SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

STORMWATER MANAGEMENT REPORT

For

Franklin Drive Subdivision
Windham, Maine

Prepared for:

Land of New Gen Estates, LLC
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South Portland, ME 04106

Prepared by:

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May, 2025

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STORMWATER MANAGEMENT REPORT
FRANKLIN DRIVE SUBDIVISION
WINDHAM, MAINE

1. Introduction

This Stormwater Management Report has been prepared to present analyses performed to address the potential impacts associated with the project due to proposed modifications in stormwater runoff characteristics and land cover changes. The stormwater management controls that are outlined in this report have been designed to suit the proposed development and to comply with applicable regulatory requirements.

2. Existing Conditions

The project site currently consists of undeveloped land located at 20 Franklin Drive in Windham, ME. The site is approximately 38.59 acres and bounded by The Home Depot (part of the Windham Mall) to the south, the Windham Veterans Center to the east, and undeveloped land to the north and west.

Slopes on the site range from generally flat along Franklin Drive, but range from flat to steep slopes throughout the wooded portion of the property. There are approximately 2.5 acres of steep slopes located throughout the site. There are approximately 13.4 acres of wetlands located on the site, including a vernal pool of special significance with an approximate size of 0.53 acres. Wetland and vernal pool delineations were conducted by Mark Hampton Associates and Flycatcher, respectively, in 2020.

A portion of the site is located within the Sebago Lake Watershed. This lake is listed in Chapter 502 of the Maine Department of Environmental Protection (MDEP) regulations as a Lake Most at Risk from New Development, but is not severely blooming. Phosphorus calculations have been included in Appendix A. The project phosphorus export (PPE) is less than or equal to the project phosphorus budget (PPB) and therefore has no further phosphorus treatment or compensation requirement.

The proposed development area of the site is not located in an identified flood zone, nor is the site located in any Shoreland Zone. The site is located in the Commercial 1 (C-1) District and is identified on the Town of Windham Tax Map 18 as Lot 26-2-A.

3. Soils

Soil characteristics were obtained from the [source] Soil Survey completed by Sebago Technics. The Hydrologic Groups (HSG) of the soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
DeB	Deerfield loamy fine sand	3-8	A
HgB	Hermon sandy loam	3-8	A
HgC	Hermon sandy loam, very sandy	8-15	A
HIB	Hinckley loam sand	3-8	A
Sp	Sebago mucky peat	0-1	A/D
Wa	Walpole fine sandy loam	0-3	A/D

Hydrologic Soil Group boundaries are delineated on the Watershed Map. A copy of the Class Medium Intensity Soil Survey is included as Appendix 4.

4. Proposed Site Improvements

The proposed development will consist of a four (4) lot subdivision of the existing parcel located at 20 Franklin Drive. This property is currently undeveloped with a trail running through the middle of the parcel. The development proposed within this project scope includes the removal of the existing cul-de-sac and an approximately 380 LF extension of Franklin Drive. This road extension is proposed to have two (2) way traffic flow, parallel parking, curbing, sidewalks on both sides of the road, a hammerhead turnaround at the terminus, underground utilities, and stormwater infrastructure. This project will result in the creation of 0.43 acres of non-vegetated area and 0.85 acres of total developed area.

5. Existing Conditions Model

The pre-development watershed plan consists of two (2) subcatchments labeled 1.0S and 2.0S in the HydroCAD model. Two (2) locations were identified as Points of Analysis (POA) for comparing peak runoff rates. The first point of analysis represents an existing best management practice (BMP) that is located directly south of the existing cul-de-sac within the abutting property. The second point of analysis represents the existing low point of the site that contains a vernal pool and is located in the middle of the property.

POA-1: Subcatchment 1.0S is tributary to this point of analysis with an area of approximately 6.7 acres. This area includes a portion of Franklin Drive, the grass area directly adjacent to the southern property line, and a portion of the wooded area within the property.

POA-2: Subcatchment 2.0S is tributary to this point of analysis with an area of approximately 7.9 acres. This area includes a portion of the adjacent property directly southeast of the site and a portion of the wooded area within the property.

The total amount of acreage within this study is approximately 14.6 acres.

6. Proposed Conditions Model

The post-development watershed area consists of the same overall area as the pre-development plan, however, the pre-development subcatchments have been broken into smaller watersheds as a result of the proposed development. There is a total of seven (7) subcatchments in the proposed conditions model for a total area of approximately 14.6 acres.

POA-1: Subcatchment 1.1S is tributary to this point of analysis with an approximate area of 6.3 acres. This subcatchment includes the existing area that is to remain on and off-site. There is no development proposed within this subcatchment.

POA-2: Subcatchments 2.1S through 2.6S are tributary to this point of analysis with an approximate area of 8.2 acres. Subcatchments 2.1S through 2.5S represent the proposed development of the road extension and underdrained soil filter. Subcatchment 2.6S represents the outskirts of the turnaround that will be graded to accommodate the proposed road, as well as the existing wooded area that is to remain the same as in the existing conditions model.

The Best Management Practice (underdrained soil filter) has been designed and sized in accordance with DEP BMP standards contained within Chapter 500 and the BMP Manual. Sizing calculations can be found in Appendix 1.

7. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

Since the project will disturb more than one (1) acre of land area, MDEP Basic Standards apply, requiring that grading or other construction activities on the site do not impede or otherwise alter drainage ways to have an unreasonable adverse impact. We have avoided adverse impacts by providing an Erosion & Sedimentation Control Plan, and an Inspection, Maintenance, and Housekeeping Plan (Appendix 3) to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines.

General Standard - Chapter 500, Section 4(C)

Since the project will create more than one (1) acre of impervious surface, MDEP General Standards apply, which require a project's stormwater management system to include treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. The General Standards require treatment of no less than 95% of the site's created impervious area and no less than 80% of the site's created developed area (landscaped area and impervious area combined). To mitigate the changes in hydrologic patterns due to the development of this

project, one (1) underdrained soil filter has been implemented into the stormwater management infrastructure. Filtration BMPs are very effective at removing a wide range of pollutants through the use of organic soil filter media.

BMP sizing and treatment calculations are provided as Appendix 1.

Through the use of the aforementioned BMP's at least 95% of new impervious area and at least 80% of new developed area will be receiving treatment. This meets the requirements for the Maine DEP General Standards.

Phosphorus Standard – Chapter 500, Section 4(D)

As stated previously, Sebago Lake is identified as a lake most at risk, but not categorized as severely blooming, per MDEP Chapter 502. Therefore, the project is subject to the Phosphorus Standards of MDEP Chapter 500, as the project results in 1 acres or more of impervious area.

One (1) Underdrained Soil Filter is proposed for attenuation and treatment of stormwater runoff generated by the proposed development. The BMP was designed per the MDEP Stormwater BMP Manual, Chapter 7.1, as well as Volume II: Phosphorus Control Manual of the Maine Stormwater Management Design Manual. It was chosen as the most appropriate BMP for this project since it provides an effective means of filtration for contaminants commonly found in stormwater and is the best fit for the current site constraints.

A per-acre phosphorus allocation calculation was completed for the project using the High Export Option to determine if the allowable per-acre phosphorus allocation for the Sebago Lake Watershed is achieved. The total acreage of the development parcel is approximately 38.6 acres. The wetland area was obtained using NWI wetlands, as well as wetlands mapped by Mark Hampton, and is equal to 13.4 acres. Steep slope areas (slopes greater than 25%) equal 2.5 acres. Therefore, the project phosphorus budget for the project parcel is equal to 1.20 lbs. P/year. The pre-treatment phosphorus export (pre-PPE) was calculated to be 0.63 lbs. P/year. With the implementation of the proposed stormwater treatment for newly developed areas, approximately 0.15 lbs. P/year (post-PPE) will be exported off-site in the proposed condition. No mitigation to existing pollutant sources is proposed, as the site is undeveloped in its existing condition. The Project Phosphorus Export is below the Project Phosphorus Budget, and therefore, the Phosphorus Standard has been satisfied. Calculations associated with the removal of phosphorus can be referenced in Appendix 1.

Flooding Standard - Chapter 500, Section 4(F)

Since the planned project will not create more than three (3) acres of impervious surface, but due to the SLODA permit that will be required for the future proposed development within the site, MDEP Flooding Standards must be met. The Flooding Standard requires a project's stormwater management system detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2, 10, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior

to undertaking the project. As such, a runoff evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations.

HydroCAD Stormwater Analysis

Runoff curve numbers were determined for each of the watersheds by measuring the area of each hydrologic soil group within each type of land cover. The type of land cover was determined based on survey data, field reconnaissance and aerial photography. Times of concentration were determined from site topographic maps in accordance with SCS procedures.

The 24-hour rainfall values utilized in the hydrologic model were obtained from Appendix H of MDEP's Chapter 500: Stormwater Management (effective date August 2015). Rainfall values for York County are listed in the table below.

Storm Frequency Precipitation (in./24 hr) York County	
2-year	3.1
10-year	4.6
25-year	5.8

The following table presents the results of the peak runoff calculations at the analysis points for the existing and proposed conditions.

Peak Runoff Rate Summary Table			
Analysis Point	**Storm Event**	**Existing Conditions (cfs)**	**Proposed Conditions (cfs)**
POA-1	2-year	0.0	0.0
	10-year	0.0	0.0
	25-year	0.3	0.1
POA-2	2-year	0.0	0.0
	10-year	0.1	0.1
	25-year	0.4	0.4

The HydroCAD Data output sheets from this analysis are appended to this report (Appendix 2) along with the Stormwater Management Plans (Appendix 5). The model predicts that the peak runoff rates in the post-development condition at Points of Analysis 1 and 2 are at or below pre-development runoff rates for the 2, 10, and 25-year storm events with implementation of the proposed stormwater management practices.

8. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Stormwater BMP meets MDEP's General Standard by providing treatment to at least 95% of the impervious areas and at least 80% of the total developed area. Runoff discharging from the site will be at or below pre-development conditions for the 2, 10, and 25-year storm events at all three study points. Additionally, erosion and sedimentation controls, along with associated maintenance and housekeeping procedures, have been outlined to prevent unreasonable impacts on the site and the surrounding environment.

Prepared by:

SEBAGO TECHNICS, INC.

Robert A. McSorley, P.E.
Senior Project Manager

RAM/bjb

Robert A. McSorley, P.E. ME Reg. No. 8588
May 19, 2025

Appendix 1

Stormwater Quality Calculations & Phosphorus Calculations

Table 1: MDEP GENERAL STANDARD CALCULATIONS

Job # 230411

AREA ID	WATERSHED SIZE (S.F.)	EXISTING ONSITE IMPERVIOUS AREA TO REMAIN (S.F.)	NEW ONSITE IMPERVIOUS AREA (S.F.)	EXISTING ONSITE LANDSCAPED AREA TO REMAIN (S.F.)	NEW ONSITE LANDSCAPED AREA (S.F.)	NET NEW DEVELOPED AREA (S.F.)	NET EXISTING DEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	IMPERVIOUS AREA TREATED (S.F.)	LANDSCAPED AREA TREATED (S.F.)	DEVELOPED AREA TREATED (S.F.)	TREATMENT BMP
1.1S	276,563	15,903	0	5,750	3,516	3,516	21,653	NO	0	0	0	None
2.1S	4,541	1,582	2,577	0	382	2,959	1,582	YES	4,159	382	4,541	UDSF-1
2.2S	4,306	856	2,103	0	1,347	3,450	856	YES	2,959	1,347	4,306	UDSF-1
2.3S	7,650	0	7,080	0	570	7,650	0	YES	7,080	570	7,650	UDSF-1
2.4S	7,268	0	6,972	0	296	7,268	0	YES	6,972	296	7,268	UDSF-1
2.5S	9,204	0	0	0	9,204	9,204	0	YES	0	9,204	9,204	UDSF-1
2.6S	326,379	28,189	0	0	2,974	2,974	28,189	NO	0	0	0	None
TOTAL (S.F.)	**635,911**	**46,530**	**18,732**	**5,750**	**18,289**	**37,021**	**52,280**		**21,170**	**11,799**	**32,969**	

TOTAL NEW IMPERVIOUS AREA (S.F.)	**18,732**	**TOTAL NEW DEVELOPED AREA (S.F.)**	**32,969**
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	**21,170**	**TOTAL AREA RECEIVING TREATMENT (S.F.)**	**32,969**
% OF IMPERVIOUS AREA RECEIVING TREATMENT*	**113.02%**	**% OF AREA RECEIVING TREATMENT***	**100.00%**

***INCLUDES THE TREATMENT OF EXISTING IMPERVIOUS AND DEVELOPED AREAS THAT ARE NOT CURRENTLY RECEIVING TREATMENT**

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75 John Roberts Road Suite 4A
South Portland, Maine 04106
Tel. (207) 200-2100

JOB	230411		
SHEET NO.	1	OF	2
CALCULATED BY	KMK	DATE	12/13/2024
FILE NAME	230411 WQC	PRNT DATE	5/16/2025

UNDERDRAINED SOIL FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References

1. Maine DEP Chapter 500, Section 4.C.(3)(b)
   a. "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
2. Maine DEP Best Management Practices Stormwater Manual, Section 7.1
   a. "surface should represent 5% of impervious area and 2% of landscaped area"

Tributary to Underdrained Filter: UDSF-1

Landscaped Area	11,799	SF				
Impervious Area	21,170	SF				

Minimum Surface Area

Required (2% X Landscaped + 5%" X Impervious)

Total Landscaped Area	11,799	SF	Area	236.0	SF	
Total Impervious Area	21,170.00	SF	Area	1,058.5	SF	
Required Minimum Surface Area				1,294.5	SF	
Provided Surface Area				3,000.0	SF	

Treatment Volume

Required (0.4" X Landscaped + 1.0" X Impervious)

Landscaped Area	11,799	SF	Volume	393.3		
Impervious Area	21,170	SF	Volume	1,764.2		
Treatment Volume Required				2,157.5	CF	0.050 AF
Provided Treatment Volume				5,951.0	CF	Elev. 313.00 - 314.50

Sediment Pre-Treatment

Per Reference 2, Chapter 7.1 "Pretreatment devices shall be provided to minimize discharge of sediment to the soil filter"

Annual Sediment Load: 55 cubic feet per acre per year of sanded area

Area to be sanded:	21,170	SF
Sediment Volume	27	CF

Provided 672 CF 12 Inch Deep Forebay with area of 672 sf

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JOB	230411		
SHEET NO.	1	OF	1
CALCULATED BY	BJB	DATE	4/22/2025
CHECKED BY	RAM		
FILE NAME	230411 WQV	PRINT DATE	5/16/2025

ORIFICE SIZING CALCULATION

Stormwater BMP: UDSF-1

Orifice Equation $Q = CA\sqrt{(2gh)}$

Q = Rate of Discharge (cfs)
A = Orifice Area (sf)
G = Gravitational Constant (32.2 ft/s^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = 0.6 Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a desired amount of time is:

$$Q = \frac{WQv}{Tcf}$$

TV = Treatment Volume (cf)
T = Target Drain Time (Hours)
cf = Conversion Factor = 3600 sec/hr

TV = 5,951 cf
t = 48 hr

$$Q = \frac{TV}{tCF}$$ 0.03 cfs Target Rate for 48 hour discharge

surface area of filter = 3,000 SF

hmax = 1.98 ft h/2= 0.99 ft

$$A = \frac{Q}{C\sqrt{(2gh)}}$$ A = 0.007 sf = 1.03 sq. in.

