoindian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creating of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. One hearth has been dated thus far (10,520 ± 30 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL BP) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers represented at least two temporally discrete Paleoindian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz (Leslie 2023). They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, gravers, and a drilled stone pendant fragment. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanicals recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood (Leslie 2023). Approximately 15,000 artifacts were collected from the site.

The scarcity of identified Paleoindian sites suggests a low population density during this period. The small size of most Paleoindian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleoindian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleoindian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archeologists recently have recognized a final “transitional” Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer

1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, very few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969), have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleoindian Period, as well as a population decrease from earlier times; however, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleoindian predecessors, Early Archaic sites tend to be very small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions of the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are identified on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, the recovery of these projectile points has rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, are represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 14C BP, is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Peterson 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68) may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging from 7,740±280 and 7,015±160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96).

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite, and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m^2 (5,383 ft^2). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed Tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

The Narrow-Stemmed Tradition also marks one of the most prevalent manifestations of the archaeological record in southern New England, narrow-stemmed projectile points, often untyped, or typed as Lamoka, Wading River, or Squibnocket Stemmed forms. These are generally attributed to a form of projectile technology, but some (Boudreau 2008), have suggested that these tool forms might not be related to projectile technology, and may instead relate to graver or drill functions. Boudreau (2008) also drew important connections to the forms of these narrow-stemmed points with later Woodland era forms, such as Rossville points, which are nearly identical. Others (Lavin 2013; Zoto 2019) have similarly suggested a continuation of the Narrow-Stemmed Tradition into the Woodland era, with most of this evidence originating at coastal sites in southern New England. The vast majority of Narrow-Stemmed projectile points that are associated with cultural features suitable for radiocarbon dating,

particularly Lamoka style projectile points, are associated with Late Archaic date ranges (Lavin 2013).

Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England precontact periods. Originally termed the "Transitional Archaic" by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archaeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high-quality raw materials for stone tool production and a settlement pattern different from the "coeval" Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic that interior cord marked, grit tempered, thick-walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region, and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation of subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern was still diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish, and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut, and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and

was thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper. Archaeological investigations of Early Woodland sites in southern New England resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of white-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicate that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types that are indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile

points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more stylistically diverse than their predecessors with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Precontact Period

The precontact period of Connecticut spans from ca. 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the precontact period shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region that includes the proposed Project area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleoindian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV
POST-EUROPEAN CONTACT PERIOD OVERVIEW

Introduction

The proposed Project is located at 140 Nod Road in Simsbury, which is in Hartford County, Connecticut. Most Connecticut towns, including Simsbury, originated as Indigenous settlements and later became English colonial villages. Simsbury was settled and incorporated in 1670, and it retained a small population that primarily consisted of farmers. The town remained relatively rural throughout the nineteenth and early twentieth centuries, with some growth in the nineteenth century in manufacturing, particularly in the village of Tariffville. The mid-twentieth century saw Simsbury develop into a residential and suburban area outside of Hartford. Today, the town remains a residential suburb that has retained some of its agricultural character. This chapter provides an overview of the history of Hartford County and the Town of Simsbury, as well as data specific to the Project area.

Hartford County

Hartford was one of the four original counties established in 1666 following the merger of Connecticut Colony and New Haven Colony (Van Dusen 1961). Located in central-northern Connecticut, it is bounded to the north by the State of Massachusetts, to the east by Tolland County, to the south by Windham, Middlesex, and New Haven Counties and to the west by New Haven and Litchfield Counties. Bisected by the Connecticut River, the county is also the location of the City of Hartford, the capital of Connecticut. Although Hartford has the highest population in the county (an estimated 126,443 as of 2020), Glastonbury has the largest land area (52.3 sq. mi.) (Connecticut 2021). Hartford County is in the lower central Connecticut River Valley and the land rises in the western portion of the county on a low mountain range known as the Metacomet Range (Bell 1985). The landscape varies from densely populated urban areas in most of the county to rich farmland regions in its northern bounds and includes a long stretch of the Connecticut River as well as other significant freshwater rivers. Important waterways associated with Hartford County include the Connecticut, Farmington, Hockanum, Podunk, and Scantic Rivers (Trumbull 1886). The county's three largest cities are Hartford, New Britain, and West Hartford while other important population centers are located at Bristol, Manchester, East Hartford, and Glastonbury (Connecticut 2021).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3000 to 500 years ago) the Indigenous peoples who resided in the present-day Connecticut were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian (SNEA) languages and resided in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Native people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times (Lavin 2013). In addition, these communities came together in large groups to hunt deer in the fall and winter.

Indigenous peoples lived with their immediate or extended families in large settlements often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their

habitations, known as a *weetu* or *wigwam,* were generally constructed of a tree sapling frame and covered in reed matting during warm months and tree bark throughout the winter. These varied in size from a small, individual dwelling to an expansive "long house" which could accommodate several families. Native communities commonly traded among both their immediate neighbors and often maintained long-distance networks as well (Lavin 2013). At the time of contact, a large Native American population was located at Massacoe, in northern Connecticut in what are now Simsbury and Granby. They maintained several villages and cornfields along the banks of the Farmington River. It is thought that the Simsbury Native Americans were part of the Tunxis or Farmington tribe, which occupied areas to the south, but the relationships among contact-era Native American groups are poorly understood and sometimes interpreted to help justify past land seizures by the colonists. De Forest, for example, asserts that the Massacoe group was part of the Tunxis people further south in Farmington, probably on the assumption that a group "few in number" must have been politically bound to a larger group and not independent (De Forest 1852).

Seventeenth Century through Eighteenth Century

As Native communities maintained oral tradition rather than a written record, most surviving information of the Indigenous people of Connecticut was recorded by European observers (Lavin 2013). In ca., 1614, Dutch traders sailing under Captain Adrian Block were the earliest Europeans known to have sailed along Long Island Sound and up the Connecticut River where they initiated contact and trade with the Indigenous people of the Connecticut River Valley (De Forest 1852; Larned 1874; Lavin 2013). Following that voyage, Block created a figurative map of the region which clearly depicted the Connecticut River, which the Dutch named the *Versche Rivier* (Fresh River) due to it being a freshwater river. It was during this voyage that Dutch traders learned the significance of *wampum,* polished tubular shell beads created from the white *whelk* shell and the purple *quahog* shell (Hauptman and Wherry 2009; McBride 2013). They found they could exchange wampum for valuable furs from Native peoples north along the Hudson River. By the early 1620s, the Dutch and Pequot of present-day southeastern Connecticut entered a trade partnership in which the Pequot supplied wampum and furs in return for European goods. In 1624, the Dutch established New Netherland Colony on the Hudson River with its eastern bounds extending as far as Cape Cod, including the Connecticut River (Jacobs 2009). The Pequot accessed a variety of trade goods they distributed to tributaries and other groups in the region. They extended their dominance over the Connecticut shoreline, eastern Long Island, and the lower Connecticut River Valley bringing Native nations there into a tributary relationship under their leadership (Hauptman and Wherry 2009; McBride 2013).

In 1633, the Pequot allowed the Dutch to build a fortified post, the *Huys de Hoop,* on the Connecticut River at the site of present-day Hartford to further cement both parties' domination over the flow of wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who settled Windsor (1633), Wethersfield (1634), and Hartford (1635) (Van Dusen 1961; Barry 1985). Increased interactions with Europeans resulted in exposure to epidemics Native people never encountered and to which they had no natural immunity. Illnesses such as smallpox, measles, tuberculosis, and cholera devastated Native communities. In the winter of 1633-1634, one such epidemic spread to the people of the Connecticut River Valley (Trumbull 1886). Tensions between Native and European groups in the region resulted in the death of several English traders in 1634 and 1636, which were blamed on the Pequot. In retaliation English forces from Massachusetts Bay destroyed Pequot and Nehantic villages on the Pequot (Thames) River in August 1636, which began the Pequot War. The Pequot laid siege to Saybrook Fort at the mouth of the Connecticut River during the winter of 1636-1637 and attacked Wethersfield in April 1637. Connecticut Colony declared war on the Pequot and was joined by Native warriors from the Connecticut River area as well as Mohegans under

the Sachem Uncas (Oberg 2006). In May of 1637, English forces led by Captain John Mason of Windsor destroyed the fortified Pequot village at Mistick, and in July, they pursued refugees west where the Pequot were defeated in present-day Fairfield and the war soon ended (Cave 1996). Pequot territory was considered conquered land claimed by Connecticut Colony. Meanwhile, settlers from Massachusetts Bay formed New Haven Colony at Quinnipiac in late 1638. In 1652, the Dutch lost the *Huys de Hoop* at Hartford during the First Anglo-Dutch War (Trumbull 1886).

At the time of contact, the Native Americans at Massacoe (future Simsbury) were numerous, and they maintained villages and cornfields along the banks of the Farmington River. Details of the location or the precise numbers of Native Americans at Massacoe are unknown. A European resident named John Griffin had been living at Massacoe as early as 1643 through an informal deed with the Native Americans there. The Connecticut Colony's first gesture toward acquiring the Massacoe territory came in 1642, when the General Court gave the Governor permission to distribute Massacoe territory to any Windsor inhabitants he chose (Barber 1886). In 1647, a committee was established to undertake the purchase and distribution of Massacoe land, again with little result. In 1653, and again in 1663, the legislature made grants of land at Massacoe to individuals, and again established committees to distribute the rest of the lands. The absence of significant settlement after these actions suggests uncertainty about the legitimacy of the English claim to this area or about the potential risks of moving so far west of Windsor. The fact that the Farmington River was only fordable at a point near the northern boundary of the area may have been a factor as well. Ultimately, in 1667 a distribution of meadow lands along the river was made to some 20 colonists. Those who received land in "Meadow Plain" included John Gillett, Samuel Wilcoxson, John Case, and John Pettibone. In 1668, the legislature issued an order that this land should be organized into a new town, and a formal proprietors' meeting was held. In 1669, it appears there were 13 families whose residence was in Massacoe, and John Case was appointed constable (Phelps 1845). In 1670, the area was formally made into a town and named Simsbury.

At the start of King Philip's War (1675-1676), Native Americans living in what was then Hartford County agreed to an alliance and peace treaty with the Connecticut Colony. However, as hostilities mounted, the Indigenous population at Massacoe fled the area, perhaps taking refuge with neighbors or moving westward to what is now Salisbury, Connecticut. On March 26, 1676, a band of Native Americans who were fighting the English in the war burned all of Simsbury's buildings. At the time there were some 40 houses in the town, however, no lives were lost because the inhabitants had evacuated to Windsor beforehand. The inhabitants did not return until 1677, and some tried to abandon their holdings. In response, in 1679 the General Court ordered the remainder to return, and appointed a committee to decide where they should build their new houses. Four inhabitants were ordered to build at Weatauge on the west side of the river, and several were prosecuted and fined for not building their houses on time. In that year, the first gristmills and sawmills were built on Hop Brook. Several years after the war, in 1680, the first correct deed which was properly approved by the colonial government was executed by nine Native Americans (including two women), and the line between Windsor and Simsbury was settled (Phelps 1845). At its start, the document referred to the two previous transactions involving two different parcels of land. It claimed rights of ownership to the whole of Massacoe for the sellers, although it did not specify if the Indigenous population lived there anymore. The area described extended ten miles north from the northern boundary of Farmington and ten miles west from the western boundary of Windsor. The deed excluded from sale a two-acre parcel and also reserved the Native Americans' right to "hunt, fowl and fish" within all the territory conveyed (Phelps 1845). Despite the sale of their lands and the flight of many of their numbers in 1675, it appears that some of the

Indigenous people at Massacoe continued to live in Simsbury, with “a few families” still residing there after 1710 (Phelps 1845).

In 1681, the colonial residents established a Congregational Church, but it was only after some dispute that its meeting house was finally built on the west side of the Farmington River, at Hop Meadow, in 1683. A decision was reached in 1736 to divide the town into three ecclesiastical societies; two in the north, which would later become Granby, and one in the south. The First Society built a new meeting house a short distance from the old one at that time. A census of the state taken in 1756 found 2,245 residents, and in the same year a private ferry across the Farmington River opened (Phelps 1845). In the northeastern section of Simsbury (now East Granby) copper ore was discovered and by 1705, copper mines were in place. Copper Hill, as the area was known, became the location of a small smelting and refining industry (Phelps 1845). The mines remained active until about 1750. For many years, the town had a productive salmon and shad fishery on Salmon Brook, but after 1740, overfishing and increasing construction of dams and mills on the rivers led to its decline and eventual disappearance. Pitch and tar, made from pine trees, were made in town, as well as turpentine. In 1734, a toll bridge was built across the Farmington River at Weatogue, where there had long been a crossing place. Other bridges followed, making access to the two sides of the river much more convenient. In 1756, during the French and Indian War (1754-1763), the town raised a company to serve. In 1762, 47 Simsbury men traveled on the military expedition to Havana, of which perhaps one-third returned home, most having died of illness on the campaign (Phelps 1845). During the Revolutionary War (1775-1783), a number of companies were raised in Simsbury. One was activated in May 1775 and went to Boston under Captain Abel Pettibone; there some members joined in the Battle of Bunker Hill. Another was raised shortly after that, and seventy-five men and five officers went to Boston where they stayed until December (Phelps 1845).

Slavery existed in Hartford County during the eighteenth century and was primarily practiced by wealthy families, merchants, and ministers in larger towns. The 1774 Connecticut colonial census recorded a “White” population of 3,671, an African American population of 29, and no Native Americans in Simsbury, but the number of enslaved individuals was not noted (Hoadly 1887). It was not until 1784 that the State passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). In 1773, the Connecticut General Assembly converted the mines in what was then northeastern Simsbury (now East Granby) into Newgate Prison, the first state prison, which held deserters and Loyalists. After a fire in 1782, Newgate was abandoned until 1790, when the state reopened the prison (Springman and Guinan 1983). After the Revolution, Hartford County recovered from wartime economic disruptions due to its robust agricultural production. On January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961). In 1781, residents of the Salmon Brook Ecclesiastical Society and the Turkey Hills Ecclesiastical Society, located in the northern section of Simsbury, began to petition the General Assembly to separate Simsbury into two. Simsbury was very large geographically and the residents of these northern communities found they had to travel long distances to attend town meetings or to vote. In 1786, these two northern parishes became incorporated as the town of Granby (Springman and Guinan 1983). This reduced a large percentage of Simsbury’s recorded population, leaving the town with 2,576 people as of 1790 (Table 1; Connecticut 2024a; Phelps 1845).

Nineteenth to Twenty-first Century

In 1806, the western portion of Simsbury separated to become the town of Canton, leading to another reduction in Simsbury’s population down to 1,966 by the 1810 census (Table 1; Connecticut 2024a; Phelps 1845). During the War of 1812, the firm of Allyn and Phelps built an iron wire factory at Tariffville. The factory used iron sourced from Salisbury, Connecticut, to make wire of various kinds. This

factory remained in operation for many years (Phelps 1845). An 1819 gazetteer reported that the colonial-era fisheries on the rivers in town had ceased, but noted the existence in Simsbury of three wire factories, a small cotton factory, three tinware factories, and two each of distilleries and tanneries. The processing needs of the town's agricultural production were met by two facilities for carding wool, three grist mills, and four sawmills; there were also four general stores. Churches in the town at that time included one Congregational and one Episcopal church, only one of which apparently had a full-time clergyman. The 1819 gazetteer also records one physician and one lawyer (Pease and Niles 1819). In the 1830s, the village of Tariffville had its own post office, two taverns, and the New England Carpet Company, which employed 175 workers (Barber 1836). In 1850, there were several small and two large industrial enterprises in Simsbury. Three carriage-makers employed ten men in that business; a cooper employed two; a tinner three; and two pump and plumbing makers employed another four. The Bacon & Bickford company of safety fuse makers employed three men and 15 women making $35,000 in fuses that year. Finally, the Tariffville Manufacturing Company employed 329 male and 326 female employees in making eight different varieties of carpet (USCB 1850a). The latter company was begun in c. 1825 and by 1845 was one of the largest in the country. The fuse company was located at East Weatauge; its fuses were made for blasting rock and in 1845 it was the only one of its kind in the world (Phelps 1845).

During the first half of the nineteenth century, the Farmington Canal was built and passed through Simsbury on the west side of the Farmington River. Extending from New Haven to Suffield at the Massachusetts border, the Farmington canal bypassed Hartford and the navigation-blocking falls at Enfield, and thus boosted commercial and manufacturing interests along its route. Other transportation improvements in Simsbury during this era included two turnpikes. The Granby Turnpike was incorporated in 1800, and it ran from Hartford through Tariffville and Granby and to the Massachusetts line; it continued in business until 1854. In 1801 the Torrington Turnpike was chartered, and the company built a road from West Simsbury through Torrington to Litchfield. In 1838 the eastern end of the Torrington Turnpike was made public, and in 1861 the charter was surrendered (Wood 1919). Most turnpikes in the state were unable to compete with the railroads, and went out of business around the same time that railroads were being built.

Throughout the rest of the nineteenth century and well into the twentieth century, Simsbury's economic and population characteristics remained mostly the same. In 1881, the carpet factory at Tariffville was bought by the Auer Silk Manufacturing Company, which later changed its name to the Hartford Silk Company and shifted to manufacturing dress goods and tapestries. The fuse factory was moved to Hop Brook and changed its name to Toy, Bickford & Company; it employed approximately 100 people as of the 1880s. During the late nineteenth century, the town's soil was thought to be particularly good for Indian corn and for tobacco. The latter was important even in the mid-eighteenth century, when the town appointed men to supervise the packing of tobacco, and in the late nineteenth century the business continued unabated. The raising of beef stock and dairying was also important, and a creamery was established in 1882 (Barber 1886). Despite these various enterprises, however, the population figures for Simsbury show that the town did not experience large population growth. The population fell below 2,500 after 1850 and did not regain that number until 1910 (Keegan 2012). The Canal Railroad was a busy and prosperous rail line in 1874, with 20 locomotives and 400 employees, moving people and goods between New Haven and locations to the north. In 1887 it was leased to and owned by the New Haven railroad. In the twentieth century, as transportation shifted from rail to road, the line was abandoned, and in 1985 the tracks in the section between Avon and Granby (including Simsbury) were removed (Turner and Jacobus 1989). In 1932, the town of Simsbury's main industries were "agriculture and the manufacture of safety fuses" (Connecticut 1932). The population had slowly been rising since

1890, but the town still included only 3,625 residents in 1930 (Keegan 2012). Nonetheless, by the 1930s the town was changing from a rural to a more residential landscape (Ellsworth 1935).

Table 1: Population of Simsbury, Connecticut 1790-2020 (Connecticut 2024a-d; AdvanceCT and CT Data Collaborative 2023)

Town	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
Simsbury, Hartford County, Connecticut	2,576	2,956	1,966	1,954	2,221	1,895	2,727	2,410	2,051	1,830	1,874	2,094
	1910	**1920**	**1930**	**1940**	**1950**	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
	2,537	2,958	3,625	3,941	4,822	10,138	17,475	21,161	22,023	23,234	23,511	24,517

After 1950, Simsbury's population began to increase substantially. In the 20 years between 1950 and 1970, the town's population increased from just under 5,000 residents to nearly 17,500 residents. The rate of growth slowed after 1970, and by 2000 had reached 23,234 residents. In 2010, the population was slightly lower at 23,220 residents (Keegan 2012). This pattern of post-1950 growth is consistent with the residential development of places within driving distance of cities during the wave of suburbanization in the mid-twentieth century. Like many places in Connecticut, Simsbury became a suburban town, and over time a number of new firms, mostly non-industrial, started or moved there. As of 2005, only 2.1 percent of the town's workers were employed in agriculture; the 8.1 percent of workers that were engaged in manufacturing was larger than the average for Connecticut, and was due to presence of the Ensign-Bickford Companies (CERC 2008). As of 2014, the proportion of manufacturing jobs had fallen to 5.4 percent. In contrast, 25 percent of jobs were in the finance and insurance subcategory, and three out of five major employers were finance or insurance companies. The flattening of Simsbury's population growth suggests that the town had nearly reached full buildout by 2000. The town's 2024 plan of conservation and development places strong emphasis on preserving the town's appearance in terms of open space, scenic resources, and historic resources while planning for sustainable development (Simsbury 2024).

History of the Project Parcel

According to Smith's 1855 map, Nod Road was in place by the middle of the nineteenth century and formed the western boundary of the Project area (Figure 4). Within the Project area, the residence of "J. Edward Miller" is listed on this map. The residence of "Pliny Phelps" is also shown directly to the south within the larger Project parcel. While J. Edward Miller appears to be absent from census records at that place and time, the individual recorded as Pliny Phelps may be in reference to Daniel Pliney Phelps, who is recorded on the 1850 federal census as a farmer (USCB 1850b). Subsequent mapping from 1869 continues to show the Pliny Phelps residence to the southwest of the Project area (Figure 5). The residence to the north of this within the Project area, which formerly was listed as J. Miller, is shown on this map as "Guy R. Phelps" and "H.F. & G.M. Phelps occupants." Dr. Guy Rowland Phelps was a successful businessman from Simsbury who established one of the first life insurance firms in the United States, known as the Connecticut Mutual Life Insurance Company (Phelps 1899). While Guy Phelps had moved to Hartford prior to the creation of this map, he may have continued to own the property while it was occupied by his relatives. H.F. Phelps most likely refers to Hector F. Phelps, who was the brother of Guy Phelps. Hector Phelps was recorded in the 1870 census as a farmer (USCB 1870).

