LETTER OF TRANSMITTAL

Date: September 20, 2011

To: City of Watertown, City Engineer
Mr. Kurt Hauk
Room 105, City Hall
245 Washington Street
Watertown, NY 13601

Re: **First Church of the Nazarene Parking Lot Expansion**

Please Find Attached:

3 Copies of the Following:

- Cover Letter Dated 09/20/2011
- Aerial Map
- Site Plan Application & Short EAF
- Engineering Report
- Survey Map by Moncrief Land Surveying dated 11/04/2011
- Drawing C100 Site Plan (24 x 36) dated 09/20/2011
- Drawing C101 Site Details (24 x 36) dated 09/20/2011
- Check #8096 in the amount of $50

13 Copies of the Following:

- Cover Letter Dated 09/20/2011
- Aerial Map
- Site Plan Application & Short EAF
- Engineering Report
- Survey Map by Moncrief Land Surveying (11 x 17) dated 11/04/2008
- Drawing C100 Site Plan (11 x 17) dated 09/20/2011
- Drawing C101 Site Details (11 x 17) dated 09/20/2011
- Check #8096 in the amount of $50

1 Electronic Copy (PDF) of the same

Cc: Chad Clardie, Pastor

Signed: JFoley for Patrick Currier, RA

522 Bradley Street Watertown, NY, 13601

Phone: 315-782-2005 Fax: 315-782-1472

September 20, 2011

City of Watertown
Kurt Hauk, City Engineer
Room 105, City Hall
245 Washington Street
Watertown, NY 13601

RE: First Church of the Nazarene Parking Lot Expansion

Dear Mr. Hauk,

Aubertine and Currier, on behalf of First Church of the Nazarene, is requesting Site Plan review of the attached documents, for the above referenced project.

The proposed project consists of adding 24 additional parking spaces along the West side of the existing parking lot. The existing church is approximately 18,200 s.f. and is located on tax parcel 12-13-117.009 in the City of Watertown. The project site is currently zoned Residential A. The proposed project is an acceptable use within the zoning district with site plan review and approval.

The existing grading and drainage shall not be disturbed. The Owner shall maintain all existing utilities, site lighting and landscaping.

The project shall be a single phase starting in the fall of 2011 and complete by the end of the year.

Sincerely,
Aubertine and Currier Architects, Engineers & Land Surveyors, PLLC

Patrick J. Currier, RA
NYS Certified Code Enforcement Official

Cc: Pastor Chad Clardie, First Church of the Nazarene

AUBERTINE and CURRIER
ARCHITECTS, ENGINEERS & LAND SURVEYORS, PLLC

522 Bradley Street
Watertown, New York 13601

aubertinecurrier.com

Phone: 315.782.2005
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Managing Partners
Michael L. Aubertine, R.A.
Architect

Patrick J. Currier, R.A.
Architect

Partners
Brian A. Jones, R.A., LEED AP
Architect

Matthew R. Morgia, P.E.
Civil Engineer

Jayson J. Jones, P.L.S.
Land Surveyor

535 Thompson Blvd, Watertown, NY 13601
Image © 2011 New York GIS
© 2011 Google
Google
Imagery Date: 3/31/2006
43°57'53.92" N 75°53'38.52" W elev 533 ft
Eye alt 2018 ft

CITY OF WATERTOWN
SITE PLAN APPLICATION PROCESS

The applicant is responsible for completeness of application and inclusion of all required information.

****INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED****

In order to expedite the Site Plan review process, all applicants are encouraged to have a pre-application meeting with Planning & Engineering staff. Staff can be reached at (315) 785-7740.

In the interest of expediting site plan approvals, the City of Watertown wishes to advise you of the procedures in applying for these referrals:

A. Fill out the Site Plan / Site Plan Waiver - Determination Flow Chart below:

1. Is the use a one, two, or three family dwelling?
   - ☐ YES (Site Plan Review is **not** required. You may apply directly for Building Permit.)
   - ☒ NO (Go to question 2)

2. Is your building or parking lot construction or expansion less than or equal to 400 sq. ft.?
   - ☐ YES (Site Plan Review is not required. You may apply directly for Building Permit.)
   - ☒ NO (Go to question 3)

3. Does your building or parking lot construction or expansion exceed 2500 sq. ft.?
   - ☒ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☐ NO (Go to question 4)

4. Is your proposed building the first on the lot?
   - ☐ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☐ NO (Go to question 5)

5. Does your project involve a change in the property boundaries?
   - ☐ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☐ NO (Go to question 6)

6. Does your building or parking lot construction or expansion change or impair the overall grading, circulation, drainage, utility services, and appearance and visual effect of the property?
   - ☐ YES (Site Plan Review required. Submit the Site Plan Application Form.)
   - ☐ NO (*Site Plan Waiver allowed. Submit the Site Plan Waiver Form.)

   * The City of Watertown Planning Board reserves the right to require Site Plan Review.

CITY OF WATERTOWN
SITE PLAN APPLICATION
AND
SHORT ENVIRONMENTAL ASSESSMENT FORM, PART 1

** Provide responses for all sections. INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED. Failure to submit required information by the submittal deadline will result in **not** making the agenda for the upcoming Planning Board meeting.

PROPERTY LOCATION

Proposed Project Name: First Church of the Nazarene Parking Lot Expansion

Tax Parcel Number: 12-13-117.009

Property Address: 535 Thompson Blvd, Watertown

Existing Zoning Classification: _____

OWNER OF PROPERTY

Name: First Church of the Nazarene

Address: 535 Thompson Blvd
Watertown, New York 13601

Telephone Number: 315-782-3840

Fax Number: _____

APPLICANT

Name: Aubertine and Currier Architects, Engineers & Land Surveyors PLLC

Address: 522 Bradley Street
Watertown, New York 13601

Telephone Number: 315-782-2005

Fax Number: 315-782-1472

Email Address: pjc@aubertinecurrier.com

ENGINEER/ARCHITECT/SURVEYOR

Name: Aubertine and Currier Architects, Engineers & Land Surveyors PLLC

Address: 522 Bradley Street
Watertown, New York 13601

Telephone Number: 315-782-2005

Fax Number: 315-782-1472

Email Address: pjc@aubertinecurrier.com

PROJECT DESCRIPTION

Describe project and proposed use briefly:

The proposed project consists of adding 24 additional parking spaces along the West side of the existing parking lot. The existing church is approximately 18,200 s.f. and is located on tax parcel 12-13-117.009 in the City of Watertown. The project site is currently zoned Residential A. The proposed project is an acceptable use within the zoning district with site plan review and approval.

Is proposed Action:

☐ New ☒ Expansion ☐ Modification/Alteration

Amount of Land Affected:

Initially: 1.36 Acres Ultimately: 1.63 Acres

Will proposed action comply with existing zoning or other existing land use restrictions?

☒ Yes ☐ No If no, describe briefly

_____

What is present land use in vicinity of project?

☒ Residential ☐ Industrial ☐ Commercial ☐ Agriculture

☐ Park/Forest/Open Space ☐ Other

Describe:_____

Does project involve a permit approval, or funding, now or ultimately from any other Governmental Agency (Federal, State or Local)?

☐ Yes ☒ No If yes, list agency(s) and permit/approval(s)

_____

Does any aspect of the project have a currently valid permit or approval?

☐ Yes ☒ No If yes, list agency(s) and permit/approval(s)

_____

As a result of proposed project, will existing permit/approval require modification?

☐ Yes ☒ No

Proposed number of housing units (if applicable): N/A

Proposed building area: 1st Floor N/A Sq. Ft.

2nd Floor N/A Sq. Ft.

3rd Floor N/A Sq. Ft.

Total N/A Sq. Ft.

Area of building to be used for the boiler room, heat facilities, utility facilities and storage: N/A Sq. Ft.

Number of parking spaces proposed: 128

Construction Schedule: Fall 2011

Hours of Operation: 8am-8pm

Volume of traffic to be generated: Minor ADT

ENGINEERING REPORT

FIRST CHURCH OF THE NAZARENE
PARKING LOT EXPANSION
535 THOMPSON BOULEVARD
CITY OF WATERTOWN
JEFFERSON COUNTY, NEW YORK

Owner: First Church of the Nazarene
535 Thompson Boulevard
Watertown, NY 13601

September 2011

_____

Patrick J. Currier, RA
Architect

The above Engineer states that to the best of his knowledge, information and belief, the plans and specifications are in accordance with applicable requirements of New York State. It is a violation of New York State Law for any person, unless acting under the direction of a licensed professional engineer to alter this document in any way. If altered, such licensee shall affix his or her seal and the notation "altered by" followed by his or her signature, date, and a specific description of alteration.

Aubertine & Currier Architects
522 Bradley Street Watertown, New York 13601 TELE: (315) 782-2005 FAX: (315) 782-1472

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1.0 SITE AND PROJECT DESCRIPTIONS

1.1 Location

The project is located within the City of Watertown at the intersection of Thompson and Wight Drive on Tax Parcel 10-15-115.000.

1.2 Project Description

The project consists of a parking lot expansion and reconfiguration of the parking lot at the main building entry.

1.3 Site Topography

The existing 4 acre church property slopes from west to east, towards Wight Drive. The western most portion of the site contains a grassed lawn area, while the eastern portion contains the church and parking lots.

Site runoff is primarily sheet flow to existing storm drainage inlets and piping located along the eastern most northern property line, and eastern property line adjacent to Wight Drive. These drainage structures are piped through the City storm sewer system which discharges into the Black River and ultimately flows to Lake Ontario.

The developed area of the project is not located within a 100 year flood plain.

1.4 Soil Classification

The project site is located in downtown Watertown, which is an urban environment and consists primarily of previously developed area. According to the Soils Survey of Jefferson County, New York, the project area soil consists of Farmington (FaB) loam to the north and Amenia (AmA) loam to the south, and a majority of the site. These soils include silt loam and gravelly sandy silt loam. FaB soils have a typical depth to bedrock of 19”. Ama soils have a typical depth to bedrock of > 60”.

Soil Symbol	Soil Name	Hydrologic Group
FaB	Farmington loam	C
AmA	Amenia loam	B

2.0 HYDROLOGIC AND HYDRAULIC ANALYSES

2.1 Existing Drainage

The project site includes the 4.03 acre First Church of the Nazarene property. The property includes the existing 18,000 sf building, 41,400 sf asphalt parking lots and walks, and remaining 116,300 sf lawn area.

Site runoff is primarily sheet flow to existing storm drainage inlets and piping located along the eastern most northern property line, and eastern property line adjacent to Wight Drive. These drainage structures are piped through the City storm sewer system which discharges into the Black River and ultimately flows to Lake Ontario.

The existing site drainage and runoff conditions were analyzed utilizing the Rational Method. HydroCAD calculations can be found in Appendix #4. Runoff calculations were completed for the 10, 25, 50 and 100 year, 24 hour storm events. Peak discharge from the 25 year, 24 hour, storm event has been utilized for design and discussion purposes. The existing conditions 25 year site discharge is 0.28 cfs.

2.2 Proposed Drainage

Site runoff from the Parking Lot Expansion and lawn areas will be collected in the existing catch basins along the northern edge of the existing parking lot and piped to the existing City storm sewers along Wight Drive.

The proposed conditions 25 year, 24 hour storm, peak discharge is 0.31 cfs. This minor increase in peak runoff from the existing condition of the project site is due primarily to the 0.27 acre parking expansion and increase in impervious area from 1.36 acres to 1.63 acres.

2.3 Proposed Storm Sewer Piping

No additional drainage piping is proposed.

3.0 ROADS / DRIVEWAYS / PARKING

3.1 Existing Roads / Driveways / Parking

The property gains access from both Thompson Boulevard and Wight Drive through existing driveways. Onsite parking for the church includes 97 parking spaces. Additional parking during large events and/or church services utilizes on street parking along Wight Drive and the neighboring synagogue parking lot.

3.2 Proposed Roads / Driveways / Parking

No new roads are proposed for this project.

The church's existing driveway and parking areas will remain. The accessible parking area and drop-off adjacent to the church's main building entrance will be reconfigured to provide enhanced access to the building. Entry parking and drop-off improvements include reconfiguration of parking, grading improvements, and side walk construction. The expansion project will not net a total of 128 Parking spaces.

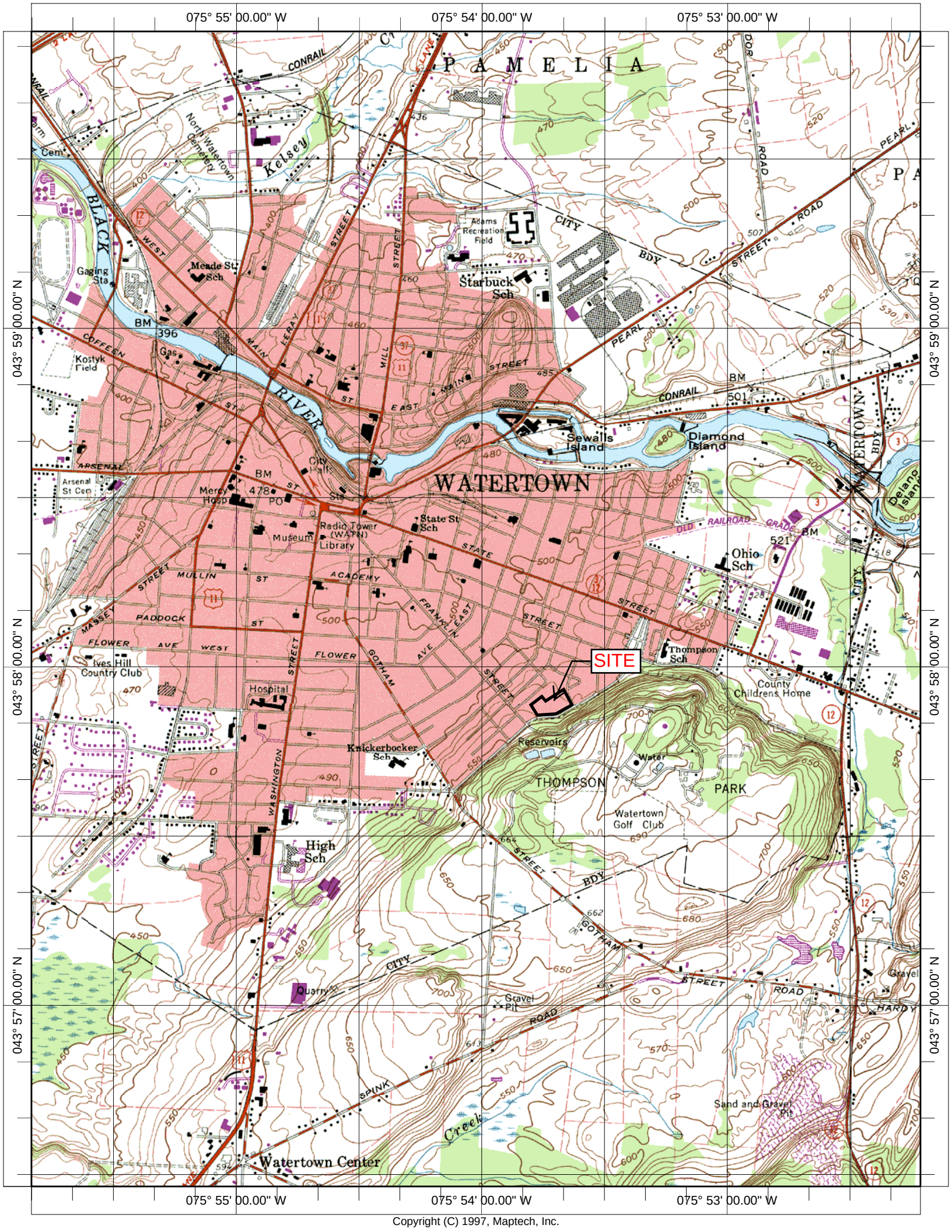
Sincerely,
Aubertine and Currier Architects, Engineers & Land Surveyors, P.L.L.C.