Diam = 1.15 in

Summary for Pond 8P: USDF-1

Inflow Area = 32,969 sf, 64.21% Impervious, Inflow Depth = 0.79" for UDSF-1 WQV event
Inflow = 0.7 cfs @ 12.09 hrs, Volume= 2,162 cf
Outflow = 0.0 cfs @ 14.03 hrs, Volume= 2,162 cf, Atten= 94%, Lag= 116.6 min
Primary = 0.0 cfs @ 14.03 hrs, Volume= 2,162 cf
Routed to Link POA-2 : POA-2
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link POA-2 : POA-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 313.29' @ 14.03 hrs Surf.Area= 3,395 sf Storage= 967 cf
Flood Elev= 317.50' Surf.Area= 6,968 sf Storage= 20,572 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 219.2 min (1,027.8 - 808.6)

Volume	Invert	Avail.Storage	Storage Description
#1	310.83'	20,572 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

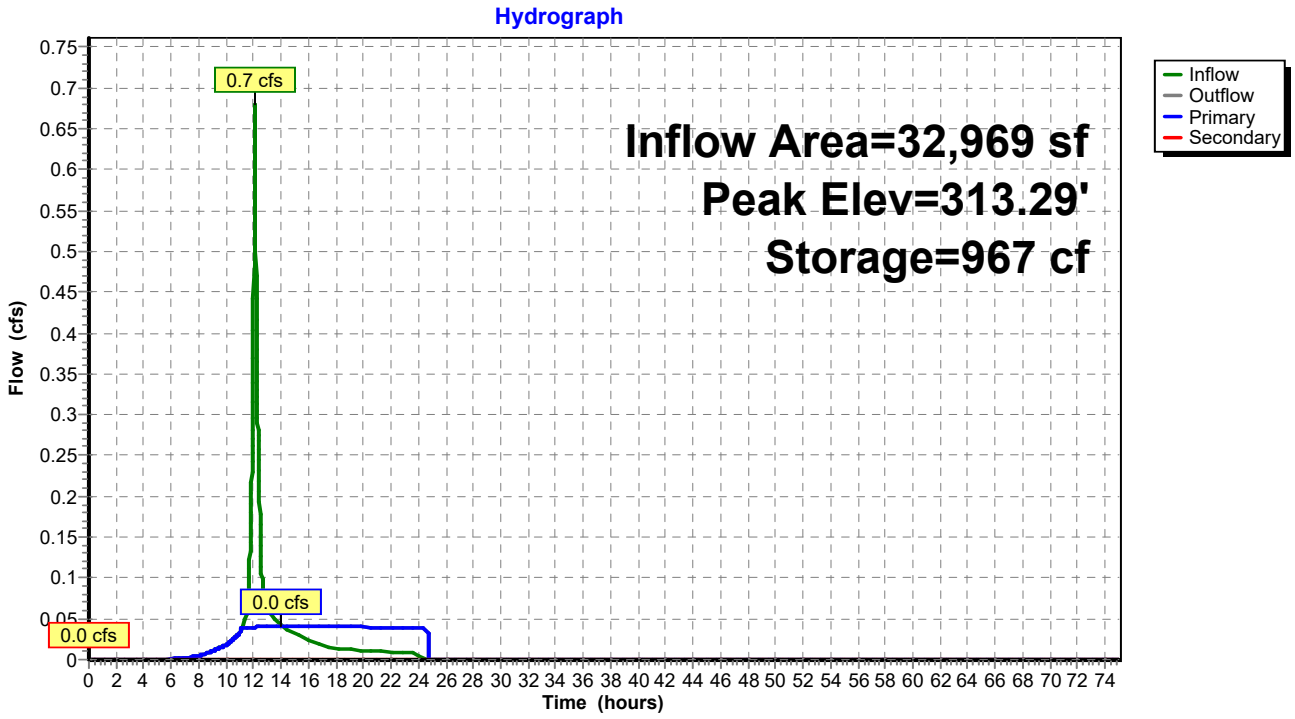
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
310.83	3,000	0.0	0	0
312.99	3,000	0.0	0	0
313.00	3,000	100.0	30	30
314.00	4,348	100.0	3,674	3,704
315.00	5,168	100.0	4,758	8,462
316.00	6,042	100.0	5,605	14,067
317.00	6,968	100.0	6,505	20,572

Device	Routing	Invert	Outlet Devices
#1	Primary	310.73'	**12.0" Round Outlet Pipe** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 310.73' / 310.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	310.83'	**1.0" Vert. UD Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 2	310.83'	**2.410 in/hr Infiltration over Surface area** Phase-In= 0.01'
#4	Device 1	314.50'	**1.0" W x 7.0" H Vert. Beehive Grate X 29.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	316.50'	**14.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69

Primary OutFlow Max=0.0 cfs @ 14.03 hrs HW=313.29' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 0.0 cfs of 4.2 cfs potential flow)
  └─**2=UD Orifice** (Orifice Controls 0.0 cfs @ 7.49 fps)
    └─**3=Infiltration** (Passes 0.0 cfs of 0.2 cfs potential flow)
  └─**4=Beehive Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=310.83' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond 8P: USDF-1



Summary for Pond 8P: USDF-1

Inflow Area = 32,969 sf, 64.21% Impervious, Inflow Depth = 3.62" for 25-YR event
Inflow = 2.9 cfs @ 12.08 hrs, Volume= 9,955 cf
Outflow = 0.0 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link POA-2 : POA-2
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link POA-2 : POA-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 315.28' @ 24.37 hrs Surf.Area= 5,415 sf Storage= 9,955 cf
Flood Elev= 317.50' Surf.Area= 6,968 sf Storage= 20,572 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	310.83'	20,572 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

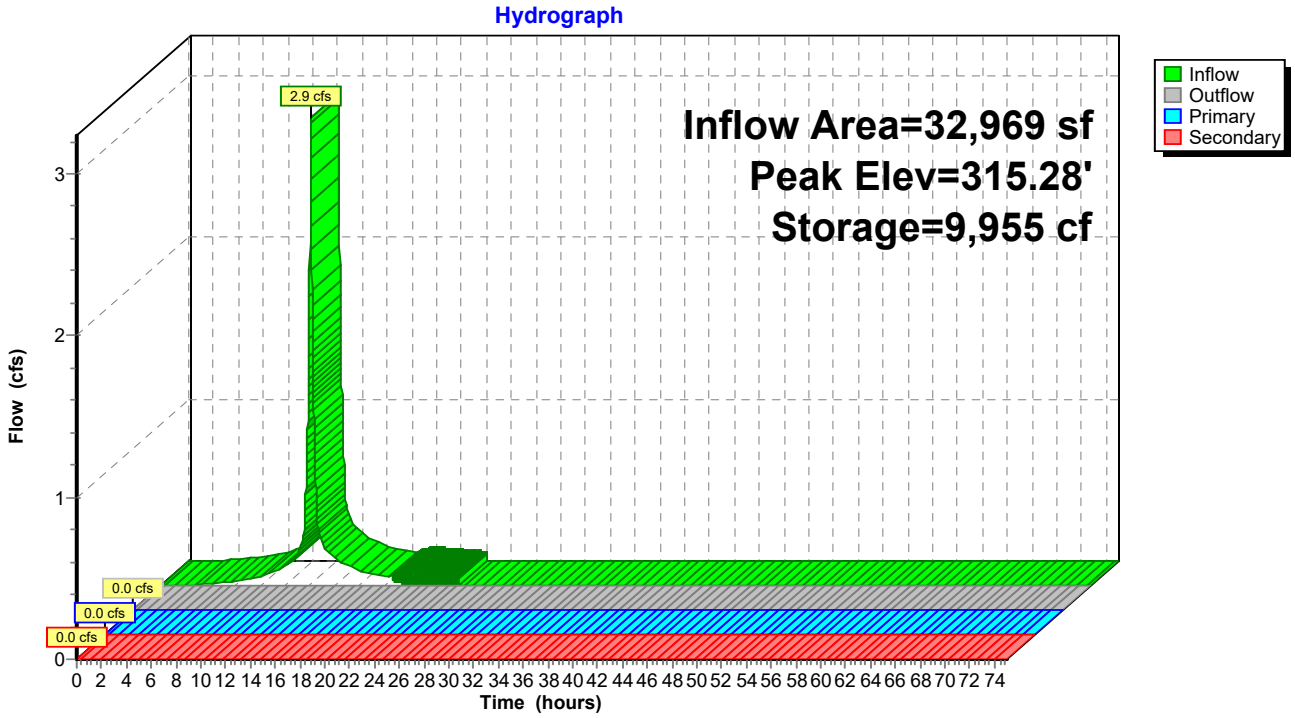
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
310.83	3,000	0.0	0	0
312.99	3,000	0.0	0	0
313.00	3,000	100.0	30	30
314.00	4,348	100.0	3,674	3,704
315.00	5,168	100.0	4,758	8,462
316.00	6,042	100.0	5,605	14,067
317.00	6,968	100.0	6,505	20,572

Device	Routing	Invert	Outlet Devices
#1	Primary	310.73'	**12.0" Round Outlet Pipe X 0.00** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 310.73' / 310.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	310.83'	**1.0" Vert. UD Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 2	310.83'	**2.410 in/hr Infiltration over Surface area** Phase-In= 0.01'
#4	Device 1	314.50'	**1.0" W x 7.0" H Vert. Beehive Grate X 29.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	316.50'	**14.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=310.83' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Controls 0.0 cfs)
  └─**2=UD Orifice** (Controls 0.0 cfs)
    └─**3=Infiltration** (Controls 0.0 cfs)
  └─**4=Beehive Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=310.83' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond 8P: USDF-1



Worksheet 1 - PPB calculations

Project Name:	**Franklin Drive Subdivision**
Lake Watershed:	**Sebago Lake**
Town: Windham, ME	

Standard Calculations

Watershed per acre phosphorus budget (Appendix C)	**PAPB**	0.053	lbs P/acre/year
Total acreage of development parcel:	**TA**	38.6	acres
NWI wetland acreage:	**WA**	13.4	acres
Steep slope acreage:	**SA**	2.5	acres
Project acreage: A = TA - (WA+ SA)	**A**	22.69	acres
Project Phosphorus Budget: PPB = P x A	**PPB**	1.20257	**lbs P/year**

Small Watershed Adjustment

If Project Acreage (A) is greater than the threshold acreage for the small watershed threshold (SWT, from pertinent lake and town info in the table in Appendix C), calculate an alternative PPB using the analysis below and use this value if it is less than the the Standard Calculation PPB.

Small Watershed Threshold (Appendix C):	**SWT**		acres
Project acreage:	**A**		acres
Allowable increase in town's share of annual phosphorus load to lake (Appendix C):	**FC**		lbs P/year
Area available for development (Appendix C):	**AAD**		acres
Ratio of A to AAD (R=A/AAD)	**R**		

Project Phosphorus Budget

If R < 0.5,	PPB = [(FC x R)/2] + [FC/4]	**PPB**		**lbs P/year**
If R> 0.5,	PPB = FC x R	**PPB**		**lbs P/year**

Worksheet 2
Pre-PPE and Post-PPE Calculations

Calculate phosphorus export from development for before and after treatment
Use as many sheets as needed for each development type (commercial, roads, residential lots, etc.)

Project name: Franklin Drive Subdivision **Development type**: _Subdivision/ Road Extension Sheet # 2

Land Surface Type or Lot #(s) with description	Acres or # of lots	Export Coefficient from Table 3.1 Table 3.2	Pre-treatment Algal Av. P Export (lbs P/year)	Treatment Factor for BMP(s) from Chapter 6	Post- treatment Algal Av. P Export (lbs P/year)	Description of BMPs
Pavement	0.48	1.25	0.6	0.25	0.15	UDSF
Landscape, HSG A	0.27	0.1	0.027	0.25	0.00675	UDSF
		Total Pre-PPE (lbs P/year)	0.627	**Total PostPPE (lbs P/year)**	0.15675	

Appendix D: Worksheet 3 - Mitigation credit

Project name: Franklin Drive Subdivision **Development type**: ___Subdivision_____ Sheet # _____3____

Mitigation credit when a pre-existing source is being eliminated

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)			Mitigation Credit (lbs P/year)	Comments
			0.5	0	1	0			0	
			0.5	0	1	0			0	
			0.5	0	1	0			0	
				Total source elimination mitiagion credit (SEC)					**0**	**lbs P/year**

Mitigation credit when a pre-existing source is treated by a new BMP

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)		Treatment Factor for New BMP(s) Chapter 6	Mitigation Credit (lbs P/year)	Comments
			0.5	0	1	0	1 -		0	
			0.5	0	1	0	1 -		0	
			0.5	0	1	0	1 -		0	
				Total source treatment mitiagion credit (STC)					**0**	**lbs P/year**

TOTAL MITIGATION CREDIT (SEC + STC)	**0**	**lbs P/year**

WORKSHEET 4 - PROJECT PHOSPHORUS EXPORT SUMMARY

Summarizing the project's algal available phosphorus export (PPE)

Project Name: Franklin Drive Subdivision

Project Phosphorus Budget - Worksheet 1	**PPB**	1.20	lbs P/year
Total Pre-Treatment Phosphorus Export - Worksheet 2	**Pre-PPE**	0.63	lbs P/year
Total Post-Treatment Phosphorus Export - Worksheet 2	**Post-PPE**	0.15	lbs P/year
Total Phosphorus Mitigation Credit - Worksheet 3	**TMC**	0.00	lbs P/year
Project Phosphorus Export (Post-PPE - TMC)	**PPE**	0.15	lbs P/year

Is the Project Phosphorus Export ≤ the Project Phosphorus Budget? (PPE≤PPB)

*If **YES**, PPE is less than or equal to PPB and the project meets its phosphorus budget .* *If **NO,** PPE is greater than PPB, more reduction in phosphorus export is required or the payment of a compensation fee may be an option*	YES
The amount of phosphorus that needs further treatment or compensation	lbs P/year

Has Project Phosphorus Export been sufficiently reduced?
Is (Pre-PPE - Post-PPE)/Pre-PPE greater than 0.60?

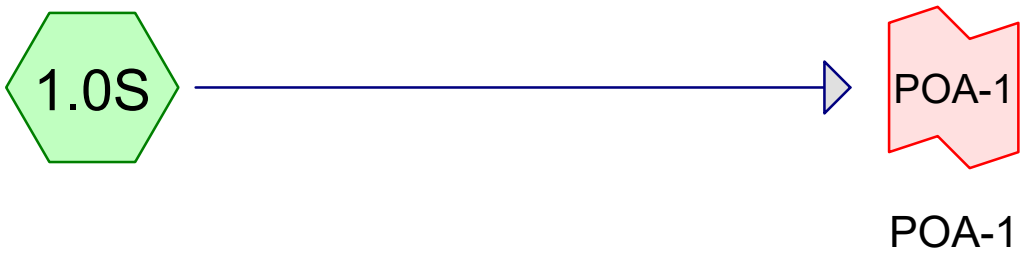
*If **YES**, in some watersheds the compensation fee is an available option.* *If **NO**, more treatment must be provided. PPE must be further reduced.*	
*The post-treatment phosphorus export must be less than 40% of the pre-treatment export (Post-PPE < 0.4*Pre-PPE)*	%

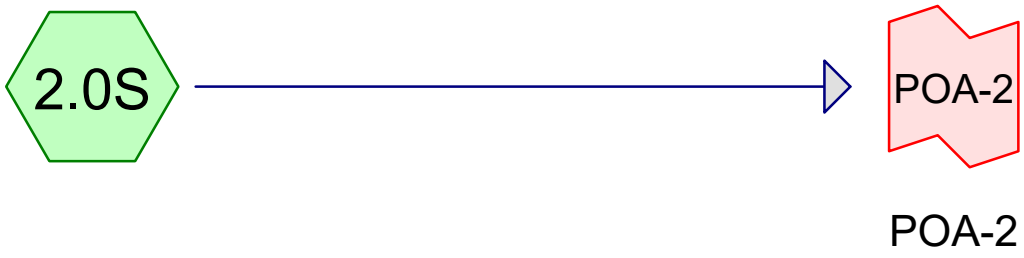
If the project is located in a watershed that is eligible for a compensation fee (or is a residential subdivision with buffers), a compensation fee may be appropriate as follows:

If Project Export has been reduced by greater than 60% and less than 75%, $25,000 per pound minus $833 per 1% Percent Export	
If Project Export has been reduced by greater than 75%, $12,500 per pound minus $500 per 1% Project Export	

Appendix 2A

Existing Conditions
HydroCAD Summary





Subcat Reach Pond Link

Routing Diagram for 230411 PRE
Prepared by Sebago Technics, Printed 5/16/2025

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
5,750	39	>75% Grass cover, Good, HSG A (1.0S)
3,903	96	Gravel surface, HSG A (1.0S)
132,016	30	Meadow, non-grazed, HSG A (1.0S)
51,124	98	Paved parking, HSG A (1.0S, 2.0S)
443,118	30	Woods, Good, HSG A (1.0S, 2.0S)
635,911	**36**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
635,911	HSG A	1.0S, 2.0S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
635,911		**TOTAL AREA**

Time span=0.00-75.00 hrs, dt=0.01 hrs, 7501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.0S: Runoff Area=290,070 sf 7.91% Impervious Runoff Depth=0.00"
Flow Length=535' Tc=16.8 min CN=36 Runoff=0.0 cfs 0 cf

Subcatchment2.0S: Runoff Area=345,841 sf 8.15% Impervious Runoff Depth=0.00"
Flow Length=441' Tc=17.6 min CN=36 Runoff=0.0 cfs 0 cf

Link POA-1: POA-1 Inflow=0.0 cfs 0 cf
Primary=0.0 cfs 0 cf

Link POA-2: POA-2 Inflow=0.0 cfs 0 cf
Primary=0.0 cfs 0 cf

Total Runoff Area = 635,911 sf Runoff Volume = 0 cf Average Runoff Depth = 0.00"
91.96% Pervious = 584,787 sf 8.04% Impervious = 51,124 sf

Time span=0.00-75.00 hrs, dt=0.01 hrs, 7501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.0S: Runoff Area=290,070 sf 7.91% Impervious Runoff Depth=0.06"
Flow Length=535' Tc=16.8 min CN=36 Runoff=0.0 cfs 1,401 cf

Subcatchment2.0S: Runoff Area=345,841 sf 8.15% Impervious Runoff Depth=0.06"
Flow Length=441' Tc=17.6 min CN=36 Runoff=0.1 cfs 1,670 cf

Link POA-1: POA-1 Inflow=0.0 cfs 1,401 cf
Primary=0.0 cfs 1,401 cf

Link POA-2: POA-2 Inflow=0.1 cfs 1,670 cf
Primary=0.1 cfs 1,670 cf

Total Runoff Area = 635,911 sf Runoff Volume = 3,071 cf Average Runoff Depth = 0.06"
91.96% Pervious = 584,787 sf 8.04% Impervious = 51,124 sf

Time span=0.00-75.00 hrs, dt=0.01 hrs, 7501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.0S: Runoff Area=290,070 sf 7.91% Impervious Runoff Depth=0.25"
Flow Length=535' Tc=16.8 min CN=36 Runoff=0.3 cfs 6,082 cf

Subcatchment2.0S: Runoff Area=345,841 sf 8.15% Impervious Runoff Depth=0.25"
Flow Length=441' Tc=17.6 min CN=36 Runoff=0.4 cfs 7,251 cf

Link POA-1: POA-1 Inflow=0.3 cfs 6,082 cf
Primary=0.3 cfs 6,082 cf

Link POA-2: POA-2 Inflow=0.4 cfs 7,251 cf
Primary=0.4 cfs 7,251 cf

Total Runoff Area = 635,911 sf Runoff Volume = 13,333 cf Average Runoff Depth = 0.25"
91.96% Pervious = 584,787 sf 8.04% Impervious = 51,124 sf

Summary for Subcatchment 1.0S:

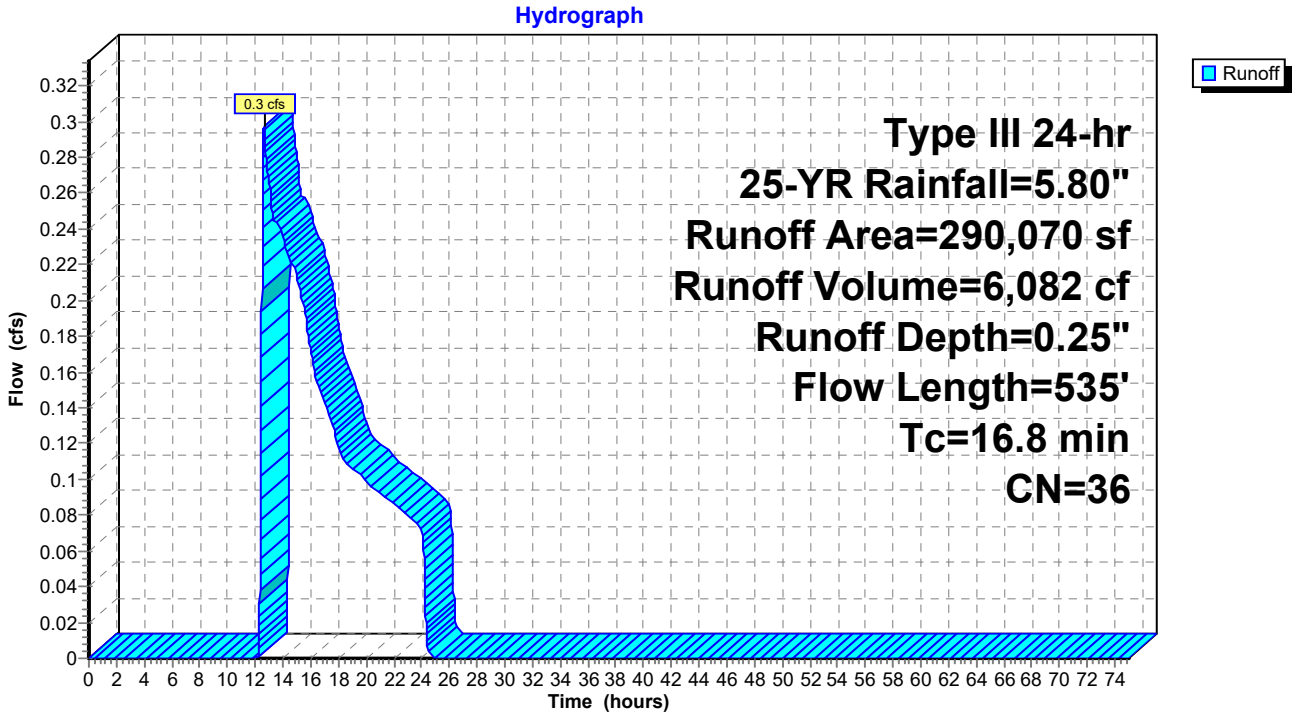
Runoff = 0.3 cfs @ 12.64 hrs, Volume= 6,082 cf, Depth= 0.25"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
22,936	98	Paved parking, HSG A
3,903	96	Gravel surface, HSG A
132,016	30	Meadow, non-grazed, HSG A
125,465	30	Woods, Good, HSG A
5,750	39	>75% Grass cover, Good, HSG A
290,070	36	Weighted Average
267,134		92.09% Pervious Area
22,936		7.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.0400	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
5.3	160	0.0100	0.50		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	135	0.0300	3.52		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
1.7	190	0.0736	1.90		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
16.8	535	Total			

Subcatchment 1.0S:



Summary for Subcatchment 2.0S:

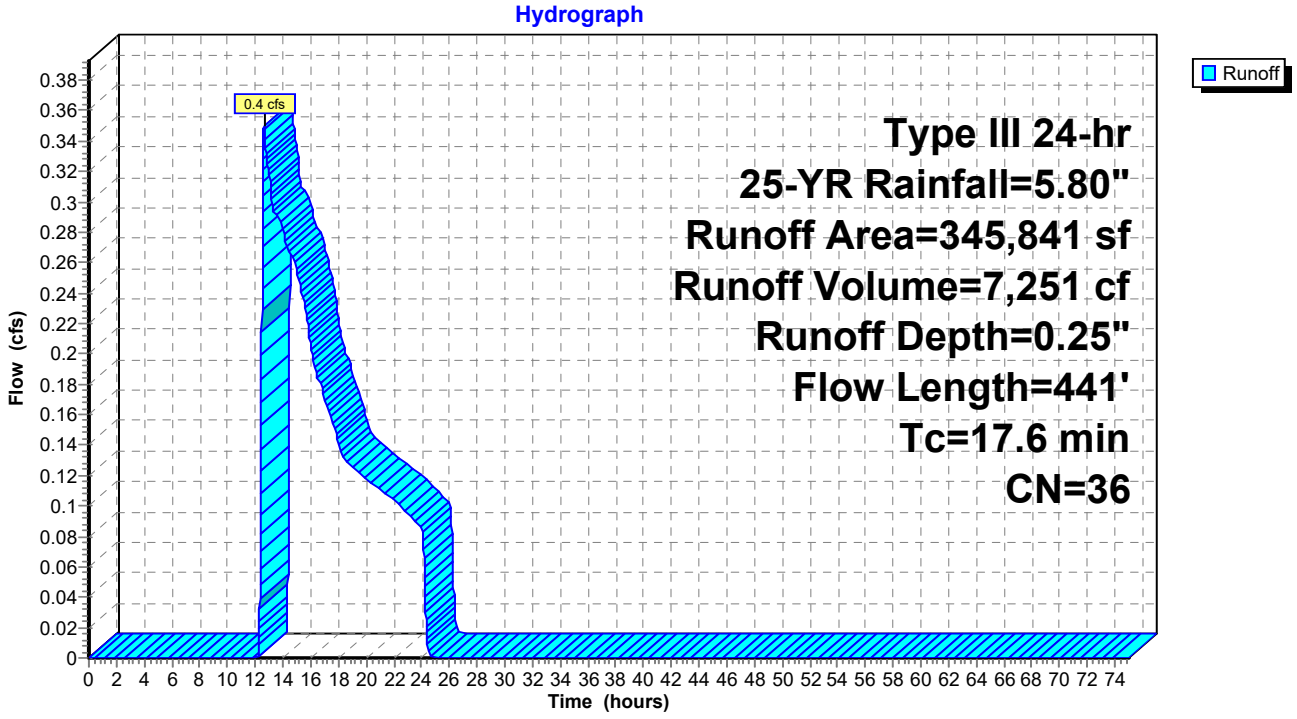
Runoff = 0.4 cfs @ 12.65 hrs, Volume= 7,251 cf, Depth= 0.25"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
28,188	98	Paved parking, HSG A
317,653	30	Woods, Good, HSG A
345,841	36	Weighted Average
317,653		91.85% Pervious Area
28,188		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	57	0.0440	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
6.8	266	0.0170	0.65		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	118	0.1700	2.06		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
17.6	441	Total			

Subcatchment 2.0S:

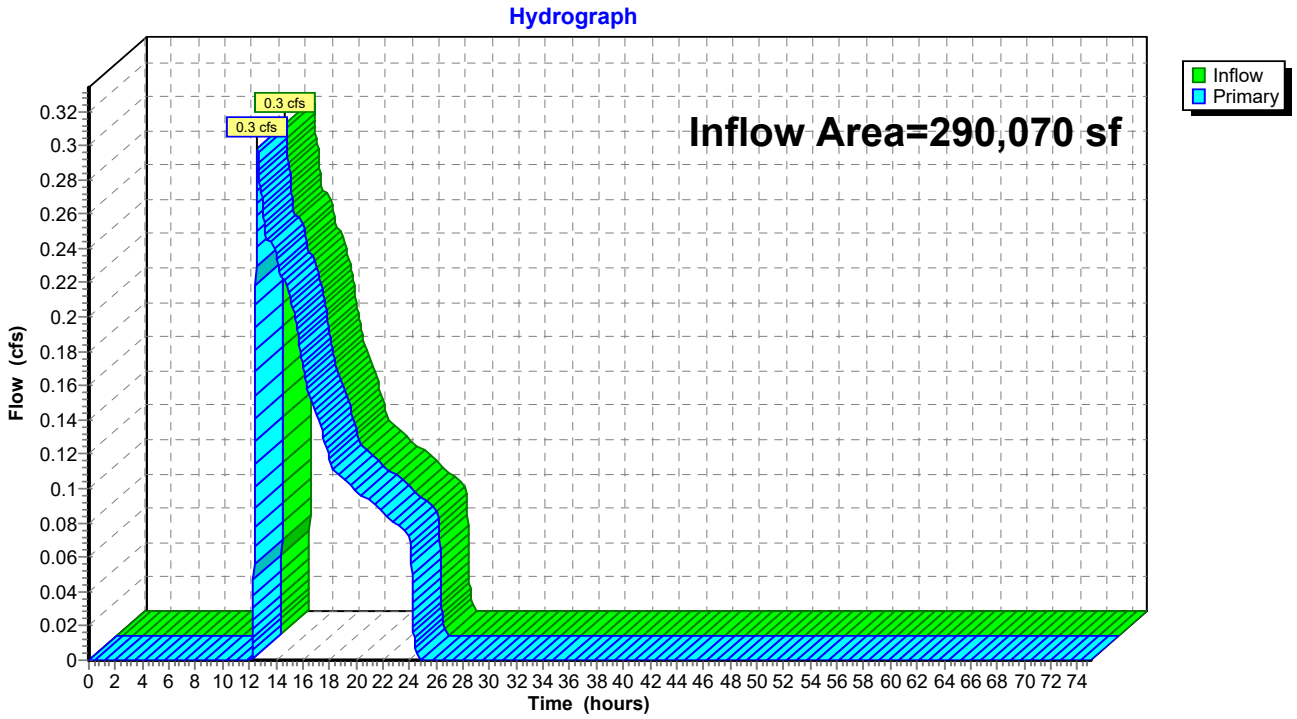


Summary for Link POA-1: POA-1

Inflow Area = 290,070 sf, 7.91% Impervious, Inflow Depth = 0.25" for 25-YR event
Inflow = 0.3 cfs @ 12.64 hrs, Volume= 6,082 cf
Primary = 0.3 cfs @ 12.64 hrs, Volume= 6,082 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs

Link POA-1: POA-1

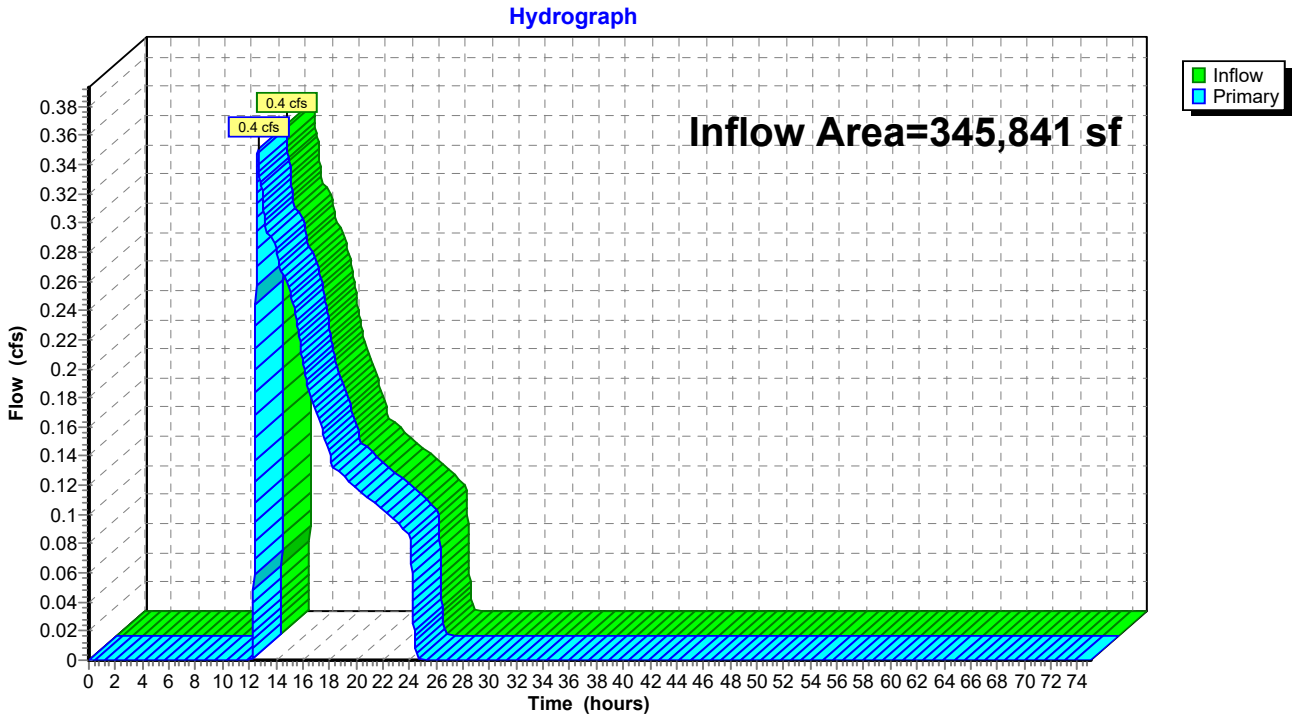


Summary for Link POA-2: POA-2

Inflow Area = 345,841 sf, 8.15% Impervious, Inflow Depth = 0.25" for 25-YR event
Inflow = 0.4 cfs @ 12.65 hrs, Volume= 7,251 cf
Primary = 0.4 cfs @ 12.65 hrs, Volume= 7,251 cf, Atten= 0%, Lag= 0.0 min

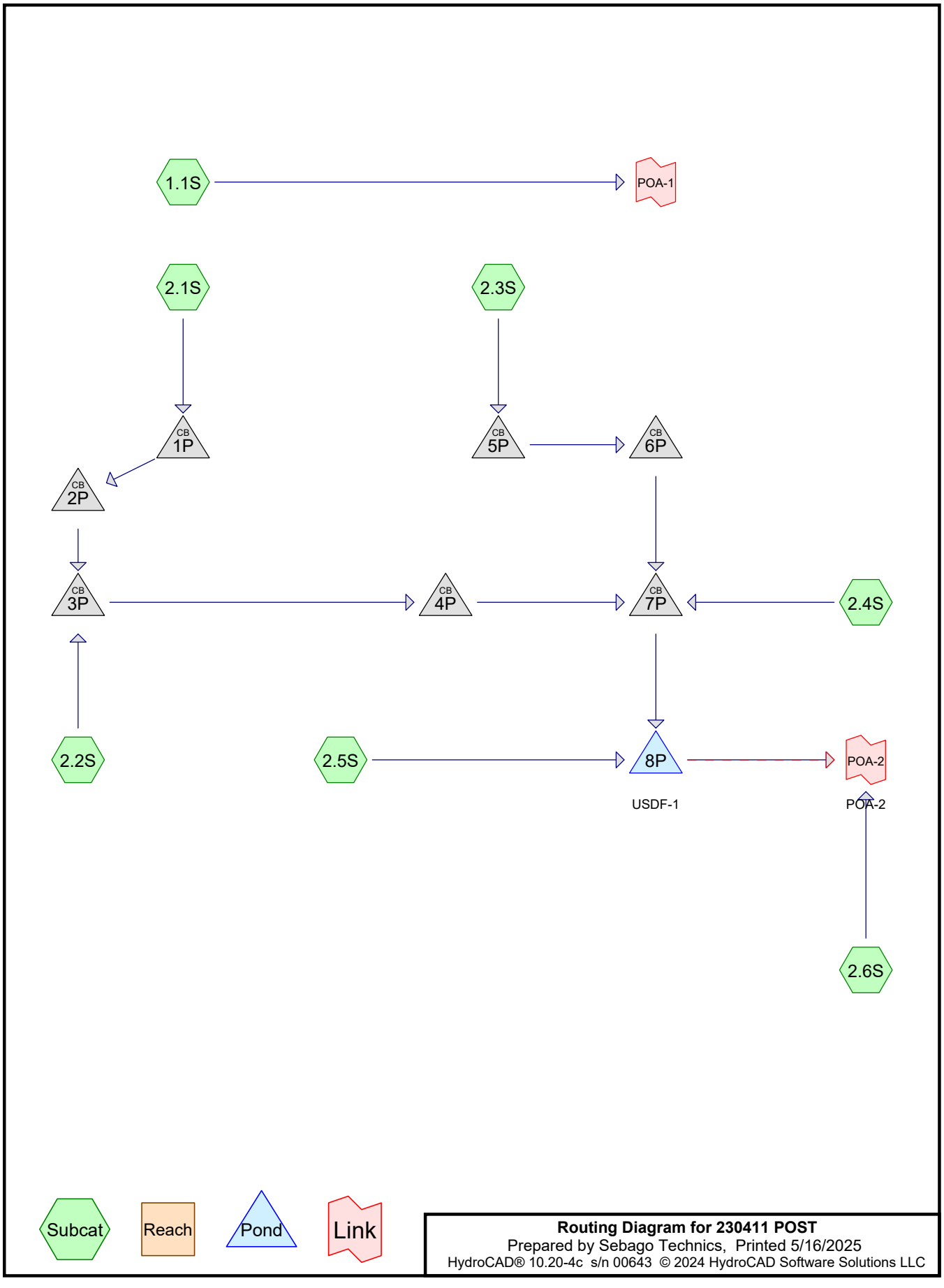
Primary outflow = Inflow, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs

Link POA-2: POA-2



Appendix 2B

Proposed Conditions
HydroCAD Summary



Routing Diagram for 230411 POST
Prepared by Sebago Technics, Printed 5/16/2025

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
21,215	39	>75% Grass cover, Good, HSG A (1.1S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S)
3,903	96	Gravel surface, HSG A (1.1S)
136,866	30	Meadow, non-grazed, HSG A (1.1S, 2.6S)
61,359	98	Paved parking, HSG A (1.1S, 2.1S, 2.2S, 2.3S, 2.4S, 2.6S)
412,568	30	Woods, Good, HSG A (1.1S, 2.6S)
635,911	**37**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
635,911	HSG A	1.1S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
635,911		**TOTAL AREA**

Time span=0.00-75.00 hrs, dt=0.01 hrs, 7501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.1S: Runoff Area=276,563 sf 4.34% Impervious Runoff Depth=0.00"
Flow Length=490' Tc=23.4 min CN=34 Runoff=0.0 cfs 0 cf

Subcatchment2.1S: Runoff Area=4,541 sf 91.59% Impervious Runoff Depth=2.35"
Flow Length=96' Tc=6.0 min CN=93 Runoff=0.3 cfs 889 cf