Aerial imagery from 1934 shows that the Project area was in use as agricultural fields at that time (Figure 6). A long barn was located in the western part of the Project area, and a smaller structure was

present directly to the northwest of this barn, presumably a residence. Land to the west, north, and south of the Project area was a primarily agricultural landscape located along the Farmington River. Land to the east of the Project area was a forested landscape surrounding Talcott Mountain. By 1941, aerial photography shows that the above-referenced barn had been demolished, while the smaller structure was still in place (Figure 7). This structure also appears in a subsequent 1957 aerial image, whereas the rest of the Project area was still characterized by agricultural fields (Figure 8). Subsequent aerial photography dating from 1962 shows that the residence had been demolished, and the property was converted into a golf course (Figure 9).

The Project area signs of disturbance as of 1962, as new terrain and sand traps had been created for the golf course. All remaining agricultural buildings to the southwest of Project area had been demolished by 1962 as well, and a new building and parking lot for the golf course were constructed. By 1967, another building associated with the golf course was constructed to the north of this building and was located in the southwest corner of the Project area (Figure 10). Aerial photography from 1991 shows that the Project area remained mostly the same since the 1960s, with the addition of small groups of coniferous trees on the golf course (Figure 11). Subsequent aerial imagery from 2023 depicts the Project area in its essentially modern state (Figure 12). The Project area is characterized by a golf course with a manicured landscape and some patches of trees. A building and parking lot are located in the southwest corner of the Project area. Land to the east of the Project area remains forested and contains part of Talcott Mountain. The land to the north of the Project area is also forested, whereas land to the south is residential and the land to the southwest is agricultural.

Conclusions

The documentary review indicates that the proposed Project area has the potential to be associated with cultural resources, especially those dating from the post-European Contact period. In the portion that was agricultural fields, there is the possibility of encountering evidence of post-European Contact period farming activities that may be important as a component of a rural historic landscape (*sensu* McClelland et al. 1999). The Project also may contain buried archaeological deposits dating from the nineteenth century and associated the Guy R. Phelps, a figure of local importance.

CHAPTER V
PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previously identified cultural resources in the vicinity of the Project area in Simsbury, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current Phase IA cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the Project area are taken into consideration.

Specifically, this chapter reviews previously identified archaeological sites, and National/State Register of Historic Places properties/districts (NRHP/SRHP) within 1.6 kilometers (1.0 mile) of the Project area. The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office (CT-SHPO) in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined during this investigation. Both the quantity and quality of the information contained in the original cultural resources survey reports and State of Connecticut archaeological site forms are reflected below.

Previously Recorded Archaeological Sites and National/State Register of Historic Places Districts/Properties in the Vicinity of the Project Area

A review of data currently on file at the CT-SHPO, as well as the electronic files maintained by Heritage, resulted in the identification of 10 previously known archaeological sites within 1.6 kilometers (1 mile) of the Project area, all of which date from the precontact era (Figure 13; Table 2). In addition, there are two SRHP properties and one NRHP property located within 1.6 kilometers (1 mile) of the proposed Project parcel (Figure 14). None of the identified resources fall within the boundaries of the proposed Project parcel. A brief summary of these cultural resources Is provided below.

The archaeological sites identified within 1.6 kilometers (1 mile) of the proposed Project area include those listed in Table 2 below. Those sites that can be ascribed to a particular period in the precontact era, date from the Late and Terminal Archaic periods and they include a lithic findspot, lithic scatter, and five camps. These types of sites are typical of the Late and Terminal Archaic periods, as these population moved throughout the region on a seasonal basis depending on the locations of necessary resources. The remainder of the precontact era sites could not be identified as to date of occupation or type. All of these sites suggest that additional precontact era archaeological deposits may be expected in the moderate/high sensitivity portions of the Project area.

Table 2: Archaeological Sites Identified within 1.6 km (1 mi) of the Project Corridor.

Site Number	Site Name	Distance from Project	Period	Site Type
128-011	–	1.5 km	Precontact	Unknown
128-026	Russell Brook Site (S14)	1.1 km	Precontact	Camp
128-027	Minster Brook (S15)	400 m	Precontact	Unknown
128-028	Nod Brook (S16)	765 m	Precontact	Unknown
128-029	Weatogue 34	1.5 km	Late Archaic	Camp
128-036	Weatogue 2	1.15 km	Late/Terminal Archaic	Camp
128-040	Weatogue 3	800 m	Late/Terminal Archaic	Lithic Scatter
128-054	Tower Site	100 m	Late Archaic	Isolated Findspot

Site Number	Site Name	Distance from Project	Period	Site Type
128-064	Senior Care I	850 m	Precontact	Camp
128-065	Senior Care II	800 m	Precontact	Camp

Joseph Mills House

The Joseph Mills House, which is also known as "The Old Red House" is an eighteenth century farm house located at 5 Hamilton Lane in Simsbury, Connecticut. It was listed on the SRHP in August of 1966 by John L. Beringer and Michael Weinberg, then of the Connecticut Historical Commission. The structure, which was constructed by Joseph Mills in cc,. 1740, is a two-story Colonial style farm house with a central chimney and hewn overhang on both levels. Its location was along the original main highway through the region before the establishment of Route 10 in the 1920s. The Joseph Mills House is located approximately 1.3 kilometers (0.8 miles) to the northwest of the Project area and will not be impacted by any associated construction.

191 Nod Road

Located at 191 Nod Road in Simsbury, Connecticut, this structure was constructed in ca., 1880 with a Shingle style inspiration. Listed to the SRHP in August of 1966 by Susan Van Rensselar and Henry Simon, then of the Connecticut Historical Commission, the two-and-a-half story Queen Anne home features characteristic qualities on the exterior, including triple overhangs, leaded sash, corner braces, and eave brackets. The building at 191 Nod Road is located approximately 1 kilometer (1.6 miles) to the southwest of the Project area and will not be impacted by any associated construction.

Heublein Tower

The Heublein Tower is the principal structure of a country retreat located on the highest point of Talcott Mountain in Simsbury, Connecticut. The property was listed on the NRHP by Alison Gilchrist of the Connecticut Historical Commission and John Herzan in June of 1983. Constructed in 1915 and owned by Gilbert F. Heublein, a prominent Connecticut businessman, the six story tower provides a 360 degree view of the state. High winds had blown over all previous attempts to build upon the mountain-top, thus leading to Heublein's insistence that the structure be able to withstand 100 mph wind gusts. Heublein, a Bavarian immigrant and co-founder of Heublein Inc. – an international food and beverage importing firm – constructed the retreat for his family and to host guests. The success of the business as a liquor and cocktail provider, particularly after the acquisition of Smirnoff Vodka after World War II, made Heublein and his retreat prominent examples of the American success story. The tower and its associated residence combine both historic and modern qualities, with references to the nineteenth century romanticization of medieval castle and church stone architecture and late Victorian themes of ornate elegance within a rustic setting. Using these combined visions, Heublein could both host outdoor picnics and extravagant interior dinners for his guests. To support visitors, the retreat features numerous rooms for Heublein and his family, guests, and servants quarters. Heublein Tower is located well away from the Project area and will not be impacted by any associated construction.

CHAPTER VI
METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IB cultural survey of the Project area in Simsbury, Connecticut. In addition, the location and point-of-contact for the facility at which all cultural material, drawings, maps, photographs, and field notes generated during survey will be curated are provided below.

Research Design

The current Phase IB cultural resources reconnaissance survey was designed to identify all precontact era and post-European contact period cultural resources located within the previously identified moderate/high sensitivity areas associated with the Project. Fieldwork for the Phase IB survey was comprehensive and planning considered the distribution of previously recorded archaeological sites located near the development area, as well as an assessment of the natural qualities of the Project parcel. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the development area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methods

Following the completion of all background research, the development area was subjected to a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The field strategy was designed such that the entirety of the moderate/high sensitivity areas) was examined visually and photographed. The pedestrian survey portion of this investigation included visual reconnaissance of the development area. The subsurface examination was completed through the excavation of shovel tests at 20 meter (65.6 foot) intervals along survey transects positioned 20 meters (65.6 feet) apart. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. Each shovel test was excavated in 10 centimeter (3.9 inch) arbitrary levels within natural strata, and the fill from each level was screened separately. All shovel test fill was screened through 0.64 centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Curation

Following the completion and acceptance of the Final Report of Investigations, all cultural material, drawings, maps, photographs, and field notes will be curated with: Dr. Sarah Sportman, Office of Connecticut State Archaeology, Box U-1023, University of Connecticut, Storrs, Connecticut 06269

CHAPTER VII
RESULTS & MANAGEMENT RECOMMENDATIONS

Introduction

As described above, the goals of the Phase IB investigation included completion of the following tasks: 1) preparation of a contextual overview of the regions' precontact era, post-European contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Project area; 3) a review of readily available maps and aerial imagery depicting the Project and the archaeologically sensitive areas; 4) pedestrian survey and photo-documentation of the archaeologically sensitive areas; and 5) subsurface examination of the archaeologically sensitive areas for evidence of intact cultural deposits. The results of the investigation are presented below.

Results of Phase IB Cultural Resources Reconnaissance Survey

As stated earlier in this report, the proposed Project includes a solar Project that will encompass approximately 37.1 acres of land along Nod Road in Simsbury, Connecticut. Of this area, 9.8 acres of land were designated as moderate/high sensitivity areas after pedestrian survey and soil probing during a Phase IA cultural resources assessment survey completed by Heritage personnel in May of 2025. Elevations within the moderate/high sensitivity areas rage from 48.8 to 57.3 m (160 to 188 ft) NGVD. At the time of the survey, the area was characterized by a Frisbee golf course with sparse coniferous trees and gently sloping topography declining to wetlands northeast of the Project area (Photos 1 through 11). The results of the Phase IB survey are discussed below.

During the Phase IB survey, 83 of 83 (100 percent) of planned shovel tests were excavated throughout the moderate/high sensitivity areas (Figure 15). Shovel Test 6, of Transect 14 exemplifies the stratigraphy seen in a typical shovel test (Figure 16; Photo 12). The uppermost soil horizon was characterized by an Ap-Horizon (plowzone) that extended from the ground surface to 21 cmbs (0 to 8.3 inbs); it consisted of a layer of dark yellowish brown (10YR 4/4) sandy loam. The underlying B-Horizon (subsoil) reached from 21 to 38 cmbs (8.3 to 15.0 inbs) and was defined by a deposit of yellowish brown (10YR 5/8) clay loam. Finally, the glacially derived C-Horizon ranged in depth from 38 to 51 cmbs (15.0 to 20.1 inbs) and was described as a layer of light yellowish brown (10YR 6/4) sandy clay with gravel (Figure 16).

The subsurface testing of the Project area resulted in the recovery of 21 post-European Contact period artifacts (Photo 15; Table 3). The assemblage included ceramic sherds (n=10), glass shards (n=7), machine-cut nails (n=3), and a single piece of coal. The ceramics were represented by 3 plain yellowware sherds, 2 plain whiteware sherds, 3 hand-painted Chinese cobalt blue porcelain sherds, 1 brown transfer print whiteware sherd, and 1 plain pearlware sherd. The porcelain fragments retained a tea house and landscape motif and refit. Laboratory analysis of the ceramic sherds suggests that the porcelain has a date range of 1660 through 1860, the yellowware has a date of 1830 to 1940, and the pearlware has a date of 1775 to 1830. The glass shards recovered from the Project area included 4 clear contact-molded glass, 2 clear indeterminate manufacture flat glass shards, and a single aqua mouth-blown in mold glass shard. Laboratory analysis of the post-European Contact period artifacts suggests that they have a general date range of nineteenth through twentieth century, with some artifacts potentially falling into late eighteenth century. As seen in Table 3 below, all but one of the post-European Contact period

artifacts were recovered from disturbed Ap-Horizon (plowzone) soils. The remaining artifact was recovered from a shovel test that contained Fill soils.

Table 3. Post-European Contact Era Artifacts Recovered from the Project Area.

Soil Horizon	Artifact Type	Artifact Class	Description	Total
Fill 1	Ceramic	Whiteware	Brown transfer print indeterminate vessel	1
Fill 1 Total				**1**
Ap	Metal	Ferrous	Machine-cut nail	3
	Mineral	Coal	-	1
	Glass	Contact-molded	Clear indeterminate bottle	4
		Unidentified manufacture	Clear Flat glass	2
		Mouth-blown in mold	Aqua indeterminate bottle neck	1
	Ceramic	Whiteware	Plain indeterminate vessel	2
		Yellowware	Plain indeterminate vessel	3
		Pearlware	Plain indeterminate vessel	1
		Chinese Porcelain	Hand-painted cobalt blue indeterminate vessel	3
Ap Total				**20**
Grand Total				**21**

As seen in Figure 15, the artifacts were collected from various locations across the Project area and were recovered in low densities from soils that lack depositional integrity and were not found in association with any above or below ground features. However, as discussed in Chapter IV, a review of historical maps suggests that there was a residence located within the Project area as early as 1855. It is likely that the nineteenth century artifacts recovered from the Project area may have been associated with that domestic occupation of the land during this time period. However, since the former structure has been removed the post-European Contact period artifact assemblage cannot be definitively associated with it or any of its former occupants. As a result, this scatter of items was deemed to lack research potential and the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of the post-European Contact period artifact scatter is recommended prior to construction.

In addition to the post-European Contact period artifacts, a single precontact era lithic was recovered during the Phase IB survey from Shovel Test 8 along Transect 8 (Figure 15; Photo 13 and 14). The lithic artifact was identified as piece chalcedony angular debris recovered from disturbed Ap-Horizon (plowzone) soils; it was found within a disturbed soil layer that also contained piece of coal. Due to the isolated nature and its disturbed context, the chalcedony flake does not retain research potential or qualities of significance for listing to the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional archaeological examination is recommended prior to Project construction.

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APPENDIX A

FIGURES

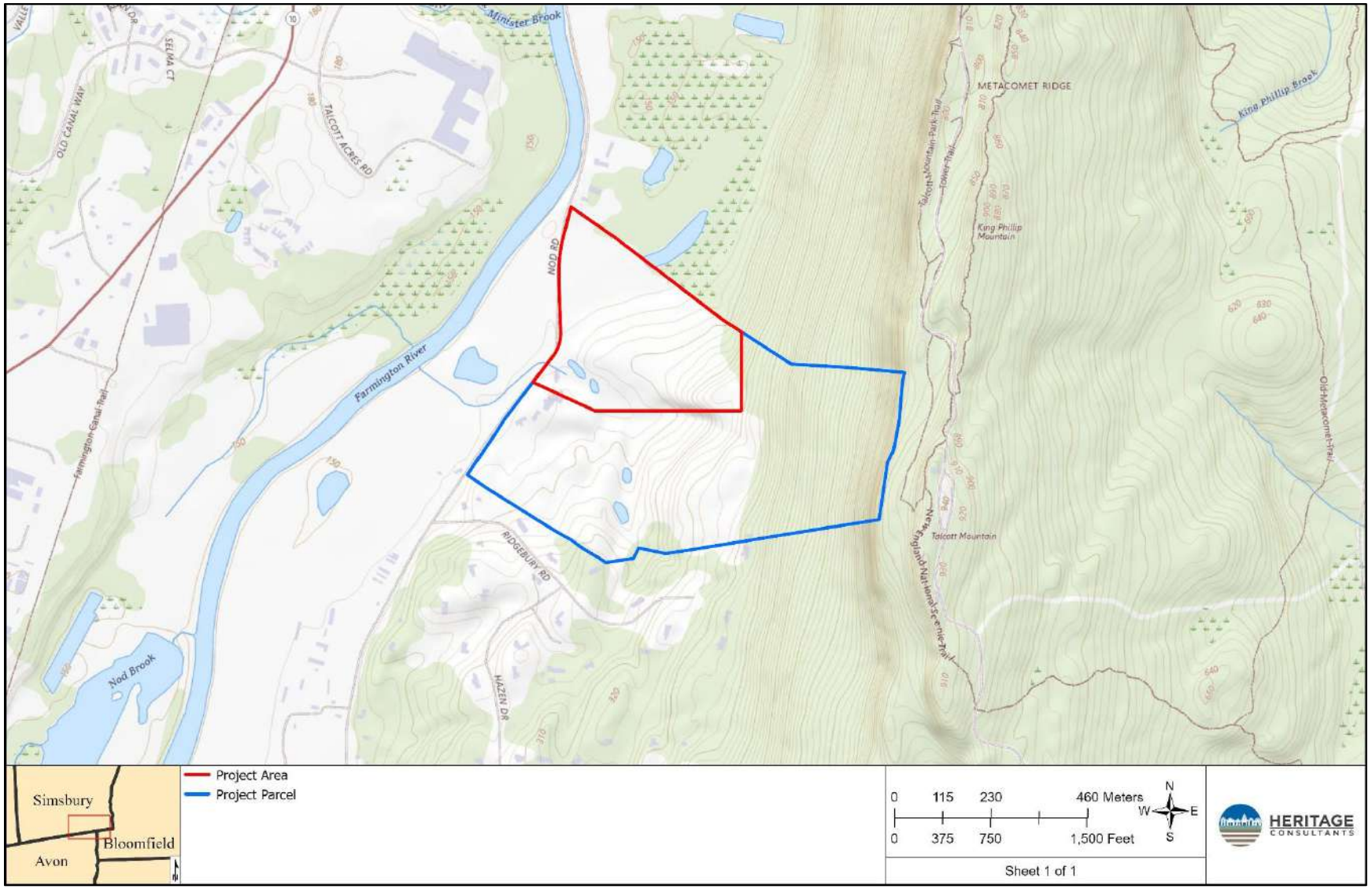

Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the Project parcel in Simsbury, Connecticut.

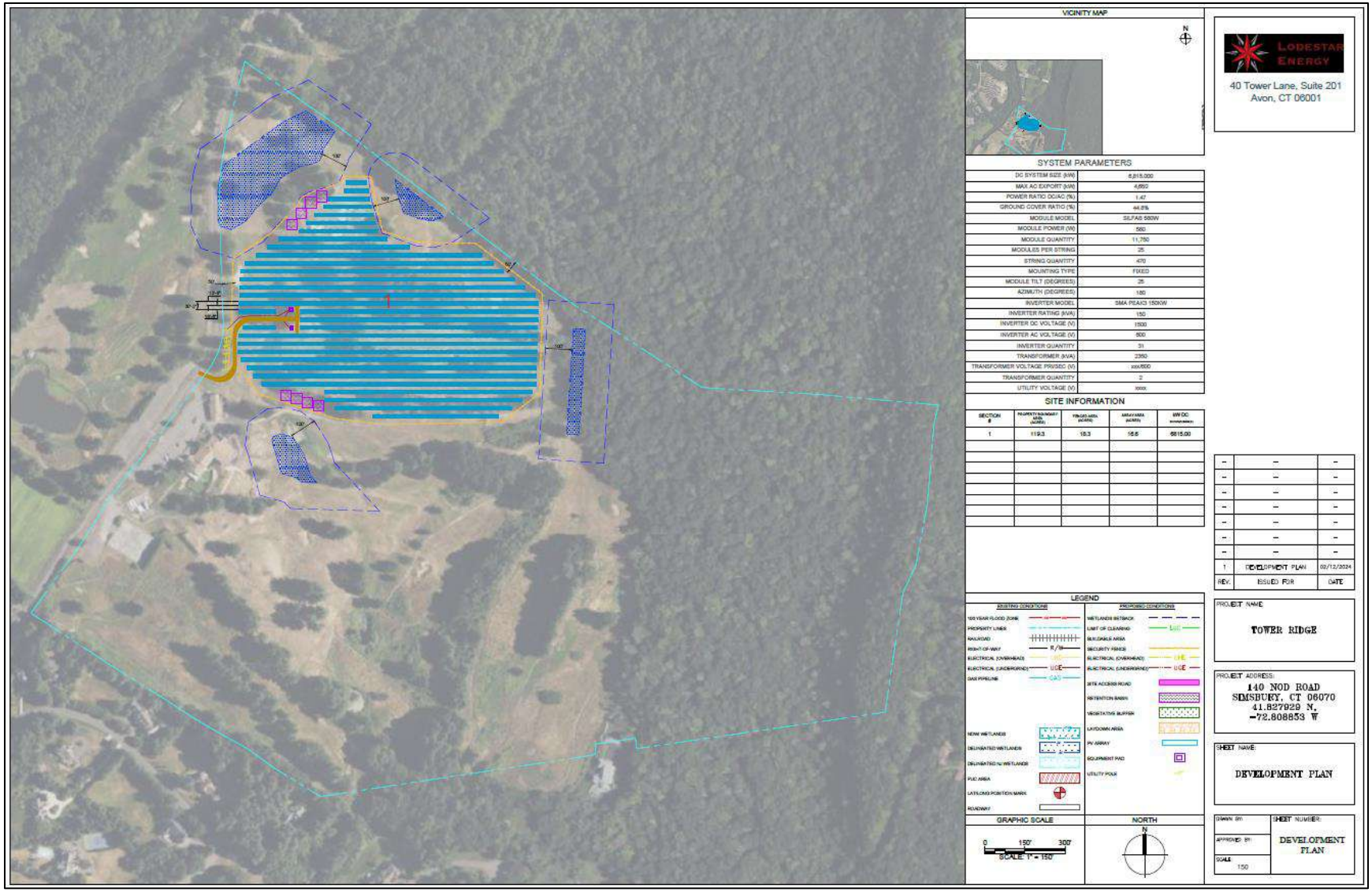

Figure 2. Digital map depicting the client's plans for the Project parcel in Simsbury, Connecticut.