Patrick J. Currier, RA
Architect

Aubertine & Currier Architects
522 Bradley Street Watertown, New York 13601 TELE: (315) 782-2005 FAX: (315) 782-1472

APPENDIX #1

USGS Location Map
Soils Map
Soils Description



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SOIL SURVEY OF JEFFERSON COUNTY, NEW YORK

TABLE 15.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AgA, AgB---------- Agawam	0-10	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	65-95	40-65	<25	NP-3
	10-16	Fine sandy loam, very fine sandy loam, loam.	SM, ML	A-4	0	95-100	85-100	65-95	40-65	<25	NP-3
	16-30	Fine sandy loam	SM, SP-SM	A-2, A-3, A-4	0	90-100	85-100	60-95	5-45	<20	NP-3
	30-60	Fine sand, loamy fine sand, loamy sand.	SM, SP-SM	A-2	0	90-100	85-100	40-90	5-35	---	NP
AhA, AhB---------- Allis	0-8	Silt loam--------	ML, CL	A-6, A-7	0	80-100	75-100	70-100	55-90	35-45	10-20
	8-28	Silty clay loam, silty clay, shaly clay.	ML, CL, GC, GM	A-6, A-7	5-10	55-95	50-95	45-95	40-95	35-45	10-20
	28	Weathered bedrock	---	---	---	---	---	---	---	---	---
AlA, AlB, AlC, AlD, AlE-------- Alton	0-6	Gravelly loam----	SM, ML, GM, GP-GM	A-2, A-4, A-1	0-5	65-75	60-70	30-65	10-60	<10	NP-3
	6-33	Gravelly loam, very gravelly sandy loam, gravelly coarse sandy loam.	GM, SM	A-2, A-4, A-1	5-25	45-70	35-55	20-50	20-40	<10	NP-3
	33-65	Very gravelly sand, very gravelly loamy sand, very gravelly sandy loam.	GP, GM, SM, SP	A-1	10-25	45-60	40-50	20-40	2-35	---	NP
AmA, AmB---------- Amenia	0-9	Loam----------	ML, CL-ML, SM, SC	A-4	0-5	80-100	75-95	60-95	35-85	<30	NP-10
	9-19	Silt loam, loam, gravelly fine sandy loam.	ML, GM, GC, CL	A-2, A-4	0-5	55-95	50-90	40-85	25-70	<30	NP-10
	19-60	Gravelly fine sandy loam, gravelly loam.	GM, GC, SM, SC	A-2, A-4	0-15	55-80	50-75	40-65	25-50	<30	NP-10
AnA, AnB---------- Angola	0-8	Silt loam--------	ML, CL	A-4, A-5, A-6, A-7	0	100	75-100	65-100	55-95	25-45	3-20
	8-20	Silty clay loam, clay loam, shaly loam.	GM, GC, ML, CL	A-4, A-6	0-5	60-100	55-95	45-95	35-90	15-35	3-20
	20-24	Shaly clay loam, very shaly loam, channery silty clay loam.	GM, GC, ML, CL	A-1, A-2, A-4, A-6	0-5	40-80	35-75	30-75	20-70	15-35	3-20
	24	Weathered bedrock	---	---	---	---	---	---	---	---	---

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Em---------- Ensley	0-8	Loam----------	ML, CL-ML	A-4	0-10	90-100	85-100	75-90	50-65	<25	NP-6
	8-26	Gravelly sandy loam, sandy clay loam, fine sandy loam.	SC	A-6, A-4, A-2	0-10	70-100	65-100	55-90	25-50	20-30	8-16
	26-60	Sandy loam, gravelly fine sandy loam.	SM-SC, SM	A-2, A-4	0-10	70-95	65-95	50-75	20-40	<20	NP-7
En---------- Ensley	0-8	Very stony silt loam.	SM-SC, SM, ML, CL-ML	A-2, A-4	0-10	85-100	75-85	45-85	25-75	<25	NP-6
	8-26	Sandy loam, gravelly sandy loam, sandy clay loam.	CL, SC	A-2, A-4, A-6	0-10	70-100	65-100	55-90	30-70	20-30	8-16
	26-60	Sandy loam, gravelly fine sandy loam.	SM-SC, SM	A-2	0-10	70-95	65-95	50-65	20-35	<20	NP-7
FaB---------- Farmington	0-8	Loam----------	ML, CL, SM, SC	A-2, A-4, A-6	0-5	80-95	75-90	50-85	30-80	20-35	3-15
	8-19	Silt loam, loam, gravelly fine sandy loam.	ML, CL, GM, GC	A-2, A-4, A-6, A-1	0-5	60-95	55-90	35-85	20-80	20-35	3-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Fu*: Fluvaquents.											
Udifluvents.											
GaA, GaB--------- Galen	0-8	Fine sandy loam	SM, ML	A-4	0	100	95-100	70-95	40-60	<15	NP-4
	8-26	Fine sandy loam, very fine sandy loam, fine sand.	SM, ML	A-2, A-4	0	100	95-100	70-95	25-65	<15	NP-4
	26-40	Loamy fine sand, loamy very fine sand, fine sand.	SM, ML	A-2, A-4	0	100	95-100	70-95	25-60	<15	NP-4
	40-60	Stratified fine sand to very fine sand.	SM	A-2, A-4	0	100	95-100	60-90	20-50	---	NP
GbB*: Galoo----------	0-4	Silt loam--------	CL, ML, SM, CL-ML	A-4, A-6, A-2	0	80-100	75-95	50-95	30-85	15-30	3-15
	4-7	Channery silt loam, loam, fine sandy loam.	CL, ML, SM, CL-ML	A-4, A-6, A-2	0	75-100	70-95	50-95	30-85	15-30	3-15
	7	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "frequent," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
AgA, AgB---------- Agawam	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Low------	High.
AhA, AhB---------- Allis	D	None--------	---	---	0-1.0	Perched	Nov-Jun	20-40	Soft	Moderate	High-----	High.
AlA, AlB, AlC, AlD, AlE--------- Alton	A	None--------	---	---	>6.0	---	---	>60	---	Moderate	Low------	High.
AmA, AmB---------- Amenia	B	None--------	---	---	1.5-3.0	Perched	Nov-May	>60	---	High-----	Moderate	Low.
AnA, AnB---------- Angola	C	None--------	---	---	0.5-1.5	Perched	Dec-May	20-40	Soft	High-----	High-----	Low.
ArB, ArC---------- Arkport	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Low------	Moderate.
Be*. Beaches												
BfF---------- Benson	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate	Low------	Low.
BgB*:												
Benson----------	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate	Low------	Low.
Galoo----------	C/D	None--------	---	---	>6.0	---	---	2-10	Hard	Moderate	Low------	Low.
BhB, BhC, BhD, BhF, BkC--------- Bice	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Low------	High.
BlB*, BlC*:												
Bice----------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Low------	High.
Haights----------	B	None--------	---	---	2.0-3.0	Apparent	Feb-Apr	>60	---	Moderate	Moderate	Low.
BmB*:												
Bice----------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Low------	High.
Pinckney---------	C	None--------	---	---	1.5-2.0	Perched	Feb-May	>60	---	Moderate	Low------	Moderate.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
DcB, DcC, DcD----- Danley	C	None--------	---	---	1.5-2.0	Perched	Mar-May	>60	---	High-----	High-----	Low.
DdA, DdB, DdC----- Darien	C	None--------	---	---	0.5-1.5	Perched	Dec-May	>60	---	High-----	High-----	Low.
DeB---------- Deerfield	B	None--------	---	---	1.5-3.0	Apparent	Dec-Apr	>60	---	Moderate	Low------	High.
Dp*. Dumps												
ElA, ElB---------- Elmridge	C	None--------	---	---	1.5-3.0	Perched	Nov-May	>60	---	High-----	Moderate	Moderate.
Em---------- Ensley	B/D	None--------	---	---	+1-1.0	Apparent	Nov-Jun	>60	---	High-----	High-----	Low.
En---------- Ensley	B/D	None--------	---	---	+1-0.5	Apparent	Nov-Jun	>60	---	High-----	High-----	Low.
FaB---------- Farmington	C	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate	Low------	Moderate.
Fu*: Fluvaquents.												
Udifluvents.												
GaA, GaB---------- Galen	B	None--------	---	---	1.5-2.0	Apparent	Mar-May	>60	---	Moderate	Moderate	Low.
GbB*: Galoo----------	C/D	None--------	---	---	>6.0	---	---	2-10	Hard	Moderate	Low------	Low.
Rock outcrop.												
GcB*: Galoo----------	C/D	None--------	---	---	>6.0	---	---	2-10	Hard	Moderate	Moderate	High.
Rock outcrop.												
GlA, GlB, GlC, GmC---------- Galway	B	None--------	---	---	1.5-3.0	Perched	Mar-Apr	20-40	Hard	Moderate	Low------	Low.
Gr---------- Granby	A/D	None--------	---	---	+1-1.0	Apparent	Nov-Jun	>60	---	Moderate	High-----	Low.

See footnote at end of table.

APPENDIX #2

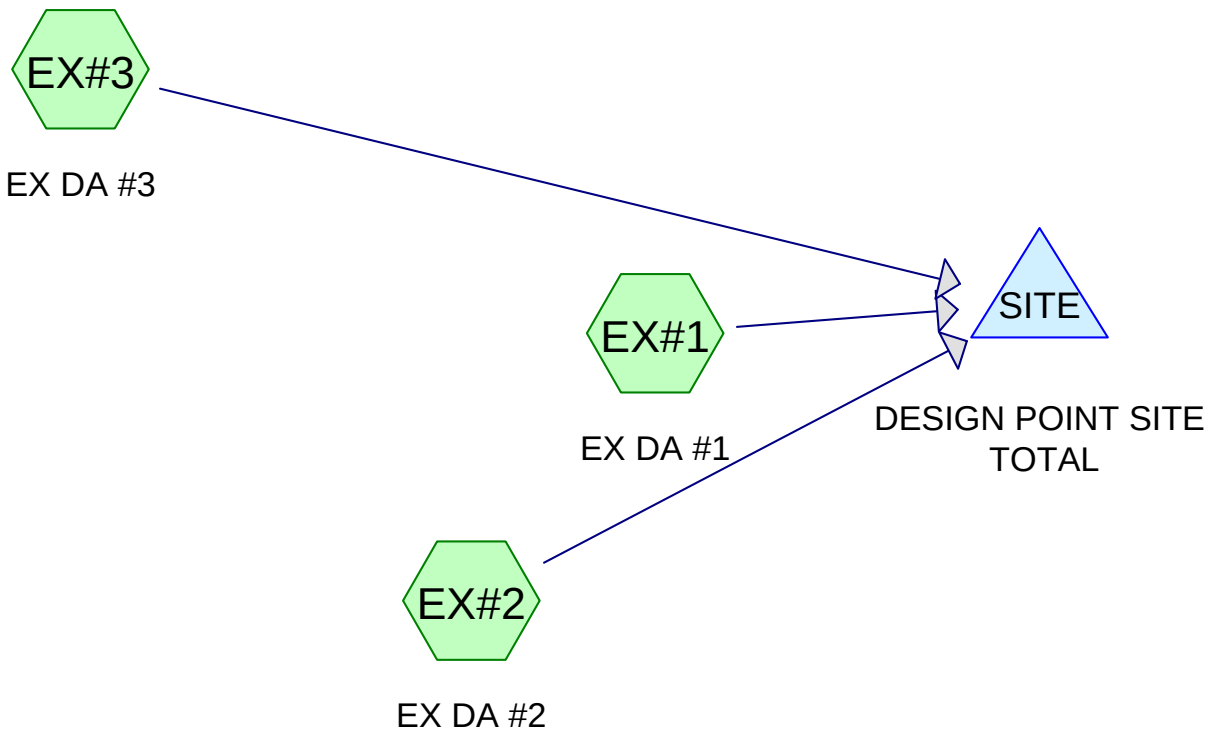
EXISTING DRAINAGE AREA SUMMARY TABLE
EXISTING CONDITIONS HYDROCAD CALCULATIONS
PROPOSED DRAINAGE AREA SUMMARY TABLE
EXISTING VERSES PROPOSED COMPARISON TABLE
PROPOSED CONDITIONS HYDROCAD CALCULATIONS

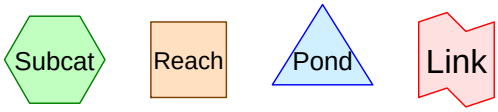
Aubertine & Currier Architects
522 Bradley Street Watertown, New York 13601 TELE: (315) 782-2005 FAX: (315) 782-1472

EXISTING DRAINAGE AREA SUMMARY TABLE
LIFE CHURCH OF THE NAZARENE, PARKING LOT EXPANSION

9/17/2011

Drainage Area	Surface Description	Soil Type	c	Area (Acre)	Composite c	Composite Area (Acre)	Tc (Min.)
EX#1	Meadow, Grass, Non-Grazed	C	0.25	0.260	0.55	0.48	12.1
	Paved Parking, Roads, Roofs		0.90	0.220			
EX#2	Meadow, Grass, Non-Grazed	C	0.25	0.390	0.44	0.55	13.8
	Paved Parking, Roads, Roofs		0.90	0.160			
EX#3	Meadow, Grass, Non-Grazed	B	0.20	0.690	0.45	3.00	17.0
	Meadow, Grass, Non-Grazed	C	0.25	1.330			
	Paved Parking, Roads, Roofs		0.90	0.980			
DRAINAGE AREA TOTAL					**0.46**	**4.03**	





Drainage Diagram for Nazarene Church-Existing-Rational
Prepared by Aubertine and Currier, PLLC, Printed 9/17/2011
HydroCAD® 9.10 s/n 03261 © 2010 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
0.690	0.20	Meadow, non-grazed, HSG B (EX#3)
1.980	0.25	Meadow, non-grazed, HSG C (EX#1, EX#2, EX#3)
1.360	0.90	Paved parking & roofs (EX#1, EX#2, EX#3)
4.030	0.46	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.690	HSG B	EX#3
1.980	HSG C	EX#1, EX#2, EX#3
0.000	HSG D	
1.360	Other	EX#1, EX#2, EX#3
4.030		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	EX#3	0.00	0.00	315.0	0.0298	0.013	6.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.05"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.02 cfs 0.042 af

Subcatchment EX#2: EX DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>0.84"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.02 cfs 0.039 af

Subcatchment EX#3: EX DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>0.86"
Flow Length=620' Tc=17.0 min C=0.45 Runoff=0.11 cfs 0.215 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.15 cfs 0.295 af
Primary=0.15 cfs 0.295 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.295 af Average Runoff Depth = 0.88"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

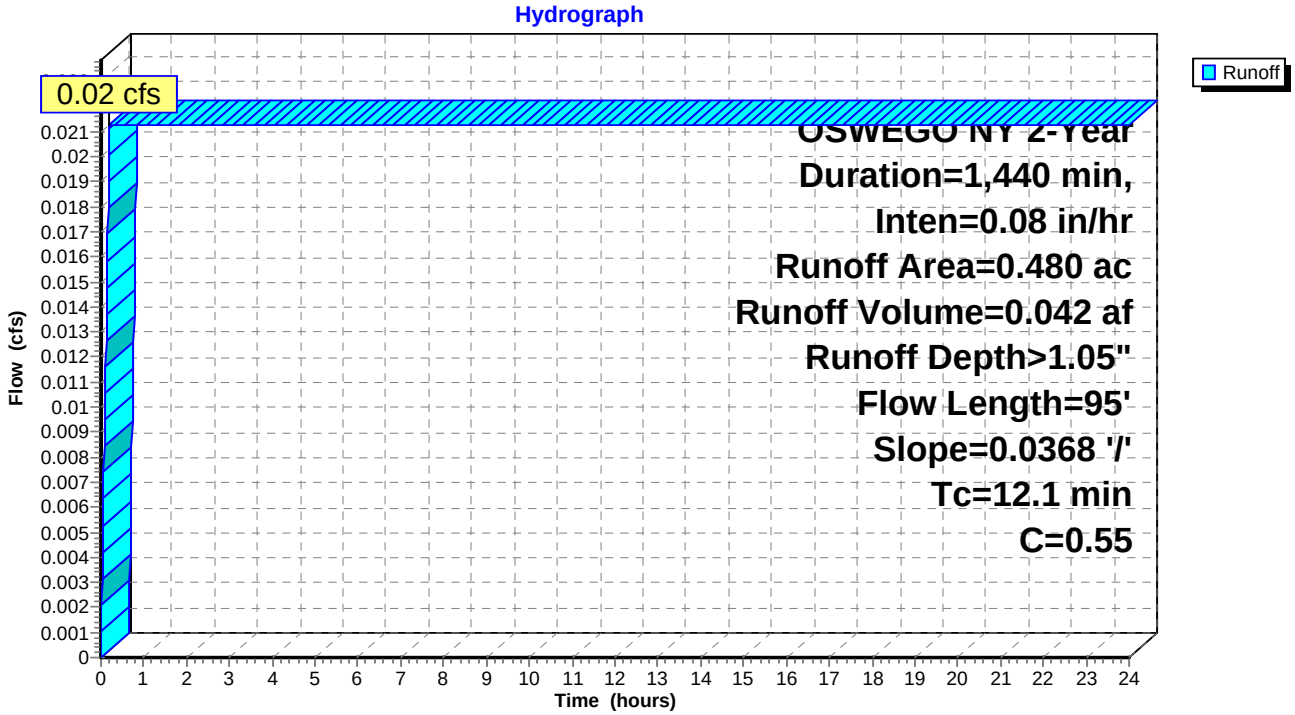
Runoff = 0.02 cfs @ 0.21 hrs, Volume= 0.042 af, Depth> 1.05"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 2-Year Duration=1,440 min, Inten=0.08 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment EX#2: EX DA #2

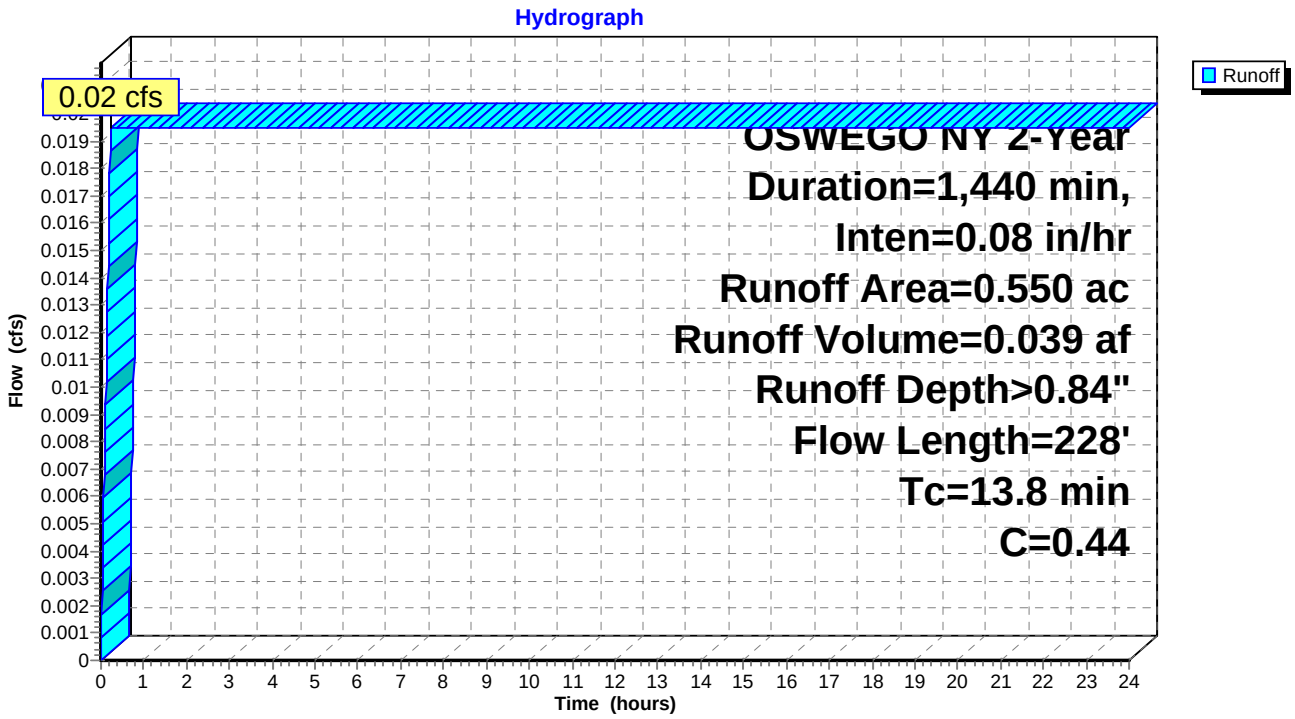
Runoff = 0.02 cfs @ 0.23 hrs, Volume= 0.039 af, Depth> 0.84"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 2-Year Duration=1,440 min, Inten=0.08 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment EX#2: EX DA #2