Subcatchment2.2S: Runoff Area=4,306 sf 68.72% Impervious Runoff Depth=1.33"
Flow Length=30' Tc=6.0 min CN=80 Runoff=0.2 cfs 476 cf

Subcatchment2.3S: Runoff Area=7,650 sf 92.55% Impervious Runoff Depth=2.45"
Flow Length=35' Slope=0.0200 '/' Tc=6.0 min CN=94 Runoff=0.5 cfs 1,560 cf

Subcatchment2.4S: Runoff Area=7,268 sf 95.93% Impervious Runoff Depth=2.65"
Flow Length=134' Tc=6.0 min CN=96 Runoff=0.5 cfs 1,605 cf

Subcatchment2.5S: Runoff Area=9,204 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=43' Slope=0.1800 '/' Tc=6.0 min CN=39 Runoff=0.0 cfs 0 cf

Subcatchment2.6S: Runoff Area=326,379 sf 8.64% Impervious Runoff Depth=0.00"
Flow Length=441' Tc=17.6 min CN=36 Runoff=0.0 cfs 0 cf

Pond 1P: Peak Elev=316.13' Inflow=0.3 cfs 889 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0059 '/' Outflow=0.3 cfs 889 cf

Pond 2P: Peak Elev=315.61' Inflow=0.3 cfs 889 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0060 '/' Outflow=0.3 cfs 889 cf

Pond 3P: Peak Elev=315.44' Inflow=0.4 cfs 1,365 cf
12.0" Round Culvert n=0.013 L=142.0' S=0.0060 '/' Outflow=0.4 cfs 1,365 cf

Pond 4P: Peak Elev=314.52' Inflow=0.4 cfs 1,365 cf
12.0" Round Culvert n=0.013 L=142.0' S=0.0060 '/' Outflow=0.4 cfs 1,365 cf

Pond 5P: Peak Elev=315.04' Inflow=0.5 cfs 1,560 cf
12.0" Round Culvert n=0.013 L=96.0' S=0.0100 '/' Outflow=0.5 cfs 1,560 cf

Pond 6P: Peak Elev=314.06' Inflow=0.5 cfs 1,560 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0100 '/' Outflow=0.5 cfs 1,560 cf

Pond 7P: Peak Elev=313.86' Inflow=1.4 cfs 4,530 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0059 '/' Outflow=1.4 cfs 4,530 cf

Pond 8P: USDF-1 Peak Elev=313.74' Storage=2,628 cf Inflow=1.4 cfs 4,530 cf
Primary=0.0 cfs 4,530 cf Secondary=0.0 cfs 0 cf Outflow=0.0 cfs 4,530 cf

Link POA-1: Inflow=0.0 cfs 0 cf
Primary=0.0 cfs 0 cf

Link POA-2: POA-2 Inflow=0.0 cfs 4,530 cf
Primary=0.0 cfs 4,530 cf

Total Runoff Area = 635,911 sf Runoff Volume = 4,530 cf Average Runoff Depth = 0.09"
90.35% Pervious = 574,552 sf 9.65% Impervious = 61,359 sf

Time span=0.00-75.00 hrs, dt=0.01 hrs, 7501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.1S: Runoff Area=276,563 sf 4.34% Impervious Runoff Depth=0.03"
Flow Length=490' Tc=23.4 min CN=34 Runoff=0.0 cfs 590 cf

Subcatchment2.1S: Runoff Area=4,541 sf 91.59% Impervious Runoff Depth=3.81"
Flow Length=96' Tc=6.0 min CN=93 Runoff=0.4 cfs 1,440 cf

Subcatchment2.2S: Runoff Area=4,306 sf 68.72% Impervious Runoff Depth=2.55"
Flow Length=30' Tc=6.0 min CN=80 Runoff=0.3 cfs 914 cf

Subcatchment2.3S: Runoff Area=7,650 sf 92.55% Impervious Runoff Depth=3.91"
Flow Length=35' Slope=0.0200 '/' Tc=6.0 min CN=94 Runoff=0.8 cfs 2,495 cf

Subcatchment2.4S: Runoff Area=7,268 sf 95.93% Impervious Runoff Depth=4.14"
Flow Length=134' Tc=6.0 min CN=96 Runoff=0.7 cfs 2,505 cf

Subcatchment2.5S: Runoff Area=9,204 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=43' Slope=0.1800 '/' Tc=6.0 min CN=39 Runoff=0.0 cfs 97 cf

Subcatchment2.6S: Runoff Area=326,379 sf 8.64% Impervious Runoff Depth=0.06"
Flow Length=441' Tc=17.6 min CN=36 Runoff=0.1 cfs 1,576 cf

Pond 1P: Peak Elev=316.22' Inflow=0.4 cfs 1,440 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0059 '/' Outflow=0.4 cfs 1,440 cf

Pond 2P: Peak Elev=315.73' Inflow=0.4 cfs 1,440 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0060 '/' Outflow=0.4 cfs 1,440 cf

Pond 3P: Peak Elev=315.57' Inflow=0.7 cfs 2,354 cf
12.0" Round Culvert n=0.013 L=142.0' S=0.0060 '/' Outflow=0.7 cfs 2,354 cf

Pond 4P: Peak Elev=314.68' Inflow=0.7 cfs 2,354 cf
12.0" Round Culvert n=0.013 L=142.0' S=0.0060 '/' Outflow=0.7 cfs 2,354 cf

Pond 5P: Peak Elev=315.15' Inflow=0.8 cfs 2,495 cf
12.0" Round Culvert n=0.013 L=96.0' S=0.0100 '/' Outflow=0.8 cfs 2,495 cf

Pond 6P: Peak Elev=314.27' Inflow=0.8 cfs 2,495 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0100 '/' Outflow=0.8 cfs 2,495 cf

Pond 7P: Peak Elev=314.27' Inflow=2.2 cfs 7,354 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0059 '/' Outflow=2.2 cfs 7,354 cf

Pond 8P: USDF-1 Peak Elev=314.27' Storage=4,914 cf Inflow=2.2 cfs 7,451 cf
Primary=0.0 cfs 7,451 cf Secondary=0.0 cfs 0 cf Outflow=0.0 cfs 7,451 cf

Link POA-1: Inflow=0.0 cfs 590 cf
Primary=0.0 cfs 590 cf

Link POA-2: POA-2 Inflow=0.1 cfs 9,027 cf
Primary=0.1 cfs 9,027 cf

Total Runoff Area = 635,911 sf Runoff Volume = 9,617 cf Average Runoff Depth = 0.18"
90.35% Pervious = 574,552 sf 9.65% Impervious = 61,359 sf

Time span=0.00-75.00 hrs, dt=0.01 hrs, 7501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1.1S: Runoff Area=276,563 sf 4.34% Impervious Runoff Depth=0.17"
Flow Length=490' Tc=23.4 min CN=34 Runoff=0.1 cfs 3,973 cf

Subcatchment2.1S: Runoff Area=4,541 sf 91.59% Impervious Runoff Depth=4.99"
Flow Length=96' Tc=6.0 min CN=93 Runoff=0.6 cfs 1,887 cf

Subcatchment2.2S: Runoff Area=4,306 sf 68.72% Impervious Runoff Depth=3.60"
Flow Length=30' Tc=6.0 min CN=80 Runoff=0.4 cfs 1,292 cf

Subcatchment2.3S: Runoff Area=7,650 sf 92.55% Impervious Runoff Depth=5.10"
Flow Length=35' Slope=0.0200 '/' Tc=6.0 min CN=94 Runoff=1.0 cfs 3,250 cf

Subcatchment2.4S: Runoff Area=7,268 sf 95.93% Impervious Runoff Depth=5.33"
Flow Length=134' Tc=6.0 min CN=96 Runoff=0.9 cfs 3,227 cf

Subcatchment2.5S: Runoff Area=9,204 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=43' Slope=0.1800 '/' Tc=6.0 min CN=39 Runoff=0.0 cfs 299 cf

Subcatchment2.6S: Runoff Area=326,379 sf 8.64% Impervious Runoff Depth=0.25"
Flow Length=441' Tc=17.6 min CN=36 Runoff=0.3 cfs 6,843 cf

Pond 1P: Peak Elev=316.29' Inflow=0.6 cfs 1,887 cf
12.0" Round Culvert n=0.013 L=74.0' S=0.0059 '/' Outflow=0.6 cfs 1,887 cf

Pond 2P: Peak Elev=315.82' Inflow=0.6 cfs 1,887 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0060 '/' Outflow=0.6 cfs 1,887 cf

Pond 3P: Peak Elev=315.67' Inflow=1.0 cfs 3,179 cf
12.0" Round Culvert n=0.013 L=142.0' S=0.0060 '/' Outflow=1.0 cfs 3,179 cf

Pond 4P: Peak Elev=314.82' Inflow=1.0 cfs 3,179 cf
12.0" Round Culvert n=0.013 L=142.0' S=0.0060 '/' Outflow=1.0 cfs 3,179 cf

Pond 5P: Peak Elev=315.23' Inflow=1.0 cfs 3,250 cf
12.0" Round Culvert n=0.013 L=96.0' S=0.0100 '/' Outflow=1.0 cfs 3,250 cf

Pond 6P: Peak Elev=314.55' Inflow=1.0 cfs 3,250 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0100 '/' Outflow=1.0 cfs 3,250 cf

Pond 7P: Peak Elev=314.55' Inflow=2.9 cfs 9,656 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0059 '/' Outflow=2.9 cfs 9,656 cf

Pond 8P: USDF-1 Peak Elev=314.55' Storage=6,231 cf Inflow=2.9 cfs 9,955 cf
Primary=0.1 cfs 9,955 cf Secondary=0.0 cfs 0 cf Outflow=0.1 cfs 9,955 cf

Link POA-1: Inflow=0.1 cfs 3,973 cf
Primary=0.1 cfs 3,973 cf

Link POA-2: POA-2 Inflow=0.4 cfs 16,798 cf
Primary=0.4 cfs 16,798 cf

Total Runoff Area = 635,911 sf Runoff Volume = 20,772 cf Average Runoff Depth = 0.39"
90.35% Pervious = 574,552 sf 9.65% Impervious = 61,359 sf

Summary for Subcatchment 1.1S:

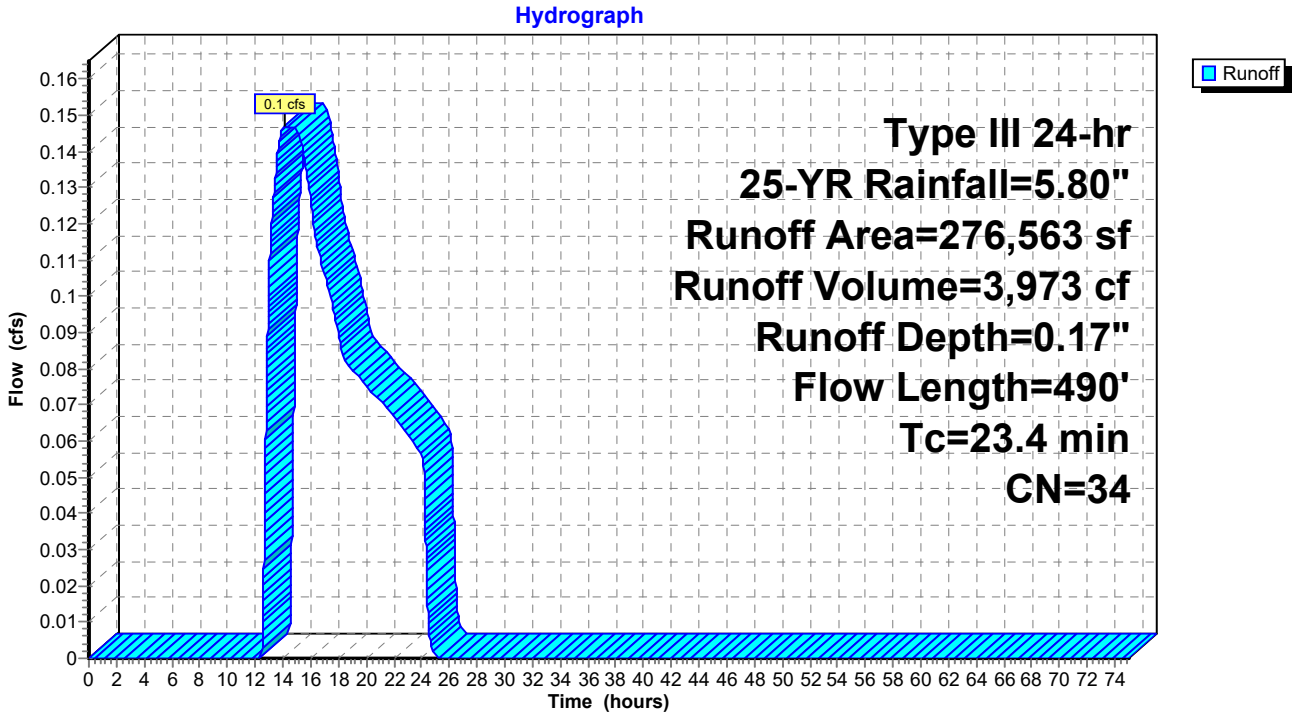
Runoff = 0.1 cfs @ 14.07 hrs, Volume= 3,973 cf, Depth= 0.17"
Routed to Link POA-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG A
3,903	96	Gravel surface, HSG A
9,266	39	>75% Grass cover, Good, HSG A
119,494	30	Woods, Good, HSG A
131,900	30	Meadow, non-grazed, HSG A
276,563	34	Weighted Average
264,563		95.66% Pervious Area
12,000		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	50	0.0300	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
12.8	385	0.0100	0.50		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	55	0.2000	3.13		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
23.4	490	Total			

Subcatchment 1.1S:



Summary for Subcatchment 2.1S:

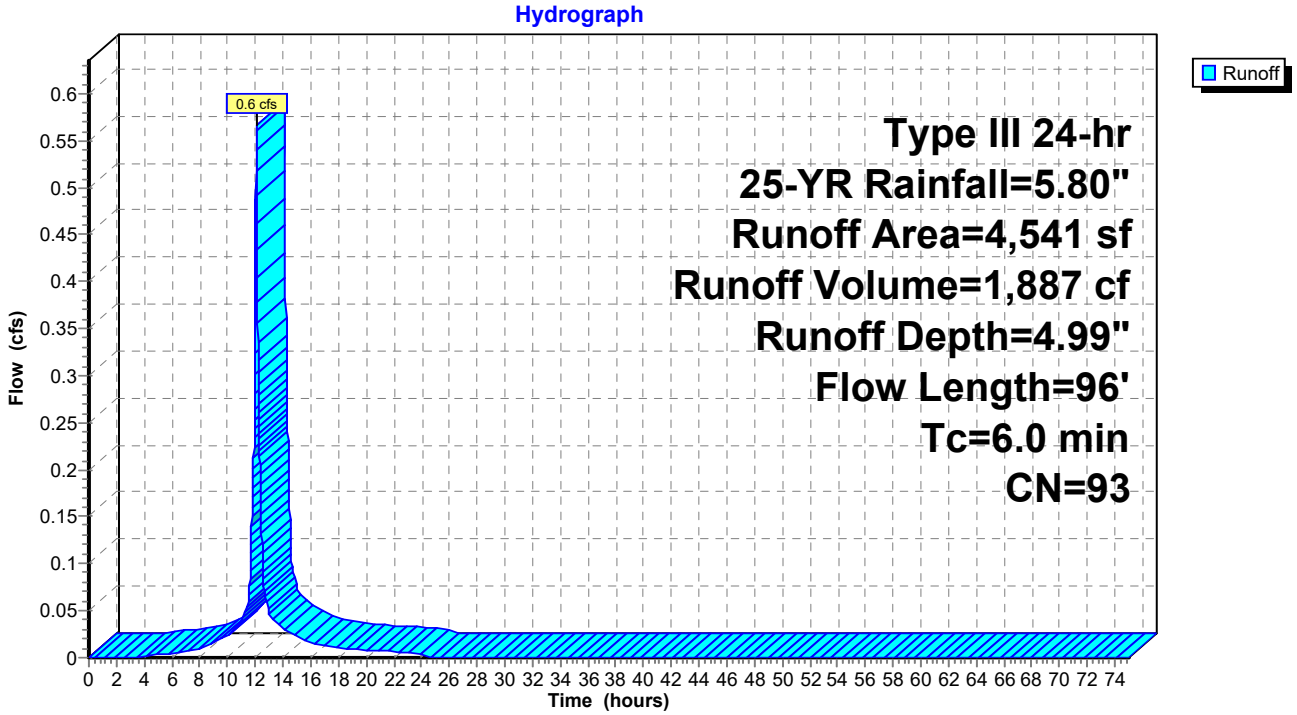
Runoff = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf, Depth= 4.99"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
4,159	98	Paved parking, HSG A
382	39	>75% Grass cover, Good, HSG A
4,541	93	Weighted Average
382		8.41% Pervious Area
4,159		91.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.30"
0.4	66	0.0160	2.57		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.1					**Direct Entry, Direct Entry**
6.0	96	Total			

Subcatchment 2.1S:



Summary for Subcatchment 2.2S:

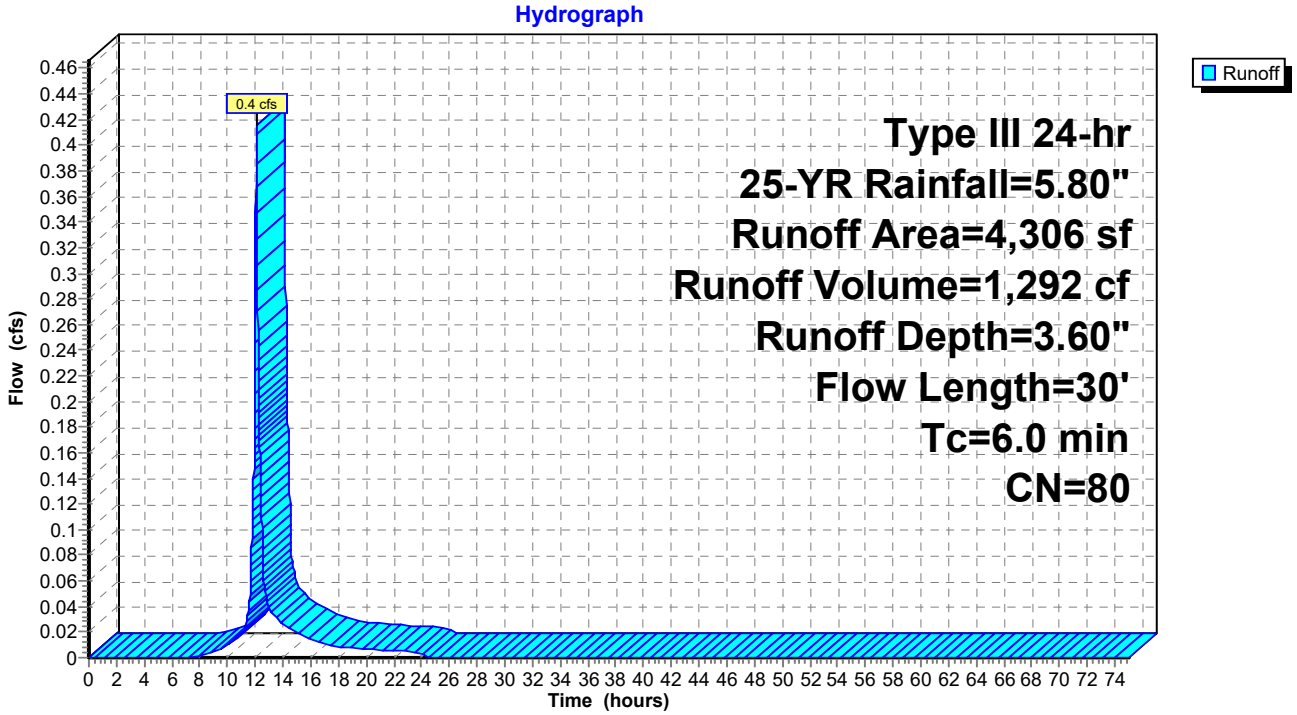
Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,292 cf, Depth= 3.60"
Routed to Pond 3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
2,959	98	Paved parking, HSG A
1,347	39	>75% Grass cover, Good, HSG A
4,306	80	Weighted Average
1,347		31.28% Pervious Area
2,959		68.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0200	0.98		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.30"
0.1	13	0.0160	2.57		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.6					**Direct Entry,**
6.0	30	Total			

Subcatchment 2.2S:



Summary for Subcatchment 2.3S:

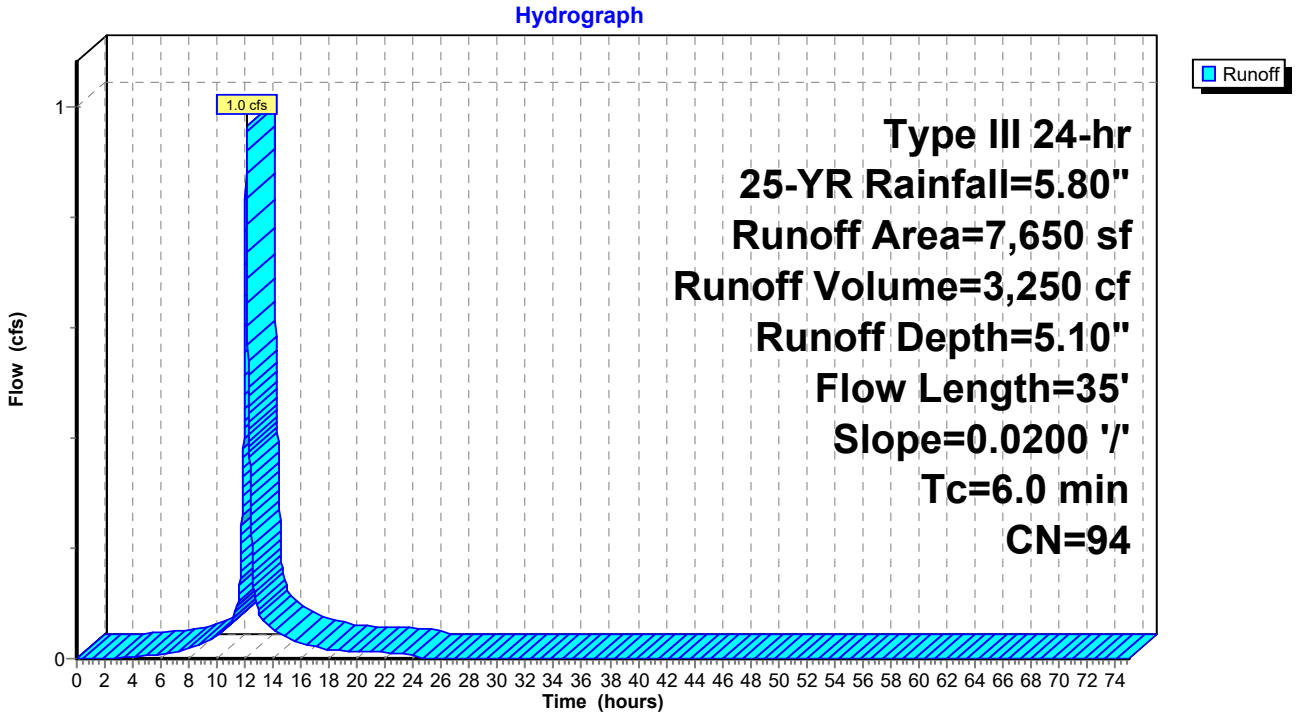
Runoff = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf, Depth= 5.10"
Routed to Pond 5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
570	39	>75% Grass cover, Good, HSG A
7,080	98	Paved parking, HSG A
7,650	94	Weighted Average
570		7.45% Pervious Area
7,080		92.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.30"
5.5					**Direct Entry,**
6.0	35	Total			

Subcatchment 2.3S:



Summary for Subcatchment 2.4S:

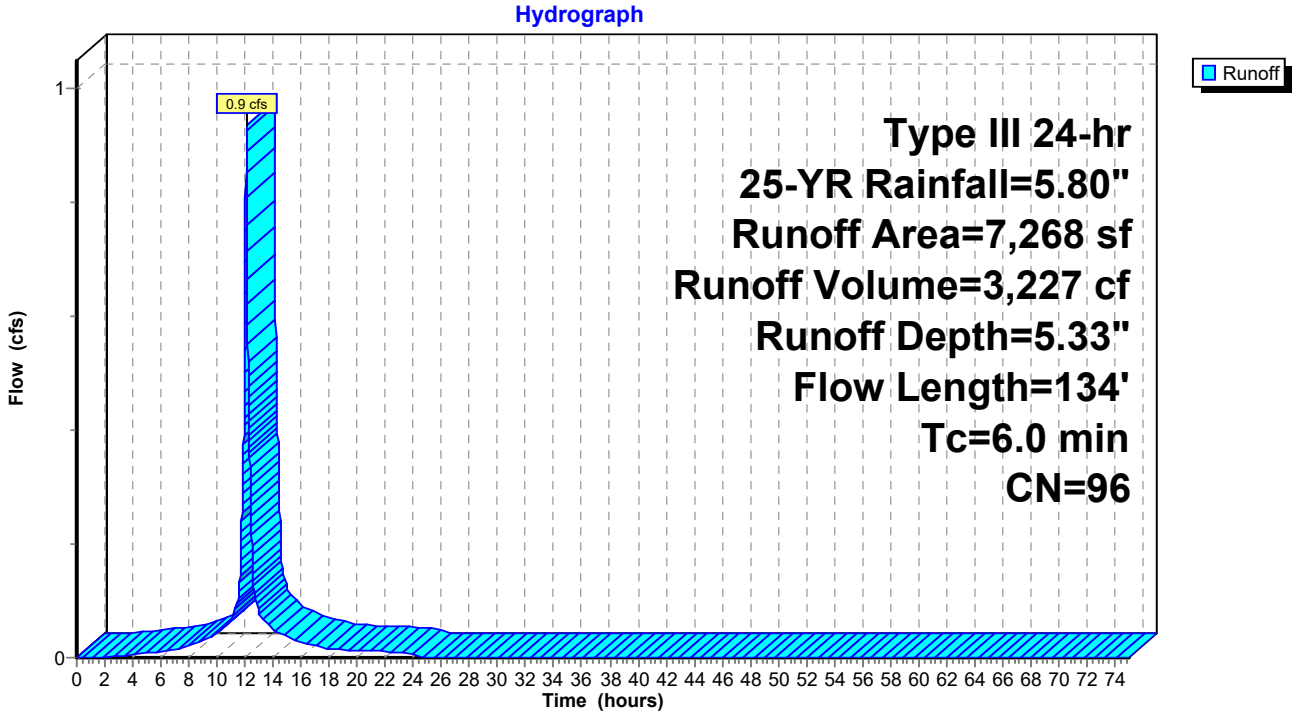
Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,227 cf, Depth= 5.33"
Routed to Pond 7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
6,972	98	Paved parking, HSG A
296	39	>75% Grass cover, Good, HSG A
7,268	96	Weighted Average
296		4.07% Pervious Area
6,972		95.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	16	0.0200	0.97		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.30"
0.6	118	0.0280	3.40		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.1					**Direct Entry,**
6.0	134	Total			

Subcatchment 2.4S:



Summary for Subcatchment 2.5S:

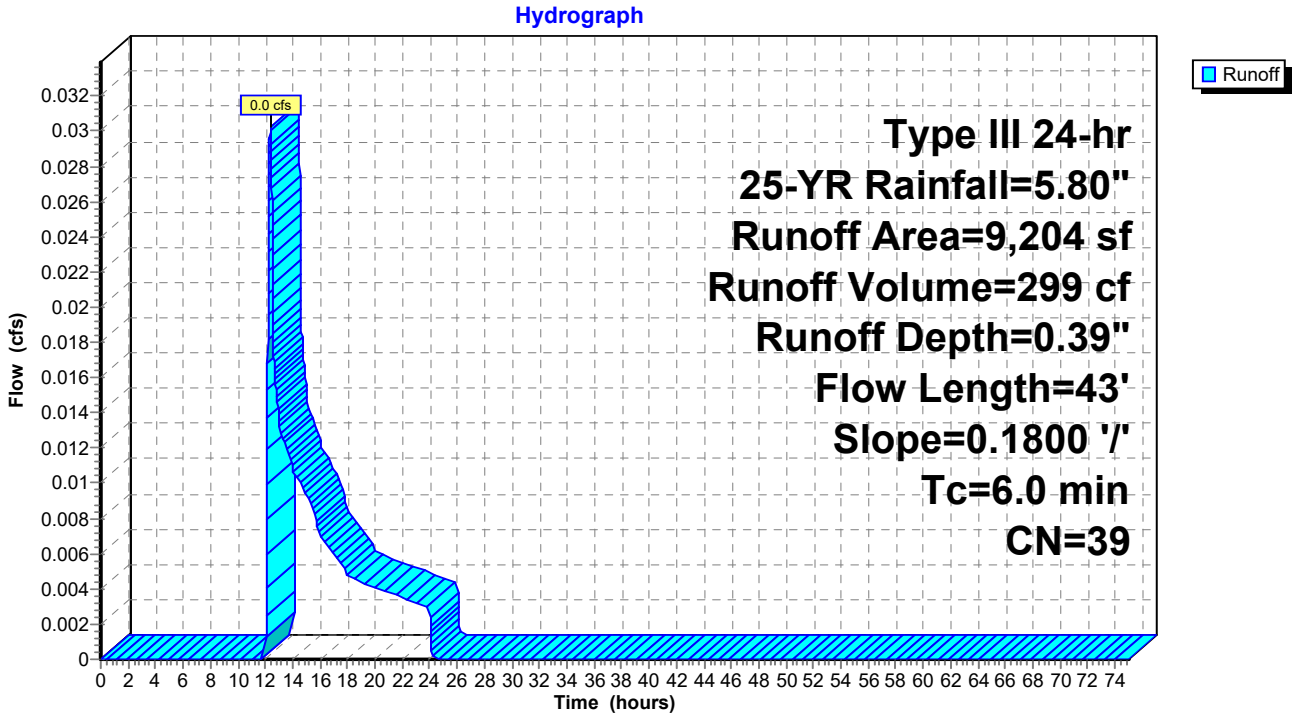
Runoff = 0.0 cfs @ 12.37 hrs, Volume= 299 cf, Depth= 0.39"
Routed to Pond 8P : USDF-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
9,204	39	>75% Grass cover, Good, HSG A
9,204		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	43	0.1800	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
3.0					**Direct Entry,**
6.0	43	Total			

Subcatchment 2.5S:



Summary for Subcatchment 2.6S:

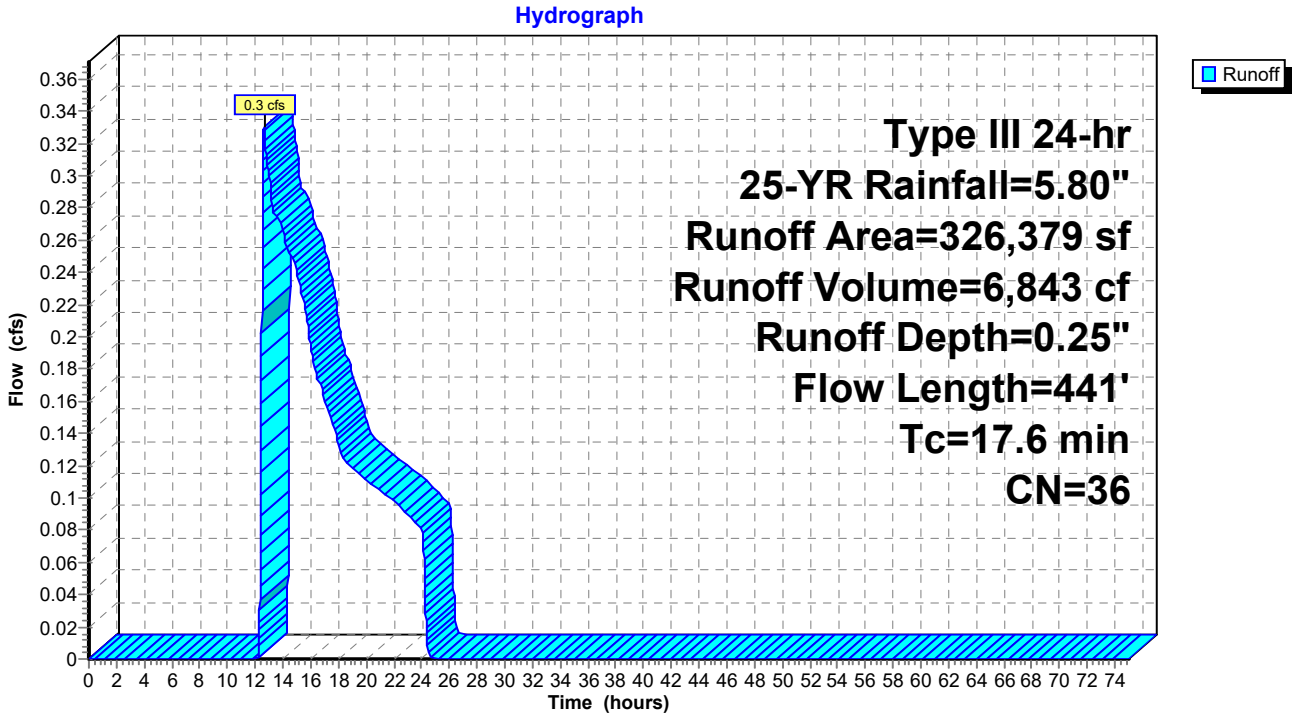
Runoff = 0.3 cfs @ 12.65 hrs, Volume= 6,843 cf, Depth= 0.25"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
28,189	98	Paved parking, HSG A
293,074	30	Woods, Good, HSG A
150	39	>75% Grass cover, Good, HSG A
4,966	30	Meadow, non-grazed, HSG A
326,379	36	Weighted Average
298,190		91.36% Pervious Area
28,189		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	57	0.0440	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
6.8	266	0.0170	0.65		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	118	0.1700	2.06		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
17.6	441	Total			

Subcatchment 2.6S:



Summary for Pond 1P:

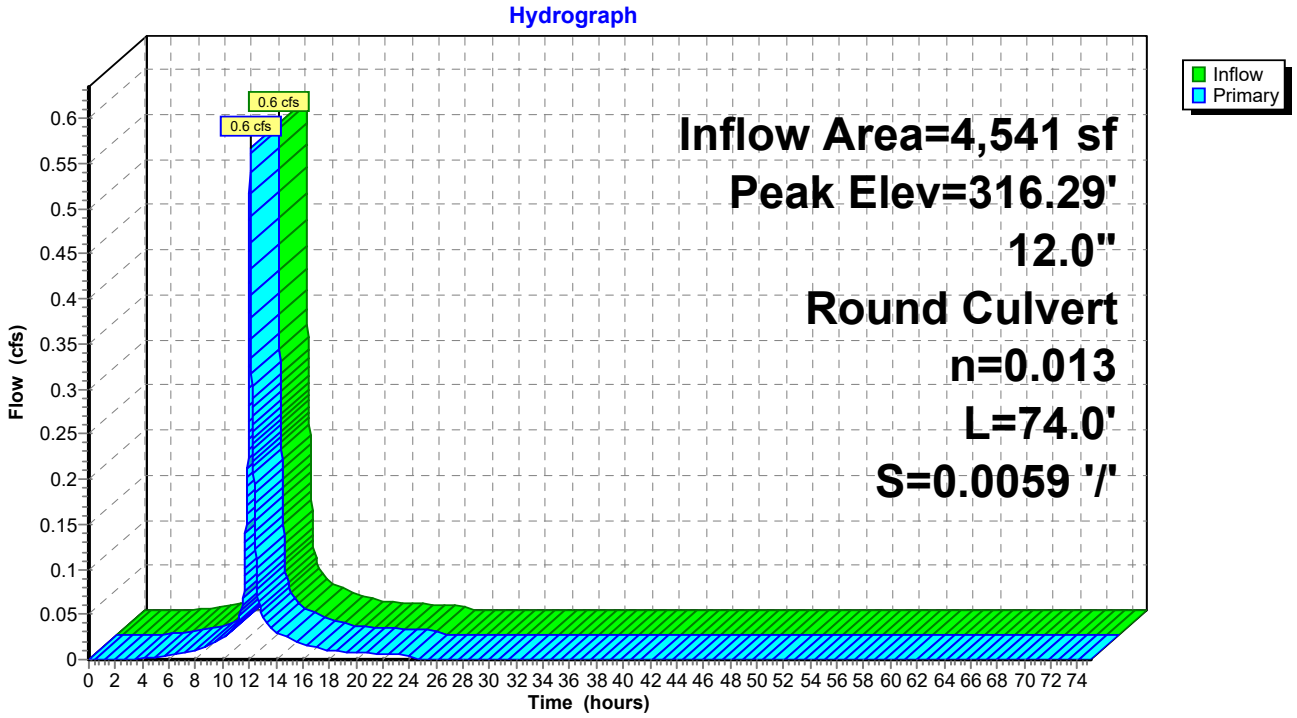
Inflow Area = 4,541 sf, 91.59% Impervious, Inflow Depth = 4.99" for 25-YR event
Inflow = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf
Outflow = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf
Routed to Pond 2P :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 316.29' @ 12.09 hrs
Flood Elev= 319.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	315.83'	**12.0" Round Culvert** L= 74.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 315.83' / 315.39' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.6 cfs @ 12.08 hrs HW=316.28' TW=315.82' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.6 cfs @ 2.38 fps)