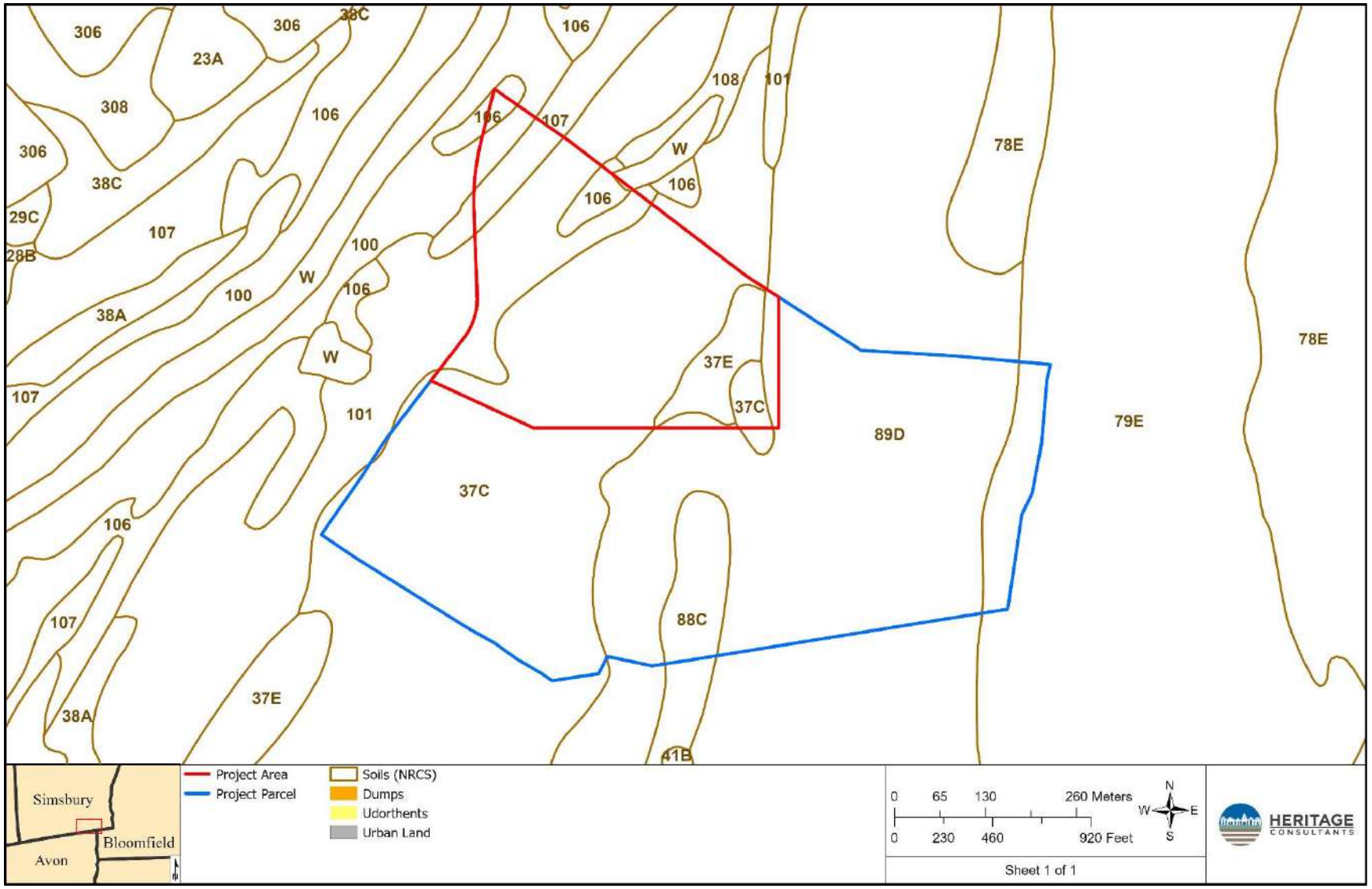

Figure 3. Digital map depicting the soil types present in the vicinity of the Project parcel in Simsbury, Connecticut.

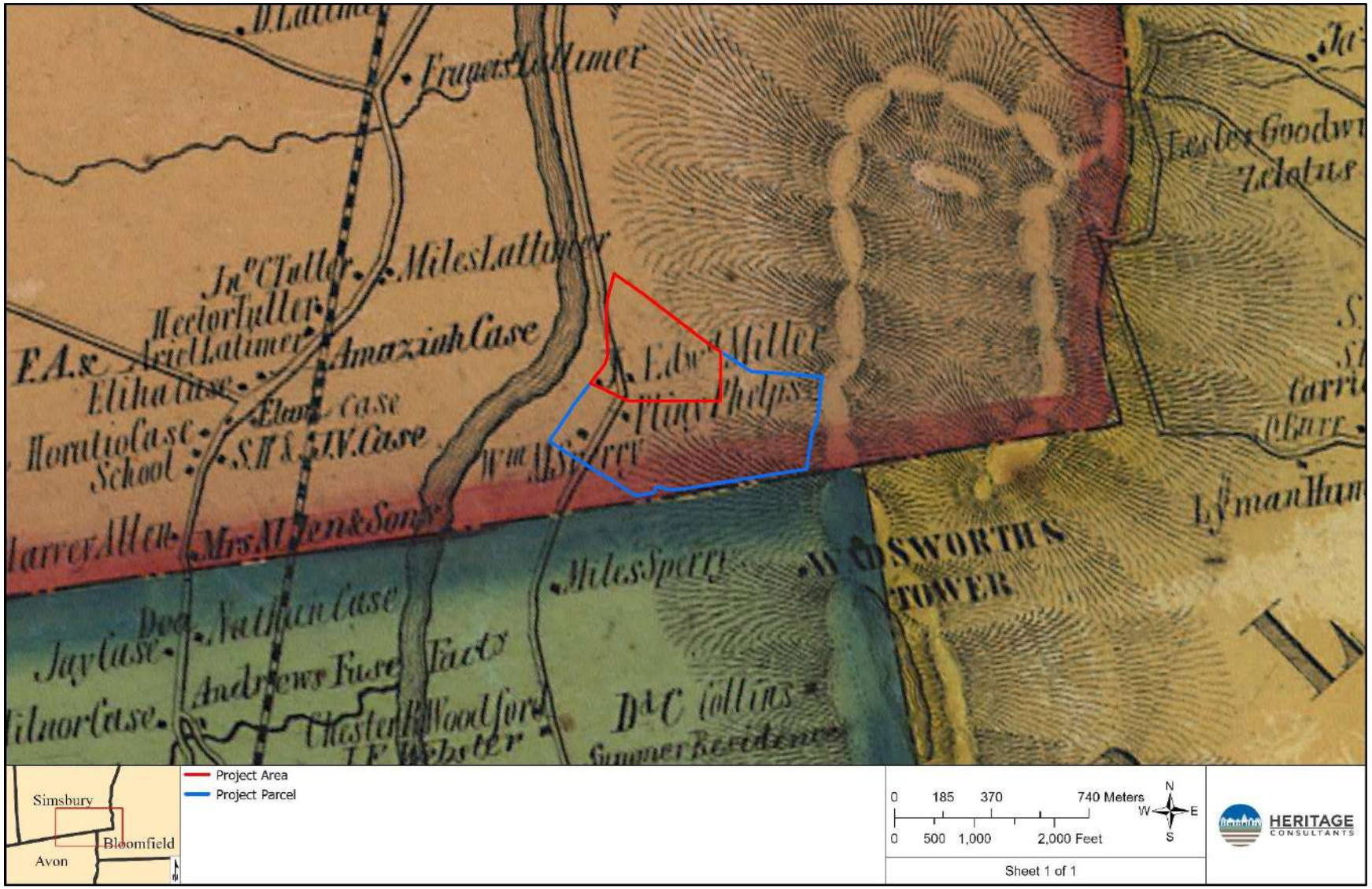

Figure 4. Excerpt from an 1855 map showing the location of the Project parcel in Simsbury, Connecticut.

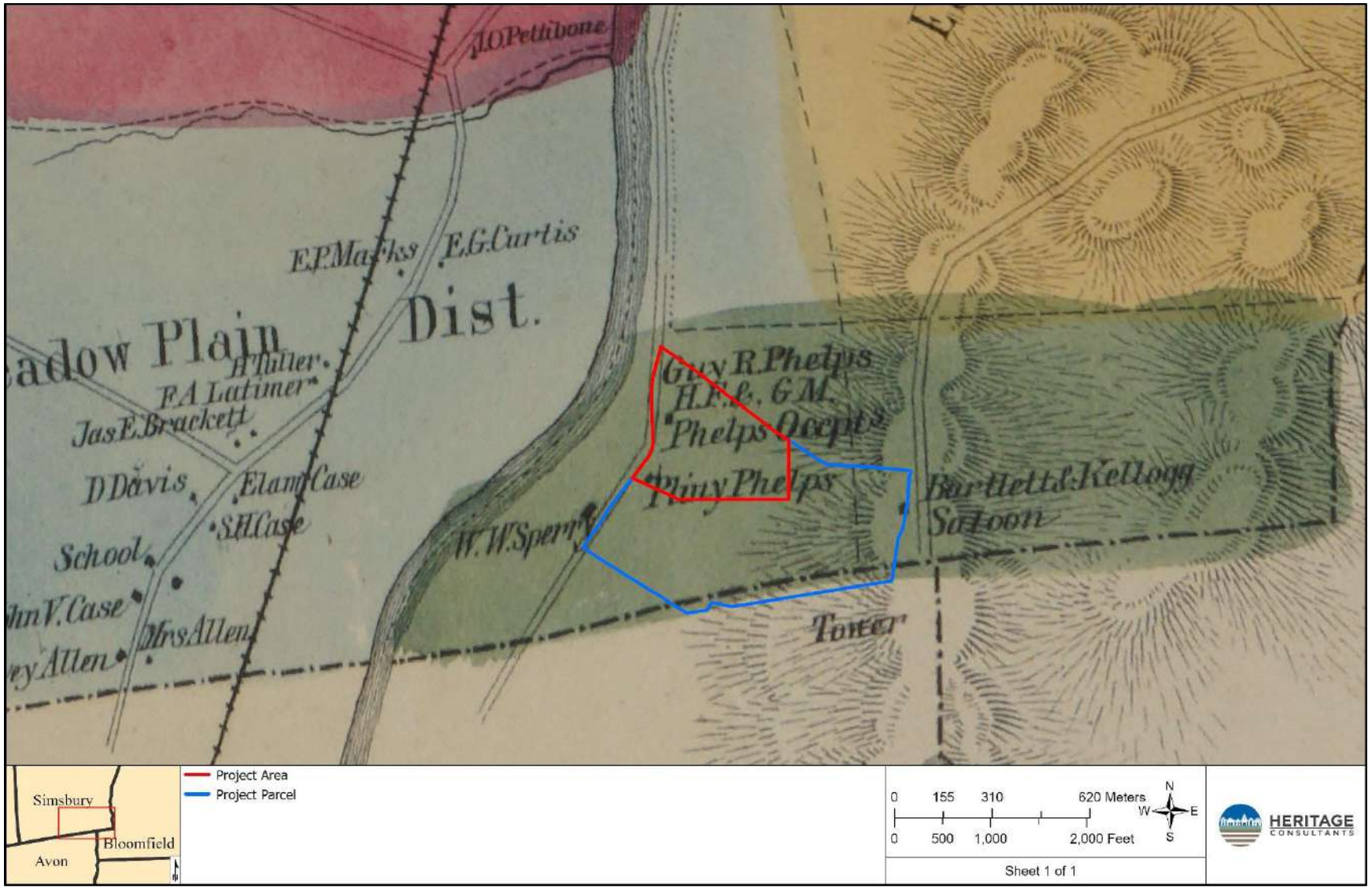

Figure 5. Excerpt from an 1869 map showing the location of the Project parcel in Simsbury, Connecticut.

Figure 6. Excerpt from a 1934 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

Figure 7. Excerpt from a 1941 aerial photography showing the location of the Project parcel in Simsbury, Connecticut.

Figure 8. Excerpt from a 1957 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

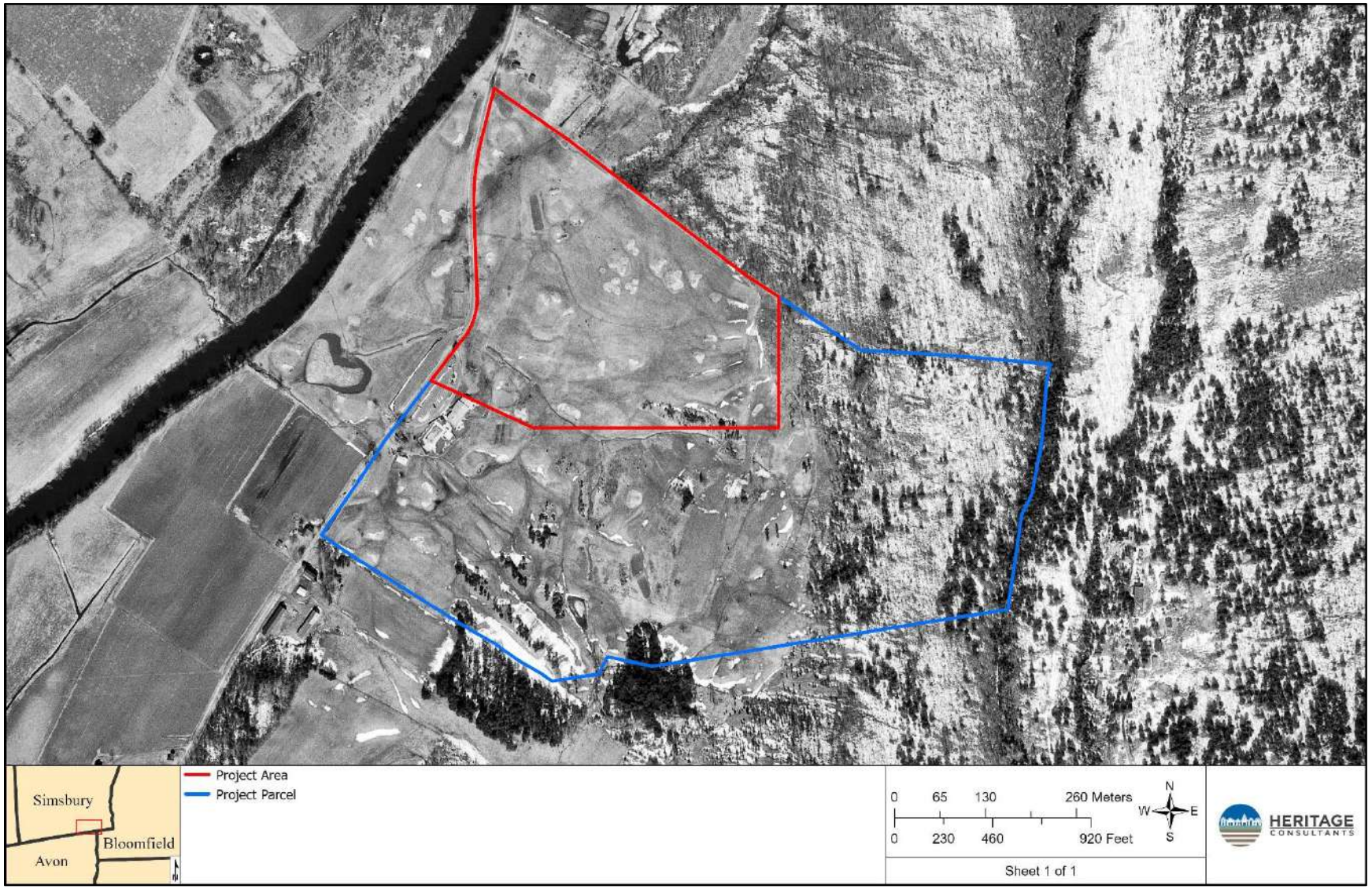

Figure 9. Excerpt from a 1962 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

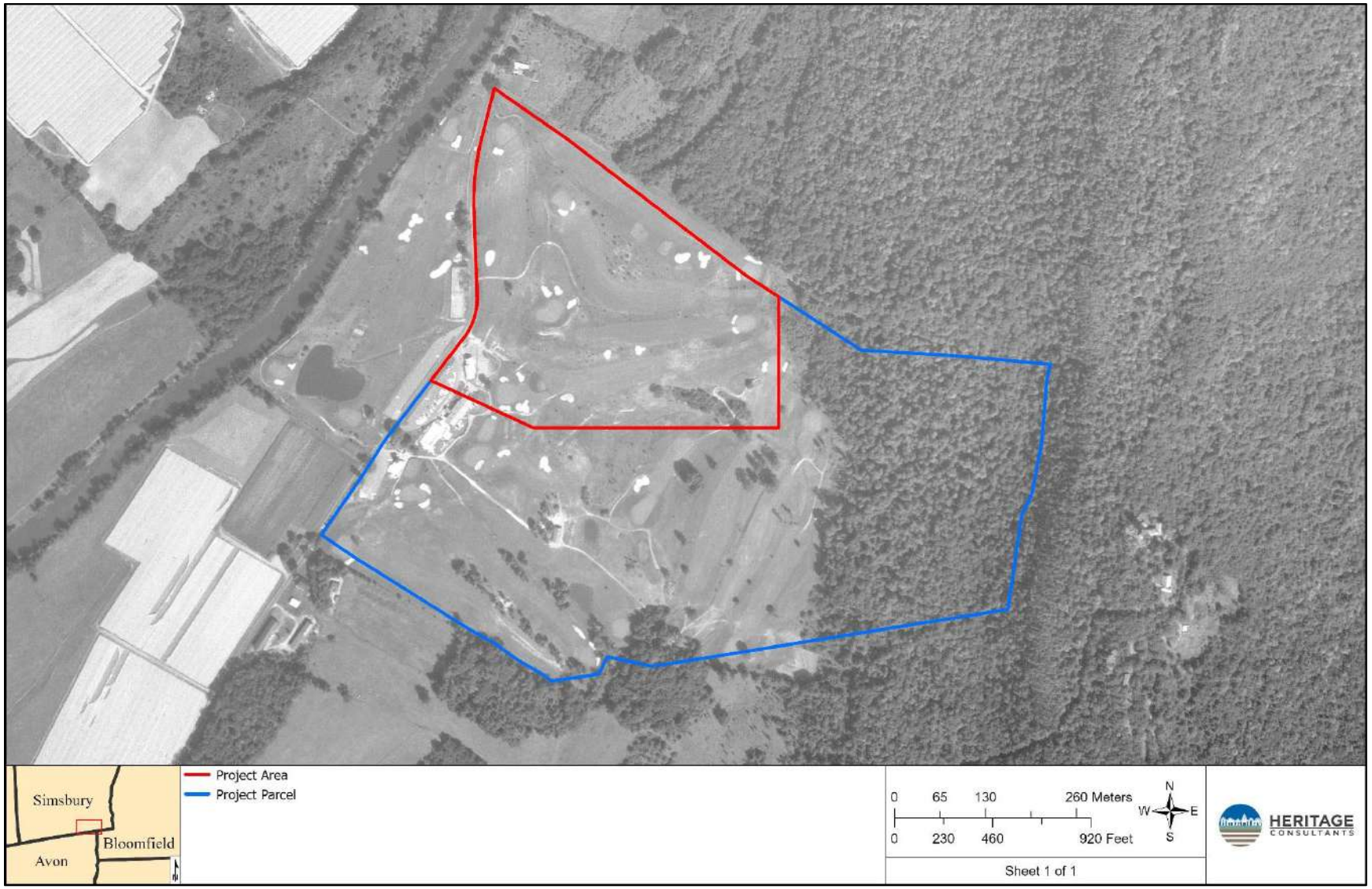

Figure 10. Excerpt from a 1967 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