Summary for Subcatchment EX#3: EX DA #3

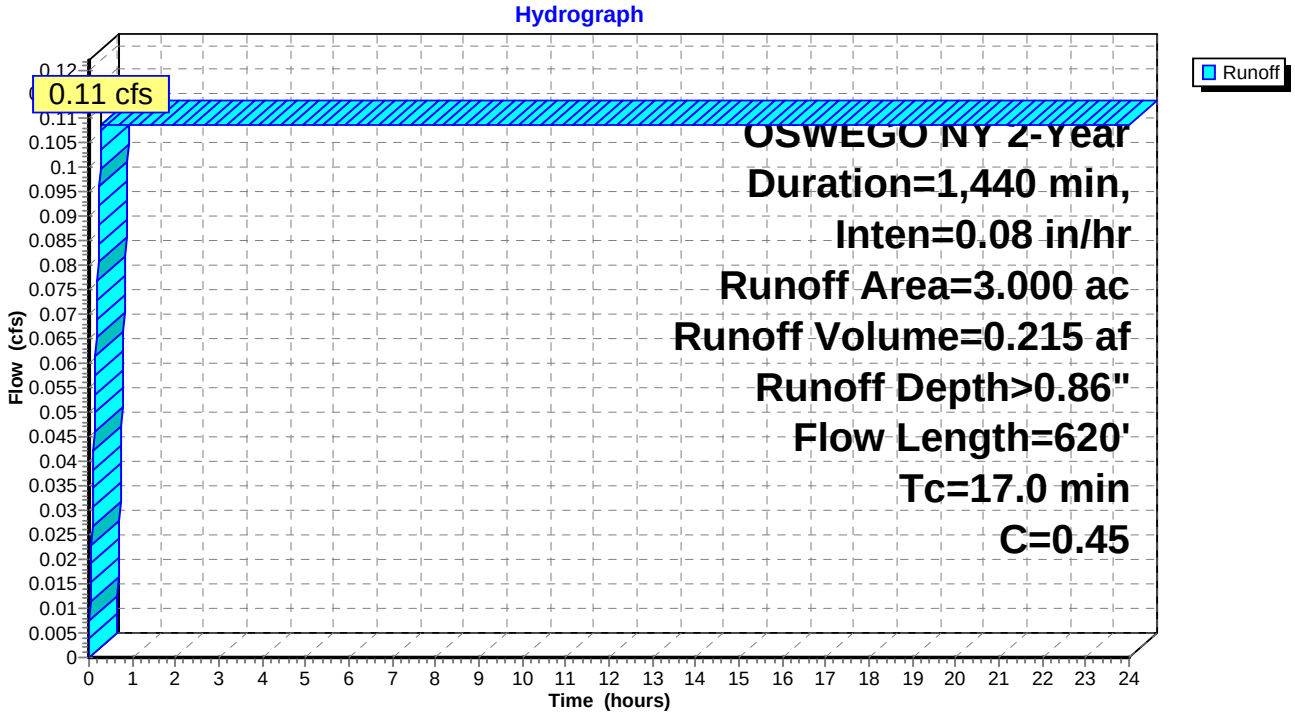
Runoff = 0.11 cfs @ 0.29 hrs, Volume= 0.215 af, Depth> 0.86"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 2-Year Duration=1,440 min, Inten=0.08 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.330	0.25	Meadow, non-grazed, HSG C
0.980	0.90	Paved parking & roofs
3.000	0.45	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment EX#3: EX DA #3



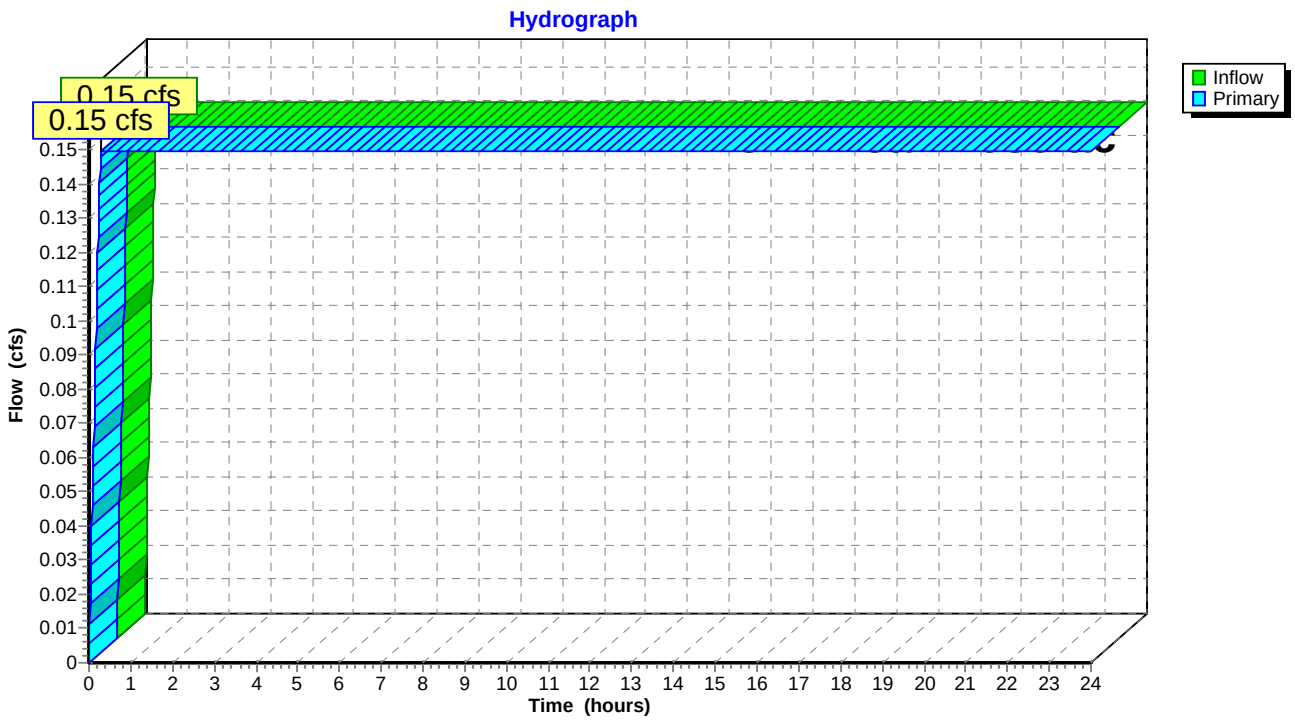
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	0.88"	for 2-Year event
Inflow =	0.15 cfs @	0.29 hrs,	Volume=	0.295 af	
Primary =	0.15 cfs @	0.29 hrs,	Volume=	0.295 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.40"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.03 cfs 0.056 af

Subcatchment EX#2: EX DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.12"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.03 cfs 0.051 af

Subcatchment EX#3: EX DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.14"
Flow Length=620' Tc=17.0 min C=0.45 Runoff=0.14 cfs 0.286 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.20 cfs 0.393 af
Primary=0.20 cfs 0.393 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.393 af Average Runoff Depth = 1.17"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

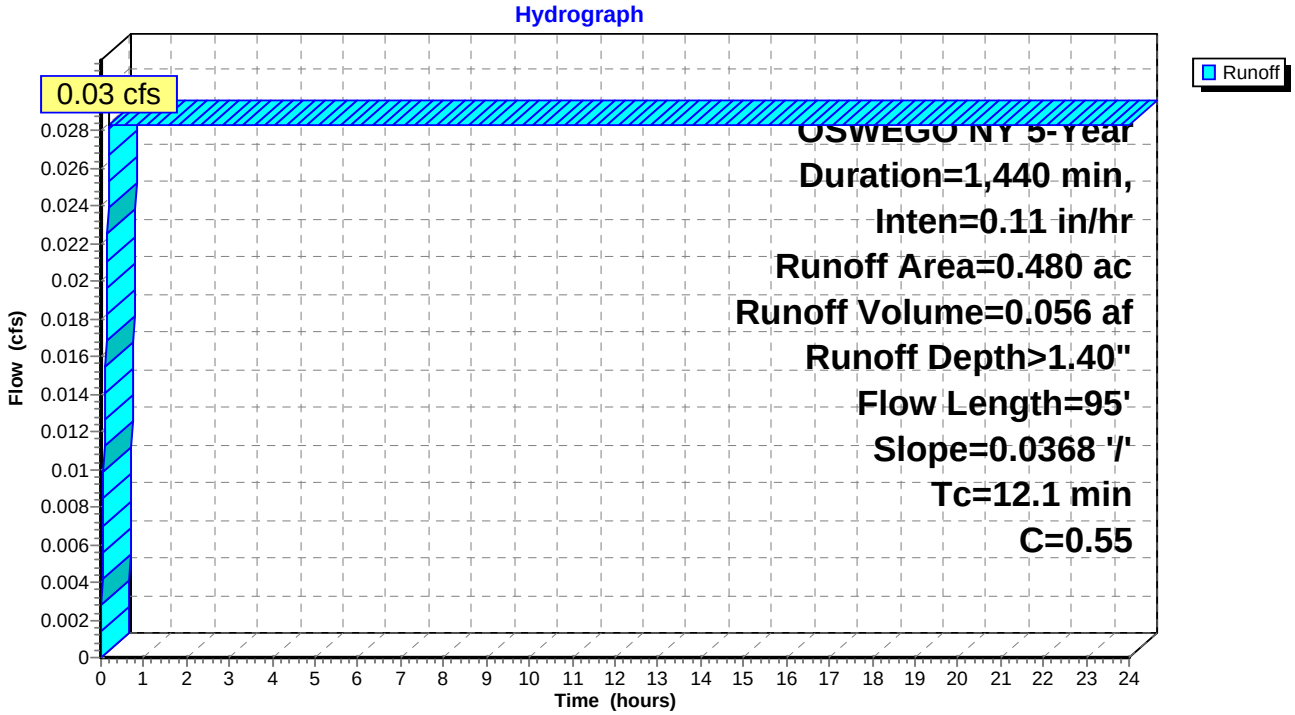
Runoff = 0.03 cfs @ 0.21 hrs, Volume= 0.056 af, Depth> 1.40"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 5-Year Duration=1,440 min, Inten=0.11 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment EX#2: EX DA #2

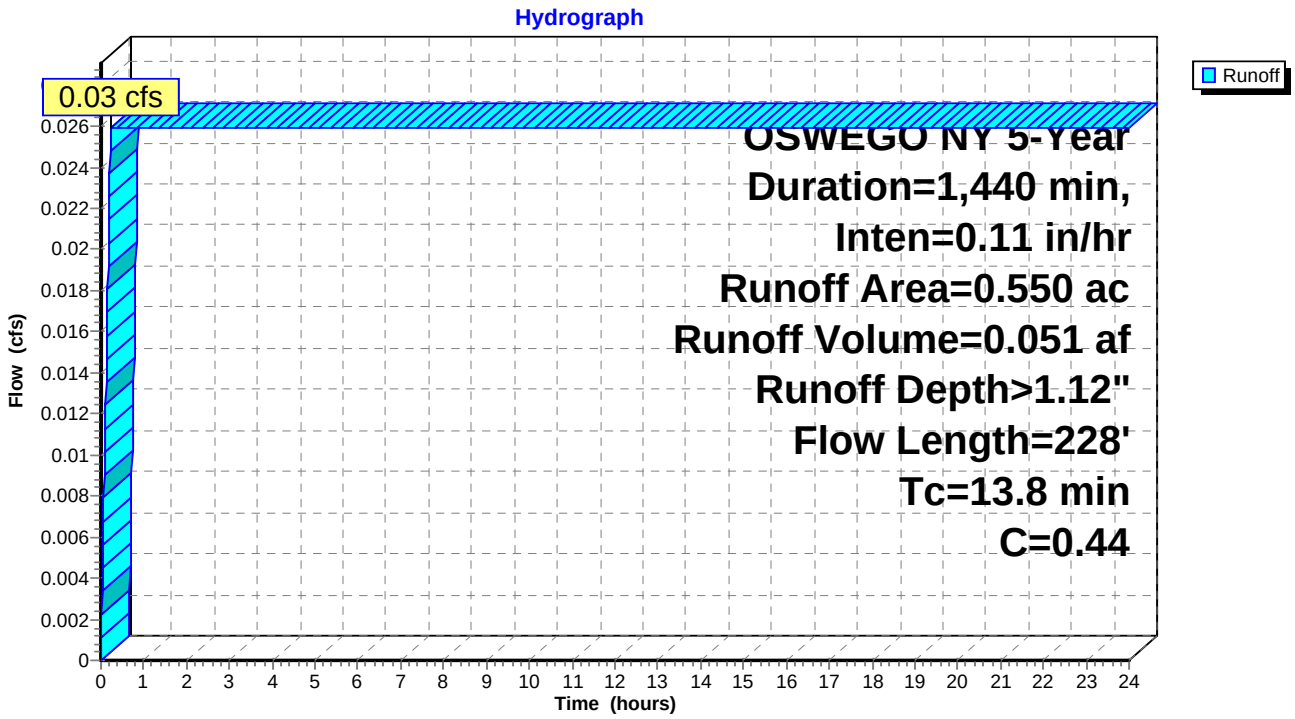
Runoff = 0.03 cfs @ 0.23 hrs, Volume= 0.051 af, Depth> 1.12"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 5-Year Duration=1,440 min, Inten=0.11 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment EX#2: EX DA #2



Summary for Subcatchment EX#3: EX DA #3

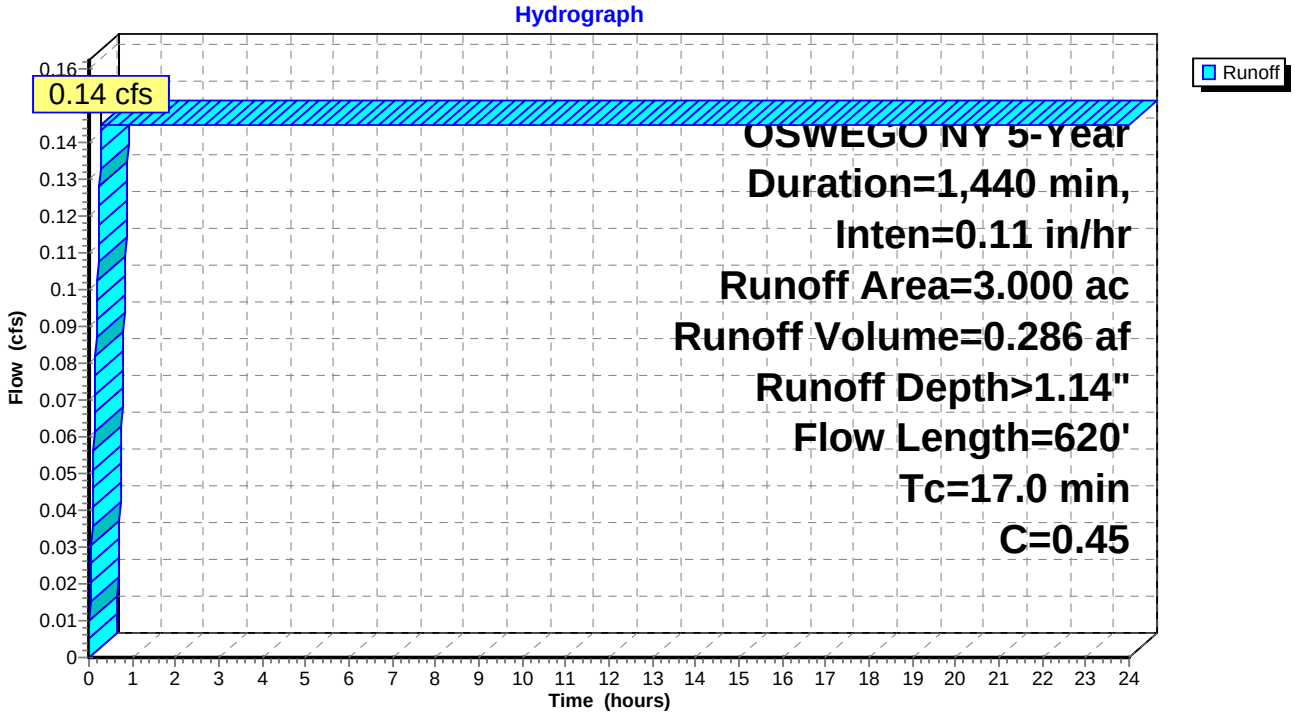
Runoff = 0.14 cfs @ 0.29 hrs, Volume= 0.286 af, Depth> 1.14"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 5-Year Duration=1,440 min, Inten=0.11 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.330	0.25	Meadow, non-grazed, HSG C
0.980	0.90	Paved parking & roofs
3.000	0.45	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment EX#3: EX DA #3



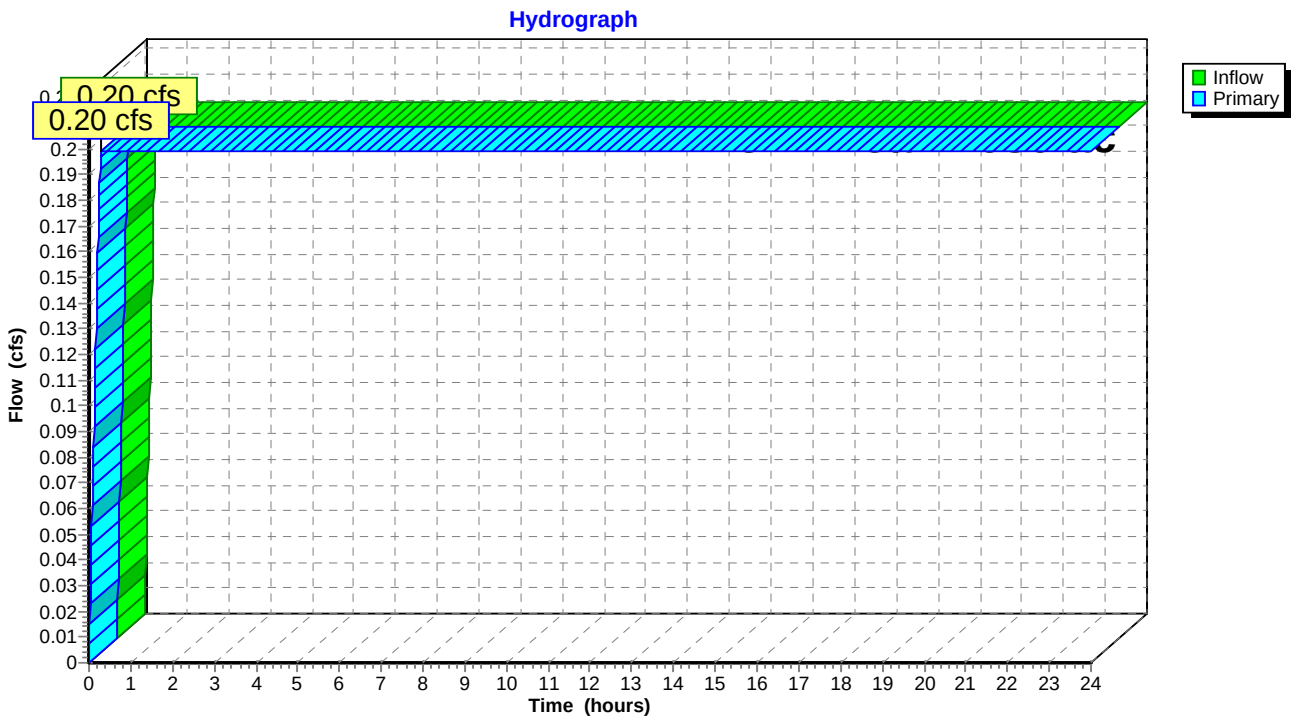
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.17"	for 5-Year event
Inflow =	0.20 cfs @	0.29 hrs,	Volume=	0.393 af	
Primary =	0.20 cfs @	0.29 hrs,	Volume=	0.393 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.65"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.03 cfs 0.066 af