Pond 1P:



Summary for Pond 2P:

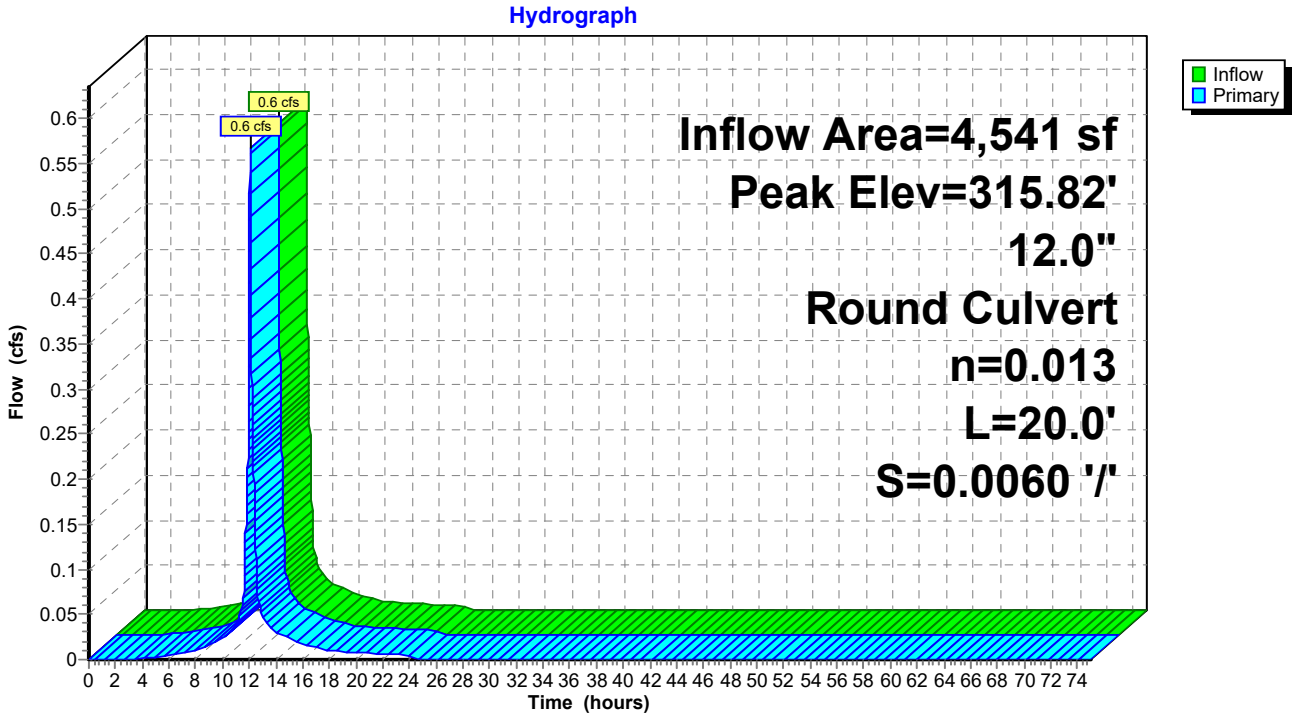
Inflow Area = 4,541 sf, 91.59% Impervious, Inflow Depth = 4.99" for 25-YR event
Inflow = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf
Outflow = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.6 cfs @ 12.08 hrs, Volume= 1,887 cf
Routed to Pond 3P :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 315.82' @ 12.09 hrs
Flood Elev= 318.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	315.29'	**12.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 315.29' / 315.17' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.6 cfs @ 12.08 hrs HW=315.82' TW=315.67' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.6 cfs @ 1.91 fps)

Pond 2P:



Summary for Pond 3P:

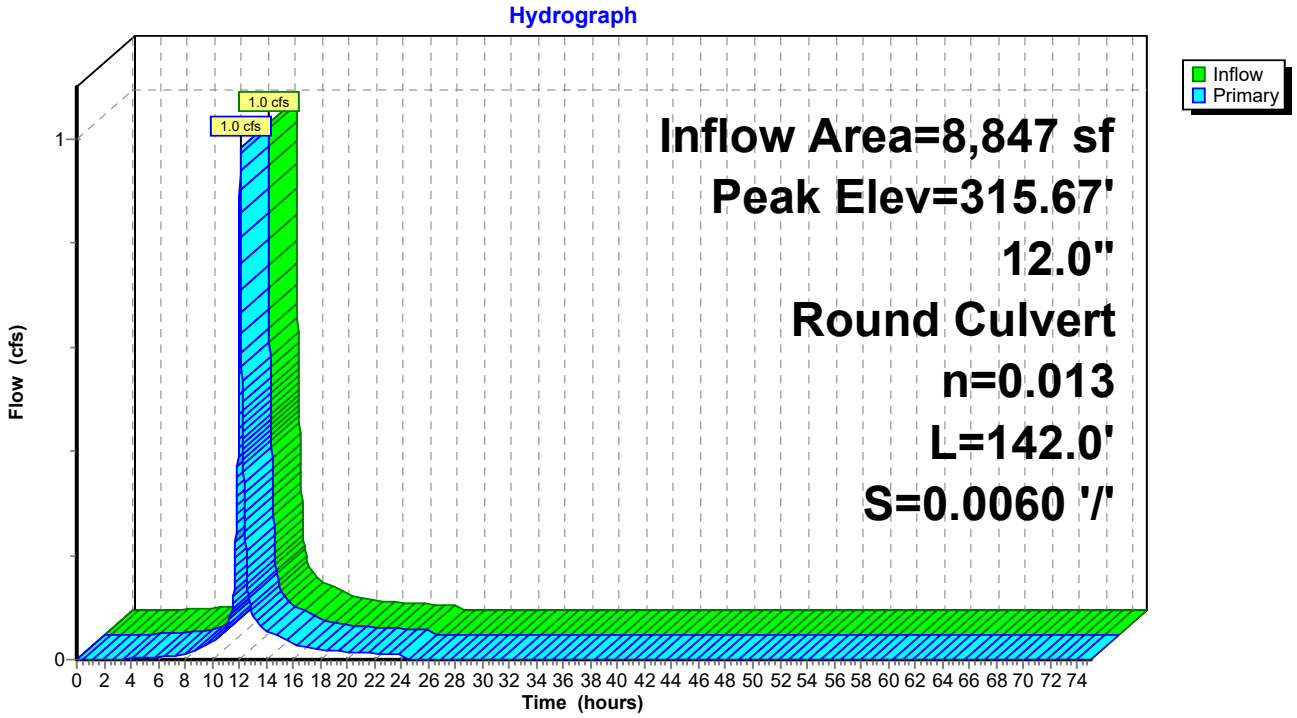
Inflow Area = 8,847 sf, 80.46% Impervious, Inflow Depth = 4.31" for 25-YR event
Inflow = 1.0 cfs @ 12.09 hrs, Volume= 3,179 cf
Outflow = 1.0 cfs @ 12.09 hrs, Volume= 3,179 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.0 cfs @ 12.09 hrs, Volume= 3,179 cf
Routed to Pond 4P :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 315.67' @ 12.09 hrs
Flood Elev= 318.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	315.07'	**12.0" Round Culvert** L= 142.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 315.07' / 314.22' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.0 cfs @ 12.09 hrs HW=315.67' TW=314.81' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.0 cfs @ 2.85 fps)

Pond 3P:



Summary for Pond 4P:

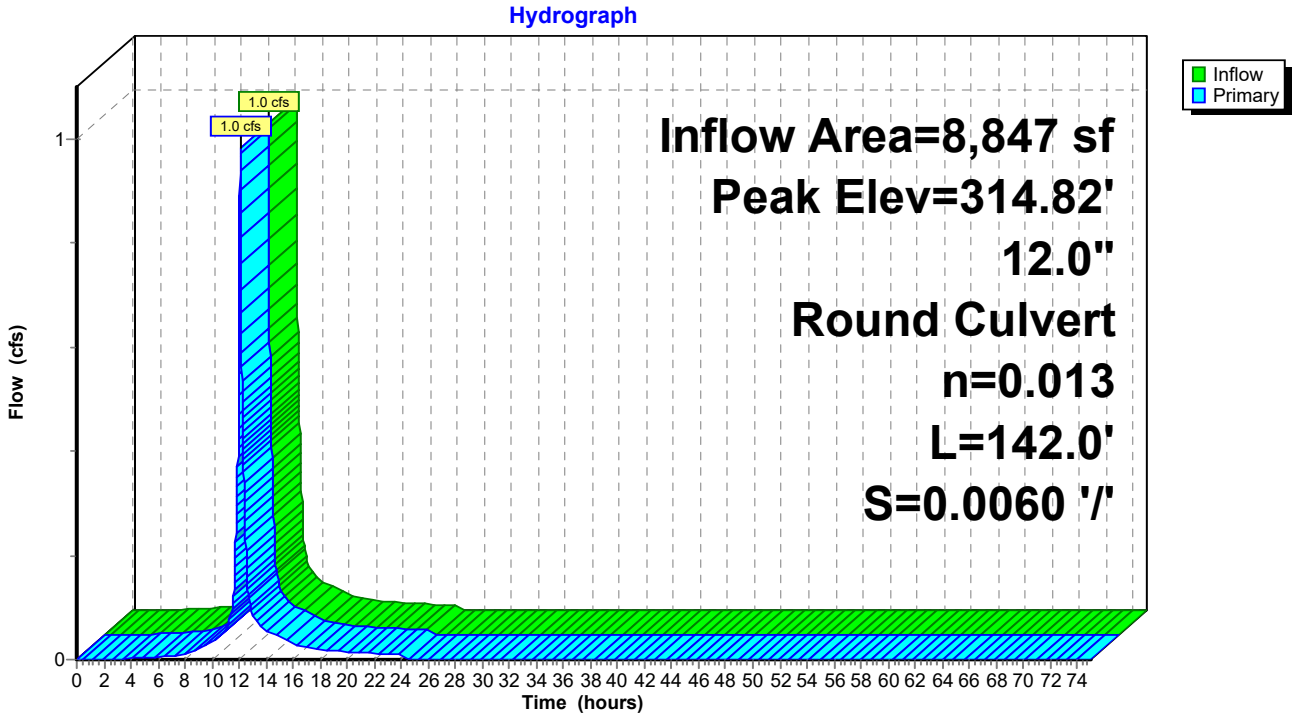
Inflow Area = 8,847 sf, 80.46% Impervious, Inflow Depth = 4.31" for 25-YR event
Inflow = 1.0 cfs @ 12.09 hrs, Volume= 3,179 cf
Outflow = 1.0 cfs @ 12.09 hrs, Volume= 3,179 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.0 cfs @ 12.09 hrs, Volume= 3,179 cf
Routed to Pond 7P :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 314.82' @ 12.09 hrs
Flood Elev= 321.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	314.12'	**12.0" Round Culvert** L= 142.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 314.12' / 313.27' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.0 cfs @ 12.09 hrs HW=314.81' TW=314.28' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.0 cfs @ 2.35 fps)

Pond 4P:



Summary for Pond 5P:

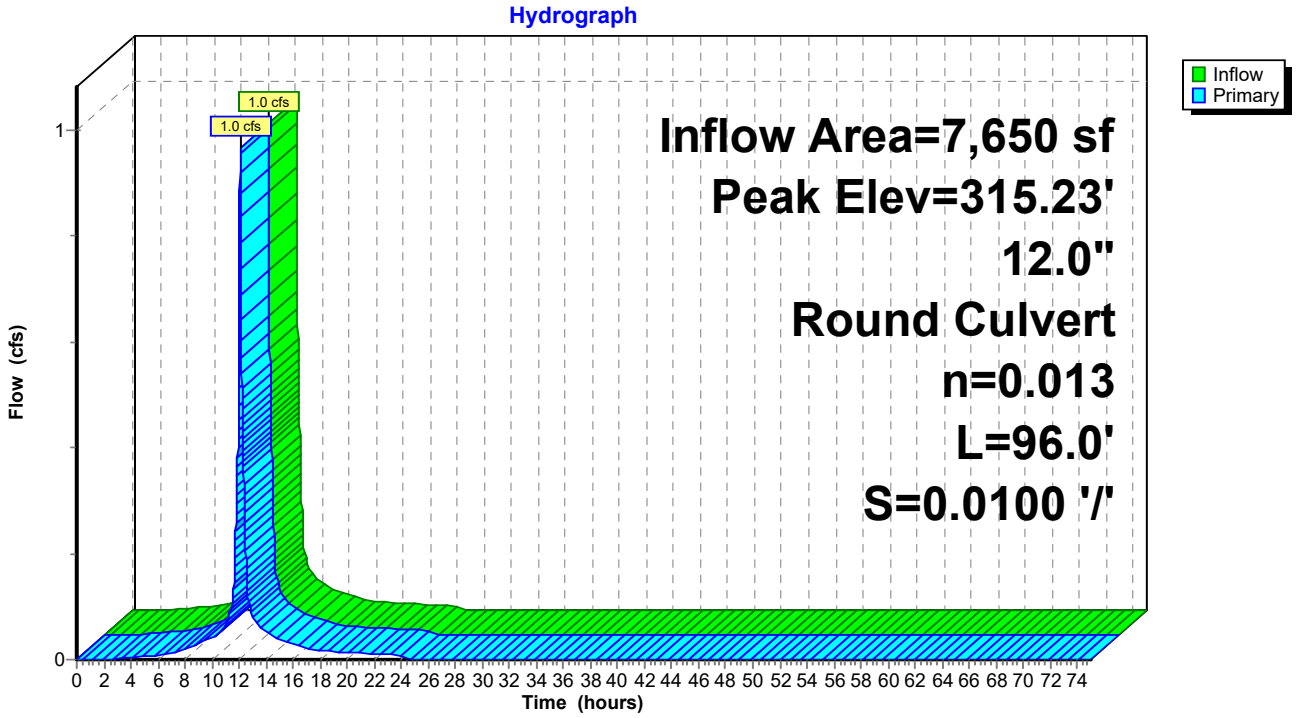
Inflow Area = 7,650 sf, 92.55% Impervious, Inflow Depth = 5.10" for 25-YR event
Inflow = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf
Outflow = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf
Routed to Pond 6P :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 315.23' @ 12.08 hrs
Flood Elev= 320.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	314.65'	**12.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 314.65' / 313.69' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.0 cfs @ 12.08 hrs HW=315.23' TW=314.42' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.0 cfs @ 2.05 fps)

Pond 5P:



Summary for Pond 6P:

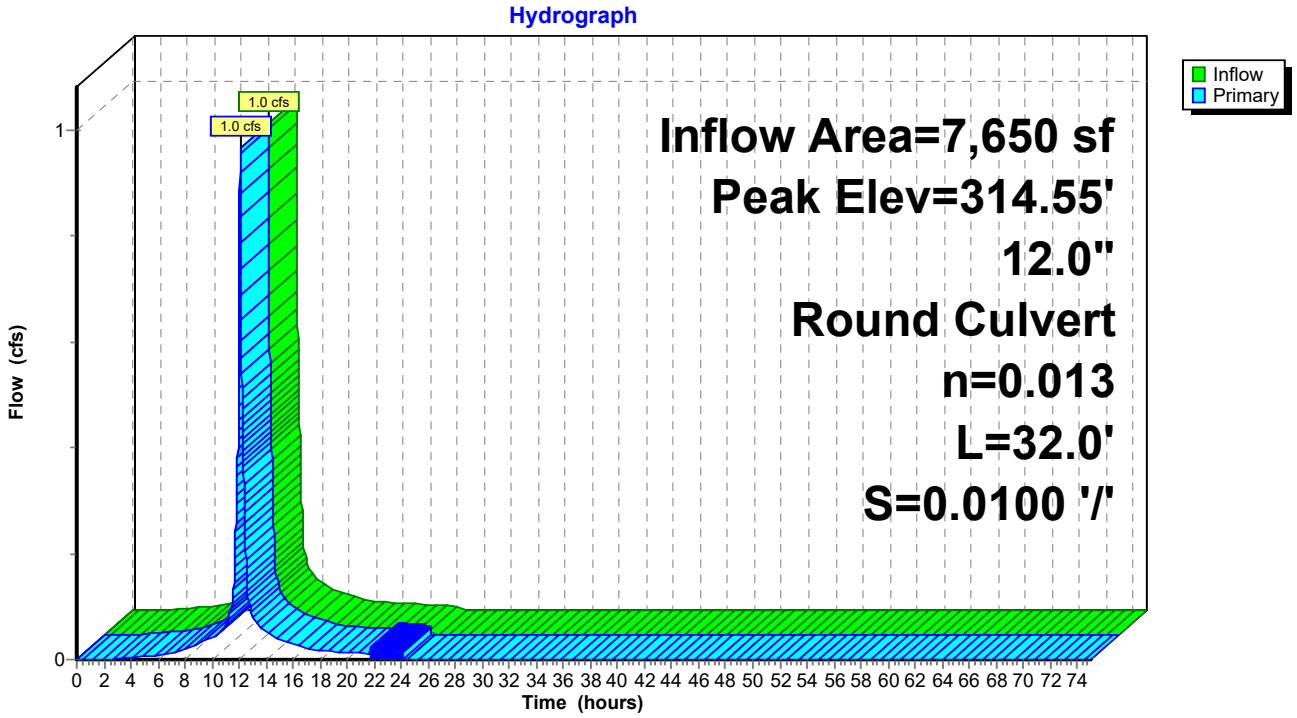
Inflow Area = 7,650 sf, 92.55% Impervious, Inflow Depth = 5.10" for 25-YR event
Inflow = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf
Outflow = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.0 cfs @ 12.08 hrs, Volume= 3,250 cf
Routed to Pond 7P :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 314.55' @ 14.59 hrs
Flood Elev= 317.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	313.59'	**12.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 313.59' / 313.27' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.9 cfs @ 12.08 hrs HW=314.42' TW=314.28' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.9 cfs @ 1.79 fps)