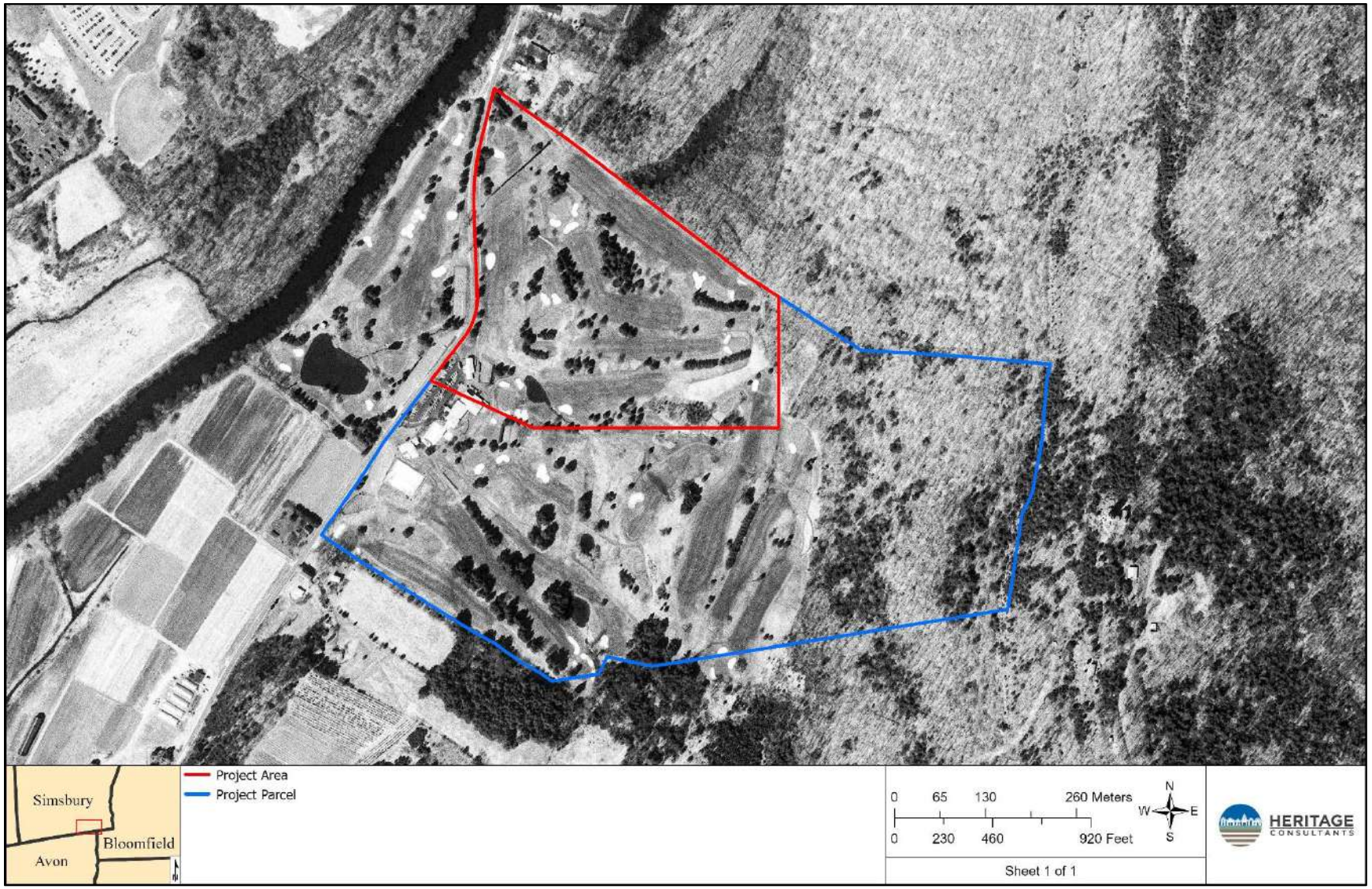

Figure 11. Excerpt from a 1991 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

Figure 12. Excerpt from a 2023 aerial photograph showing the location of the Project parcel in Simsbury, Connecticut.

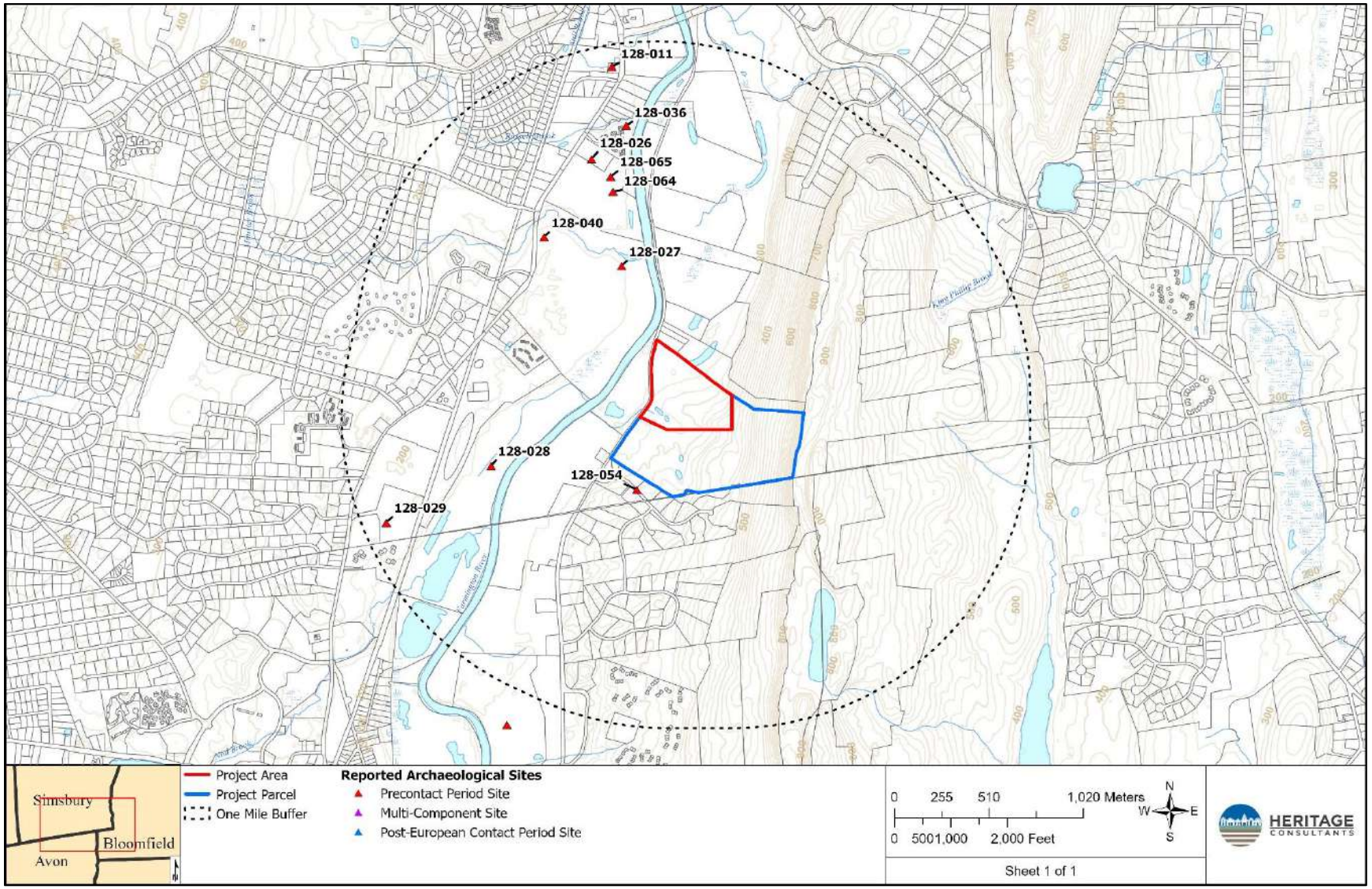

Figure 13. Digital map depicting the locations of previously identified archaeological sites within the vicinity (1 mi [1.6 km]) of the Project area in Simsbury, Connecticut.

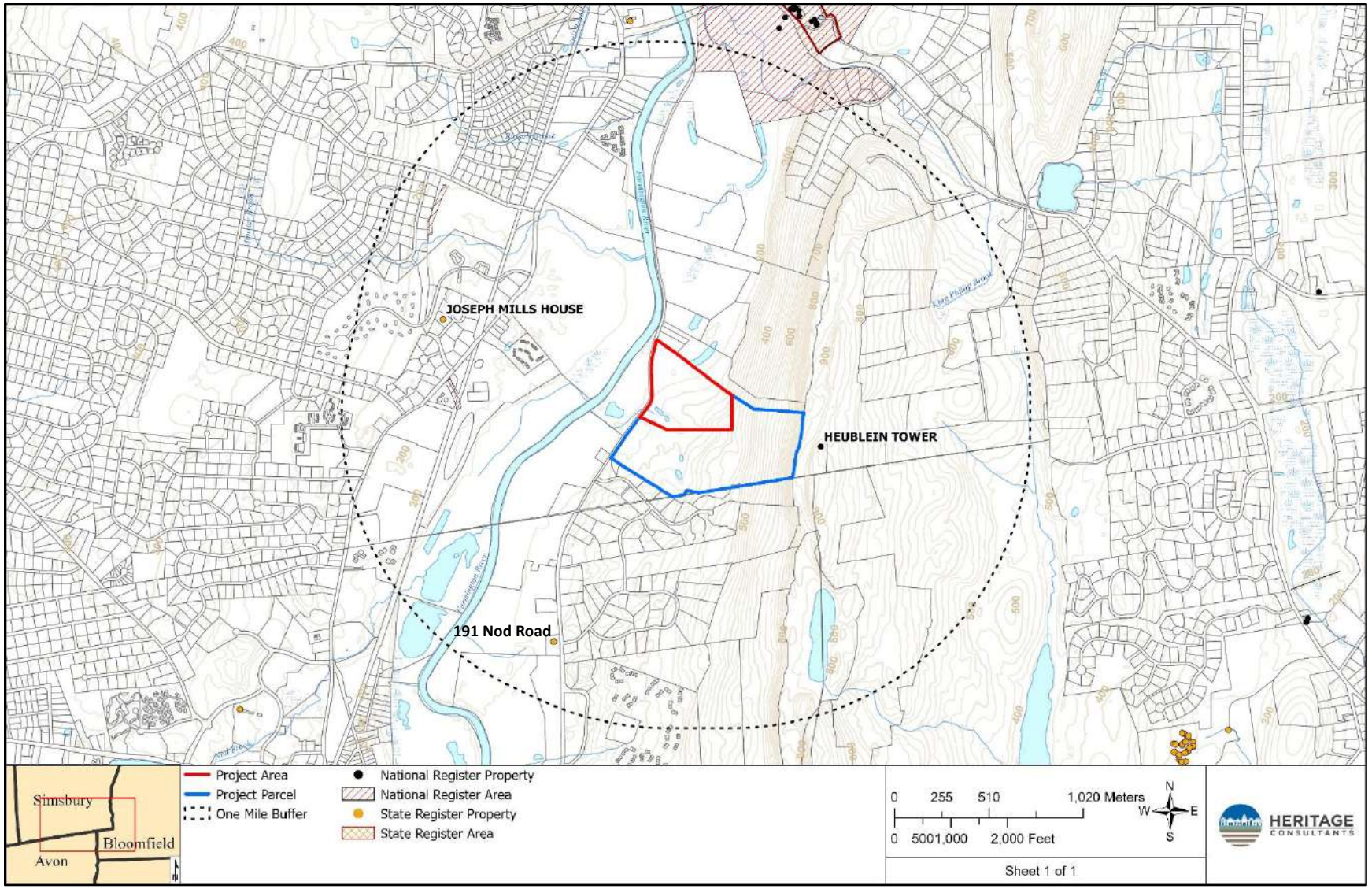

Figure 14. Digital map depicting the locations of previously identified National/State Register of Historic Places districts/properties within the vicinity (1 mi [1.6 m]) of the Project area in Simsbury, Connecticut.

Figure 15. Digital map with shovel test locations and directional arrows of photo points taken for the solar Project in Simsbury, Connecticut.

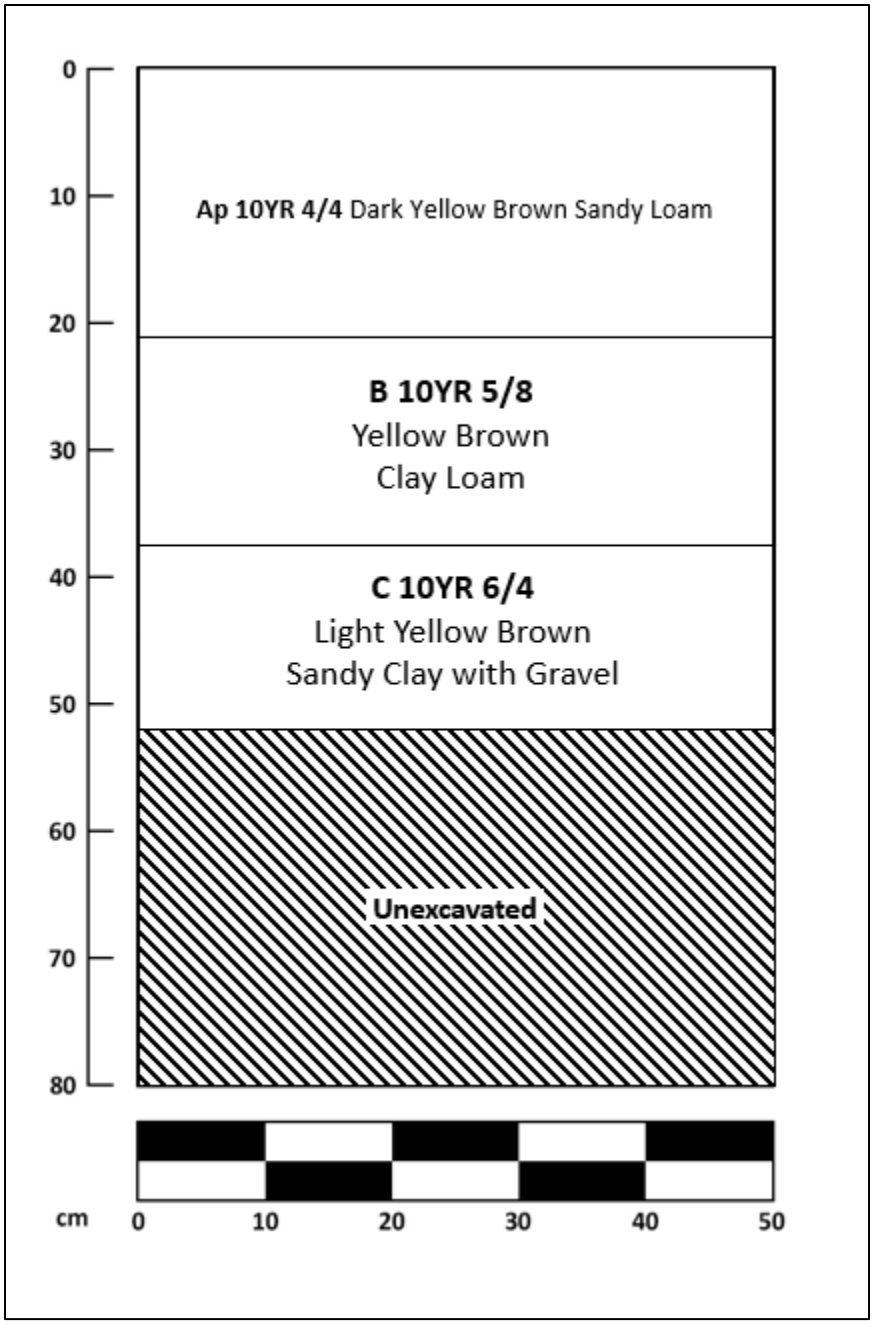

Figure 16. Digitized profile of the south wall from Transect 14 Shovel Test 6.

APPENDIX B

PHOTOS

Photo 1. Overview photo of western edge of Project area. Photo taken facing east.

Photo 2. Overview photo of southern edge of Project area. Photo taken facing north.

Photo 3. Overview photo of northern edge of Project area. Photo taken facing south.

Photo 4. Overview photo of the center of Project area. Photo taken facing west.

Photo 5. Overview photo of the center of Project area. Photo taken facing north.

Photo 6. Overview photo of the center of Project area. Photo taken facing east.

Photo 7. Overview photo of the center of Project area. Photo taken facing south.

Photo 8. Overview photo of southern edge of Project area. Photo taken facing north.

Photo 9. Overview photo of northern edge of Project area. Photo taken facing south.

Photo 10. Overview photo of southern edge of Project area. Photo taken facing north.

Photo 11. Overview photo of southern edge of Project area. Photo taken facing north.

Photo 12. Photo of soil profile shown in south wall of shovel test 6 of transect 14.

Photo 13. Photo of chalcedony angular debris recovered from Transect 14 Shovel Test 6 (Side A).

Photo 14. Photo of chalcedony angular debris recovered from Transect 14 Shovel Test 6 (Side B).

Photo 15. Photo of (from left to right) a transfer print whiteware rim sherd,three refitted yellow ware body sherds, two refitting pearlware body sherds, an indeterminate manufacture green bottle glass shard, and a machine cut nail.

Appendix E Federal Aviation Administration (FAA) Consultation

OE/AAA Pre-screening Results

Tue Jun 17 2025 10:30:08 GMT-0400 (Eastern Daylight Time)

Structure: Crane

Latitude	Longitude	Height	Site Elevation	AMSL
41° 49' 47.2" N	72° 48' 30.37" W	200	156	356

Based on the information you provided, you are not required to file notice with the FAA.

OE/AAA Pre-screening Results

Tue Jun 17 2025 10:23:42 GMT-0400 (Eastern Daylight Time)

Structure: Solar Panel

Latitude	Longitude	Height	Site Elevation	AMSL
41° 49' 40" N	72° 48' 18" W	15	245	260
41° 49' 41.14" N	72° 48' 30.87" W	15	178	193
41° 49' 47.20" N	72° 48' 30.37" W	15	156	171
41° 49' 47.58" N	72° 48' 24.15" W	15	156	171

Based on the information you provided, you are not required to file notice with the FAA.

Appendix F Carbon Debt Analysis

Memorandum

To: Sam Valone
Project Manager
Lodestar Energy

Date: November 12, 2025

Project #: 43593.00

From: Steven J. Kochis, PE
Thomas M. D'Aguiar, PE

Re: 140 Nod Road – LSE Lynx Solar
Simsbury, CT
Carbon Debt Analysis

VHB provided services to LSE Lynx LLC that included performing a carbon debt analysis of the proposed LSE Lynx installation, a ±4.65 MW AC solar farm in Simsbury, Connecticut (the Project). The purpose of this analysis was to determine when the Project will have a net improvement in greenhouse gas (GHG) emissions compared to the loss/conversion of ±19 acres of non-forested land (pre-existing condition) to either gravel/compacted roads or warm season grasses, required to construct and operate the Project. This analysis also accounted for the emissions associated with upstream activities of the solar photovoltaic (PV) system.

Methods

In this analysis VHB used the U.S. Environmental Protection Agency (U.S. EPA) conversion factors to identify the amount of carbon sequestered in one year by one acre of average U.S. forest: 0.77 metric tons (MT) CO_2 and the carbon stock in one acre of average U.S. forest: 85 MT CO_2.[1] The Project anticipates approximately 2.5 acres of tree clearing as part of the development. There is no cropland conversion in the Project.

To calculate GHG emissions associated with upstream activities of the Project's system components, this analysis utilized a study from the National Renewable Energy Laboratory (NREL) that estimated total life cycle emissions of solar PV systems to be approximately 40 g CO_2eq/kWh, and that upstream activities account for up to 70 percent of these emissions (28 g CO_2eq/kWh).[2] Upstream activities of solar PV systems include:

- Raw materials extraction;
- Materials production;
- Module manufacture;
- System/plant component manufacture; and
- Installation/plant construction.

Estimated emissions generated, avoided, or sequestered were extended over a 30-year period – the assumed lifetime of the Project. This period is consistent with the NREL study on the life-cycle of solar PV systems.

---

[1] U.S. EPA. (2024). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved 29 October 2025, from https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

[2] NREL. (2013). *Life Cycle Greenhouse Gas Emissions from Solar Photovoltaics.* Retrieved 29 October 2025, from https://www.nrel.gov/docs/fy13osti/56487.pdf

100 Great Meadow Road
Suite 200
Wethersfield, CT 06109-2377
P 860.807.4300

Findings

The carbon debt of the Project is estimated to be 7,114 MT CO_2eq over a period of 30 years. This figure includes:

- Tree removal (30-year sequestration loss): 58 MT CO_2;
- Tree removal (one-time release of carbon stock): 213 MT CO_2; and
- Upstream activities of solar PV system: 6,843 MT CO_2eq.

The Project is expected to produce 8,146 MWh of energy in its first year of operation. Using emission factors provided by the U.S. EPA specific to the Project's eGrid region (NPCC New England),[3] the estimated annual emissions avoided by the Project is anticipated to be 3,286 MT CO_2eq. The attachment provides GHG emissions equivalencies for this estimate. For example, the Project's estimated annual emissions avoidance is equivalent to GHG emissions from 766 gasoline-powered passenger vehicles driven for one year or CO_2 emissions from 441 homes' energy use for one year.[4]

Anticipating a carbon debt of 7,114 MT CO_2eq and annual PV production benefits of 3,286 MT CO_2eq, it would take the Project 2.16 years (or nearly 26 months) to have a net improvement with respect to GHG emissions.