Subcatchment EX#2: EX DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.32"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.03 cfs 0.061 af

Subcatchment EX#3: EX DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.35"
Flow Length=620' Tc=17.0 min C=0.45 Runoff=0.17 cfs 0.337 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.24 cfs 0.464 af
Primary=0.24 cfs 0.464 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.464 af Average Runoff Depth = 1.38"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

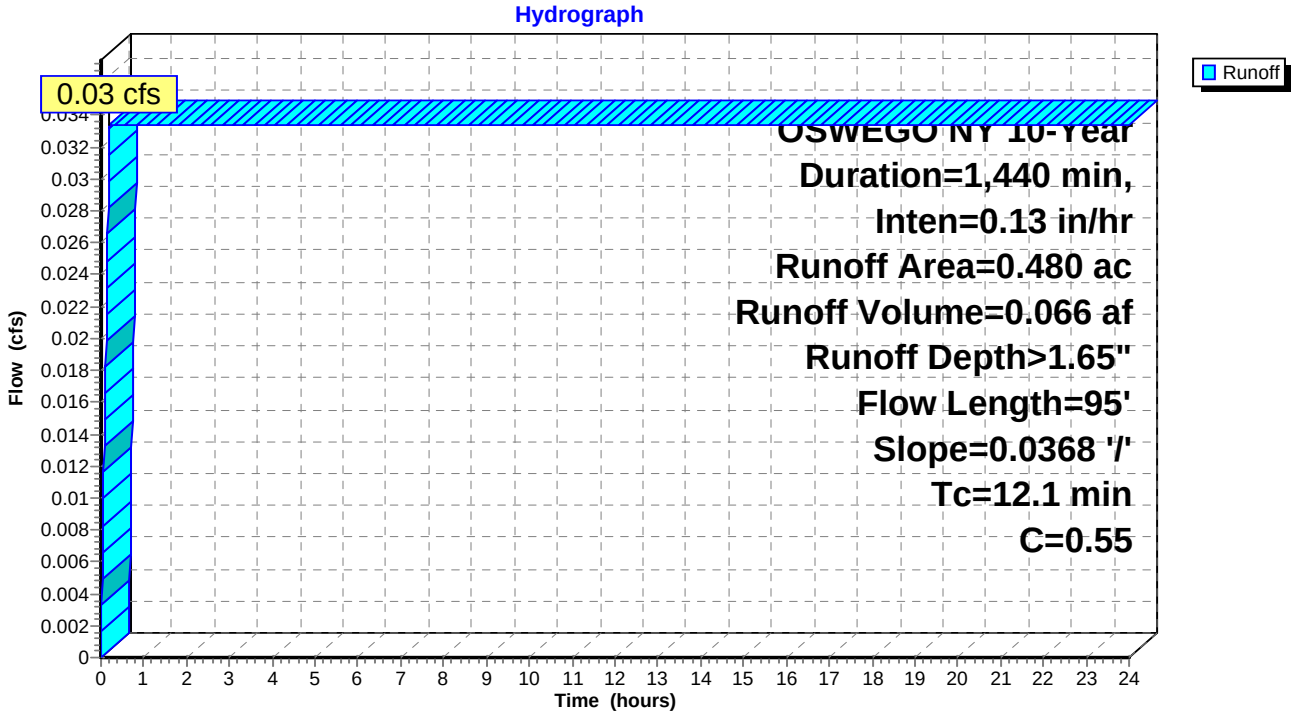
Runoff = 0.03 cfs @ 0.21 hrs, Volume= 0.066 af, Depth> 1.65"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 10-Year Duration=1,440 min, Inten=0.13 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment EX#2: EX DA #2

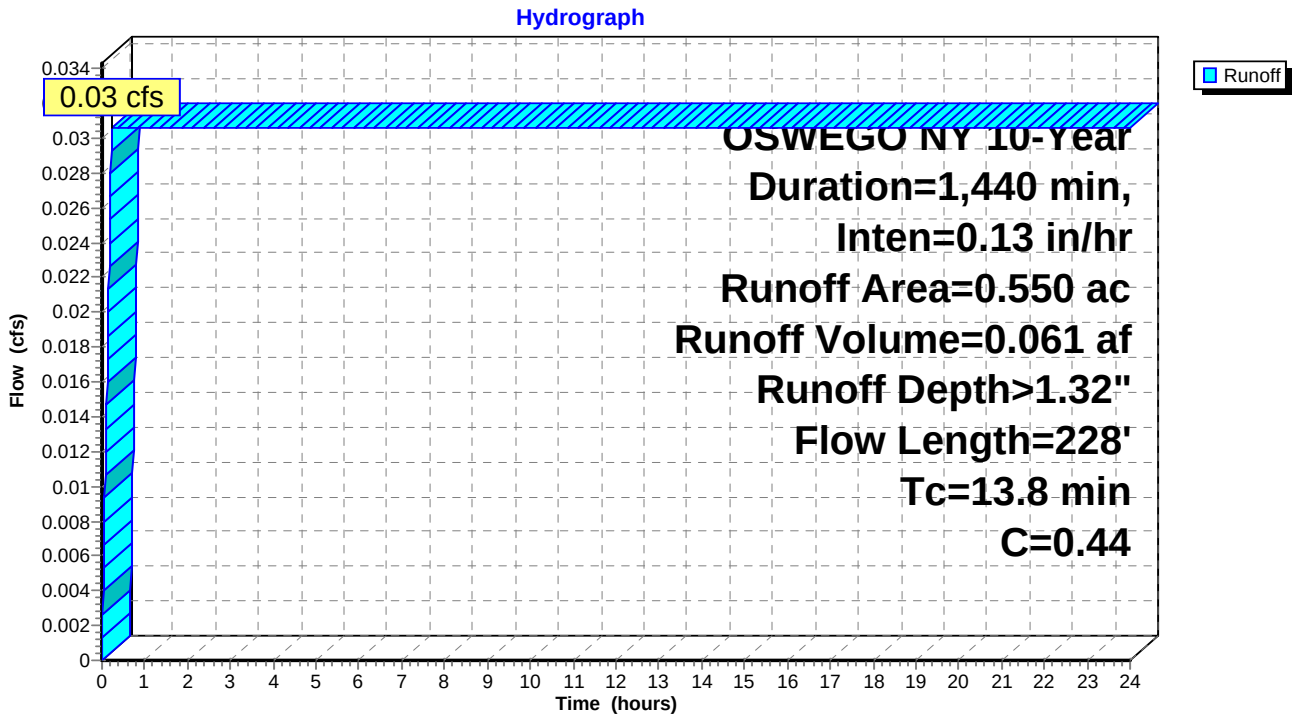
Runoff = 0.03 cfs @ 0.23 hrs, Volume= 0.061 af, Depth> 1.32"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 10-Year Duration=1,440 min, Inten=0.13 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment EX#2: EX DA #2



Summary for Subcatchment EX#3: EX DA #3

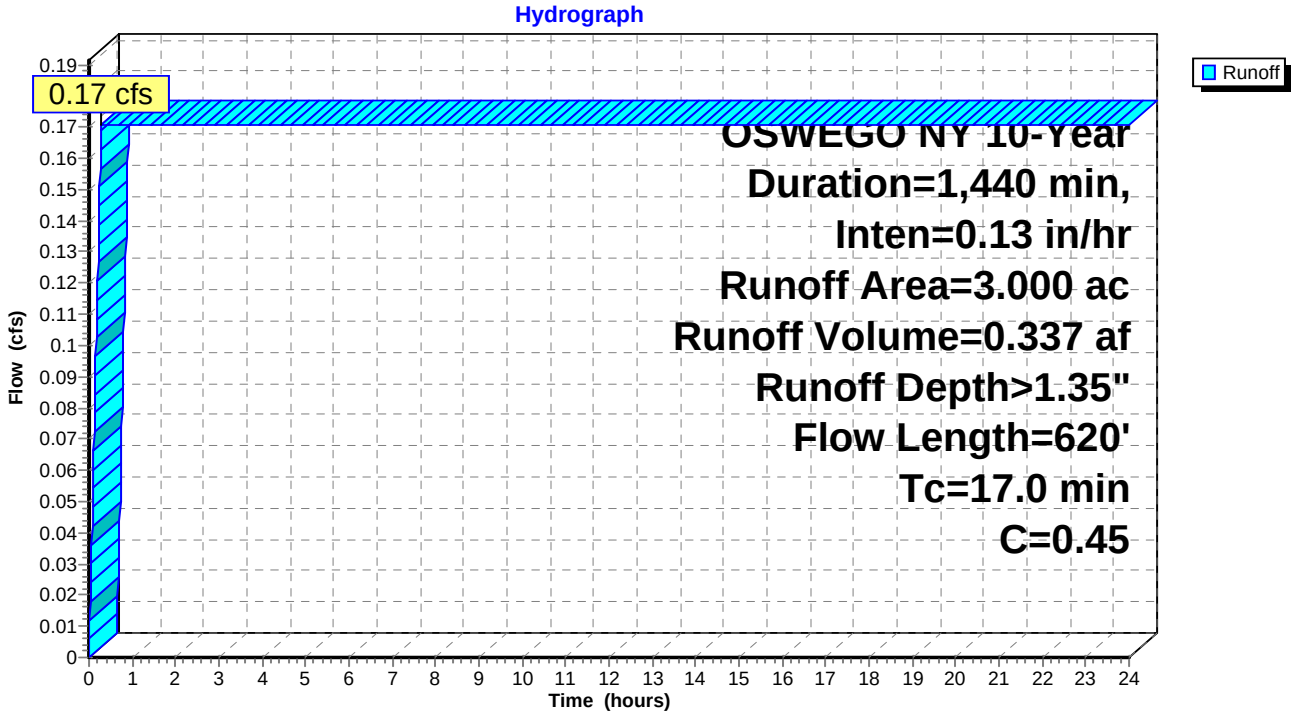
Runoff = 0.17 cfs @ 0.29 hrs, Volume= 0.337 af, Depth> 1.35"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 10-Year Duration=1,440 min, Inten=0.13 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.330	0.25	Meadow, non-grazed, HSG C
0.980	0.90	Paved parking & roofs
3.000	0.45	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment EX#3: EX DA #3



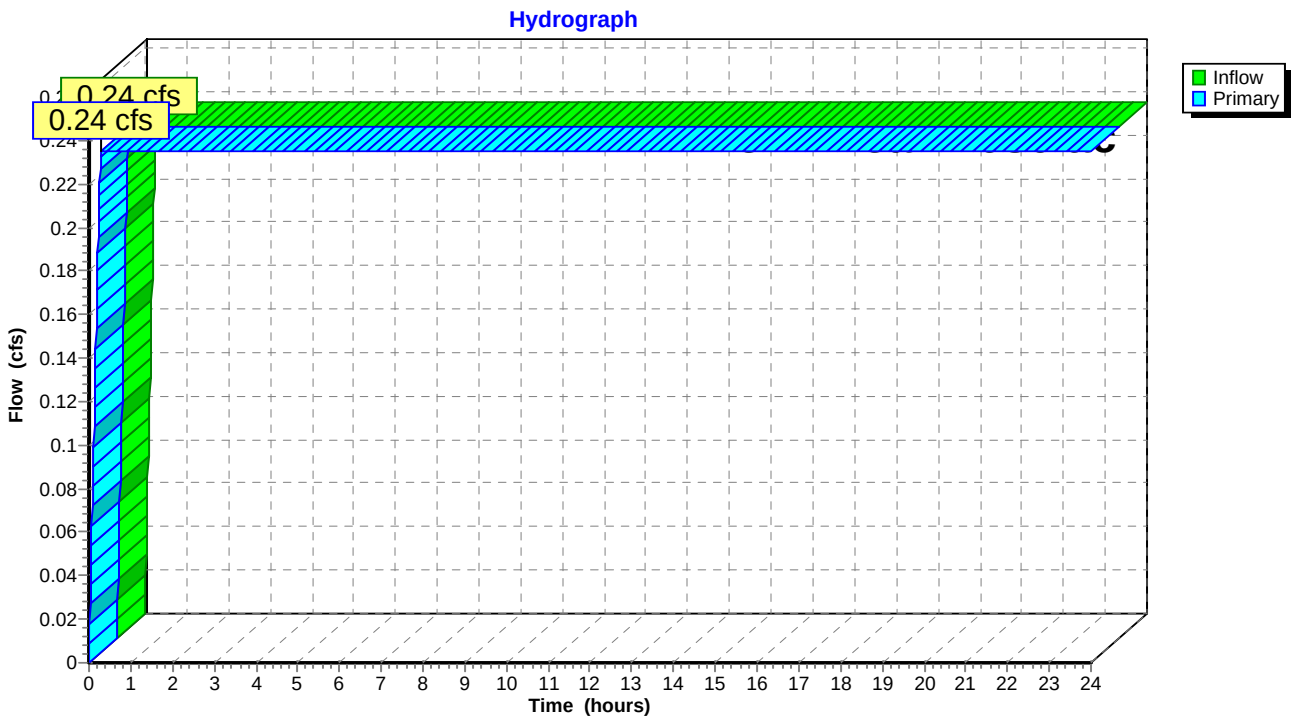
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.38"	for 10-Year event
Inflow =	0.24 cfs @	0.29 hrs,	Volume=	0.464 af	
Primary =	0.24 cfs @	0.29 hrs,	Volume=	0.464 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.96"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.04 cfs 0.078 af

Subcatchment EX#2: EX DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.56"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.04 cfs 0.072 af

Subcatchment EX#3: EX DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.60"
Flow Length=620' Tc=17.0 min C=0.45 Runoff=0.20 cfs 0.399 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.28 cfs 0.549 af
Primary=0.28 cfs 0.549 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.549 af Average Runoff Depth = 1.64"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

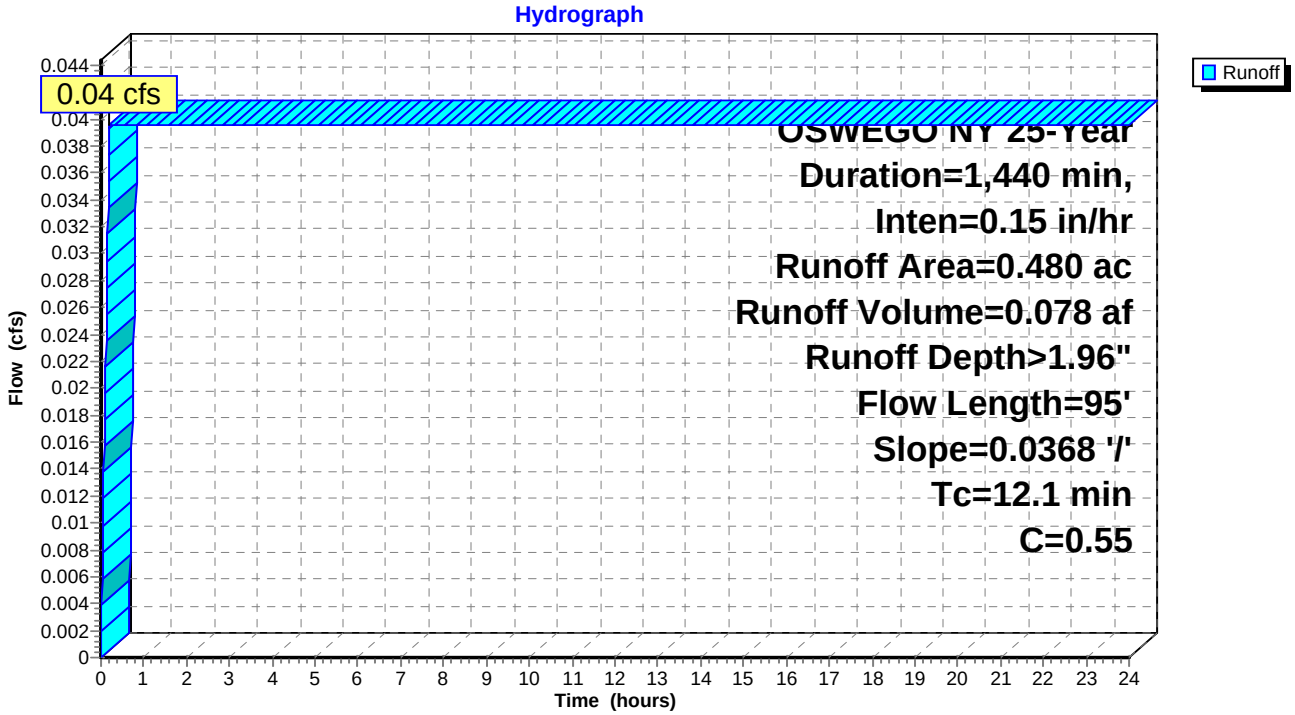
Runoff = 0.04 cfs @ 0.21 hrs, Volume= 0.078 af, Depth> 1.96"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 25-Year Duration=1,440 min, Inten=0.15 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment EX#2: EX DA #2