Pond 6P:



Summary for Pond 7P:

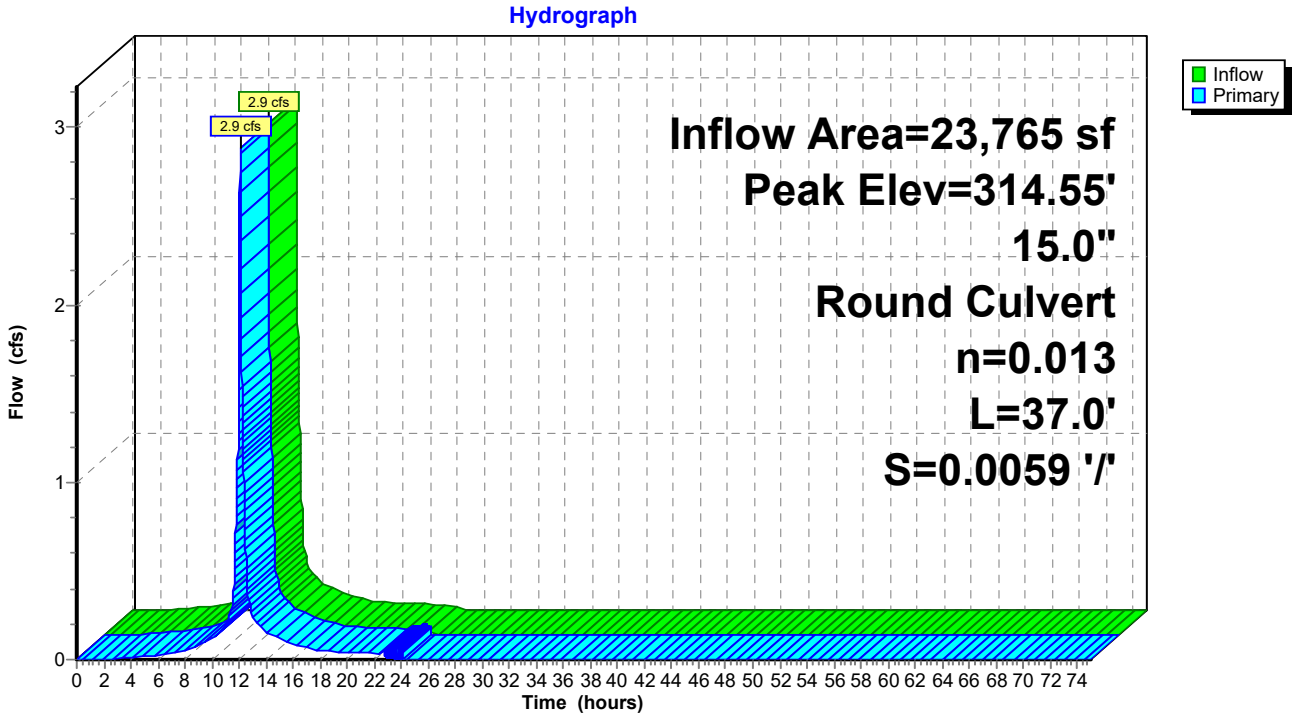
Inflow Area = 23,765 sf, 89.08% Impervious, Inflow Depth = 4.88" for 25-YR event
Inflow = 2.9 cfs @ 12.08 hrs, Volume= 9,656 cf
Outflow = 2.9 cfs @ 12.08 hrs, Volume= 9,656 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.9 cfs @ 12.08 hrs, Volume= 9,656 cf
Routed to Pond 8P : USDF-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 314.55' @ 14.58 hrs
Flood Elev= 317.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	313.17'	**15.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 313.17' / 312.95' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.8 cfs @ 12.08 hrs HW=314.28' TW=313.86' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.8 cfs @ 3.22 fps)

Pond 7P:



Summary for Pond 8P: USDF-1

Inflow Area = 32,969 sf, 64.21% Impervious, Inflow Depth = 3.62" for 25-YR event
Inflow = 2.9 cfs @ 12.08 hrs, Volume= 9,955 cf
Outflow = 0.1 cfs @ 14.58 hrs, Volume= 9,955 cf, Atten= 95%, Lag= 150.0 min
Primary = 0.1 cfs @ 14.58 hrs, Volume= 9,955 cf
Routed to Link POA-2 : POA-2
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link POA-2 : POA-2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs
Peak Elev= 314.55' @ 14.58 hrs Surf.Area= 4,801 sf Storage= 6,231 cf
Flood Elev= 317.50' Surf.Area= 6,968 sf Storage= 20,572 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,052.5 min (1,831.3 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	310.83'	20,572 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

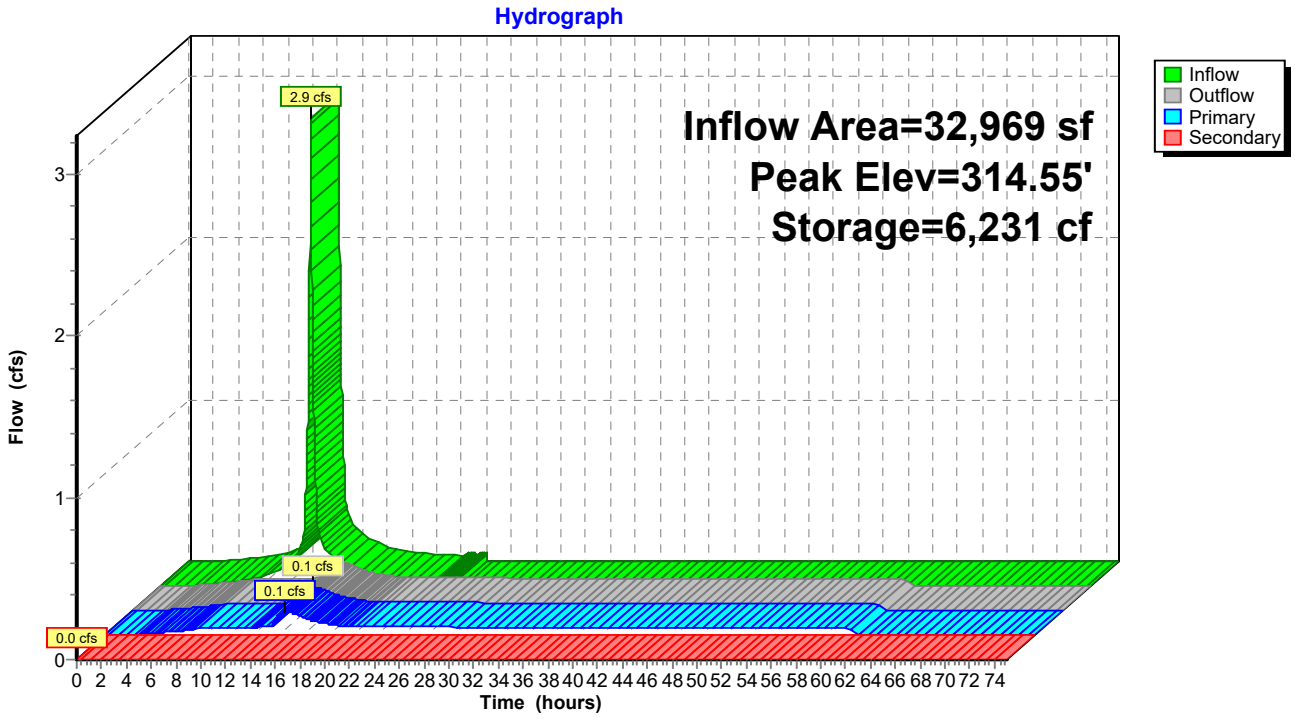
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
310.83	3,000	0.0	0	0
312.99	3,000	0.0	0	0
313.00	3,000	100.0	30	30
314.00	4,348	100.0	3,674	3,704
315.00	5,168	100.0	4,758	8,462
316.00	6,042	100.0	5,605	14,067
317.00	6,968	100.0	6,505	20,572

Device	Routing	Invert	Outlet Devices
#1	Primary	310.73'	**12.0" Round Outlet Pipe** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 310.73' / 310.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	310.83'	**1.0" Vert. UD Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 2	310.83'	**2.410 in/hr Infiltration over Surface area** Phase-In= 0.01'
#4	Device 1	314.50'	**1.0" W x 7.0" H Vert. Beehive Grate X 29.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	316.50'	**14.0' long x 9.0' 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) 2.46 2.55 2.70 2.69 2.68 2.68 2.67 2.64 2.64 2.64 2.65 2.64 2.65 2.65 2.66 2.67 2.69

Primary OutFlow Max=0.1 cfs @ 14.58 hrs HW=314.55' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 0.1 cfs of 5.4 cfs potential flow)
  └─**2=UD Orifice** (Orifice Controls 0.1 cfs @ 9.24 fps)
    └─**3=Infiltration** (Passes 0.1 cfs of 0.3 cfs potential flow)
  └─**4=Beehive Grate** (Orifice Controls 0.1 cfs @ 0.74 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=310.83' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond 8P: USDF-1

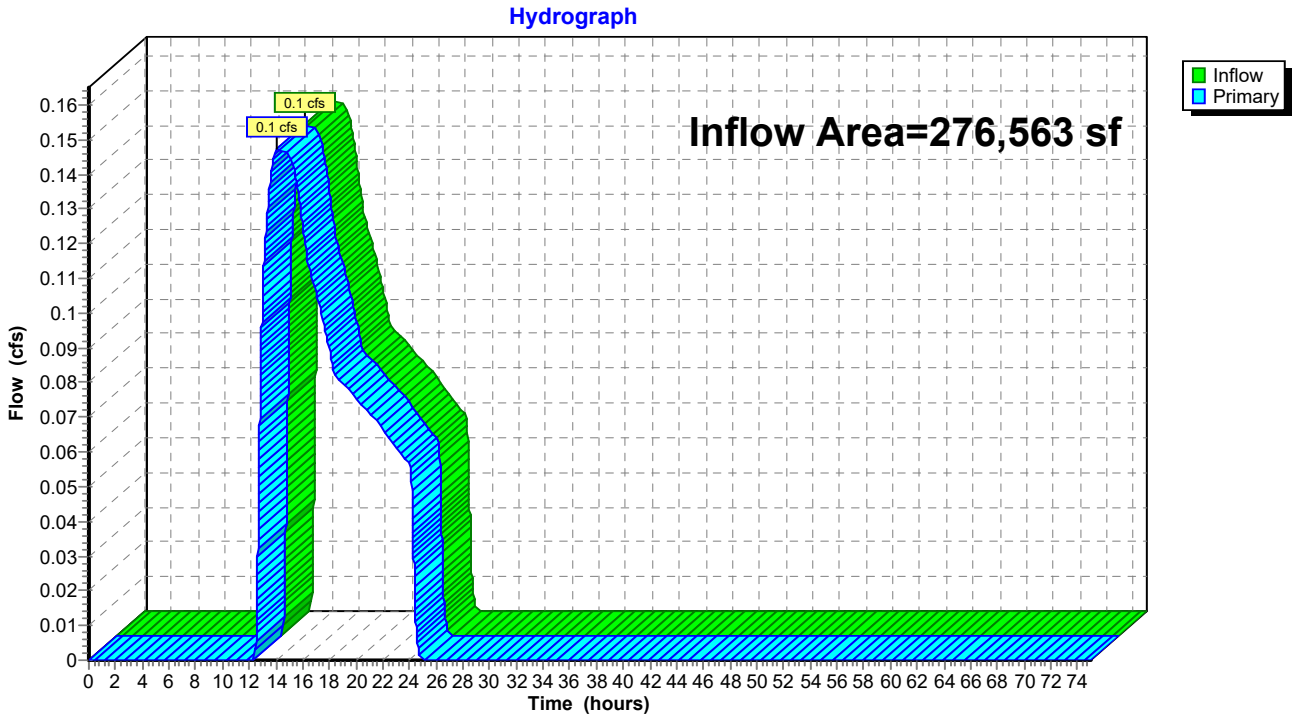


Summary for Link POA-1:

Inflow Area = 276,563 sf, 4.34% Impervious, Inflow Depth = 0.17" for 25-YR event
Inflow = 0.1 cfs @ 14.07 hrs, Volume= 3,973 cf
Primary = 0.1 cfs @ 14.07 hrs, Volume= 3,973 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs

Link POA-1:

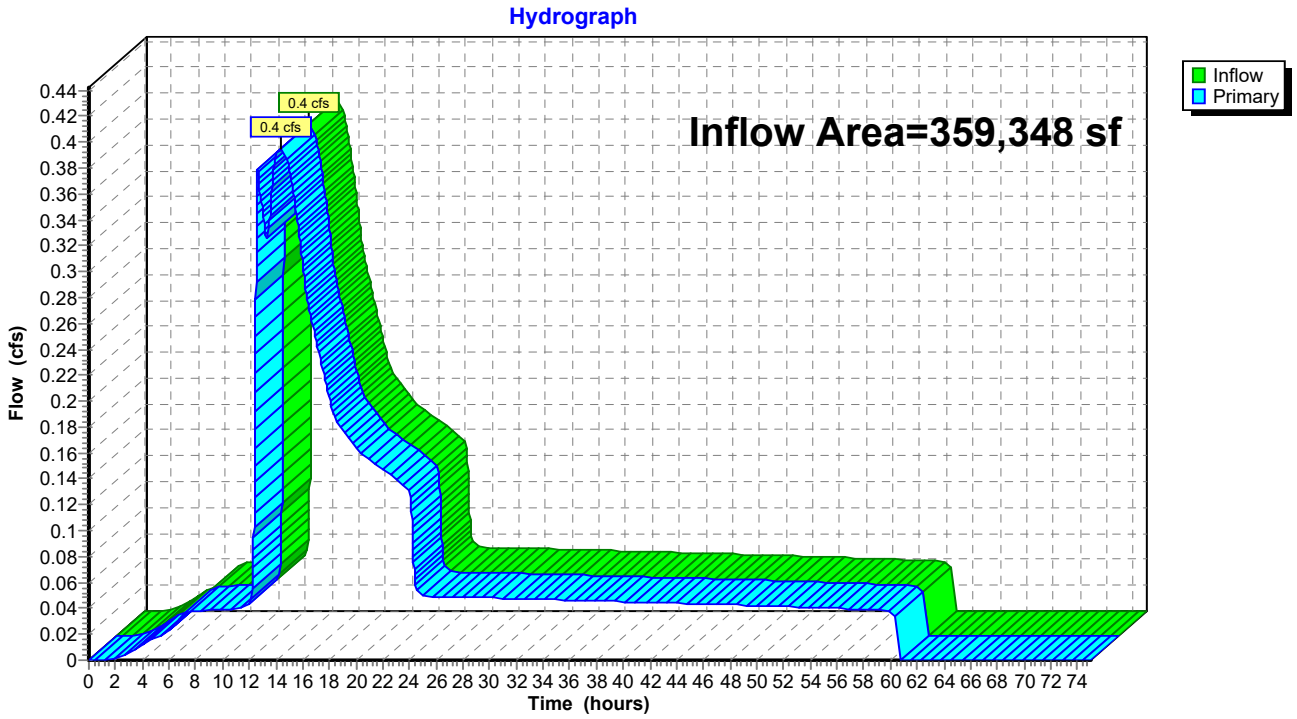


Summary for Link POA-2: POA-2

Inflow Area = 359,348 sf, 13.74% Impervious, Inflow Depth = 0.56" for 25-YR event
Inflow = 0.4 cfs @ 14.41 hrs, Volume= 16,798 cf
Primary = 0.4 cfs @ 14.41 hrs, Volume= 16,798 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-75.00 hrs, dt= 0.01 hrs

Link POA-2: POA-2



Appendix 3

Inspection, Maintenance and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

For:
Franklin Drive Subdivision
Windham, ME

By:
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event (0.5" of rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (0.5" of rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where

additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Sediment Barriers:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event (0.5" of rainfall). They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

D. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or

waterways).

E. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

F. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

B. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted

and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. The owner shall inspect and maintain the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the local municipality in the annual report.