[3] U.S. EPA. (2025). eGrid Data Explorer. Retrieved 29 October 2025, from https://www.epa.gov/egrid/data-explorer
[4] U.S. EPA. (2024). Greenhouse Gas Equivalencies Calculator. Retrieved 29 October 2025, from https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

3,286 Metric Tons **of Carbon Dioxide (CO_2) equivalent**

This is equivalent to greenhouse gas emissions from:

766 **gasoline-powered passenger vehicles driven for one year**

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#vehicles>

2,902 **electric-powered passenger vehicles driven for one year**

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#electricvehicles>

8,367,995 **miles driven by an average gasoline-powered passenger vehicle**

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#miles>

This is equivalent to CO_2 emissions from:

369,754 **gallons of gasoline consumed**

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#gasoline>

322,790 **gallons of diesel consumed** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#diesel>

3,650,138 **pounds of coal burned** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#lbscoal>

43.5 **tanker trucks' worth of gasoline** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#tankers>

441 **homes' energy use for one year** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#houseenergy>

685 **homes' electricity use for one year** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#houseelec>

18.2 **railcars' worth of coal burned** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#railcars>

7,608 **barrels of oil consumed** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#oil>

150,956 **propane cylinders used for home barbeques** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#propane>

0.0009 **coal-fired power plants in one year** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#coalplant>

0.009 **natural gas-fired power plants in one year** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#gasplant>

265,662,497 **number of smartphones charged** <https://epa.gov/energy/greenhouse-gases-equivalencies-

calculator-calculations-and-references#smartphones>

This is equivalent to greenhouse gas emissions avoided by:

1,161 **tons of waste recycled instead of landfilled** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#recycle>

166 **garbage trucks of waste recycled instead of landfilled** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#gtrucks>

279,331 **trash bags of waste recycled instead of landfilled** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#trash>

0.981 **wind turbines running for a year** <https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#wind>

This is equivalent to carbon sequestered by:

54,334 **tree seedlings grown for 10 years**

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#seedlings>

label // // //

3,296 acres of U.S. forests in one year

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#pineforests>

19.6 acres of U.S. forests preserved from conversion to cropland in one year

<https://epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#deforestation>

Appendix G NDDB Consultation

March 6, 2025

Steve Kochis
VHB, Inc.
100 Great Meadows Road
Wethersfield, CT 06109
skochis@vhb.com

Project: LSE Lynx Simsbury Solar 140 Nod Road in Simsbury, Connecticut
NDDB Portal Filing No.: 122445
NDDB Final Determination No.: 202412395
Expiration Date: March 6, 2027

Dear Steve Kochis,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding this project. According to our records, there are Federal and State-listed species (RCSA Sec. 26-306) documented nearby the proposed project area.

Protection for State Listed Reptiles and Amphibians

Northern Leopard Frog (*Rana pipiens*) – State Special Concern
The state species of special concern, Northern leopard frog (*Rana pipiens*) is found in open, grassy habitats either along the floodplain of a large stream or river, or in wetlands around the margins of large lakes. This species is dormant from November 1st to April 1st, and it is recommended that work be done around the wetlands during the dormant period to avoid impacting this species.

Blue-spotted salamander "complex" (*Ambystoma laterale*) – State Special Concern
The blue-spotted salamander "complex" results in the hybridization of the blue-spotted salamander with the Jefferson salamander. The hybrids can only be reliably distinguished by karyological and biochemical analyses. Blue-spotted salamanders are associated with riparian red maple swamps. They breed in March and April and may be found on the road surface on wet rainy nights. They favor grassy, flood plain wetlands for breeding.

Eastern Ribbon Snake (*Thamnophis sauritus*) – State Special Concern
The state special concern eastern ribbon snake inhabits areas with shallow water, grassy or shrubby areas bordering streams and wooded swamps. They also prefer sunny areas with low dense vegetation near shallow water areas. Their diet consists of insects, fish, frogs, salamanders and toads. They are most often encountered in high quality wetlands and riparian areas. They are sensitive to habitat degradation and conservation practices to protect this snake include the protection of high-quality wetlands by leaving buffers around wet meadows or wetlands and working when they are less active during the fall and winter months.

Spotted Turtle (*Clemmys guttata*) – State Special Concern
Individuals of this species are associated with wetlands and vernal pools. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1st - March 15th . They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.

Wood turtle (*Glyptemys insculpta*) – State Special Concern
Wood turtles require riparian habitats bordered by floodplain, woodland or meadows. They hibernate in the banks of the river in submerged tree roots. Their summer habitat includes pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. This species has been negatively impacted by the loss of suitable habitat.

Eastern Box Turtle (*Terrapene c. carolina*) – State Special Concern
Eastern box turtles inhabit old fields and deciduous forests, which can include power lines and logged woodlands. They are often found near small streams and ponds. The adults are completely terrestrial but the young may be semiaquatic and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. Eastern box turtles have been negatively impacted by the loss of suitable habitat. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated. Reducing the frequency that motorized vehicles enter box turtle habit**a**t would be beneficial in minimizing direct mortality of adults.

Recommended Protection Strategies for Turtles:

Work should occur when these turtles are active (April 1st to October 30th). Conducting land clearing while the turtle is active will allow the animal to move out of harm's way and minimize mortality to hibernating individuals. I recommend the additional following protection strategies in order to protect these turtles:

- Hiring a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and to prevent turtles from being run over when moving heavy equipment. This is especially important in the month of June when turtles are selecting nesting sites.
- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- The Contractor and consulting herpetologist must search the work area each morning prior to any work being done.
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- Avoid and limit any equipment use within 100 feet of streams and brooks.

- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

Female turtles looking for nesting habitat are frequently killed by vehicles when crossing roads. These turtles of reproductive age are the most valuable individuals in the population to maintain population persistence.

- Culverts/Crossings: Should be avoided. When necessary, it is critical that the culvert or bridge allow turtles to pass underneath (i.e. it is not perched) and the road surface and side slope will not mimic sandy nesting areas for females.

- High traffic road surfaces and high traffic facilities (>100 vehicle/lane/day, 5-10 cars per hour) should use curbs and fencing to deflect animals off into wildlife underpasses or around high traffic areas.
- Low traffic road surfaces should (rate) should use Cape Cod-style curbing or no curb alternatives to allow animals to crossroad unimpeded.
- Do not use road surfaces and side slopes that will mimic sandy nesting areas for females.

Recommended Protection Strategies for Ribbon Snake and Amphibians:

Maintaining and restoring healthy wetlands and undisturbed 100-foot vegetative buffers will benefit the eastern ribbon snake, northern leopard frog and blue-spotted salamander "complex" from project impacts Maintaining the landscape connectivity between wetlands (vernal pools, wet meadows, floodplains) and undisturbed wetlands will create resilient populations. Do not change water quality, turbidity, temperature, or chemistry of wetland complexes on the project site.

Protection for State Listed Bat Species

Red bat (*Lasiurus borealis*) - State Special Concern
Red bats are a migratory "tree bat" species that is found throughout Connecticut between April- October in a variety of forested habitats. They roost out in the foliage of deciduous and coniferous trees, camouflaged as dead leaves or cones. Red bats are primarily solitary roosters. They can be found roosting and feeding around forest edges and clearings. Typically, larger diameter trees (12-inch DBH and larger) are more valuable to these bats. Additionally, trees with loose, rough bark such as maples, hickories, and oaks are more desirable than other tree species due to the increased cover that the loose bark provides. Large trees with cavities are also utilized by this species.

Hoary Bat (*Lasiurus cinereus*) – State Special Concern
Hoary bats are found in Connecticut during the spring and summer seasons and migrate south to overwinter. They prefer to roost in large diameter coniferous and deciduous trees. They forage in openings and around water.

Silver-haired Bat (*Lasionycteris noctivagans*) -State Special Concern
Silver-haired bats used to be among the most common bats in forested areas of America, most closely associated with coniferous or mixed coniferous and deciduous forest types. They form maternity colonies almost exclusively in tree cavities or small hollows. And like many forest-roosting bats, silver-haired bats will switch roosts throughout the maternity season. The one or two young are born in June and July. Small maternity colonies may form in hollow trees and abandoned bird nests. Silver-haired bats prefer temperate, northern hardwoods with ponds or streams nearby. The typical day roost for the bat is behind loose tree bark. Silver-haired bats appear to be particularly fond of willow, maple and ash trees (most likely due to the deeply fissured bark). Hollow snags and bird nests also provide daytime roosting areas for silver-haired bats. Less common daytime roosts include buildings, such as open sheds and garages; however, due to their solitary nature and adaptation to woodland roosts, these bats rarely invade buildings in large enough numbers to cause alarm. During the winter months, silver-haired bats that hibernate find shelter in northern areas inside trees, buildings, rock crevices, and similar protected structures.

Tree Roosting Bat Protection Recommendations:
Typically, larger diameter trees (12-inch DBH and larger) are more valuable to these bats. Additionally, trees with loose, rough bark such as maples, hickories, and oaks are more desirable than other tree species due to the increased cover that the loose bark provides. Large trees with cavities are also utilized by this species.

To reduce impacts to these tree roosting bats:
- ✓ Retain the above-mentioned trees, wherever possible.
- ✓ Long-term impacts can be minimized by retaining large diameter coniferous and deciduous trees, whenever possible. Establishing this sort of wooded buffer adjacent to the wetland area, will helpmaintain potential roosting habitat.

- ✓ Leave Dead and Dying Trees Standing**.** Like most eastern bats, the northern long-eared bat roosts intrees during summer. Where possible and not a safety hazard, leave dead or dying trees on the property. Northern long-eared bats and many other animals use these trees.
- ✓ Install a Bat Box if possible. Bat houses installed in the area where trees will be removed will help in the conservation of bats. Dead and dying trees are usually not left standing, so trees suitable for roostingmay be in short supply and bat houses or boxes may provide additional roost sites.

Do not remove trees greater than 3" DBH between May 1st and September 1st. This time-of -year restriction is to provide adequate time for the female to raise her young after giving birth.

Protection for Federal and State Listed Freshwater Mussels

Dwarf wedgemussel (*Alasmidonta heterodon*)- State Endangered, Federally Endangered
This freshwater mussel occurs in streams and rivers, where it prefers stable substrates in slow or moderate currents. In slow moving, sandy rivers it is often found near the banks among roots. Host fish include tessellated darter (*Etheostoma olmstedi*), slimy sculpin (*Cottus cognatus*), Atlantic salmon [parr] (*Salmo salar*), striped bass (*Morone saxatilis*), and banded killifish (*Fundulus diaphanus*).

Eastern pond mussel (*Ligumia nasuta*)- State Special Concern
This freshwater mussel inhabits a wide variety of habitats including small to large rivers and lakes in a variety of substrates, depths, and flow conditions.

Eastern pearlshell (*Margaritifera margaritifera*)- State Special Concern
This freshwater mussel species lives buried in clean, stable, mixed substrate in fast-flowing unpolluted streams and rivers. Its host fish include Atlantic salmon (*Salmo salar*), brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), rainbow trout (*Onchorhynchus mykiss*). Best habitats are good trout streams that are heavily shaded by a riparian canopy, possess clean cold water with high dissolved oxygen, and have stable channels with substrates of coarse sand, gravel, and cobble. Factors that limit the eastern pearlshell are changes to water quality, including eutrophication, acidification, sedimentation, and increases in water temperature.

The Farmington River has the greatest diversity of freshwater mussels of any river in Connecticut.
Freshwater mussels are aquatic animals that play an important role in our environment. These sedentary organisms live in sediments on the bottom of streams and rivers and provide a service to all by filtering water and removing bacteria and phytoplankton. It is because they are filter-feeding animals that they are very susceptible to sediments and pollutants in the water in which they live. The greatest diversity of freshwater mussels in the world is found in Eastern North America. Freshwater mussels are one of the most endangered groups of animals with almost three-quarters of the native mussels in North America imperiled. The disappearance of freshwater mussels is a reliable indicator of chronic water pollution.
The following considerations will help protect and benefit these species.

- ✓ Adhere strictly to water quality standards at your project site.
- ✓ Pay special attention and address specific monitoring targets for sediment, water temperature, copper,and ammonia (TAN).
- ✓ No vegetation should be removed from the 100ft buffer of waterways.
- ✓ Turf grass and impervious surface should be minimized in the surrounding watershed.
- ✓ Reconnect waterways that are disconnected by perched, undersized, or shallow stream culverts.
- ✓ Ensure precautions are taken to avoid direct kill or habitat loss for freshwater mussels during construction including stream restoration activities for fish.
- ✓ Employ precautions to prevent the introduction and spread of invasive plants and bivalves.

Additionally, because the Farmington River is such an important resource for freshwater mussels, you should incorporate education programs and best management practices for Low Impact Development to minimize nonpoint pollution from your development. More information can be found here:
https://www.ct.gov/deep/cwp/view.asp?a=2719&q=464958&deepNav_GID=1654

Your stormwater discharge plan should include reference to the following Water quality targets for waterways.
Turbidity:
Turbidity should not increase 8 NTU over background levels
Suspended sediments:
Maximum induced suspended sediments in any 24-hr. period should be less than 25mg/L over background levels
Induced suspended sediments averaged over 30-day period should be less than 5mg/L over background levels
Water temperature
Water temperature should not increase 1° C (~1.8°F)
Ammonia
Acute 1-hour average TAN should remain below 17mg/L (at pH 7, 20°C)
Chronic 30 day rolling average TAN should remain below 1.9mg/L (at pH 7, 20°C)
Herbicides:
Copper containing products are toxic to freshwater mussels and snails. Ensure that no copper reaches waterways that serve as habitat for these animals.

If any tree cutting or tree removal will encroach within the 300-ft buffer of the Farmington River, you will need to resubmit your plans for additional Federal Endangered species review for the Dwarf wedge mussel.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Appendix H Noise Study

Nod Road Solar Project

Simsbury, Connecticut

PREPARED FOR

LSE Lynx LLC
18 North Main Street
2nd Floor
West Hartford, CT 06107

PREPARED BY

260 Arsenal Place #2
Watertown, MA 02472
617.924.1770

November 20, 2025

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1

Introduction

The purpose of this acoustical study is to evaluate the potential noise impacts associated with the operation of the proposed LSE Lynx LLC, Nod Road Solar Project (the Project) located at 140 Nod Road in Simsbury, Connecticut. This acoustical assessment evaluated the potential sound levels generated by the mechanical equipment, including inverters and transformers, that will be part of the Project. The acoustical assessment was based on the site plans titled "Nod Road Solar Project," dated November 20, 2025, prepared by VHB. The sound levels were compared to the Connecticut Department of Energy and Environmental Protection's (CT DEEP) noise control regulations (Regulations of Connecticut State Agencies (RCSA), Title 22a, Section 22a-69-1 to 22a-69-7.

Project Description

The proposed Project consists of the development of a 4.65-Megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) facility located on 19 acres on Nod Road in Simsbury, Connecticut (the Project). The Project Site shall be considered a parcel of land of approximately 119 acres (M/B/L G18/110/003).

Fundamentals of Noise

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, communication, work, or recreation. How people perceive sound depends on several measurable physical characteristics, which include the following:

- **Intensity** – Sound intensity is often equated to loudness.
- **Frequency** – Sounds are comprised of acoustic energy distributed over a variety of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically measured in Hertz. Pure tones have all their energy concentrated in a narrow frequency range.

Sound levels are most often measured on a logarithmic scale of decibels (dB). The decibel scale compresses the audible acoustic pressure levels which can vary from the threshold of hearing (zero dB) to the threshold of pain (120 dB). Because sound levels are measured in dB, the addition of two sound levels is not linear. Adding two equal sound levels creates a 3 dB increase in the overall level. Research indicates the following general relationships between changes in sound level and human perception:

- A 3 dB increase is a doubling of acoustic energy and is the threshold of perceptibility to the average person.
- A 10 dB increase is a tenfold increase in acoustic energy but is perceived as a doubling in loudness to the average person.

The human ear does not perceive sound levels from each frequency as equally loud. To compensate for this phenomenon in perception, a frequency filter known as A-weighting (dBA) is used to evaluate environmental noise levels. **Table 1** presents a list of common outdoor and indoor A-weighted sound levels.

Table 1. Common Outdoor and Indoor A-weighted Sound Levels

Outdoor Sound Levels	Sound Pressure (μPa)*		Sound Level dB(A)**	Indoor Sound Levels
	6,324,555	-	110	Rock Band at 5 m
Jet Over Flight at 300 m		-	105	
	2,000,000	-	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		-	95	
	632,456	-	90	Food Blender at 1 m
Diesel Truck at 15 m		-	85	
Noisy Urban Area—Daytime	200,000	-	80	Garbage Disposal at 1 m
		-	75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	-	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		-	65	Normal Speech at 1 m
	20,000	-	60	
Quiet Urban Area—Daytime		-	55	Quiet Conversation at 1 m
	6,325	-	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		-	45	
	2,000	-	40	Empty Theater or Library
Quiet Suburb—Nighttime		-	35	
	632	-	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		-	25	Empty Concert Hall
Rustling Leaves	200	-	20	
		-	15	Broadcast and Recording Studios
	63	-	10	
		-	5	
Reference Pressure Level	20	-	0	Threshold of Hearing

Source: Highway Noise Fundamentals. Federal Highway Administration, September 1980.

* mPA – MicroPascals, which describe pressure. The pressure level is what sound level monitors measure.

** dB(A) – A-weighted decibels, which describe sound pressure logarithmically with respect to 20 mPa (the reference pressure level).

A variety of sound level indicators can be used for environmental noise analysis. These indicators describe the variations in intensity and sequential pattern of the sound levels. The indicators used in this analysis are defined as follows:

- Leq is the equivalent continuous A-weighted sound level, which is the value or level of a steady, non-fluctuating sound with the same acoustic energy as the actual time-varying sound levels over a given time interval.
- L10 is the A-weighted sound level, which is exceeded for 10 percent of the time over a given time interval.
- L90 is the A-weighted sound level, which is exceeded for 90 percent of the time over a given time interval. The L90 is generally considered to be the background sound level.

Noise Impact Criteria

The CT DEEP has developed noise impact criteria that establish sound level thresholds considered to avoid excessive noise from new developments. The acoustic analysis for the Project used these criteria to evaluate whether the Project will generate sound levels that result in excessive noise impacts.

CT DEEP's noise control regulations identify the limits of sound that can be emitted from specific premises and what activities are exempt. The noise control regulations (Title 22a, §§ 22a-69-1 to 22a 69-7) are contained in the Regulation of Connecticut State Agencies (RCSA). The proposed Project is considered a Class C (Industrial) Emitter by the CT DEEP. Nearby residences are Class A (Residential) Receptors. The land use in Class A noise zone is characterized as generally residential where human beings sleep, or areas where serenity and tranquility are essential to the intended use of the land.

The CT DEEP policy states that a source (Emitter) located in the various zones shall not emit noise exceeding the levels stated in **Table 2** at the adjacent noise zones.

Table 2. Noise Zone Standards (dBA)

	Receptor Noise Zone			
Emitter Zone	**Class A (Daytime)**	**Class A (Nighttime)**	**Class B**	**Class C**
Class A (Residential)	55	45	55	62
Class B (Commercial)	55	45	62	62
Class C (Industrial)	61	51	66	70

Source: Control of Noise (Title 22a, Section 22a-69-1 to 22a-69-7.4), RCSA, Revised 2015-3-6.
Daytime refers to 7:00 AM to 10:00 PM
Nighttime refers to 10:00 PM to 7:00 AM

The CT DEEP noise regulation also includes criteria for the presence of a prominent discrete tone, in which the level in a given one-third octave band exceeds the levels in the adjacent one-third octave bands by a stated amount (Title 22a, §§ 22a-69-1.2(r)). The manufacturer's specifications for the proposed equipment did not provide one-third octave band sound levels. As such, a 5-dBA penalty was applied to the criteria to conservatively evaluate the potential for tonal noise from the facility.

The noise control regulations (Title 22a, §§ 22a-69-3.6) take into consideration projects that are to be located in areas with high existing background noise. For such areas, the noise emitted by the project sources is considered to be excessive, if the sources emit levels 5 dBA above the background noise level. It was assumed that existing sound levels in this area would not be above the CT DEEP criteria; as such, the sound levels in **Table 2**, with a 5 dBA penalty for tonal noise have been used for this project's criteria. The Town of Simsbury does not have a noise ordinance, therefore, the Project will be subject to CT DEEP's noise regulation and limited to 56 dBA daytime and 46 dBA nighttime sound level limits.

2

Acoustical Assessment

Methodology

This acoustical assessment evaluated the sound levels from the Project's proposed mechanical equipment. The Project's noise sources consist of 31 electrical inverters used to convert solar energy into usable electricity and two transformers. As the solar panels will be fixed tilt, no tracking motors will be included as part of the Project. Equipment locations are presented in **Figure 1**.

The Project-generated sound levels were calculated using manufacturer's sound data and the principles of acoustical propagation of sound over distance for each sensitive receptor location. The sources of operational noise associated with the proposed Project include:

- Thirty-one (31) SMA PEAK3 150 kW inverters; and
- Two (2) 2500 kVA Transformers.