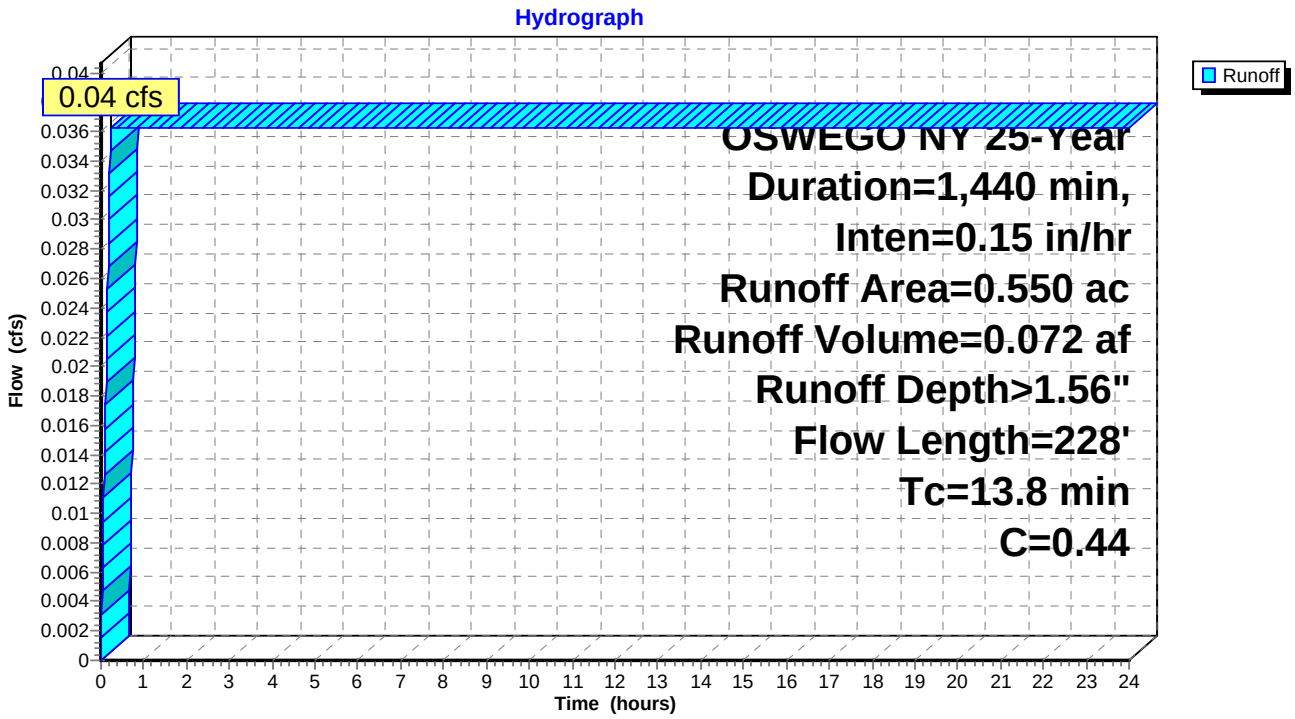
Runoff = 0.04 cfs @ 0.23 hrs, Volume= 0.072 af, Depth> 1.56"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 25-Year Duration=1,440 min, Inten=0.15 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment EX#2: EX DA #2



Summary for Subcatchment EX#3: EX DA #3

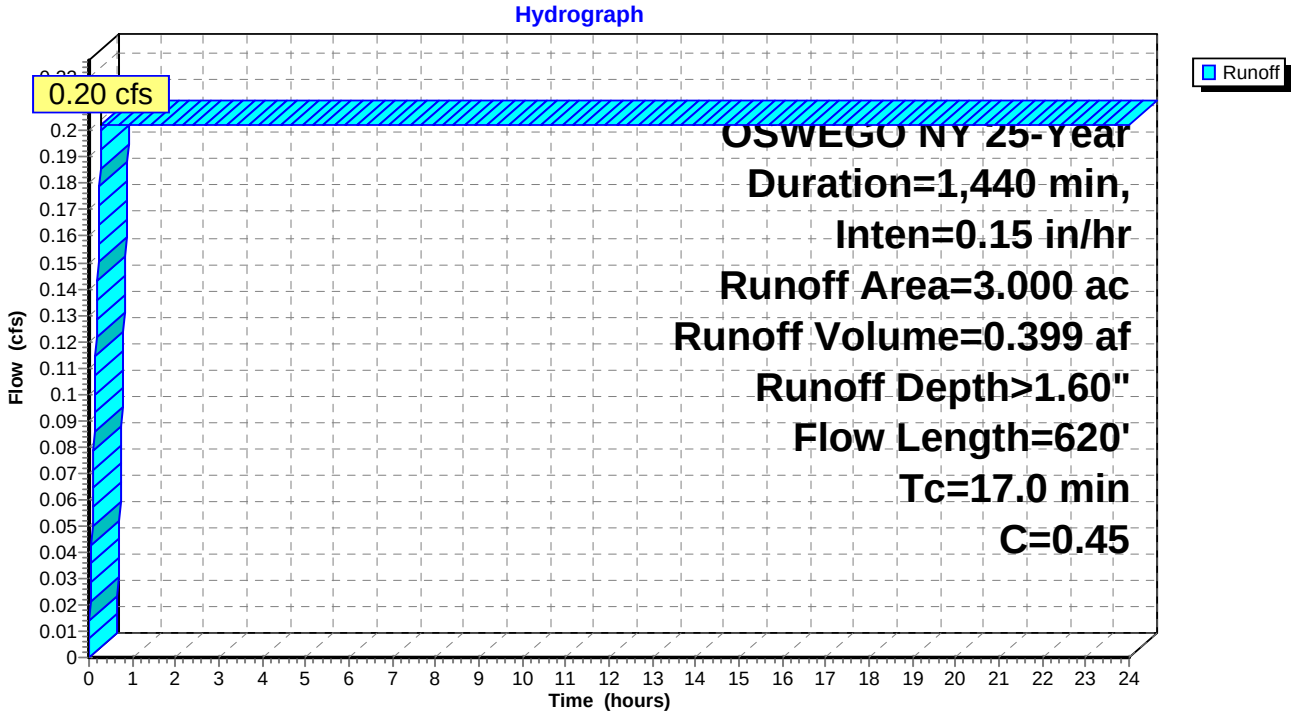
Runoff = 0.20 cfs @ 0.29 hrs, Volume= 0.399 af, Depth> 1.60"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 25-Year Duration=1,440 min, Inten=0.15 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.330	0.25	Meadow, non-grazed, HSG C
0.980	0.90	Paved parking & roofs
3.000	0.45	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment EX#3: EX DA #3



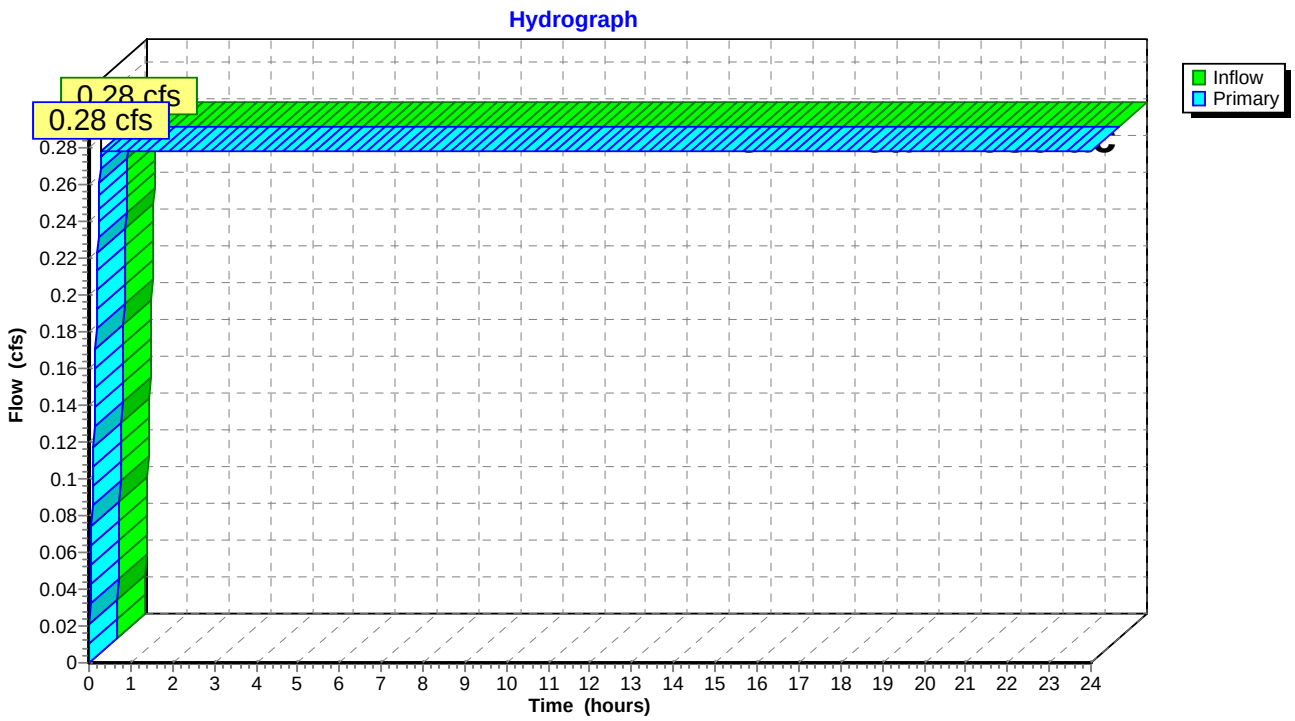
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.64"	for 25-Year event
Inflow =	0.28 cfs @	0.29 hrs,	Volume=	0.549 af	
Primary =	0.28 cfs @	0.29 hrs,	Volume=	0.549 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>2.07"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.04 cfs 0.083 af

Subcatchment EX#2: EX DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.66"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.04 cfs 0.076 af

Subcatchment EX#3: EX DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.69"
Flow Length=620' Tc=17.0 min C=0.45 Runoff=0.21 cfs 0.423 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.29 cfs 0.582 af
Primary=0.29 cfs 0.582 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.582 af Average Runoff Depth = 1.73"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

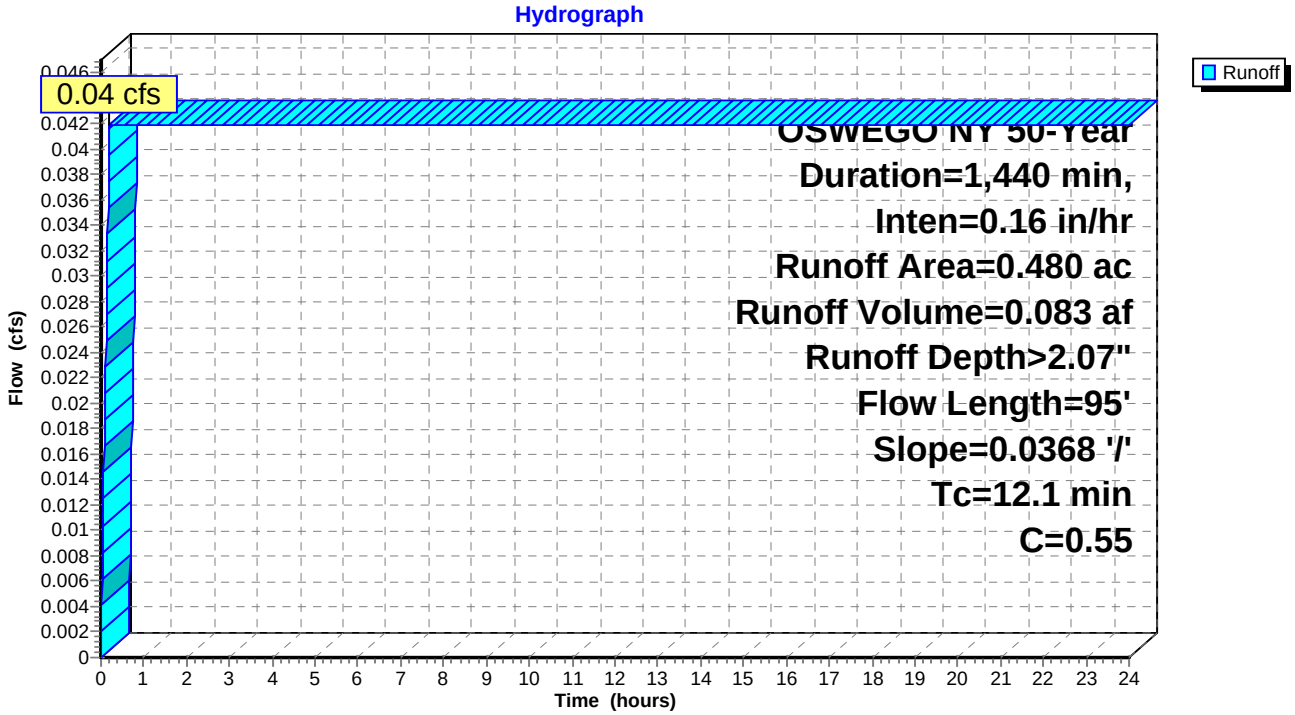
Runoff = 0.04 cfs @ 0.21 hrs, Volume= 0.083 af, Depth> 2.07"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 50-Year Duration=1,440 min, Inten=0.16 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment EX#2: EX DA #2

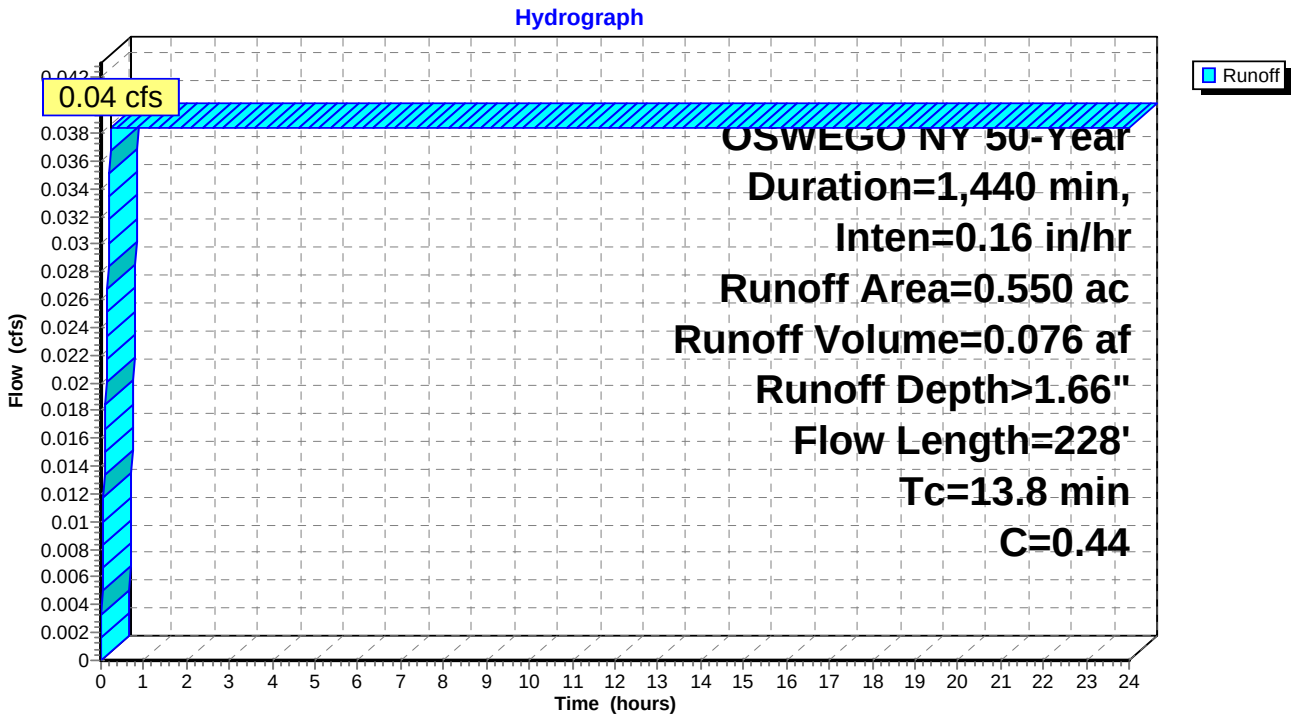
Runoff = 0.04 cfs @ 0.23 hrs, Volume= 0.076 af, Depth> 1.66"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 50-Year Duration=1,440 min, Inten=0.16 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment EX#2: EX DA #2



Summary for Subcatchment EX#3: EX DA #3

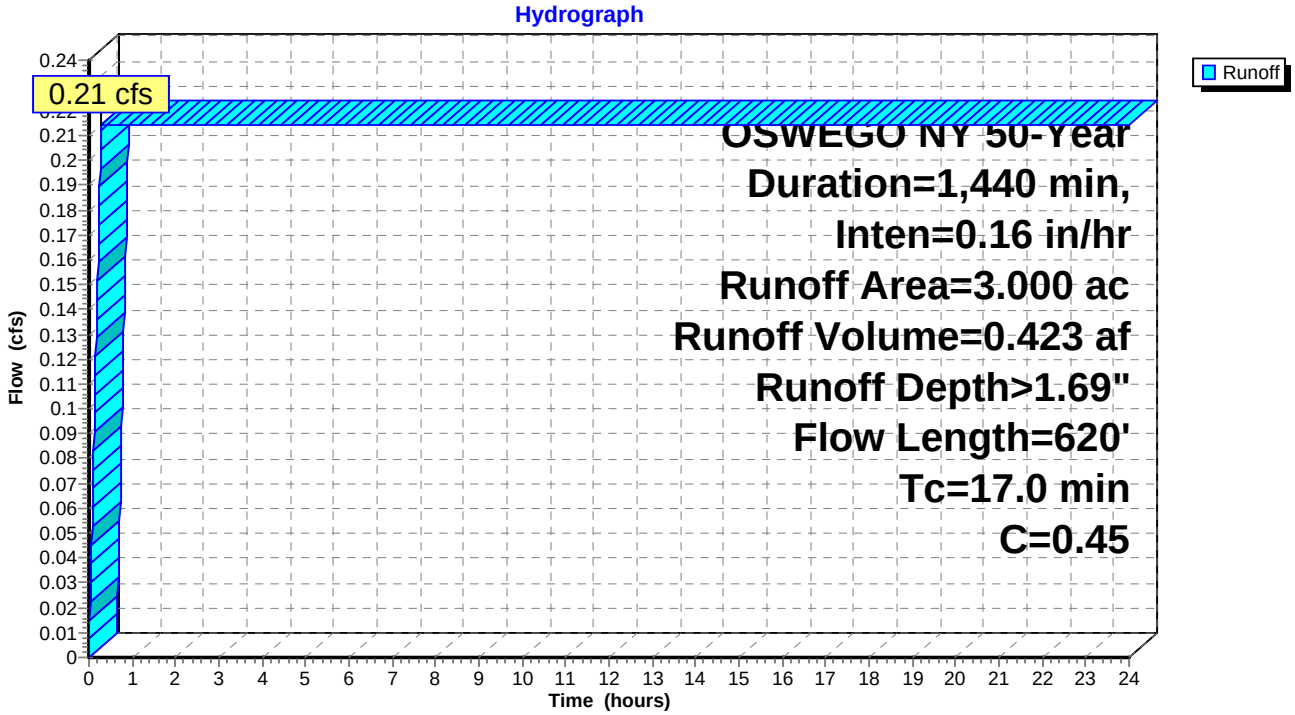
Runoff = 0.21 cfs @ 0.29 hrs, Volume= 0.423 af, Depth> 1.69"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 50-Year Duration=1,440 min, Inten=0.16 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.330	0.25	Meadow, non-grazed, HSG C
0.980	0.90	Paved parking & roofs
3.000	0.45	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment EX#3: EX DA #3