   A. Vegetated Areas:

   - Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains (>0.5”) to identify active or potential erosion problems.
   - Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

   B. Ditches, Swales and Other Open Channels:

   - Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
   - Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
   - Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
   - If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains (>0.5") to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

D. Removal of Winter Sand:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

E. Underdrained Soil Filters:

- The basin should be inspected semi-annually and following major storm events. Debris and sediment buildup should be removed from the forebay and basin as needed. Any bare area or erosion rills should be repaired with new filter media, seeded and mulched.
- A legal entity should be established with responsibility for inspecting and maintaining any underdrained filter. The legal agreement establishing the entity should list specific maintenance responsibilities (including timetables) and provide for the funding to cover long-term inspection and maintenance.
- The filter should within 24 to 48 hours following a one-inch storm or greater. If the system drains too fast, an orifice may need to be added on the underdrain outlet or may need to be modified if already present.
- Sediment and plant debris should be removed from the pretreatment structure at least annually.
- If mowing is desired, only hand-held string trimmers or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization of the underdrained filter area should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and pruning of excessive growth should be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.
- Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

3. Documentation:

A. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, as required by the local municipality, provide a completed and signed certification on a form provided by the local municipality, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they required maintenance or repair, including the record of the deficiency and corrective action(s) taken.

B. A log summarizing the inspections and any corrective action taken must be maintained. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 1 of this Inspection, Maintenance, and Housekeeping Plan.

4. Duration of Maintenance: Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

Franklin Drive Subdivision
20 Franklin Drive
Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for the land parcel subdivision and extension of Franklin Drive in Windham, Maine. The following items shall be checked, cleaned, and maintained on a regular basis as specified in the Maintenance Plan and as described in the sections below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the Town of Windham and the Maine DEP. Qualified personnel familiar with the drainage systems and soils shall perform all inspections. A copy of the construction and post-construction maintenance logs are provided.

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	
Site Element	**Suggested Maintenance (recm'd frequency)**	**Observations**	**Inspection Notes/Recommended Action**
Vegetated Areas	Inspect Slopes/Embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Remove woody vegetation (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
	Remove accumulated debris from inlet grate		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Additional Notes/Observations:			

Underdrain Soil Filter

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	

BMP Element	Suggested Maintenance (recm'd frequency)	Observations	Inspection Notes/Recommended Action
Forebay/Pretreatment	Sediment/Debris Removal (Annually)		
	Inspect for bare areas or rill erosion (Annually)		
Outlet Control Structure	Sediment Depth (Annually)		
	Floatables/Debris (Annually)		
Discharge Pipe	Ground Stabilized (>1" rain, Annually)		
Emergency Spillway	Review for signs of erosion (Twice Annually)		
	Review for signs of discharge (>1" rain, twice annually)		
Embankments	Review for signs of erosion (Twice Annually)		
Filter Bed	Trim overgrown vegetation with string trimmer (annually)		
	Review basin for evidence of vehicular traffic or storage of snow within footprint (annually)		
	Confirm pond drains in 24-48 hours for water quality volume (annually)		

Additional Notes/Observations:

Appendix 4

Subsurface Investigations

Custom Soil Resource Report
Soil Map

Map Scale: 1:4,150 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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 1:24,000.

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: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 20, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	1.5	4.0%
HgB	Hermon sandy loam, 3 to 8 percent slopes	6.1	15.8%
HhC	Hermon sandy loam, 8 to 15 percent slopes, very stony	2.1	5.4%
HlB	Hinckley loamy sand, 3 to 8 percent slopes	12.0	31.2%
Sp	Sebago mucky peat	8.6	22.2%
Wa	Walpole fine sandy loam	8.3	21.4%
Totals for Area of Interest		**38.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

DeB—Deerfield loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xfg9
Elevation: 0 to 1,190 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Typical profile

Ap - 0 to 9 inches: loamy fine sand
Bw - 9 to 25 inches: loamy fine sand
BC - 25 to 33 inches: fine sand
Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: About 15 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 11.0
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

HgB—Hermon sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w9r8
Elevation: 0 to 950 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hermon and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Ap - 0 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

HhC—Hermon sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w9rd
Elevation: 0 to 1,080 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hermon, very stony, and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

HlB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, kames, kame terraces, moraines, eskers, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Sp—Sebago mucky peat

Map Unit Setting

National map unit symbol: blk0
Elevation: 10 to 2,100 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Sebago and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sebago

Setting

Landform: Bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Organic material

Typical profile

Oe - 0 to 36 inches: mucky peat
Oi - 36 to 65 inches: mucky peat

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 18.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: F144BY230ME - Acidic Peat Wetland Complex
Hydric soil rating: Yes

Wa—Walpole fine sandy loam

Map Unit Setting

National map unit symbol: blk7
Elevation: 0 to 540 feet
Mean annual precipitation: 48 to 49 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 145 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Walpole and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole

Setting

Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 20 inches: fine sandy loam
H3 - 20 to 65 inches: gravelly loamy sand

Properties and qualities

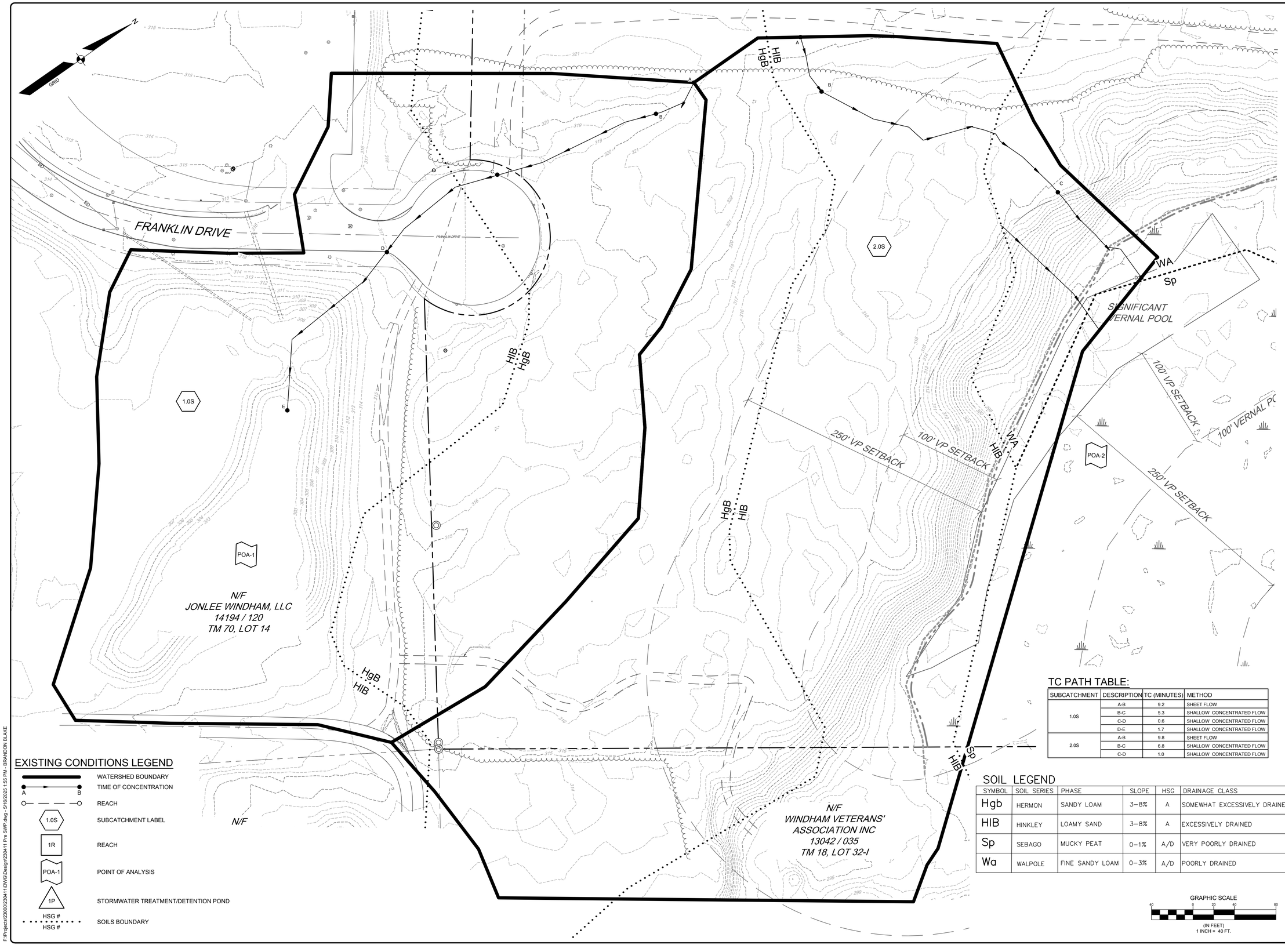
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Appendix 5

Stormwater Management Plans



TC PATH TABLE:

SUBCATCHMENT	DESCRIPTION	TC (MINUTES)	METHOD
1.0S	A-B	9.2	SHEET FLOW
	B-C	5.3	SHALLOW CONCENTRATED FLOW
	C-D	0.6	SHALLOW CONCENTRATED FLOW
	D-E	1.7	SHALLOW CONCENTRATED FLOW
2.0S	A-B	9.8	SHEET FLOW
	B-C	6.8	SHALLOW CONCENTRATED FLOW
	C-D	1.0	SHALLOW CONCENTRATED FLOW

SOIL LEGEND

SYMBOL	SOIL SERIES	PHASE	SLOPE	HSG	DRAINAGE CLASS
Hgb	HERMON	SANDY LOAM	3–8%	A	SOMEWHAT EXCESSIVELY DRAINED
HIB	HINKLEY	LOAMY SAND	3–8%	A	EXCESSIVELY DRAINED
Sp	SEBAGO	MUCKY PEAT	0–1%	A/D	VERY POORLY DRAINED
Wa	WALPOLE	FINE SANDY LOAM	0–3%	A/D	POORLY DRAINED

EXISTING CONDITIONS LEGEND

- WATERSHED BOUNDARY
- A — B: TIME OF CONCENTRATION
- REACH
- 1.0S: SUBCATCHMENT LABEL
- 1R: REACH
- POA-1: POINT OF ANALYSIS
- 1P: STORMWATER TREATMENT/DETENTION POND
- HSG # / HSG #: SOILS BOUNDARY

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 INCH = 40 FT.

NOT FOR CONSTRUCTION

ROBERT A. MCSORLEY, PE #8588

REV.	BY	DATE	STATUS
A	RAM	06/19/2025	SUBMITTED FOR TOWN REVIEW

SEBAGO TECHNICS
SEBAGOTECHNICS.COM
75 John Roberts Road, Suite 4A
South Portland, ME 04106
207-200-2100
South Portland, Bridgton, Sanford and Bath

EXISTING CONDITIONS STORMWATER PLAN
OF:
FRANKLIN DRIVE SUBDIVISION
20 FRANKLIN DRIVE
WINDHAM, ME 04062
FOR:
NEW GEN ESTATES, LLC
50 MAINE MALL ROAD
SOUTH PORTLAND, ME 04106

RECORD OWNER:
NEW GEN ESTATES, LLC
50 MAINE MALL ROAD
SOUTH PORTLAND, ME 04106

DESIGNED	KMK
DRAWN	MRS
CHECKED	RAM
DATE	03/25/2025
SCALE	1"=40'
PROJECT	230411

SHEET 1 OF 2

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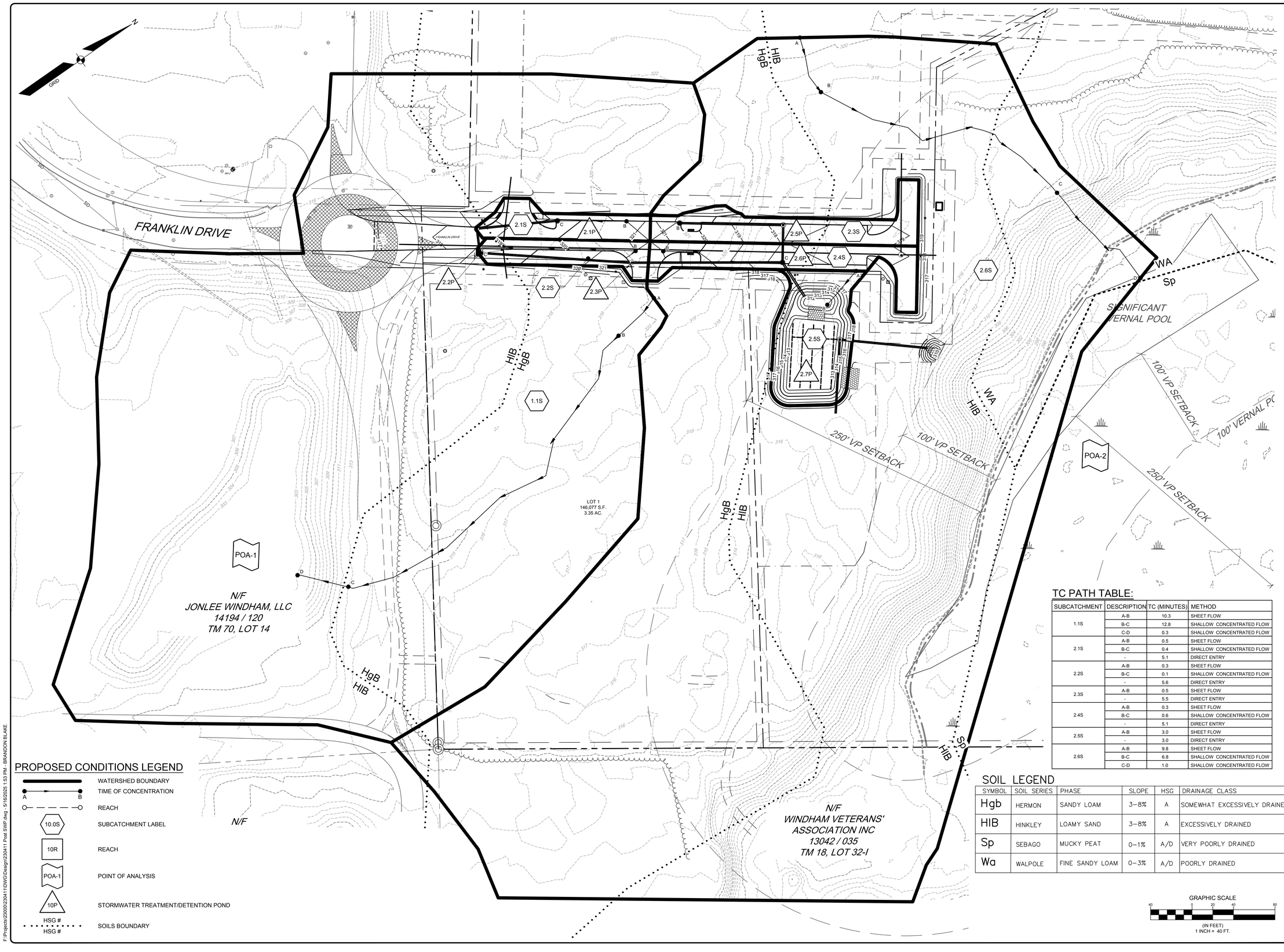
230411 Pre SWP.dwg, TAB:EXISTING CONDITIONS STORMWATER PLAN



PROPOSED CONDITIONS LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION (A — B)
- REACH
- 10.0S — SUBCATCHMENT LABEL
- 10R — REACH
- POA-1 — POINT OF ANALYSIS
- 10P — STORMWATER TREATMENT/DETENTION POND
- HSG # / HSG # — SOILS BOUNDARY

TC PATH TABLE:

SUBCATCHMENT	DESCRIPTION	TC (MINUTES)	METHOD
1.1S	A-B	10.3	SHEET FLOW
	B-C	12.8	SHALLOW CONCENTRATED FLOW
	C-D	0.3	SHALLOW CONCENTRATED FLOW
2.1S	A-B	0.5	SHEET FLOW
	B-C	0.4	SHALLOW CONCENTRATED FLOW
	-	5.1	DIRECT ENTRY
2.2S	A-B	0.3	SHEET FLOW
	B-C	0.1	SHALLOW CONCENTRATED FLOW
	-	5.6	DIRECT ENTRY
2.3S	A-B	0.5	SHEET FLOW
	-	5.5	DIRECT ENTRY
2.4S	A-B	0.3	SHEET FLOW
	B-C	0.6	SHALLOW CONCENTRATED FLOW
	-	5.1	DIRECT ENTRY
2.5S	A-B	3.0	SHEET FLOW
	-	3.0	DIRECT ENTRY
2.6S	A-B	9.8	SHEET FLOW
	B-C	6.8	SHALLOW CONCENTRATED FLOW
	C-D	1.0	SHALLOW CONCENTRATED FLOW

SOIL LEGEND

SYMBOL	SOIL SERIES	PHASE	SLOPE	HSG	DRAINAGE CLASS
Hgb	HERMON	SANDY LOAM	3–8%	A	SOMEWHAT EXCESSIVELY DRAINED
HIB	HINKLEY	LOAMY SAND	3–8%	A	EXCESSIVELY DRAINED
Sp	SEBAGO	MUCKY PEAT	0–1%	A/D	VERY POORLY DRAINED
Wa	WALPOLE	FINE SANDY LOAM	0–3%	A/D	POORLY DRAINED

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 INCH = 40 FT.

NOT FOR CONSTRUCTION

ROBERT A. MCSORLEY, PE #8588

STATE OF MAINE — ROBERT A. McSORLEY — 8588 — REGISTERED PROFESSIONAL ENGINEER

REV.	BY	DATE	STATUS
A	RAM	05/19/2025	SUBMITTED FOR TOWN REVIEW

SEBAGO TECHNICS
TECHNICS
SEBAGOTECHNICS.COM
75 JOHN ROBERTS ROAD, SUITE 4A
South Portland, ME 04106
207-200-2100
South Portland, Bridgton, Sanford and Bath

PROPOSED CONDITIONS STORMWATER PLAN

OF:
FRANKLIN DRIVE SUBDIVISION
20 FRANKLIN DRIVE
WINDHAM, ME 04062

FOR:
NEW GEN ESTATES, LLC
50 MAINE MALL ROAD
SOUTH PORTLAND, ME 04106

RECORD OWNER:
NEW GEN ESTATES, LLC
50 MAINE MALL ROAD
SOUTH PORTLAND, ME 04106

DESIGNED	KMK
DRAWN	MRS
CHECKED	RAM
DATE	03/25/2025
SCALE	1"=40'
PROJECT	230411

SHEET 2 OF 2

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230411 Post SWP.dwg, TAB-PROPOSED CONDITIONS STORMWATER PLAN