The sound power level data for these pieces of equipment is provided in **Table 3**. The sound power level for the inverters was based on the manufacturer's specifications. The reference sound levels for the transformers are based on an empirical approach obtained from literature that relates the kVA-rating of an air-cooled transformer to its sound power level.[1] See **Attachment A** for manufacturer's specifications.

[1] Barron, Randall F., "Industrial Noise Control and Acoustics," Marcel Dekker, Inc., Table 5-7, pp. 177-178, 2003.

Table 3. Modeled Sound Power Levels

	Sound Power Levels (dB) by Octave Band Center Frequency (Hz)								Overall	
Equipment	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**dB(A)**	**dB**
SMA PEAK3 125 kW Inverter[1]	--	--	--	--	--	--	--	--	77	80
2500 kVA Transformer[2]	83	87	81	77	77	71	66	60	81	90

1 SMA Sunny Highpower PEAK3-US 125/150/165/172.
2 Barron, 2003.

The A-weighted sound pressure levels due to the operation of the Project were predicted at the receptor locations using the acoustic modeling software CadnaA[2] by Datakustik. CadnaA is an internationally accepted sound prediction program that implements the International Standards Organization (ISO) 9613-2 (2024)[3] sound propagation standard. The noise prediction model accounts for the sound emissions of equipment, the ground cover, terrain, reflected sound (three orders of reflection), and the geometry of the Project area.

The assessment assumed all equipment operating simultaneously during all times of day. Sound propagation was assumed to occur over acoustically "soft" ground (G=1.0). The ground at the equipment pad – the location at which the inverters and transformers would be installed – was assumed to be acoustically "hard" ground (G=0.0). The gravel access road entering the site was assumed to be acoustically "mixed" ground (G=0.6)[4]. Receptors were modeled at a height of 1.5 meters (5-feet) above the ground at the nearest property line locations. The results were compared to the CT DEEP noise impact criteria for determining compliance.

Receptor Locations

A total of eleven receptor locations were identified in the vicinity of the Project Site (see **Figure 1**). The receptor locations were selected based on their proximity to the Project Site and their land use. These receptor locations represent the nearest property lines of the Project and nearest residential property lines.

[2] DataKustik GmbH, 2025. Computer Aided Noise Abatement Model.

[3] International Organization for Standardization, "ISO 9613-2:2024 Acoustics — Attenuation of sound during propagation outdoors – Part 2: General method of calculation," International Organization for Standardization, 2024.

[4] Kaliski, et al, "An overview of sound from commercial photovoltaic facilities," Proceedings of Noise-Con 2020.

Path: \\vhb.com\gis\proj\Wethersfield\43593.00\Project\Simsbury Solar Noise\Simsbury Solar Noise.aprx (snadeau, 10/21/2025)

Figure 1: Noise Receptor and Equipment Locations
Nod Road Solar
Simsbury, Connecticut
October 21, 2025

Source: NearMap, and VHB 2025.

Future Conditions

VHB evaluated the potential sound level impacts associated with the Project's proposed mechanical equipment at the nearby sensitive receptor locations. This analysis evaluated the potential sound level impacts from 31 inverters and two transformers operating simultaneously.

The potential sound levels associated with the proposed equipment were determined by comparing the predicted Project generated sound levels to CT DEEP's noise standards with a 5-dBA penalty applied to account for potential tonal noise from the proposed mechanical equipment. The results of the acoustical analysis demonstrated that the operation of the proposed equipment will comply with CT DEEP's noise standards at the sensitive receptor locations. The sound levels attributed to the proposed equipment range from approximately 14 dBA at Receptor PL2, the eastern property line, to approximately 37 dBA at Receptor PL4, the western property line. These sound levels are below CT DEEP's daytime criteria of 56 dBA and the nighttime criteria of 46 dBA, which include the 5-dBA penalty applied for potential tonal noise. Due to the nature of the Project, the solar equipment will not be operating during the nighttime period and therefore would not make noise during the nighttime. However, the nighttime criteria comparison has been included in the case where the site is operating due to sunlight outside of CT DEEP's defined "daytime" hours to demonstrate compliance. **Table 4** summarizes the Project generated sound levels due to the operation of the inverters and transformers at the receptor locations.

Table 4. Sound Levels at Receptor Locations Due to Inverters and a Transformer (dBA)

Receptor Locations	CT DEEP Noise Standard* (Daytime/Nighttime)	Project Generated Sound Levels
R01 – 114 Nod Road	56/46	26
R02 – 98 Ridgebury Road	56/46	17
R03 – 52 Ridgebury Road	56/46	20
R04 – 6 Ridgebury Road	56/46	20
R05 – 4 Ridgebury Road	56/46	20
R06 – 160 Nod Road	56/46	20
R07 – 159 Nod Road	56/46	24
PL1 – Northern Property Line	56/46	26
PL2 – Eastern Property Line	56/46	14
PL3 – Southern Property Line	56/46	19
PL4 – Western Property Line	56/46	37

* Noise standard for Class C emitter and Class A receptor, unless otherwise noted.
CT DEEP noise standard with 5 dBA penalty applied.

Figure 2 presents sound level contours (i.e., lines of equal sound level that are analogous to topographic contours that are lines of equal ground elevation) for the operation of the inverters and transformers. The sound level contours in **Figure 2** exclude contributions from off-site sources of sound.

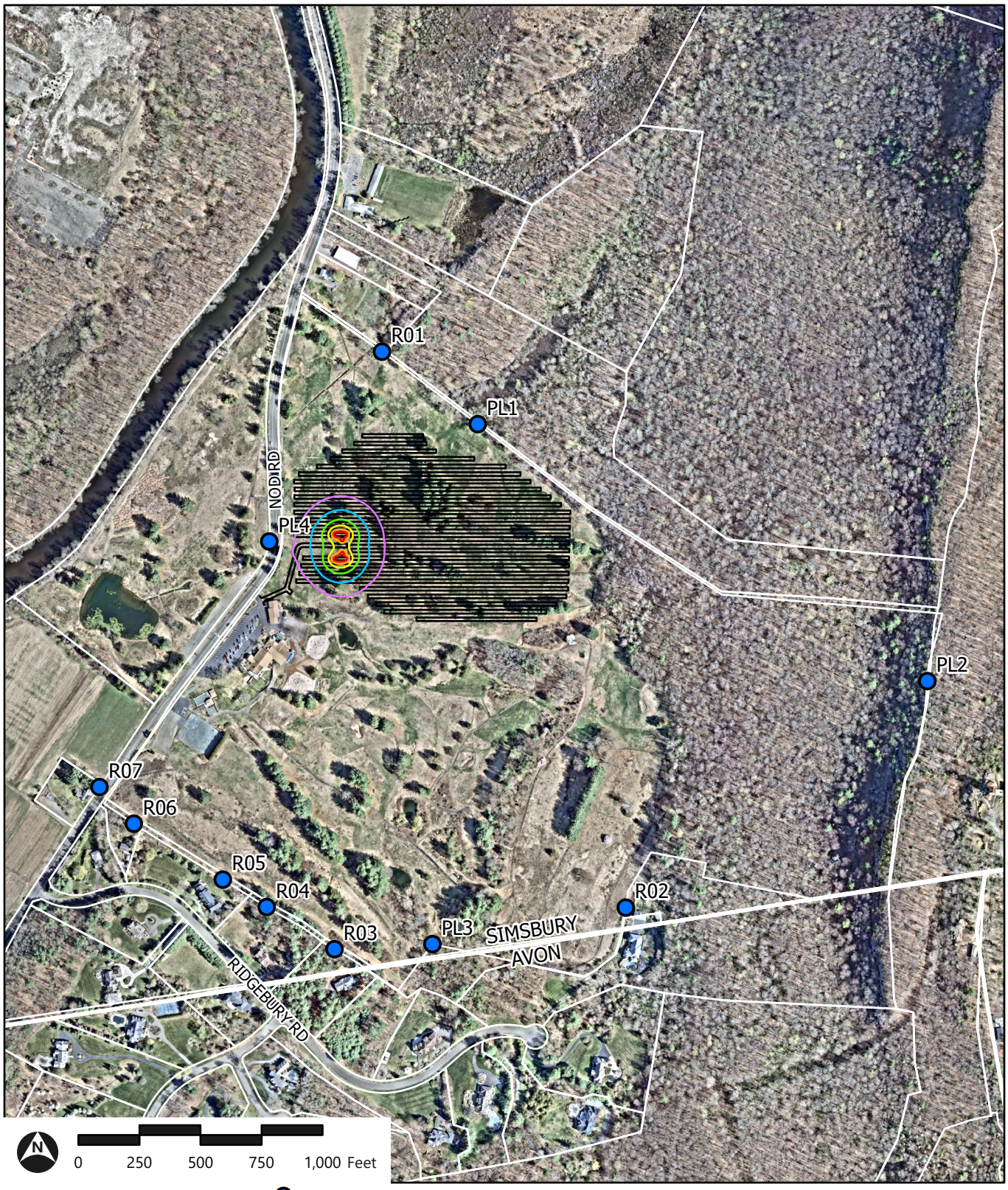


Figure 2: Modeled Sound Level Contours with Transformers and Inverters
Nod Road Solar
Simsbury, Connecticut
October 21, 2025

Source: NearMap, and VHB 2025.

3

Findings

Conclusion of Acoustical Assessment

In this acoustical assessment, VHB evaluated the sound levels associated with the Project's mechanical equipment which will include 31 inverters and two transformers. This analysis assumed that the properties abutting the Project Site currently experience sound levels below CT DEEP's noise standards and the high background noise areas guidance (Sec 22a-69-3.6) does not apply to the Project.

Due to the low noise equipment and sufficient distance between the proposed equipment and the nearby property boundaries, the sound levels associated with the Project's mechanical equipment are expected to comply with CT DEEP's noise standards and will have **no excessive noise impacts** at nearby sensitive receptor locations. Noise mitigation is not necessary for the Project.

Construction Activities

Construction activities, including the intermittent use of heavy machinery, may result in temporary increases in nearby sound levels at the proposed Project. The Project is expected to generate typical sound levels from construction activities, including truck movements, heavy equipment operations, and general construction activities. Heavy machinery, such as front-end loaders, graders, bull dozers, and backhoes, would be used intermittently throughout the proposed Project's construction.

Section 22a-69-1.8(g) of the CT DEEP's noise control regulation states that noise associated with construction activities are exempt from the regulation. However, even though construction noise is exempt from the regulation, construction activities such as site excavation/grading and installation of the solar panel systems would typically be limited to normal daytime working hours. Construction activities beyond normal daytime work hours would be minimized to the extent practicable.

Attachment A – Equipment Specs

/ SHP 125-US-21 / SHP 150-US-21 / SHP 165-US-21 / SHP 172-US-21

Sunny Highpower PEAK3-US

125 / 150 / 165 / 172

A superior distributed generation solution for large-scale power plants

25 YEAR DESIGN LIFE

SMA Smart Connected

c UL us

Cost effective
- Modular architecture reduces BOS and maximizes system uptime
- Compact design and high power density maximize transportation and logistical efficiency

Maximum flexibility
- Scalable 1,500 VDC building block with best-in-class performance
- Flexible architecture creates scalability while maximizing land usage

Simple install, commissioning
- Ergonomic handling and simple connections enable quick installation
- Centralized commissioning and control with SMA Data Manager

Highly innovative
- SMA Smart Connected reduces O&M costs and simplifies field-service
- Powered by award winning ennexOS cross sector energy management platform

The Sunny Highpower PEAK3 1,500 VDC inverter offers high power density in a modular architecture that achieves a cost-optimized solution for large-scale PV integrators.

With fast, simple installation and commissioning, the PEAK3 is accelerating the path to energization. SMA has also brought its field-proven Smart Connected technology to the PEAK3, which simplifies O&M and contributes to lower lifetime service costs. The PEAK3 power plant solution is powered by the ennexOS cross sector energy management platform, 2018 winner of the Intersolar smarter E AWARD.

Technical Data	Sunny Highpower PEAK3 125-US	Sunny Highpower PEAK3 150-US	Sunny Highpower PEAK3 165-US	Sunny Highpower PEAK3 172-US
Input (DC)				
Maximum array power [1]	250 kWp	300 kWp	330 kWp	344 kWp
Maximum system voltage	1500 Vdc			
Rated MPP voltage range	705 V ... 1450 V	880 V ... 1450 V	924 V ... 1450 V	968 V ... 1450 V
MPPT operating voltage range	684 V ... 1500 V	855 V ... 1500 V	898 V ... 1500 V	941 V ... 1500 V
MPP trackers	1			
Maximum operating input current	180 A			
Maximum input short-circuit current	325 A			
Output (AC)				
Nominal AC power	125 kW	150 kW	165 kW	172 kW
Maximum apparent power	125 kVA	150 kVA	165 kVA	172 kVA
Output phases / line connections	3 / 3-PE			
Nominal AC voltage	480 V	600 V	630 V	660 V
Compatible transformer winding configuration	Wye-grounded			
Maximum output current	151 A			
Rated grid frequency	60 Hz			
Grid frequency / range	50 Hz, 60 Hz / -6 Hz ... +6 Hz			
Power factor at rated power / adjustable displacement	1 / 0.8 leading ... 0.8 lagging			
Harmonics (THD)	<3%			
Efficiency				
CEC efficiency	98.5 %	99.0 %	99.0 %	99.0 %
Protection and safety features				
Ground fault monitoring: Riso / Differential current	● / ●			
DC reverse polarity protection	●			
AC short circuit protection	●			
Monitored surge protection (Type 2): DC / AC	● / ●			
Protection class / overvoltage category (as per UL 840)	I / IV			
General data				
Device dimensions (W / H / D)	770 / 830 / 462 mm (30.3 / 32.7 / 18.2 in)			
Device weight	99 kg (218 lbs)			
Operating temperature range	-25°C ... +60°C (-13°F ... +140°F)			
Storage temperature range	-40°C ... +70°C (-40°F ... +158°F)			
Audible noise emission (full power @ 1m and 25°C)	< 69 dB(A)			
Internal consumption at night	< 5 W			
Topology	Transformerless			
Cooling concept	OptiCool (forced convection, variable speed fans)			
Enclosure protection rating	Type 4X			
Maximum permissible relative humidity (non-condensing)	100%			
Additional information				
Mounting	Rack mount			
DC connection	Terminal lug (up to 600 kcmil CU/AL)			
AC connection	Screw terminal (up to 300 kcmil CU/AL)			
LED indicators (Status/Fault/Communication)	●			
SMA Speedwire (Ethernet network interface)	● (2 x RJ45 ports)			
Data protocols: SMA Modbus / SunSpec Modbus	● / ●			
Integrated Plant Control / Q on Demand 24/7	● / ●			
Off-grid capable / SMA Hybrid Controller compatible	– / ●			
Monitoring				
SMA Sunny Portal (monitoring portal)	No cost for the lifetime of the system			
SMA Smart Connected (monitoring and remote O&M service)	No cost on inverters under warranty			
Supported protocols for outbound data	SMA external API, Modbus, FTP			
Certifications				
Certifications and approvals (pending)	UL 62109, UL 1998, CAN/CSA-C22.2 No.62109			
Manufacturer's Declaration of Design Life	25 years			
FCC compliance	FCC Part 15, Class A			
Grid interconnection standards	IEEE 1547:2018, UL 1741-SA - CA Rule 21, HECO Rule 14H, UL1741SB			
Advanced grid support capabilities	L/HFRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor			
Warranty				
Standard	5 years			
Optional extensions (total warranty coverage cannot exceed 25 years)	+5 / +10 / +15 / +20 years			
1) Higher DC array power permitted via site inverter load modeling in SMA Sunny Design				
Type designation	SHP 125-US-21	SHP 150-US-21	SHP 165-US-21	SHP 172-US-21

● Standard features ○ Optional features – Not available

SHP-US-Ser-25 Changes to products and services, including those resulting from country specific requirements, as well as deviations from technical data are subject to change at any time without notice. SMA assumes no liability for typographical or other errors. Please visit www.SMA-Solar.com for the latest information.

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

Appendix I Utility Research

NOTES: 1. LOCATE EXISTING SIPHON DISCHARGE LINE WITHIN SIPHON TANK AND CAP OFF.

2. INSTALL TWIN APPROVED EJECTION PUMPS WITHIN SIPHON TANK.

3. INSTALL NEW 2" EJECTION PIPE FROM PUMPS TO APPROVED MANIFOLD SYSTEM TO NEW GRAVITY SEWER LINE WITHIN PRO SHOP LOWER LEVEL.

4. EXIT LOWER LEVEL TO THE EXTERIOR WITH MINIMUM COVER OVER PIPE.

5. PROVIDE "AS BUILT" TO OWNER & F.V.H.D.

LOCATE EXISTING DISCHARGE LINE BEFORE FIELDS AND CAP OFF

TO EXISTING SEPTIC FIELD.

APPROX. LOCATION OF EXISTING DISCHARGE LINE TO SEPTIC FIELDS

NEW 230V POWER FOR DISCHARGE PUMPS

LOCATION - NEW SEPTIC DISCHARGE LINE TO SEPTIC FIELDS RECOMMENDED AT A NEW "DB" AT LOCATION OF NEW INTERSECTION WITH EXISTING LINES. LOCATE NEW LINES WITHIN EXISTING PRO SHOP LOWER LEVEL.

NEW CLEAN OUT

EXISTING PRO SHOP SEPTIC TANK

EXISTING DISCHARGE PIPE FROM TANK TO EXISTING FIELDS

PROVIDE NEW DISTRIBUTION BOX AT INTERSECTION OF NEW AND EXISTING SEPTIC LINES OR 4' DEPENDING ON FIELD CONDITIONS.

EXISTING SEPTIC TANK

EXISTING SIPHON TANK

NEW CURB SAME CONSTRUCTION AS EXISTING

GATE TO BE INSTALLED IN SEPARATE CONTRACT

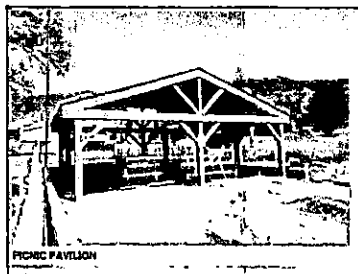
LINE OF ROOF OVERHANG

ROOF OVER PLATFORM

EXISTING PLANTING AREA

B1

180'
179'
178'
177'
176'
175'
174'
173'
172'



PICNIC PAVILION

LIGHTING LEGEND
- EXISTING POLE MOUNTED LIGHT
- PROPOSED POLE MOUNTED LIGHT
- METAL POLE WITH STRING LIGHTS
- BUILDING MOUNTED LIGHT

PROPOSED ICE CREAM BUILDING
BUILDING MOUNTED LIGHT (TYP)
7' OVERHANG
EXISTING PICNIC AREA ON EXISTING CONCRETE PAD
EXISTING SPLIT-RAIL FENCE
DIRECTORY SIGN
NO VEHICLE SIGN
EXISTING POLES FOR STRING LIGHTS
PICNIC PAVILION
POLE MOUNTED LIGHT (TYP)
EXISTING POLE MOUNTED LIGHT
EXISTING SPLIT-RAIL FENCE
ADD HANDRAILS AT WALK SECTION THAT EXCEEDS 5%
EXISTING WALKWAY
EXISTING SCREENED DUMPSTER
OVERFLOW PARKING
OVERFLOW PARKING SIGNS
ACCESS
EXISTING PARKING
MOWLAND
RESTRIPE 2 ACCESSIBLE SPACES & ADD SIGNAGE
STRIPE SPACES
BITUMINOUS WALK
MAINTAIN EXISTING PARKING & RESTRIPE WITH 4" WIDE WHITE PAINTED LINES 38± SPACES @ 8'x18'
NO ACCESS
FLOOD ZONE B
WELL #1
WELL #2
263'
323'
135'
NEW BUILDING
SEPTIC TANK
AREA PROPOSED FOR SOIL TESTING

PRIOR TO START OF CONSTRUCTION
CALL 1-800-922-4455 BEFORE YOU DIG!

LADA, P.C.
Landscape Architecture & Land Planning

Owner: Simsbury Real Estate Holdings, LLC
140 Nod Road
Simsbury, CT 06092

Applicant: Simsbury Real Estate Holdings, LLC
140 Nod Road
Simsbury, CT 06092

Site Plan
Site Plan Modification Application
Two Sisters Ice Cream at Talcott Mountain
140 Nod Road
Simsbury, CT

Appendix J DOAG Documentation

CONNECTICUT DEPARTMENT OF AGRICULTURE
450 Columbus Blvd, Suite 701 | Hartford, Connecticut 06103 | 860.713.2500
Office of the Commissioner
An Equal Opportunity Employer

October 3, 2025

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Lodestar Energy Nod Road, 140 Nod Road, Simsbury, proposed 4.65-Megawatt AC solar project – No Material Affect Letter from the Department of Agriculture

Dear Executive Director Bachman:

Pursuant to 16-50k(a) of the Connecticut General Statutes, we have reviewed the above cited project with respect to agricultural impacts, specifically, to determine whether "…such project will not materially affect the status of such land as prime farmland…"

This project will be located at 140 Nod Road in Simsbury, CT, owned by Simsbury Real Estate Holdings, LLC. The 118-acre parcel contains approximately 7.35 of prime farmland soils. The Project Area would occupy approximately 4.75 acres classified as prime farmland soils.