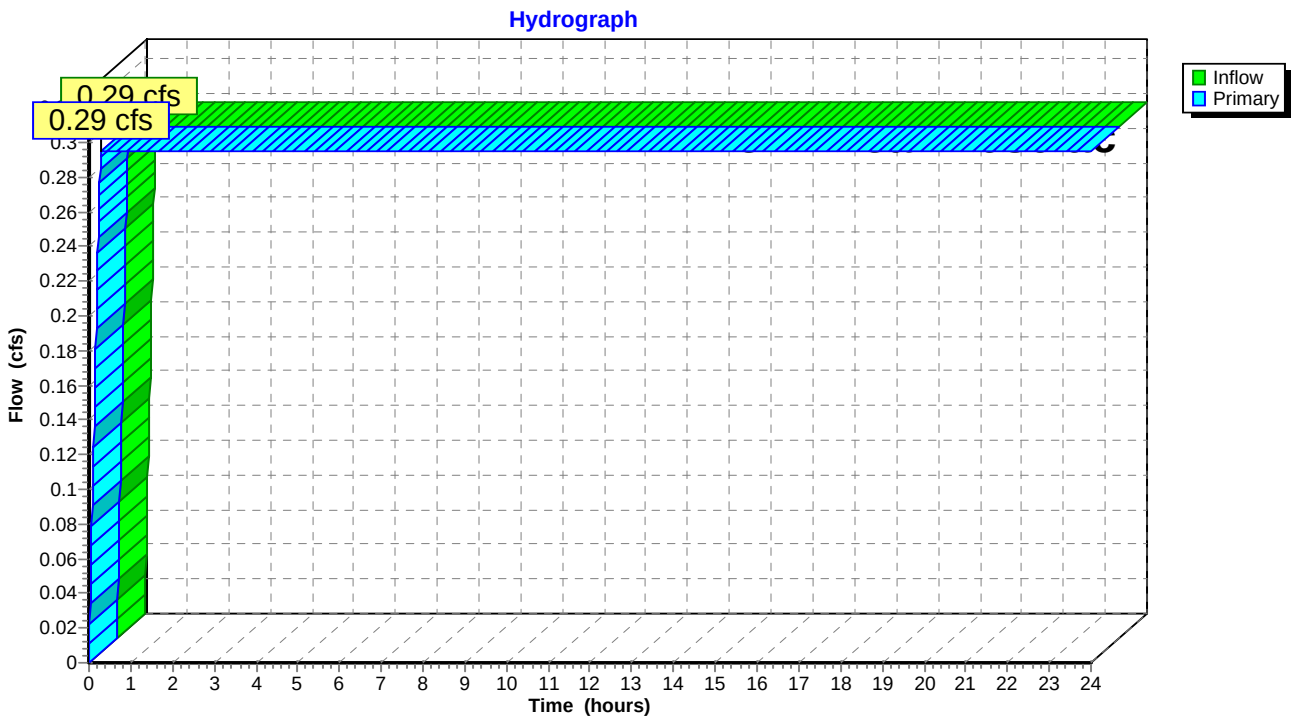
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.73"	for 50-Year event
Inflow =	0.29 cfs @	0.29 hrs,	Volume=	0.582 af	
Primary =	0.29 cfs @	0.29 hrs,	Volume=	0.582 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>2.39"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.05 cfs 0.096 af

Subcatchment EX#2: EX DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.91"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.04 cfs 0.087 af

Subcatchment EX#3: EX DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.95"
Flow Length=620' Tc=17.0 min C=0.45 Runoff=0.25 cfs 0.488 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.34 cfs 0.671 af
Primary=0.34 cfs 0.671 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.671 af Average Runoff Depth = 2.00"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

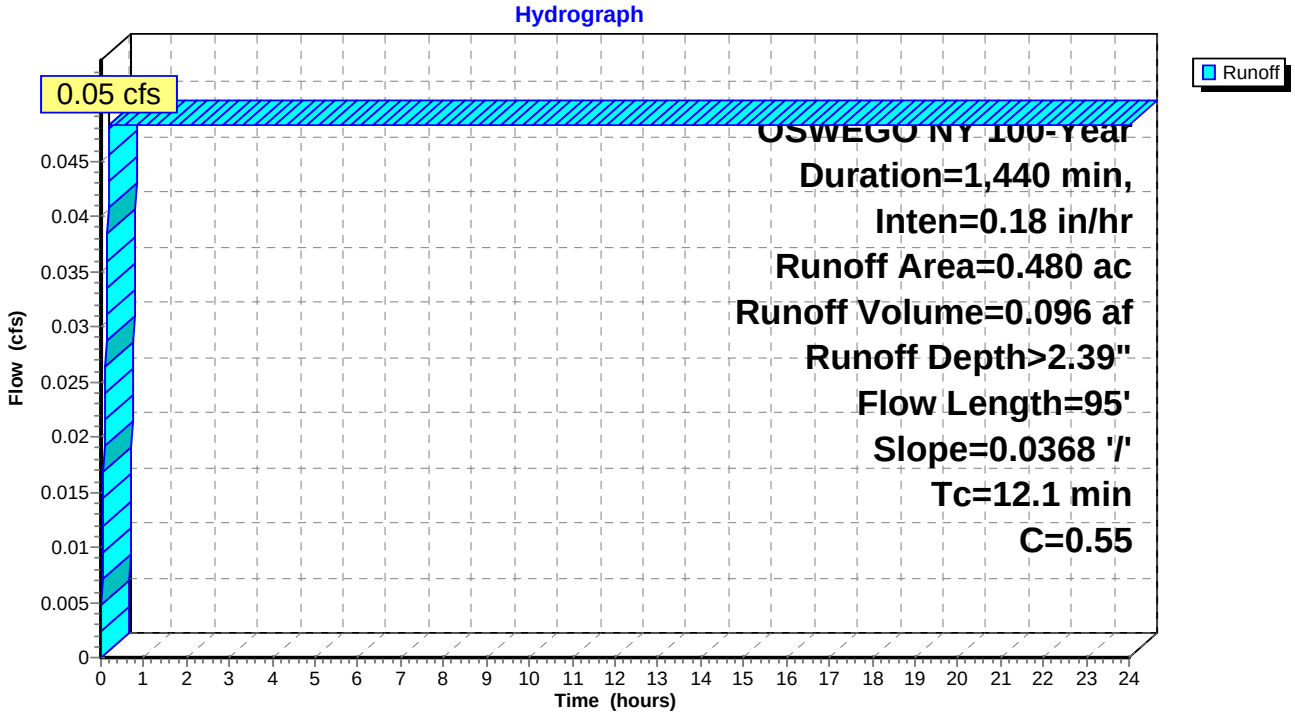
Runoff = 0.05 cfs @ 0.21 hrs, Volume= 0.096 af, Depth> 2.39"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 100-Year Duration=1,440 min, Inten=0.18 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment EX#2: EX DA #2

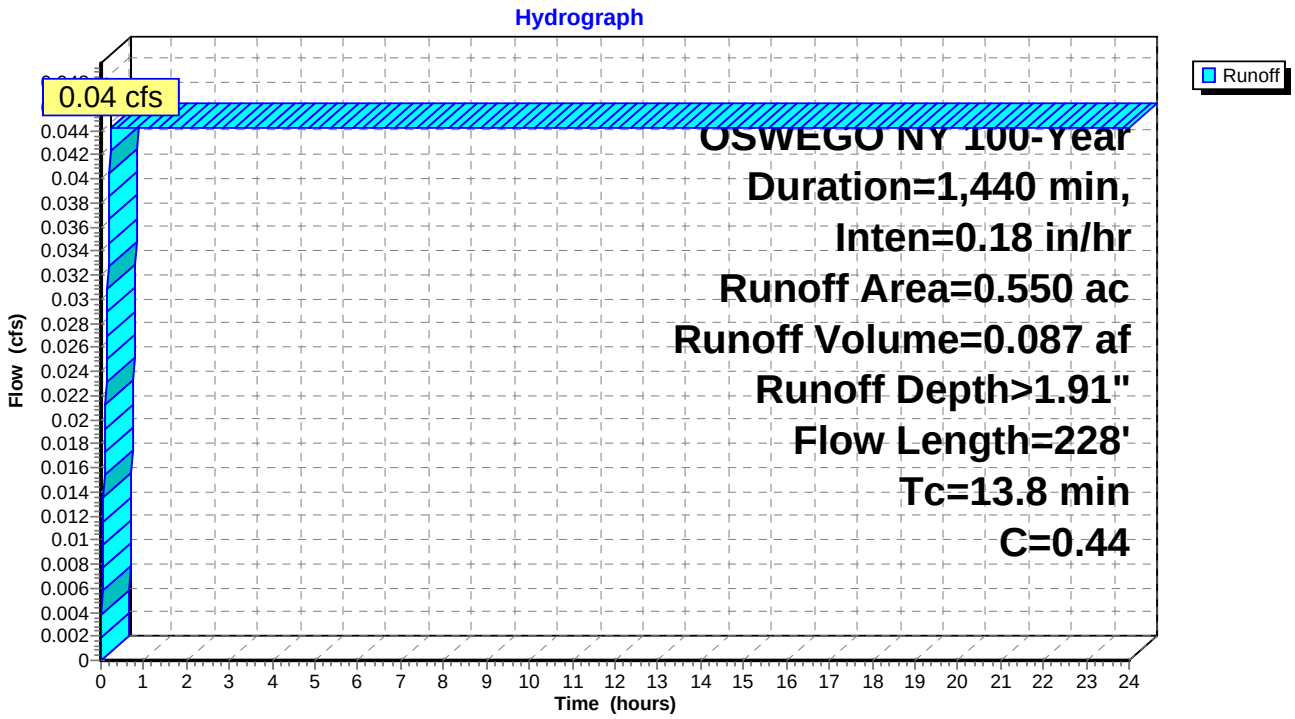
Runoff = 0.04 cfs @ 0.23 hrs, Volume= 0.087 af, Depth> 1.91"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 100-Year Duration=1,440 min, Inten=0.18 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment EX#2: EX DA #2



Summary for Subcatchment EX#3: EX DA #3

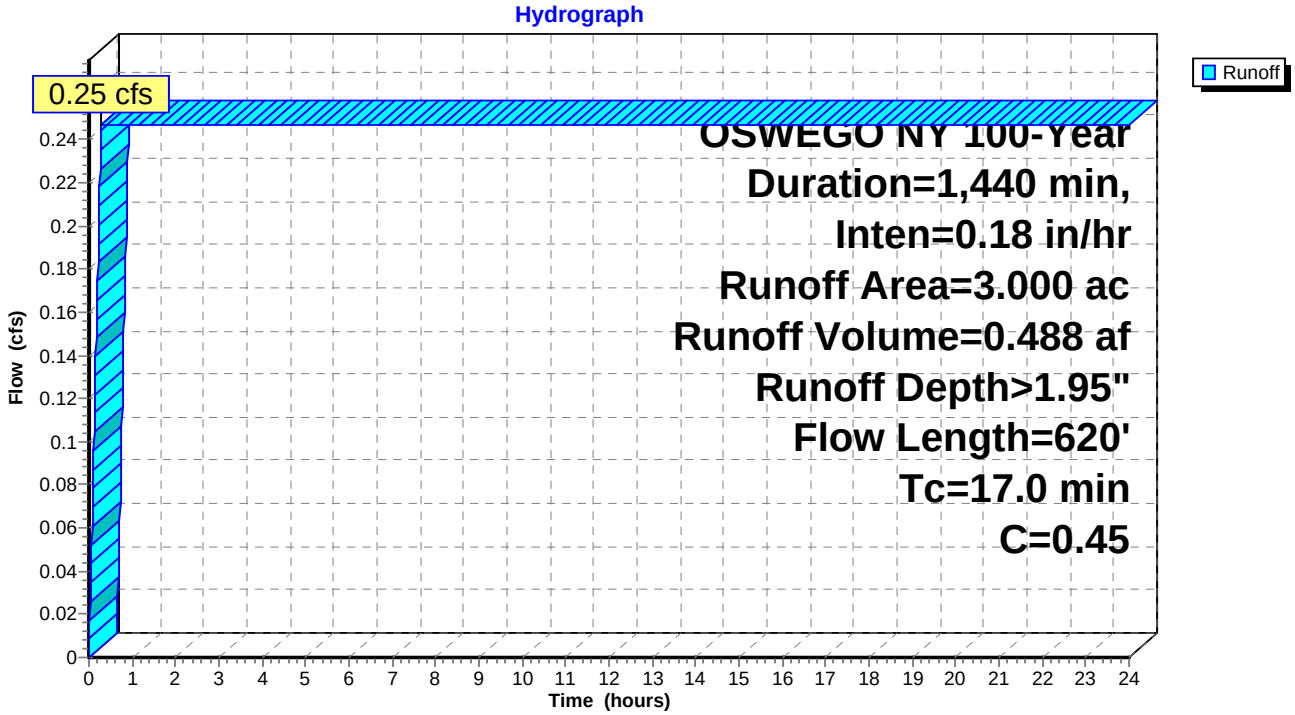
Runoff = 0.25 cfs @ 0.29 hrs, Volume= 0.488 af, Depth> 1.95"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 100-Year Duration=1,440 min, Inten=0.18 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.330	0.25	Meadow, non-grazed, HSG C
0.980	0.90	Paved parking & roofs
3.000	0.45	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment EX#3: EX DA #3



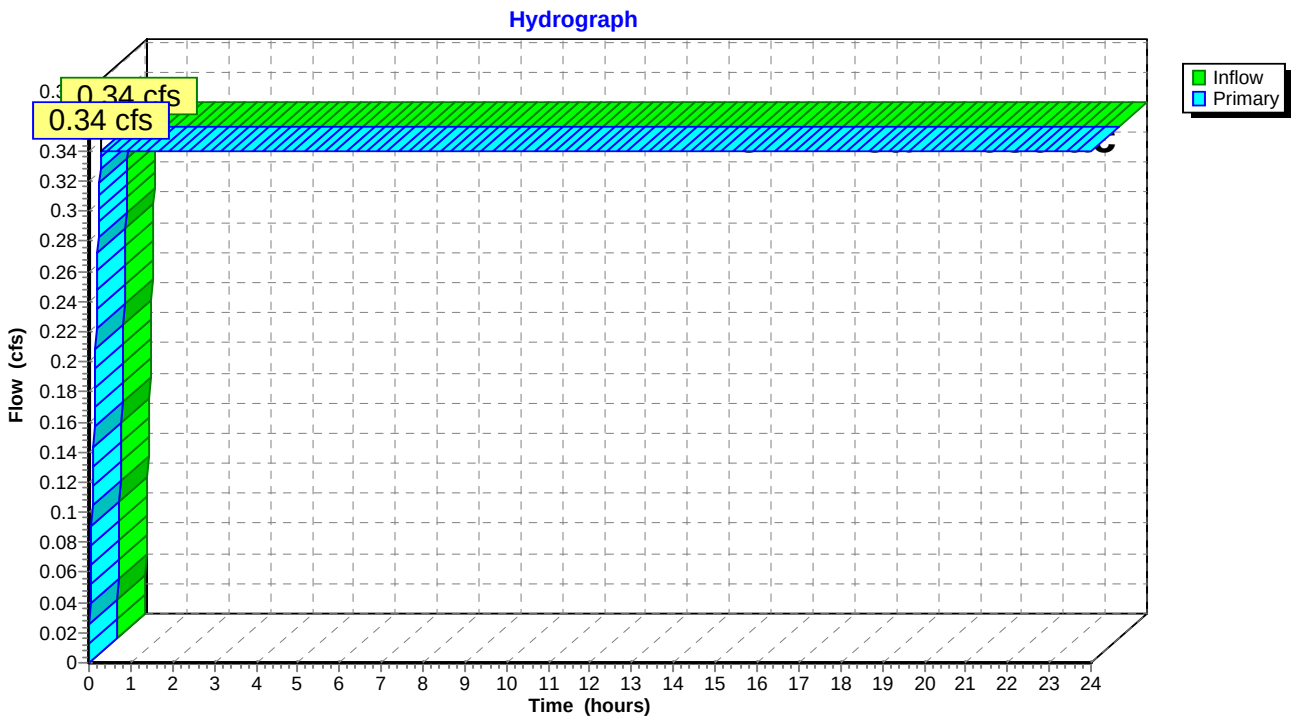
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	2.00"	for 100-Year event
Inflow =	0.34 cfs @	0.29 hrs,	Volume=	0.671 af	
Primary =	0.34 cfs @	0.29 hrs,	Volume=	0.671 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