Based on preliminary information provided to DOAG on August 5, 2025 (enclosed), a native seed mix will be established throughout the solar array to support pollinators and serve as the primary agricultural harvest in the form of cut flowers. A small apiary will be installed for honey production and blueberry bushes will be planted along the perimeter fencing.

As a result, the Department of Agriculture concludes this project will not materially affect the status of project land as prime farmland.

Should any changes raise concerns to the Agency, we reserve the right to modify our position on this project, including opposing it, as detailed plans are provided by the Petitioner. Nothing in this letter relieves the Petitioner of other obligations under applicable federal, state, and local law that may be necessary as part of the proposed project design and implementation.

If you have any questions, please feel free to contact the department at AGR.Solar@ct.gov.

Sincerely,

Bryan P. Hurlburt
Commissioner

Enc. Nod Rd Soil Management Plan
Nod Rd Vegetation and Soil Management Plan Post Construction
Nod Rd Soil Health Assessment Ltr
Nod Rd Farmland Soils Figure
Nod Rd Solar Ag Co-Use Plan

Cc: Katie Dykes, Commissioner, Department of Energy and Environmental Protection
Sam Valone, Lodestar Energy

June 26, 2025

Ref: 43593.00

Sam Valone
LSE Lynx LLC
18 North Main Street, 2nd Floor
West Hartford, CT 06107

Re: Lodestar Lynx Solar Project in Simsbury, Connecticut – Soil Health Assessment

Dear Lodestar Energy:

VHB has completed a Soil Health Assessment (SHA) for a portion of the parcel located at 140 Nod Road, Simsbury, Connecticut (the "Site") to document existing soil health prior to construction of the proposed solar array. We understand the purpose of the SHA is to establish baseline conditions for soil restoration that may be needed upon future decommissioning of the solar array. The SHA was conducted in general conformance with the Natural Resource Conservation Services Soil Health Assessment guidance.

The SHA was conducted for the existing disc golf course that encompass approximately 20 acres of land. The area of land had been used for agriculture since at least 1934 and became a working golf course by circa 1962 before it was recently recommissioned as a disc golf course in 2021.

VHB collected soil samples for this SHA on May 29, 2025. A sampling grid was established that spread 12 discrete soil samples within four differing section of the course (total 48 samples). Refer to the attached Figure for approximate sample locations. Samples were collected from 0-8 inches below grade. Each set of 12 discrete samples was composited into one soil sample for laboratory analysis (total 4 composite samples). Samples were submitted to the UCONN Laboratory and Connecticut Agriculture Experiment Station for analysis of the following parameters: Texture Analysis, organic matter, pH, nitrogen, phosphorus, potassium, calcium, and magnesium. Furthermore, during soil sampling, observations were documented with regard to soil structure, organic matter, as well as evidence of roots or biological activity.

In general, soils consisted of medium brown to red brown, uniformly dry fine to coarse sand with trace sub-rounded gravel and trace silt. The textural analysis identified samples as sandy loam based on USDA criteria. Evidence of roots along with minor organic material was identified in each of the 48 samples and biological activity (worms) were observed in 14 of the samples collected.

Laboratory analytical results are summarized below, and laboratory reports are attached.

Parameter	**Results**
Soil Texture	Sandy Loam
Organic Matter	Medium to Medium High
pH	4.9 to 5.5
Nitrate Nitrogen	3-6ppm (low to medium)
Ammonium Nitrogen	24ppm (medium low)
Phosphorus	12-19ppm (low to medium low)
Potassium	30-90ppm (very low to medium low)

Calcium	1050-1600ppm (medium to high)
Magnesium	37-80ppm (medium to high)

ppm = parts per million

As part of this assessment, VHB had requested analysis of soil samples for soluble salts. However, upon receipt of the laboratory analytical report it was noticed these were not included. VHB contacted the laboratory, and they indicated they no longer conduct analyses for soluble salts. This does not appear to represent a significant data gap regarding the objectives for this Soil Health Assessment.

It is anticipated that following decommissioning of the solar facility, another Soil Health Assessment will be conducted, and results will be compared to those above to determine if soil amendments or improvements are needed to restore the health of the soil following decommissioning.

Please let us know if you have any questions or require addition information.

Sincerely,

Vanasse Hangen Brustlin, Inc.

Sara Berryman, CSS
Wetland Scientist
Sberryman@vhb.com

Amy Vaillancourt, LEP
Director, Environmental Services
Availlancourt@vhb.com

Attachments:
Sample Location Map
UCONN Laboratory Report
Connecticut Agriculture Experiment Station Laboratory Report

Subject Property Site Map

Lodestar Energy | Simsbury, CT

Project Area

Parcel Boundary

Municiple Boundary

= Soil Health Sample Locations (12 total - Area 1)

= Soil Health Sample Locations (12 total - Area 2)

= Soil Health Sample Locations (12 total - Area 3)

= Soil Health Sample Locations (12 total - Area 4)

Path: \\vhb.com\gis\proj\Wethersfield\43576.00\Project\Oxford Commerce Wetlands\Oxford Commerce Wetlands.aprx (kinfanti, 5/16/2025)

Source: Nearmap, CT DEEP, VHB

UConn Soil Nutrient Analysis Laboratory
6 Sherman Place, Union Cottage, Unit 5102
Storrs, CT 06269-5102
860-486-4274
soiltesting.cahnr.uconn.edu

UCONN
COLLEGE OF AGRICULTURE, HEALTH AND NATURAL RESOURCES
EXTENSION & PLANT SCIENCE AND LANDSCAPE ARCHITECTURE

Soil Test Report

Order Number: 24634

Prepared For:

Amy Vaillancourt
VHB
100 Great Meadow Road, Suite 200
Wethersfield, CT 06109

amasi@vhb.com
860.895.7458

Sample Information:

Sample Name: LSE-NOD-CS- 1
Lab Number: 5254
Area Sampled:
Received: 5/30/2025
Reported: 6/19/2025

Results

Nutrients Extracted From Your Soil (Modified Morgan)

		Below Optimum	Optimum	Above Optimum	Excessive*
Calcium	**577 lbs/acre**				
Magnesium	**72 lbs/acre**				
Phosphorus	**8 lbs/acre**				
Potassium	**67 lbs/acre**				

**** Excessive only defined for Phosphorus (>40 lbs/acre)***

Soil pH (1:1, H2O)	4.9
Est. Cation Exch. Capacity (meq/100g soil)	12.3
Buffered pH (Mod. Mehlich)	5.7

Base Saturation	***%***	***Suggested***
Potassium	1	2.0 - 7.0
Magnesium	2	10 - 30
Calcium	12	40 - 50

Element	***ppm***	***Soil Range in CT***
Boron (B)	0.1	0.1 - 2.0
Copper (Cu)	0.2	0.3 - 0.8
Iron (Fe)	54.7	1.0 - 40.0
Manganese (Mn)	5.2	3.0 - 20.0
Zinc (Zn)	1.3	0.1 - 70.0
Sulfur (S)	20.5	10 - 100
Aluminum (Al)	175.5	10 - 300
Est. Total Lead (Pb)	low	

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Soil Test Report

Order Number: 24634

Prepared For:

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860.895.7458

Sample Information:

Sample Name: LSE-NOD-CS- 2
Lab Number: 5255
Area Sampled:
Received: 5/30/2025
Reported: 6/19/2025

Results

Nutrients Extracted From Your Soil (Modified Morgan)

		Below Optimum	Optimum	Above Optimum	Excessive*
Calcium	**490 lbs/acre**				
Magnesium	**85 lbs/acre**				
Phosphorus	**10 lbs/acre**				
Potassium	**94 lbs/acre**				

**** Excessive only defined for Phosphorus (>40 lbs/acre)***

Soil pH (1:1, H2O)	5.1
Est. Cation Exch. Capacity (meq/100g soil)	9.5
Buffered pH (Mod. Mehlich)	5.9

Base Saturation	***%***	***Suggested***
Potassium	1	2.0 - 7.0
Magnesium	4	10 - 30
Calcium	13	40 - 50

Element	***ppm***	***Soil Range in CT***
Boron (B)	0.2	0.1 - 2.0
Copper (Cu)	0.1	0.3 - 0.8
Iron (Fe)	13.6	1.0 - 40.0
Manganese (Mn)	5.2	3.0 - 20.0
Zinc (Zn)	0.7	0.1 - 70.0
Sulfur (S)	12.6	10 - 100
Aluminum (Al)	152.9	10 - 300

Est. Total Lead (Pb)	low

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Soil Test Report

Order Number: 24634

Prepared For:

Amy Vaillancourt
VHB
100 Great Meadow Road, Suite 200
Wethersfield, CT 06109

amasi@vhb.com
860.895.7458

Sample Information:

Sample Name: LSE-NOD-CS- 3
Lab Number: 5256
Area Sampled:
Received: 5/30/2025
Reported: 6/19/2025

Results

Nutrients Extracted From Your Soil (Modified Morgan)

		Below Optimum	Optimum	Above Optimum	Excessive*
Calcium	**963 lbs/acre**				
Magnesium	**163 lbs/acre**				
Phosphorus	**7 lbs/acre**				
Potassium	**129 lbs/acre**				

**** Excessive only defined for Phosphorus (>40 lbs/acre)***

Soil pH (1:1, H2O)	5.3
Est. Cation Exch. Capacity (meq/100g soil)	10.2
Buffered pH (Mod. Mehlich)	6.0

Base Saturation	***%***	***Suggested***
Potassium	2	2.0 - 7.0
Magnesium	7	10 - 30
Calcium	24	40 - 50

Element	***ppm***	***Soil Range in CT***
Boron (B)	0.2	0.1 - 2.0
Copper (Cu)	0.1	0.3 - 0.8
Iron (Fe)	7.7	1.0 - 40.0
Manganese (Mn)	3.8	3.0 - 20.0
Zinc (Zn)	1.2	0.1 - 70.0
Sulfur (S)	14.8	10 - 100
Aluminum (Al)	107.2	10 - 300
Est. Total Lead (Pb)	low	

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Order Number: 24634

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100 Great Meadow Road, Suite 200
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amasi@vhb.com
860.895.7458

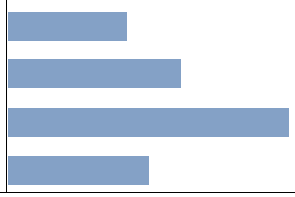
Sample Information:

Sample Name: LSE-NOD-CS- 4
Lab Number: 5257
Area Sampled:
Received: 5/30/2025
Reported: 6/19/2025

Results

Nutrients Extracted From Your Soil (Modified Morgan)

		Below Optimum	Optimum	Above Optimum	Excessive*
Calcium	**480 lbs/acre**				
Magnesium	**72 lbs/acre**				
Phosphorus	**9 lbs/acre**				
Potassium	**79 lbs/acre**				



**** Excessive only defined for Phosphorus (>40 lbs/acre)***

Soil pH (1:1, H2O)	5.0
Est. Cation Exch. Capacity (meq/100g soil)	9.6
Buffered pH (Mod. Mehlich)	5.9

Base Saturation	***%***	***Suggested***
Potassium	1	2.0 - 7.0
Magnesium	3	10 - 30
Calcium	12	40 - 50

Element	***ppm***	***Soil Range in CT***
Boron (B)	0.1	0.1 - 2.0
Copper (Cu)	0.1	0.3 - 0.8
Iron (Fe)	12.0	1.0 - 40.0
Manganese (Mn)	4.1	3.0 - 20.0
Zinc (Zn)	0.6	0.1 - 70.0
Sulfur (S)	14.8	10 - 100
Aluminum (Al)	199.5	10 - 300
Est. Total Lead (Pb)	low	

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THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

FERTILITY OF YOUR SOIL MEASURED BY THE MORGAN METHOD. A PRODUCT OF RESEARCH AT THIS STATION

"Putting Science to Work for Society"

Amy Vaillancourt
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THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION
123 HUNTINGTON ST.
NEW HAVEN, CT 06511
TELEPHONE (203) 974-8512

CAES-56-N Rev. 1/22

DATE 06/18/2025 PAGE: 1 of: 1 **TEST RESULTS** *(see back of report for explanation)*

LABORATORY NUMBER:	3386	3387	3388	3389
YOUR SAMPLE	LSE-NOD-CS-1	LSE-NOD-CS-2	LSE-NOD-CS-3	LSE-NOD-CS-4
CROP TO BE GROWN	Disc golf turf	Disc golf turf	Disc golf turf	Disc golf turf
SOIL TEXTURE	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
ORGANIC MATTER	Medium High	Medium	Medium High	Medium
pH	5.2	5.3	5.5	5.4
NITRATE NITROGEN	Medium Low (5 ppm)	Low (3 ppm)	Medium (6 ppm)	Medium Low (5 ppm)
AMMONIUM NITROGEN	Medium Low (24 ppm)	Medium Low (24 ppm)	Medium Low (24 ppm)	Medium Low (24 ppm)
PHOSPHORUS	Low (12 ppm)	Medium Low (19 ppm)	Medium Low (19 ppm)	Medium Low (19 ppm)
POTASSIUM	Very Low (30 ppm)	Low (60 ppm)	Medium Low (90 ppm)	Very Low (30 ppm)
CALCIUM	High (1400 ppm)	Medium (1050 ppm)	High (1600 ppm)	High (1400 ppm)
MAGNESIUM	Medium (37 ppm)	Medium High (50 ppm)	High (80 ppm)	Medium (37 ppm)

SUGGESTED TREATMENTS (pounds per 1000 square feet)				
pH ADJUSTMENT	Limestone 75 lbs.	Limestone 75 lbs.	Limestone 50 lbs.	Limestone 75 lbs.
FERTILIZER GRADE	5-10-10,Preplant 32-0-4*,in 6 weeks	5-10-10,Preplant 32-0-4*,in 6 weeks	5-10-10,Preplant 32-0-4*,in 6 weeks	5-10-10,Preplant 32-0-4*,in 6 weeks
FERTILIZER AMOUNT	20 lbs,Preplant 3 lbs,in 6 weeks	20 lbs,Preplant 3 lbs,in 6 weeks	20 lbs,Preplant 3 lbs,in 6 weeks	20 lbs,Preplant 3 lbs,in 6 weeks

Remarks:

ppm (parts per million) values are approximate.

EXPLANATION OF RESULTS

Soil tests serve as a guide to intelligent and environmentally sensitive use of fertilizers and other soil amendments. Information from soil tests cannot correct plant problems caused by insects or disease or site limitations such as not enough sunlight.

SOIL TEXTURE: Texture describes the amount of sand, silt and clay in the soil. It influences the amount of water and nutrients a soil can hold. *Sands*, *loamy sands* and *sandy loams* require more frequent watering and lose nutrients more readily by leaching than do *fine sandy loams* and *loams*. *Silt loams*, *silty clay loams* and *clay loams* often retain excessive moisture and reduce air movement to plant roots.

ORGANIC MATTER: Organic matter also influences the amount of water and nutrients held by the soil. *High* organic soils have better structure and retain nutrients and water better than *Medium* and *Low* organic soils. Soil organic matter may be improved by the addition of materials such as compost. A yearly addition of organic matter to gardens promotes soil improvement.

pH: Soil pH affects the availability of nutrients and, when interpreted with texture and organic matter, indicates the limestone needs of the soil. The results are expressed in pH units, with pH 7.0 being neutral. Connecticut soils are generally somewhat acidic in the pH range of 4.5 to 6.5. Most plants except for rhododendrons, azaleas, mountain laurel and blueberries grow best at a soil pH between 6.0 and 7.0.

NUTRIENT TESTS

The Morgan Test provides an estimate of nutrient availability to plants. Results are given in relative terms such as *Low*, *Medium*, and *High*. *Excessive* is used when nutrient concentrations may damage plants. Generally, plant nutrients should be high during periods of rapid plant growth.

NITRATE NITROGEN: Plants generally take up nitrogen in the form of nitrate (NO_3-N), either from applied fertilizers or microbial conversion of other forms of organic nitrogen in the soil. The Morgan Test indicates how much nitrogen is immediately available to plants, but not the ability of the soil to provide nitrogen throughout the growing season. Excess nitrate nitrogen can be harmful to plants and may leach to ground water.

AMMONIUM NITROGEN: Soils generally do not contain high concentrations of ammonium unless they have been recently fertilized, over fertilized or received fresh manure. High ammonium levels are sometimes harmful to plants.

PHOSPHORUS: Optimal levels of phosphorus favor strong seedlings, abundant fruit and colorful flowers. Phosphorus can be over applied resulting in micronutrient deficiencies.

POTASSIUM: Plant hardiness is improved with proper amounts potassium. Over application of potassium can result in excessive soil salinity.

CALCIUM: Calcium levels in conjunction with the pH test, will determine the need for limestone or gypsum.

MAGNESIUM: This test identifies soils where magnesium treatments such as dolomitic limestone or Epsom salts may be beneficial.

SALTS: Measurements of soluble salts are sometimes reported on our tests where over-fertilization or other sources of salt may have injured plants.

CORRECTING DEFICIENCIES OR EXCESSES

The soil test suggests additions of fertilizers and other amendments based on site and crop specific needs.

pH ADJUSTMENT: Limestone suggestions are based on the use of dolomitic limestone. Rates of pelletized limestone are the same as pulverized limestone. Hydrated lime may be used if the rate is reduced to three-fourths of that for limestone. Aluminum sulfate or sulfur is suggested when soil acidification is needed.

FERTILIZER: The principal plant nutrients in mixed fertilizers are nitrogen (N), phosphorus (P) and potassium (K). Although they may be present in various forms, the formula is always expressed as percent of N, P (as P_2O_5) and K (as K_2O) in that order. Thus a 5-10-5 fertilizer would contain 5 lbs. of N, 10 lbs. of P_2O_5 and 5 lbs. of K_2O per 100 lbs. Fertilizers other than those suggested on the report may be used if the amounts of nutrients applied are similar.

Organic fertilizers are usually slower acting and lower in nutrients. They are often recycled waste products. Multiple materials such as cottonseed meal and bone meal are often needed. Recently, commercially prepared organic fertilizers containing various ratios of N, P and K have become available. These fertilizers can be substituted if the amount of nutrients applied is similar. Fresh manure may damage some plants and should be worked into the soil well in advance of planting.

Equal employment opportunity means employment of people without consideration of age, ancestry, color, criminal record (in state employment and licensing), gender identity or expression, genetic information, intellectual disability, learning disability, marital status, mental disability (past or present), national origin, physical disability (including blindness), race, religious creed, retaliation for previously opposed discrimination or coercion, sex (pregnancy or sexual harassment), sexual orientation, veteran status, and workplace hazards to reproductive systems unless the provisions of sec. 46a-80(b) or 46a-81(b) of the Connecticut General Statutes are controlling or there are bona fide occupational qualifications excluding persons in one of the above protected classes. To file a complaint of discrimination, contact Dr. Jason White, Director, The Connecticut Agricultural Experiment Station, P.O. Box 1106, New Haven, CT 06504, (203) 974-8440 (voice), or Jason.White@ct.gov (e-mail). CAES is an affirmative action/equal opportunity provider and employer. Persons with disabilities who require alternate means of communication of program information should contact the Chief of Services, Michael Last at (203) 974-8442 (voice), (203) 974-8502 (FAX), or Michael.Last@ct.gov (e-mail).

https://portal.ct.gov/caes

https://portal.ct.gov/CAES/Soil-Office/Soil-Office/Soil-Testing-Offices-Instructions

4/16/21

Soil Management Plan for Construction

Purpose: to outline procedures for the excavation, handling, segregation, stockpiling, grading, and reuse of soils during construction. These are also included within construction drawings for the project.

Soil Type & Quality: Soils are classified as well drained to excessively drained. Pesticide residues (4,4-DDE and 4,4-DDT) may be present in surface soils due to the site previously being used as farmland, no pesticide sampling had been conducted.

Soil Excavation Scope: ~4,000 cubic yards of soils are anticipated to be excavated during construction. Grading shall be limited to what is essential. Soil disturbance shall be sequenced such that earth materials are exposed for a minimum amount of time before they are covered, seeded, or otherwise stabilized. Heavy equipment shall utilize designated access drives for travel to minimize soil disruption or compaction. No soil disturbance shall occur until proper erosion control measures are in place. No soil is expected to be transported off-site or imported to the site for this project.

Health & Safety: Procedures shall be implemented to limit worker contact with soils and for dust suppression.

Dust Control: Ensure no visible dust is generated. Mist as necessary to prevent airborne dust without creating run-off. Any run-off resulting from dust control procedures are to be properly managed/collected as necessary.

Erosion and Sediment Control: Erosion control measures shall follow federal, state, and local requirements and comply with the project's Stormwater Pollution Prevention Plan (SWPPP). Temporary sediment traps and permanent stormwater basins are to be installed in accordance with project documents. Slopes should not exceed 3:1 and erosion control blankets are to be used for drainage swale sidewalls and steep slopes. Erosion and sediment controls are to be inspected by the Contractor daily. No sediment laden runoff shall be allowed to reach the wetlands or discharge off-site. Use of anti-tracking pads and cleaning of soils from equipment is to be conducted before allowing it to leave the site. No soil disturbance will be allowed until these controls have been put into place.