PROPOSED DRAINAGE AREA SUMMARY TABLE
LIFE CHURCH OF THE NAZARENE, PARKING LOT EXPANSION

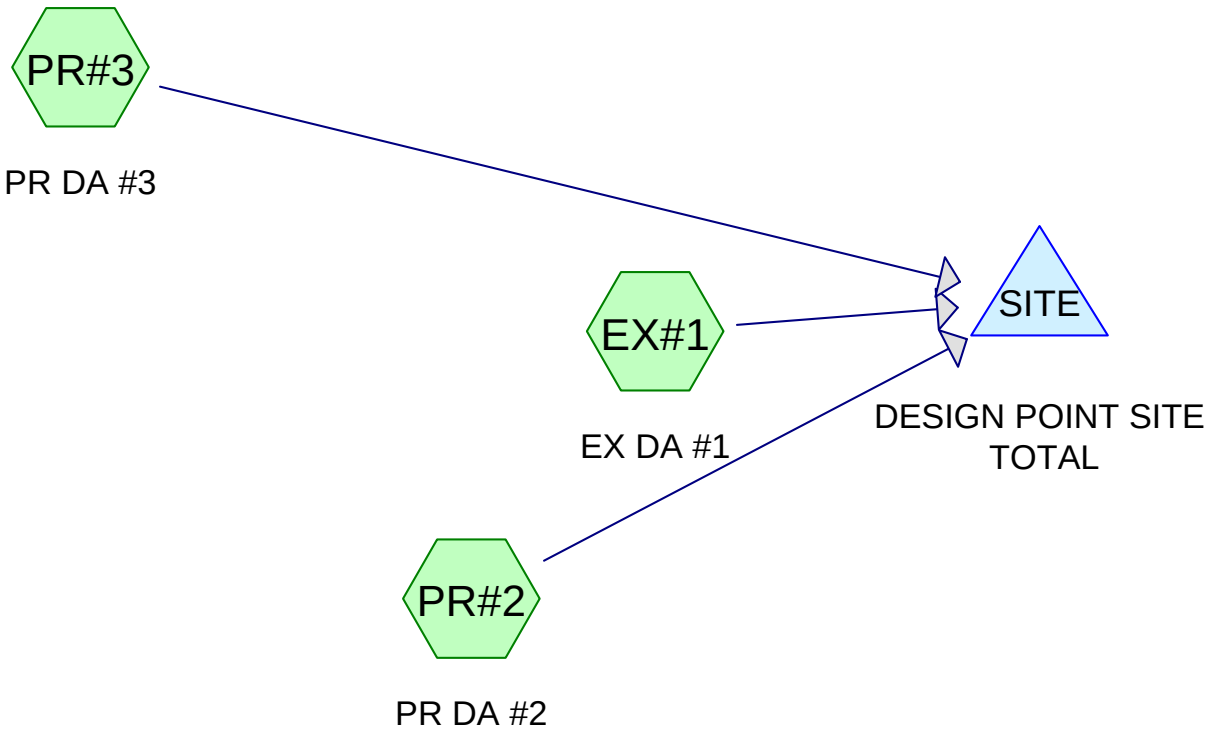
9/17/2011

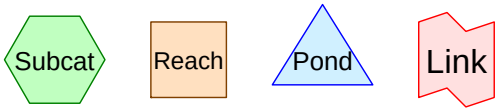
Drainage Area	Surface Description	Soil Type	c	Area (Acre)	Composite c	Composite Area (Acre)	Tc (Min.)
EX#1	Meadow, Grass, Non-Grazed	C	0.25	0.260	0.55	0.48	12.1
	Paved Parking, Roads, Roofs		0.90	0.220			
PR#2	Meadow, Grass, Non-Grazed	C	0.25	0.390	0.44	0.55	13.8
	Paved Parking, Roads, Roofs		0.90	0.160			
PR#3	Meadow, Grass, Non-Grazed	B	0.20	0.690	0.51	3.00	17.0
	Meadow, Grass, Non-Grazed	C	0.25	1.060			
	Paved Parking, Roads, Roofs		0.90	1.250			
DRAINAGE AREA TOTAL					**0.50**	**4.03**	

EXISTING VS. PROPOSED RUNOFF COMPARISON
LIFE CHURCH OF THE NAZARENE, PARKING LOT EXPANSION

9/17/2011

	24 HOUR STORM EVENT PEAK DISCHARGE - (CFS)							
DRAINAGE AREAS	EXIST. 10 YR	PROP. 10 YR	EXIST. 25 YR	PROP. 25 YR	EXIST. 50 YR	PROP. 50 YR	EXIST. 100 YR	PROP. 100 YR
#1	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05
#2	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.04
#3	0.17	0.19	0.20	0.23	0.21	0.24	0.25	0.28
DESIGN POINT, SITE TOTAL	**0.24**	**0.26**	**0.28**	**0.31**	**0.29**	**0.32**	**0.34**	**0.37**





Drainage Diagram for Nazarene Church-Proposed-Rational
Prepared by Aubertine and Currier, PLLC, Printed 9/17/2011
HydroCAD® 9.10 s/n 03261 © 2010 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	C	Description (subcatchment-numbers)
0.690	0.20	Meadow, non-grazed, HSG B (PR#3)
1.710	0.25	Meadow, non-grazed, HSG C (EX#1, PR#2, PR#3)
1.630	0.90	Paved parking & roofs (EX#1, PR#2, PR#3)
4.030	0.50	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.690	HSG B	PR#3
1.710	HSG C	EX#1, PR#2, PR#3
0.000	HSG D	
1.630	Other	EX#1, PR#2, PR#3
4.030		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	PR#3	0.00	0.00	315.0	0.0298	0.013	6.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.05"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.02 cfs 0.042 af

Subcatchment PR#2: PR DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>0.84"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.02 cfs 0.039 af

Subcatchment PR#3: PR DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>0.97"
Flow Length=620' Tc=17.0 min C=0.51 Runoff=0.12 cfs 0.243 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.16 cfs 0.324 af
Primary=0.16 cfs 0.324 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.324 af Average Runoff Depth = 0.96"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

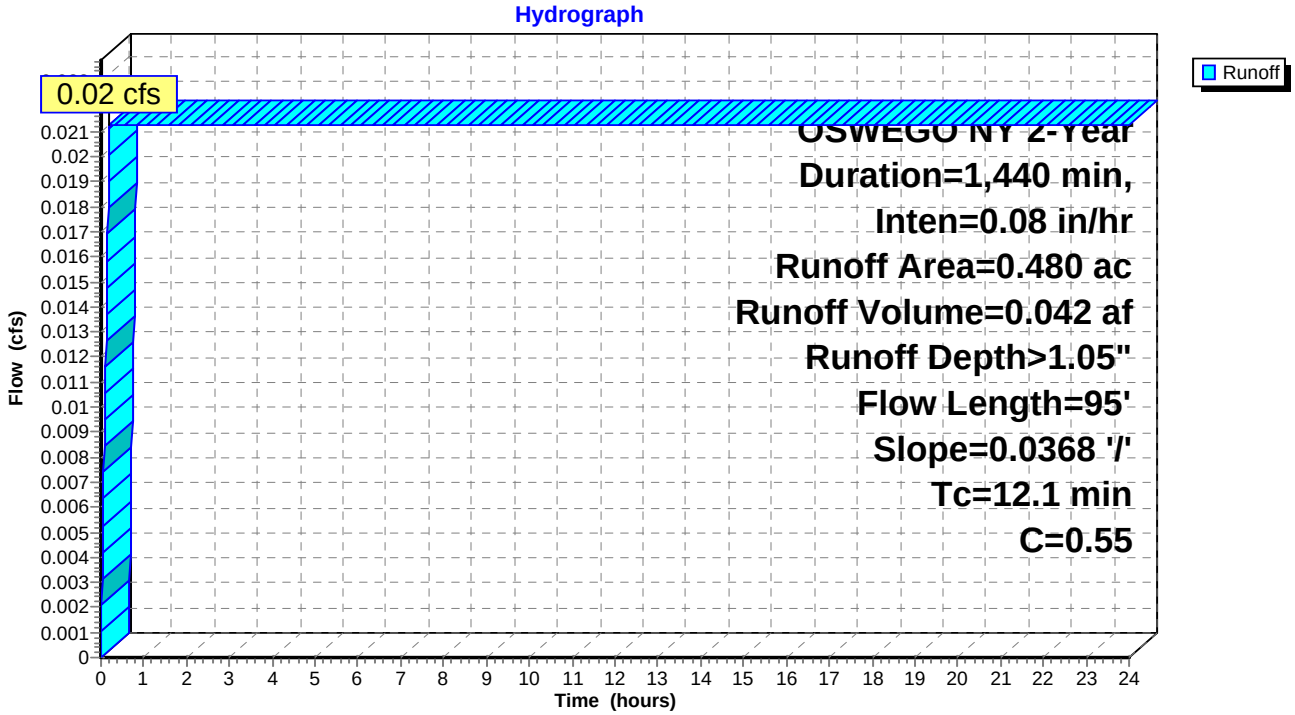
Runoff = 0.02 cfs @ 0.21 hrs, Volume= 0.042 af, Depth> 1.05"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 2-Year Duration=1,440 min, Inten=0.08 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment PR#2: PR DA #2

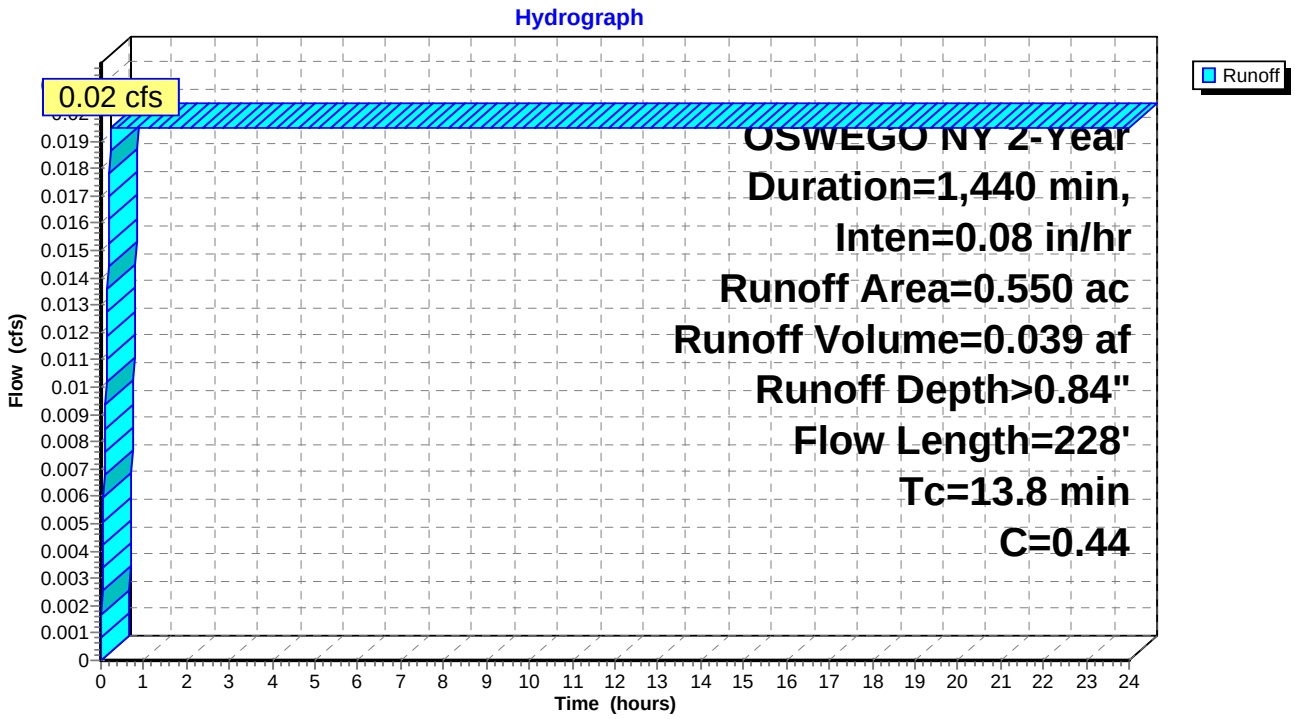
Runoff = 0.02 cfs @ 0.23 hrs, Volume= 0.039 af, Depth> 0.84"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 2-Year Duration=1,440 min, Inten=0.08 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment PR#2: PR DA #2



Summary for Subcatchment PR#3: PR DA #3

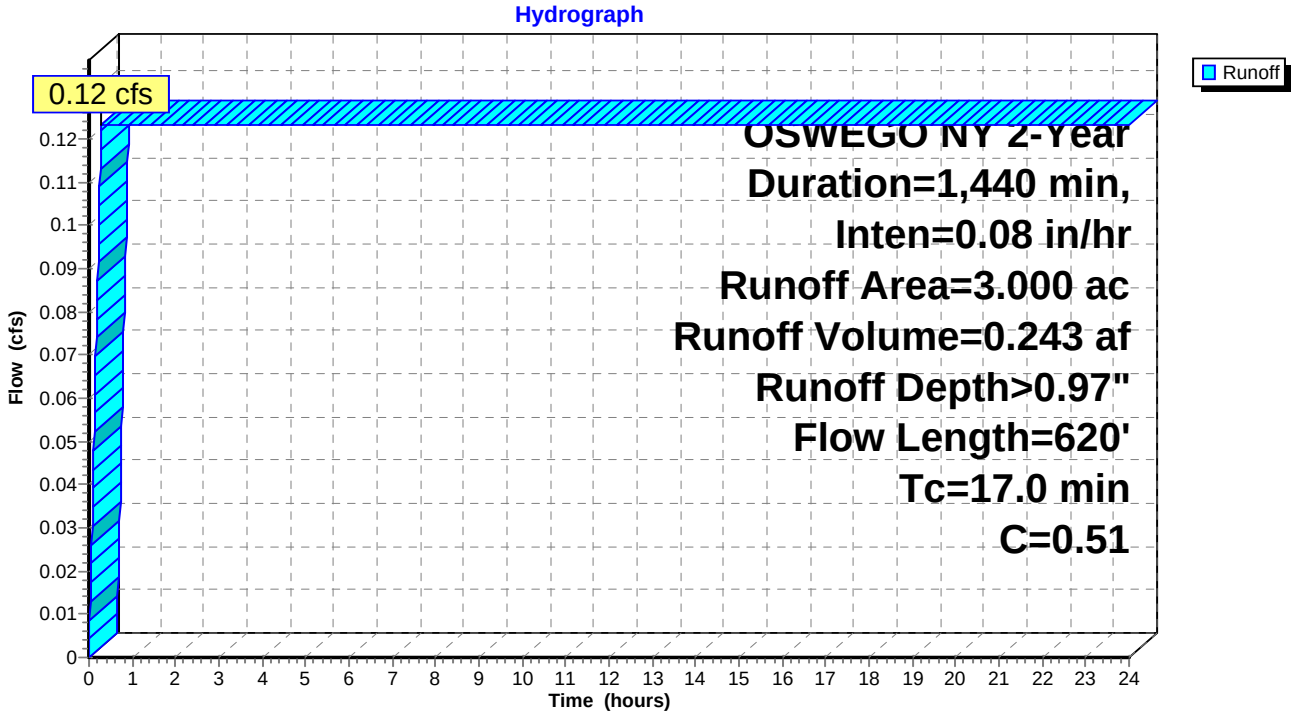
Runoff = 0.12 cfs @ 0.29 hrs, Volume= 0.243 af, Depth> 0.97"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 2-Year Duration=1,440 min, Inten=0.08 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.060	0.25	Meadow, non-grazed, HSG C
1.250	0.90	Paved parking & roofs
3.000	0.51	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment PR#3: PR DA #3



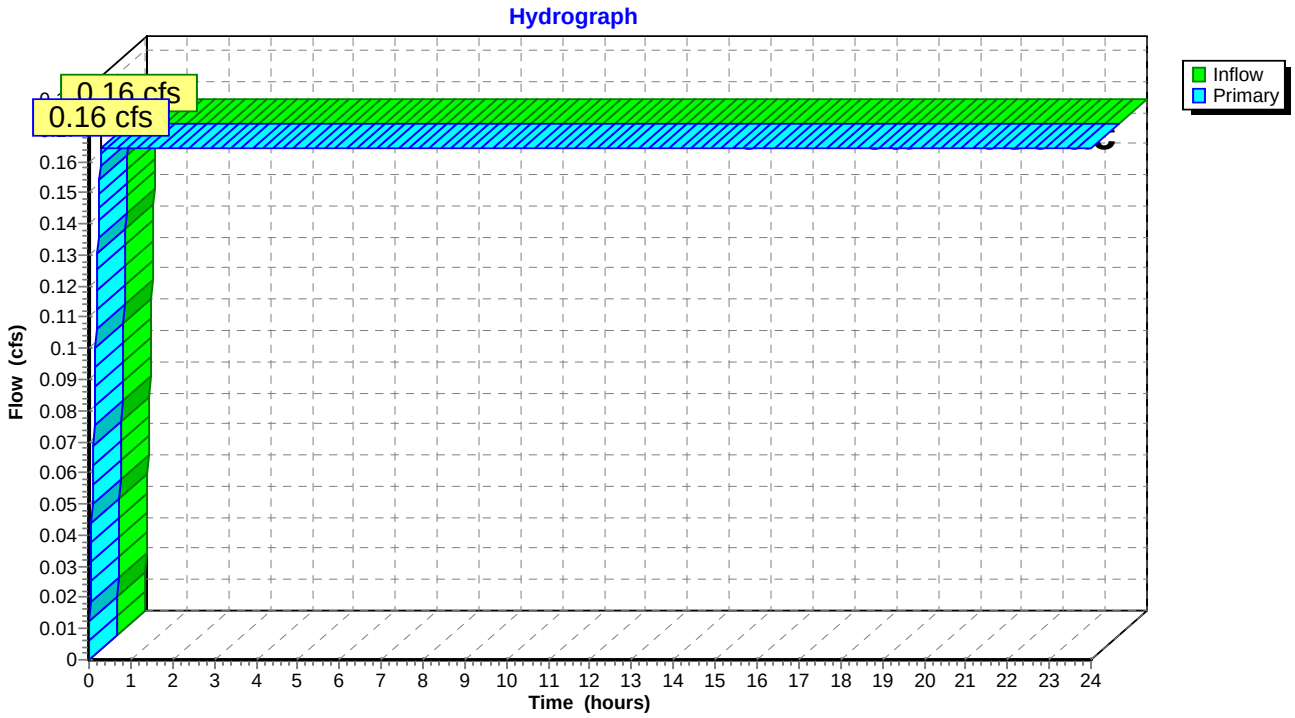
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	0.96"	for 2-Year event
Inflow =	0.16 cfs @	0.29 hrs,	Volume=	0.324 af	
Primary =	0.16 cfs @	0.29 hrs,	Volume=	0.324 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.40"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.03 cfs 0.056 af

Subcatchment PR#2: PR DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.12"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.03 cfs 0.051 af

Subcatchment PR#3: PR DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.29"
Flow Length=620' Tc=17.0 min C=0.51 Runoff=0.16 cfs 0.324 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.22 cfs 0.431 af
Primary=0.22 cfs 0.431 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.431 af Average Runoff Depth = 1.28"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