Soil Stockpiling: Stockpile areas are to be located within the limits of disturbance, outside the 100-foot buffer of any wetlands, and outside the 500-foot buffer of any vernal pools. Snow-fence, haybales, and silt fence are to be installed around soil stockpiles. Stockpiles are to be covered with polyethylene sheeting and secured to prevent precipitation entering the stockpile and runoff occurring. If soils are excessively wet, earth berms are to be created to contain drainage. Stormwater runoff is to be diverted around stockpiles and managed to minimize water-related erosion. Extended stockpiling periods are to be avoided. All excavated soils are to remaining on-site and be reused to smooth grades for the solar field. Topsoil is to be stockpiled separately, retained, and reused for final grading and re-seeding.

Inspections: CTDEEP Approved Qualified Inspector shall perform weekly inspections of erosion controls and stockpile areas as well as required inspections within 24 hours of rain exceeding 0.5 inches for up to three months or until stabilization. Any deficiencies noted by the Inspector are to be addressed within 24 hours of the inspection.

Soil Stabilization: Reseed and regrade all disturbed areas as early as possible. Site soil stabilization is to be completed within 14 days of post-grading, using hydro-seeding, sodding, or biodegradable erosion control mats. Temporary erosion and sediment controls are to be removed after site stabilization. Secure effective establishment of vegetation with suitable topsoil, adequate lime, fertilizer, mulch, and water.

Soil and Vegetation Management Plan Post-Construction

Purpose: to outline procedures for revegetation as well as vegetation maintenance methods and frequency. The goal is to maximize energy production while minimizing environmental impact.

Soil Type & Quality: Soils are classified as well drained to excessively drained. Surface soils were found to have medium to medium high organic matter, sandy loam texture, pH of 4.9-5.5, medium to low ammonium nitrogen, low to medium nitrate nitrogen, low to medium low phosphorus and potassium, as well as medium to high calcium and magnesium.

Soil Stabilization: Reseed and regrade all disturbed areas as early as possible. Site soil stabilization is to be completed within 14 days of post-grading, using hydro-seeding, sodding, or biodegradable erosion control mats. Temporary erosion and sediment controls are to be removed after site stabilization. Secure effective establishment of vegetation with suitable topsoil, adequate lime, fertilizer, mulch, and water.

Revegetation: A combined native seed mix consisting of pollinator-friendly wildflowers and complementary native grasses from Ernst Conservation Seed will be utilized to revegetate the site. This seed mix offers various native and naturalized seeds ensuring compatibility with solar infrastructure while promoting ecological benefits. This selected grass species is well-suited to the local climate and site conditions and can thrive under the shade of solar panels.

Establishment Phase (0-6 months)
- Site Preparation: address any remaining soil disturbances from construction activities by leveling and grading.
- Planting: sow seeds uniformly using no-till methods to avoid further soil disturbance.
- Mulching: apply mulch to reduce soil erosion, retain moisture, and suppress weeds.
- Erosion Control Blankets: use biodegradable erosion control blankets on steep slopes to stabilize soil until vegetation is established.
- Water as necessary to achieve seed germination and growth.

Maintenance Phase (6 months-5 years)
- Irrigation: provide supplemental watering to ensure germination and plant growth. Use drip irrigation to minimize water usage.
- Weed Control: monitor and manage invasive species by selective weeding, mowing or target application of environmentally safe herbicides.
- Mowing: to be conducted 3-4 times per year to a height of 3-6". The cut grass is to be left as mulch so that nutrients are returned to the soil contributing to soil fertility and reducing the need for additional fertilizer inputs. This practice ensures that the vegetation management is sustainable and requires minimal intervention.
- Fertilization: apply organic fertilizers as needed to promote healthy plant growth.
- Watering as necessary to maintain vegetation.

Soil Amendments
- Organic Matter: incorporate compost or mulch to improve soil structure and fertility, enhance microbial activity and increase water retention.
- pH Adjustment: adjust soil pH using lime or sulfur as needed to optimize conditions for grass.
- Fertilize: in April and November.

General Monitoring and Maintenance
- Inspections: perform routine inspections of vegetation, soil conditions, and erosion control measures 3 to 4 times per year (April to November).
- Adaptive Management: adjust vegetation and soil management practices based on monitoring results to ensure continued health of vegetation and reduction of invasive species.

- Documentation and Reporting: maintain detailed records of inspections as well as soil and vegetation management activities.

Nod Road Solar Agricultural Co-Use Plan

Facility Description
The proposed Nod Rd Solar project is a 4.65 MW AC fixed-tilt solar array located at 140 Nod Road in Simsbury, Connecticut. The project was selected under the Shared Clean Energy Facilities (SCEF) program and will occupy approximately 19 acres of a 118-acre property owned by Simsbury Real Estate Holdings LLC. The property includes 7.35 acres of prime farmland soils, of which 4.75 acres overlap with the proposed development area (see attached Prime Farmland Map).

The site was originally developed as a golf course associated with the Tower Ridge Country Club in 1962 and has been used as a disc golf course since its repurposing in 2021. The land has not been in agricultural production for over 63 years. In response, LSE Lynx LLC ("Lodestar") proposes a regenerative land management approach that reintroduces agricultural activity while enhancing ecological function.

Agricultural Co-Use Approach
The Project will incorporate a pollinator-focused agricultural strategy compatible with solar operations. A combined native seed mix—consisting of pollinator-friendly wildflowers and complementary native grasses from Ernst Conservation Seed—will be established throughout the solar array. The grasses will provide structure, erosion control, and nesting habitat, while the wildflowers will support pollinators and serve as the primary agricultural harvest in the form of cut flowers. To further support pollinator populations and diversify on-site agricultural products, a small apiary will be installed to facilitate honey production. These co-beneficial land uses aim to restore soil health, promote biodiversity, and demonstrate the compatibility of solar infrastructure with productive agricultural practices.

In addition, blueberry bushes will be planted along the perimeter fencing. This will provide supplemental habitat and forage for pollinators, contribute to seasonal crop yields, and visually enhance the landscape.

Vegetation Management and Soil Health Strategy
A comprehensive land management plan will guide ongoing maintenance, including:

- Delayed mowing to allow flowering species to reach full bloom and harvest potential
- Overseeding to maintain dense vegetative cover and biodiversity
- Invasive species control to protect native and beneficial plantings
- Regular monitoring of soil health, plant vigor, and pollinator activity to ensure sustainable and adaptive management

This strategy is designed to improve long-term soil function through increased water retention, better infiltration, and enhanced microbial and fungal activity—particularly important on this site given its legacy of nutrient-depleted sod. Over time, the integration of native, deep-rooted perennials will contribute to the regeneration of healthy agricultural soils.

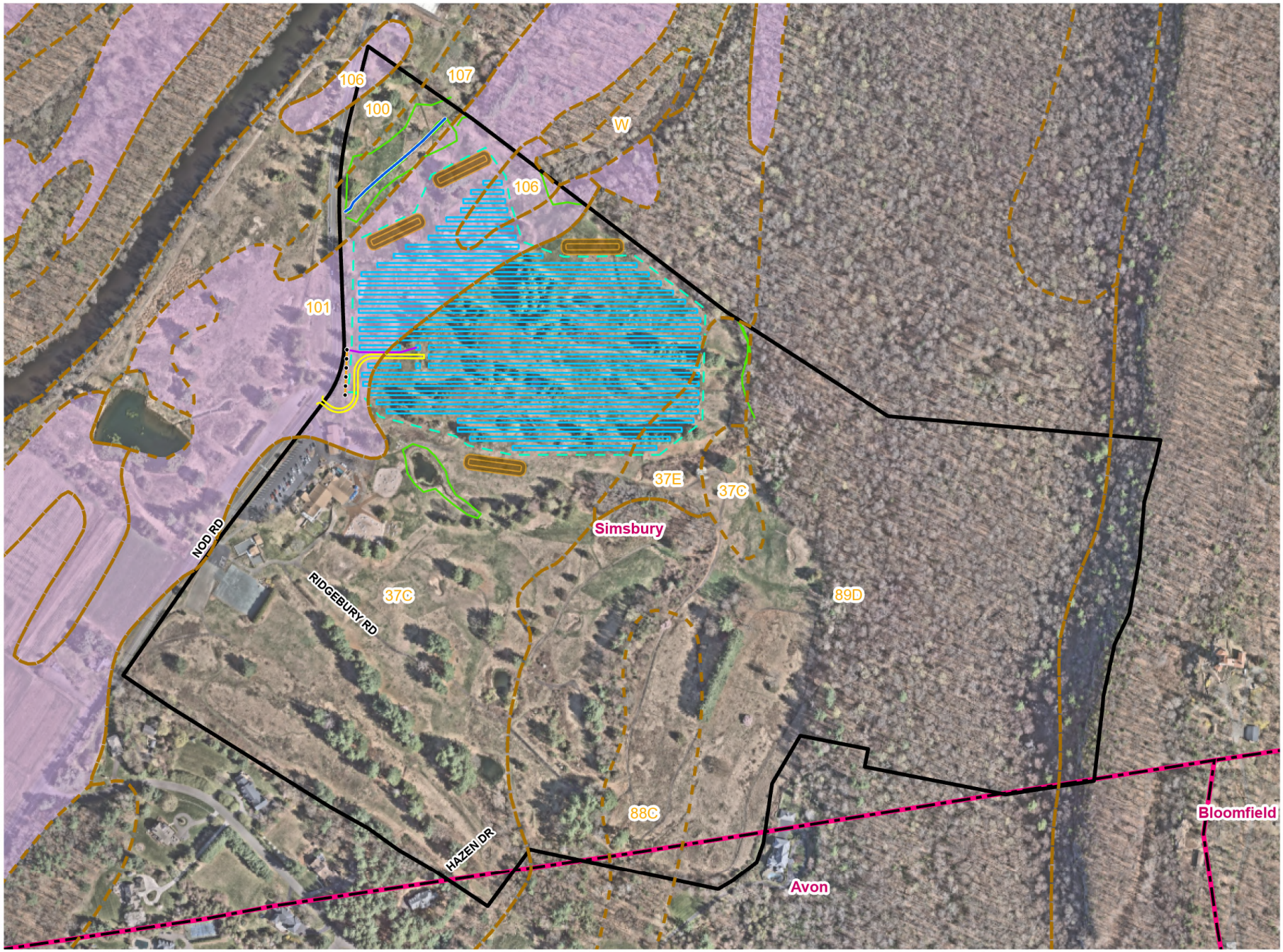
Native Pollinator-Friendly and Grass Seed Mix
Planting within the solar array will be tailored to the light conditions created by the fixed-tilt panels, distinguishing between:

- **Under-Panel Plantings (Shaded Areas):**
  These areas receive partial to filtered sunlight and will be seeded with a mix of low-growing, shade-tolerant native wildflowers and compatible native grasses from Ernst Seed. Species such as yarrow (*Achillea millefolium*), bee balm (*Monarda didyma*), and wild ginger (*Asarum canadense*) will be prioritized for their pollinator value and adaptability to shade, supported by bunch-forming grasses like little bluestem (*Schizachyrium scoparium*) or side-oats grama (*Bouteloua curtipendula*) for soil stability and diversity.
- **Between-Row Plantings (Full Sun Areas):**
  The spaces between solar panel rows receive higher sun exposure and will be seeded with a full-sun adapted mix of native wildflowers and warm-season grasses. Wildflowers may include black-eyed Susan (*Rudbeckia hirta*), purple coneflower (*Echinacea purpurea*), and blazing star (*Liatris spicata*), alongside grasses such as switchgrass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), and big bluestem (*Andropogon gerardii*), all selected for their non-invasive growth habit and compatibility with wildflower diversity.

This combined approach will enhance vegetative resilience, improve ecological outcomes, and reduce the likelihood of any one plant type dominating the mix. Maintenance in both areas will include delayed mowing, selective overseeding, invasive species control, and regular health monitoring to sustain floral productivity and ensure compatibility with solar infrastructure.

Apiary Installation
A small apiary will be established on site to enhance pollination services and support local bee populations. In addition to their ecological role, the bees will enable small-scale, artisanal honey production as a value-added agricultural product. Lodestar will partner with Clover Ridge LLC, led by local beekeeper Jaime Smith, to manage the apiary, and is also exploring collaboration with the Connecticut Beekeepers Association.

Blueberry Plantings
Blueberry bushes will be planted along the perimeter fencing of the project area. These plantings will reinforce habitat for pollinators, contribute to seasonal fruit harvests, help stabilize soils, and enhance the visual character of the site.



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0 200 400 800 Feet

Pole
Property Boundary
Solar Panels
Underground Electric
Aboveground Electric
Fence
Gravel Road
Delineated Stream
Wetland Edge
Basin
Prime Farmland
NRCS Soils Boundary
Town Boundary

LSE Lynx Solar | Simsbury, Connecticut

Farmland Soils Figure

Source: VHB. CTDEEP, ESRI

Appendix K Core Forest Documentation

From: Martin, Christopher <Christopher.Martin@ct.gov>
Sent: Tuesday, September 9, 2025 12:04 PM
To: Sam Valone
Cc: Kearney, Shannon; Steve Kochis; Tom D'Aguiar; Megan Higgins
Subject: [External] RE: Siting Council Petition - 140 Nod Rd, Simsbury

We submit the letter directly to the Siting Council with you cc'd via email.

From: Sam Valone <svalone@lodestarenergy.com>
Sent: Tuesday, September 9, 2025 11:59 AM
To: Martin, Christopher <Christopher.Martin@ct.gov>
Cc: Kearney, Shannon <Shannon.Kearney@ct.gov>; Steve Kochis <skochis@vhb.com>; Tom D'Aguiar <tdaguiar@vhb.com>; Megan Higgins <mhiggins@lodestarenergy.com>
Subject: Re: Siting Council Petition - 140 Nod Rd, Simsbury

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Chis,

Are you able to send us the letter so we can submit it with our Siting Council filling?

Best,

Sam

On Mon, Sep 8, 2025 at 4:15 PM Sam Valone <svalone@lodestarenergy.com> wrote:

> Great - thanks!
>
> On Mon, Sep 8, 2025 at 4:07 PM Martin, Christopher <Christopher.Martin@ct.gov> wrote:
>
> > Certainly, glad to coordinate the timing. Just let me know when your ready. If anything changes between now and then we can take another look.
> >
> > ---
> >
> > **From:** Sam Valone <svalone@lodestarenergy.com>
> > **Sent:** Monday, September 8, 2025 4:03 PM
> > **To:** Martin, Christopher <Christopher.Martin@ct.gov>
> > **Cc:** Kearney, Shannon <Shannon.Kearney@ct.gov>; Steve Kochis <skochis@vhb.com>; Tom D'Aguiar <tdaguiar@vhb.com>; Megan Higgins <mhiggins@lodestarenergy.com>
> > **Subject:** Re: Siting Council Petition - 140 Nod Rd, Simsbury

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Chris,

Thank you for your determination. We are still at least a month off from filing to the Siting Council. Can I let you know when we submit and then you can submit a formal letter?

Best,

Sam

On Mon, Sep 8, 2025 at 1:06 PM Martin, Christopher <Christopher.Martin@ct.gov> wrote:

> Hi Sam,
>
> DEEP does not anticipate a material impact to core forest from this project as presented. Would you like us to submit a letter stating such the CT Siting Council?
>
> ---
>
> **From:** Martin, Christopher <Christopher.Martin@ct.gov>
> **Sent:** Thursday, September 4, 2025 4:16 PM
> **To:** Sam Valone <svalone@lodestarenergy.com>
> **Cc:** Kearney, Shannon <Shannon.Kearney@ct.gov>; Steve Kochis <skochis@vhb.com>; Tom D'Aguiar <tdaguiar@vhb.com>; Megan Higgins <mhiggins@lodestarenergy.com>
> **Subject:** RE: Siting Council Petition - 140 Nod Rd, Simsbury
>
> Thanks Sam,

We should be able to make a determination in a week or two.

From: Sam Valone <svalone@lodestarenergy.com>
Sent: Thursday, September 4, 2025 3:37 PM
To: Martin, Christopher <Christopher.Martin@ct.gov>
Cc: Kearney, Shannon <Shannon.Kearney@ct.gov>; Steve Kochis <skochis@vhb.com>; Tom D'Aguiar <tdaguiar@vhb.com>; Megan Higgins <mhiggins@lodestarenergy.com>
Subject: Re: Siting Council Petition - 140 Nod Rd, Simsbury

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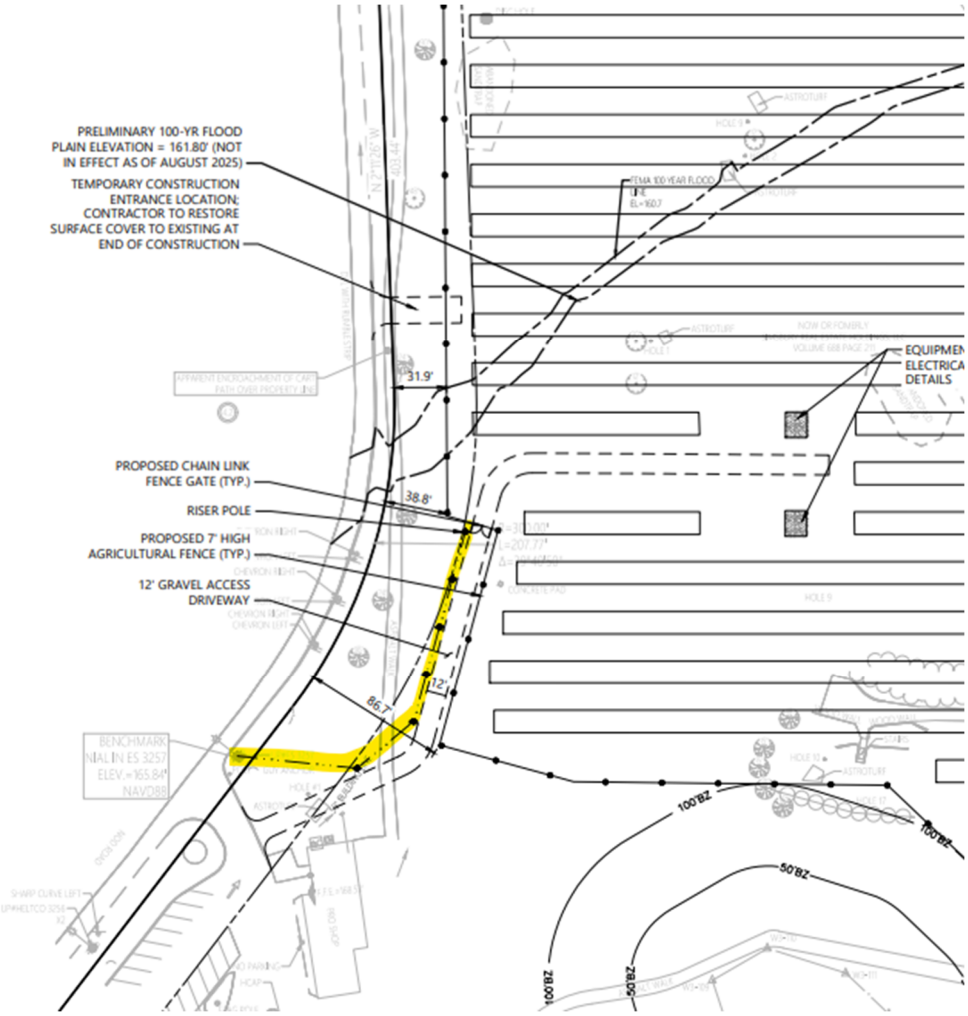
Hi Chris,

The interconnection will be off Nod Rd near where the existing access is to the golf club, so not passing through any forest areas. We are extending the access road up north with poles on the western side of the access road. The interconnection is highlighted below in yellow. The site plan is also attached for reference.



Best,

Sam

On Thu, Sep 4, 2025 at 3:04 PM Martin, Christopher <Christopher.Martin@ct.gov> wrote:

> Thank you Sam. Is the interconnection directly passing through non forest area to Nod Rd or some other location?

From: Sam Valone <svalone@lodestarenergy.com>
Sent: Thursday, September 4, 2025 2:52 PM
To: Martin, Christopher <Christopher.Martin@ct.gov>; Kearney, Shannon <Shannon.Kearney@ct.gov>
Cc: Steve Kochis <skochis@vhb.com>; Tom D'Aguiar <tdaguiar@vhb.com>; Megan Higgins <mhiggins@lodestarenergy.com>
Subject: Siting Council Petition - 140 Nod Rd, Simsbury

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Chris and Shannon,

We have a 4.65 MW AC solar project we are looking to submit to the Siting Council as a Petition. The address is 140 Nod Rd, Simsbury CT. It is a former golf course that is now being used for disc golf.

The attached figure illustrates the project area in relation to the mapped limits of core forest. Based on our review, the project does not involve any clearing within core forest. The design includes approximately 2.5 acres of non-contiguous tree clearing, primarily consisting of trees located along the fairways.

Could you please confirm whether you agree with our conclusion that the project will not result in a material impact to core forest?

Thank you!

Sam

--

LODESTAR ENERGY

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