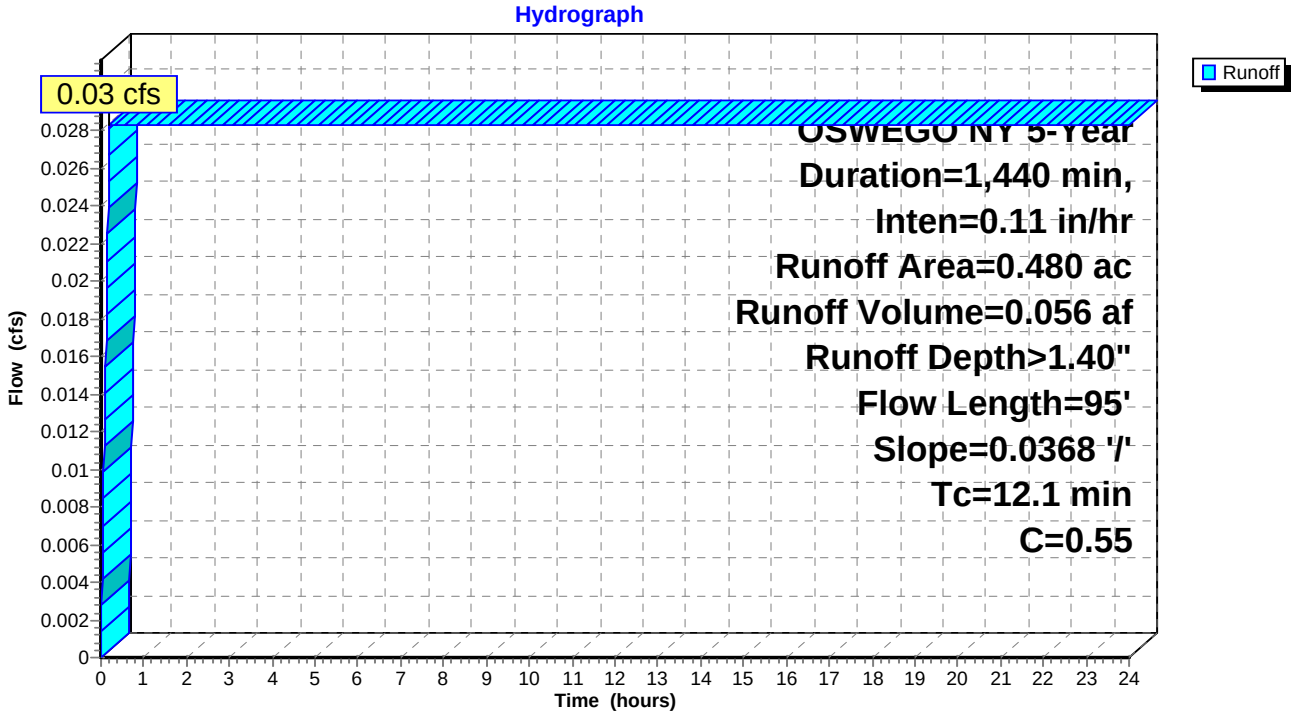
Runoff = 0.03 cfs @ 0.21 hrs, Volume= 0.056 af, Depth> 1.40"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 5-Year Duration=1,440 min, Inten=0.11 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment PR#2: PR DA #2

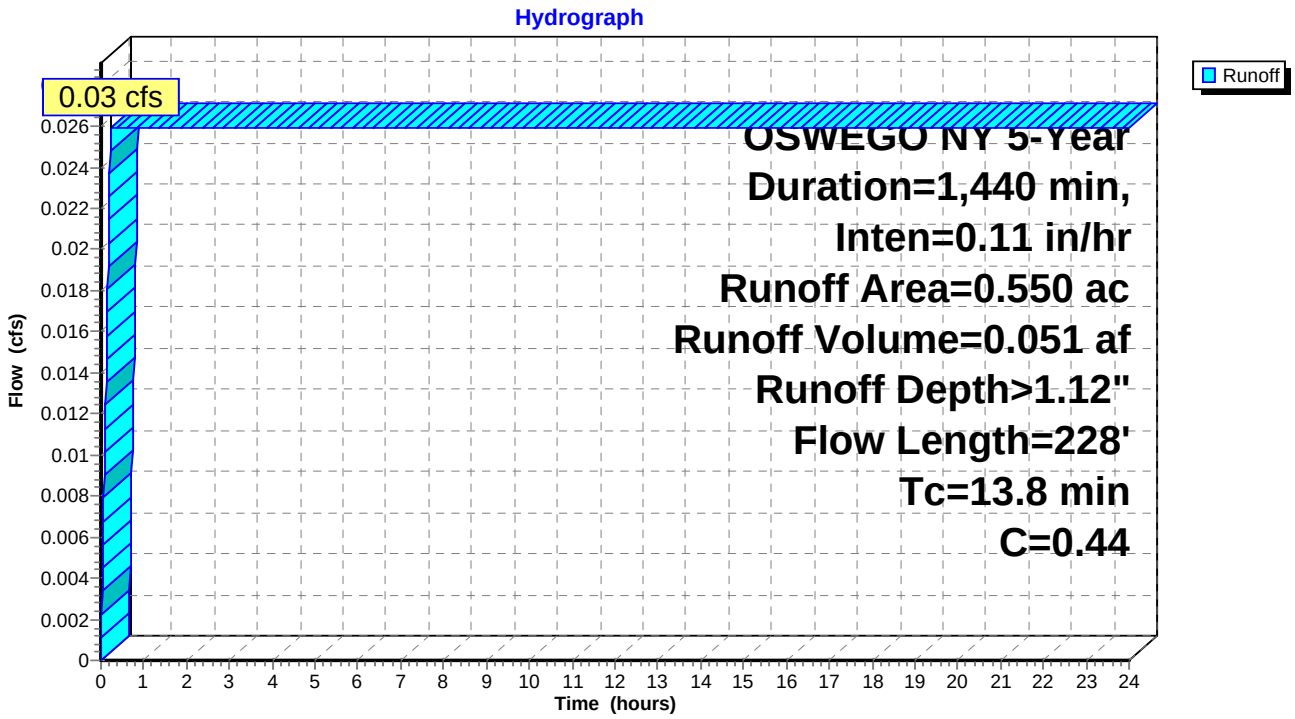
Runoff = 0.03 cfs @ 0.23 hrs, Volume= 0.051 af, Depth> 1.12"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 5-Year Duration=1,440 min, Inten=0.11 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment PR#2: PR DA #2



Summary for Subcatchment PR#3: PR DA #3

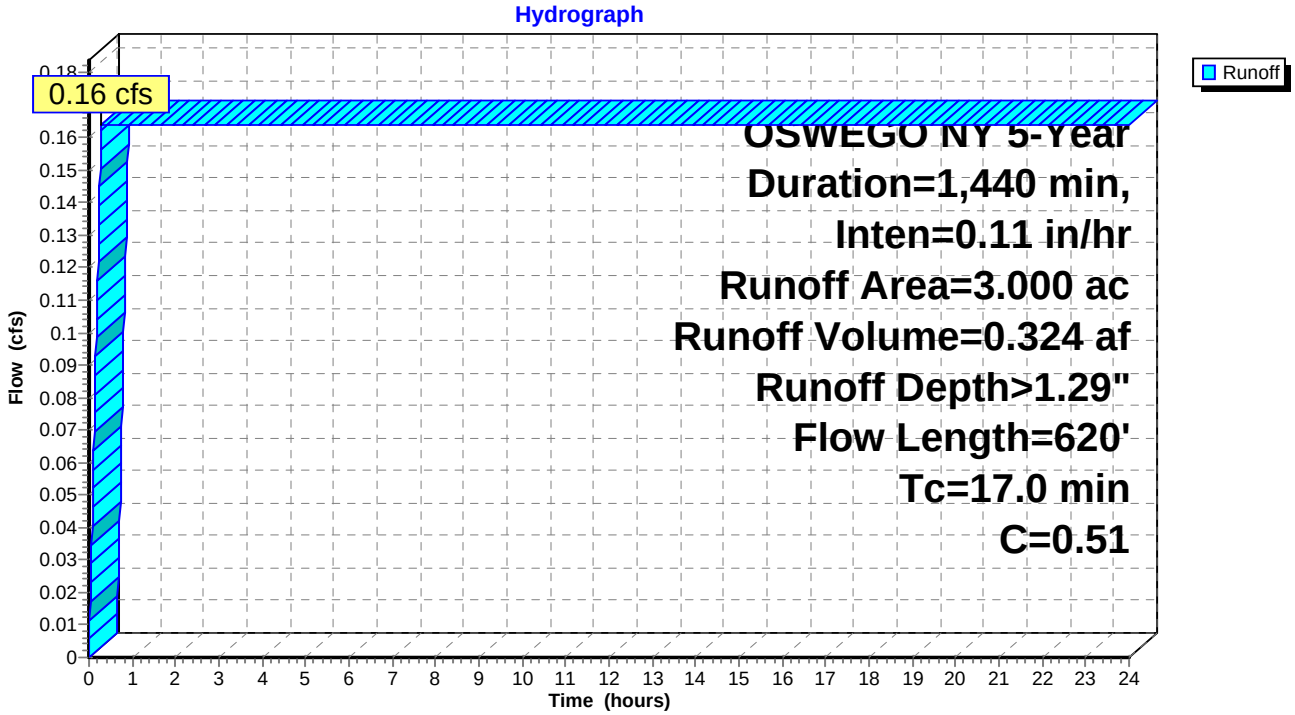
Runoff = 0.16 cfs @ 0.29 hrs, Volume= 0.324 af, Depth> 1.29"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 5-Year Duration=1,440 min, Inten=0.11 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.060	0.25	Meadow, non-grazed, HSG C
1.250	0.90	Paved parking & roofs
3.000	0.51	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment PR#3: PR DA #3



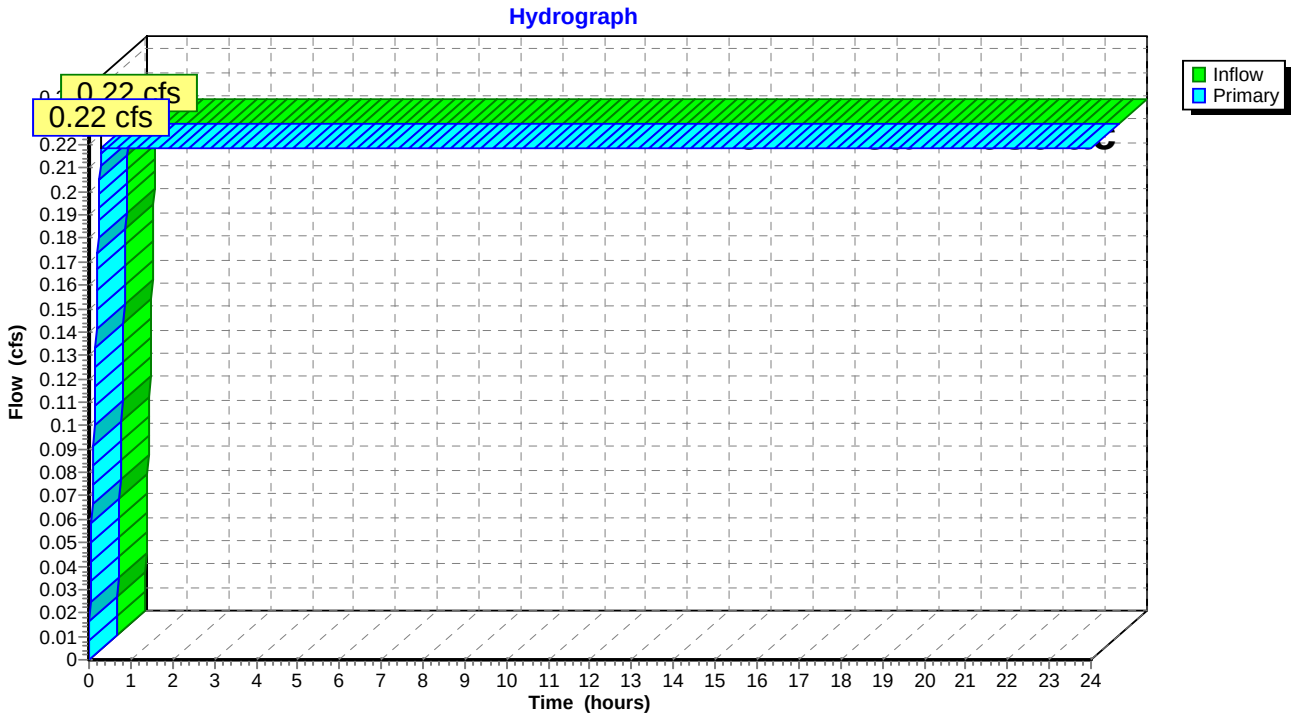
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.28"	for 5-Year event
Inflow =	0.22 cfs @	0.29 hrs,	Volume=	0.431 af	
Primary =	0.22 cfs @	0.29 hrs,	Volume=	0.431 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.65"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.03 cfs 0.066 af

Subcatchment PR#2: PR DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.32"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.03 cfs 0.061 af

Subcatchment PR#3: PR DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.53"
Flow Length=620' Tc=17.0 min C=0.51 Runoff=0.19 cfs 0.382 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.26 cfs 0.509 af
Primary=0.26 cfs 0.509 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.509 af Average Runoff Depth = 1.51"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

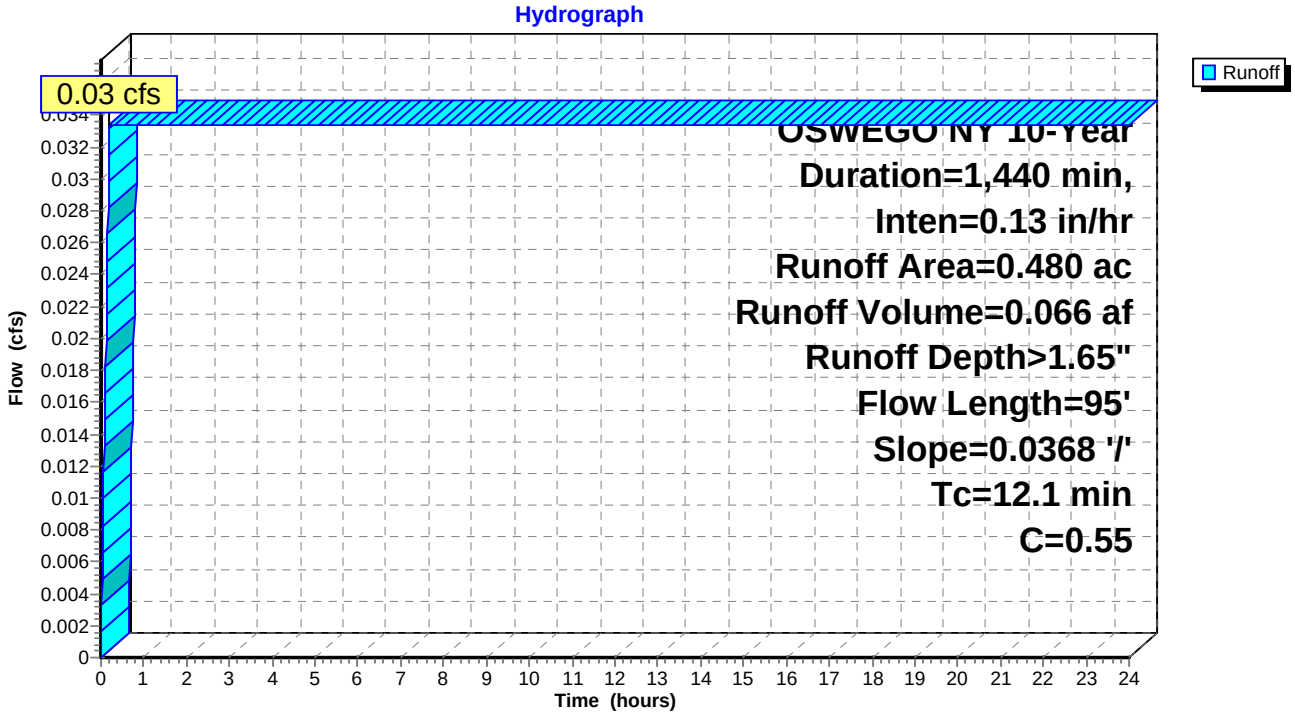
Runoff = 0.03 cfs @ 0.21 hrs, Volume= 0.066 af, Depth> 1.65"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 10-Year Duration=1,440 min, Inten=0.13 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment PR#2: PR DA #2

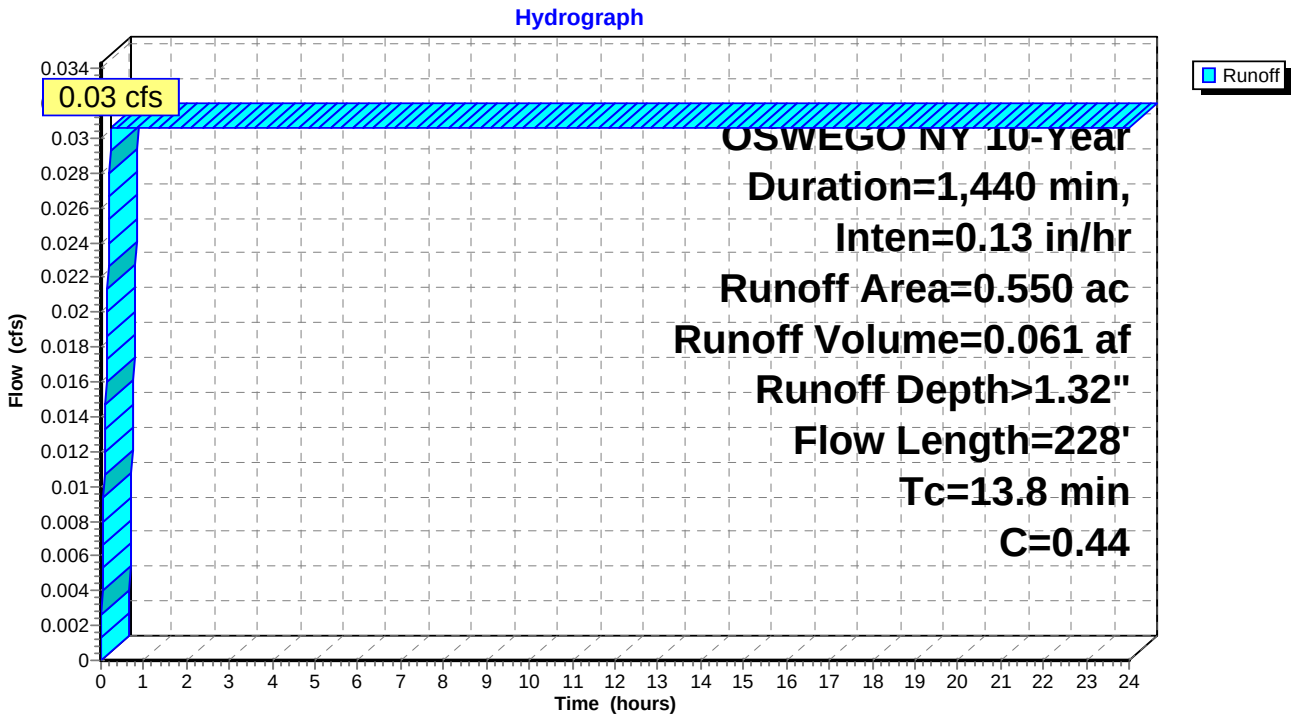
Runoff = 0.03 cfs @ 0.23 hrs, Volume= 0.061 af, Depth> 1.32"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 10-Year Duration=1,440 min, Inten=0.13 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment PR#2: PR DA #2



Summary for Subcatchment PR#3: PR DA #3

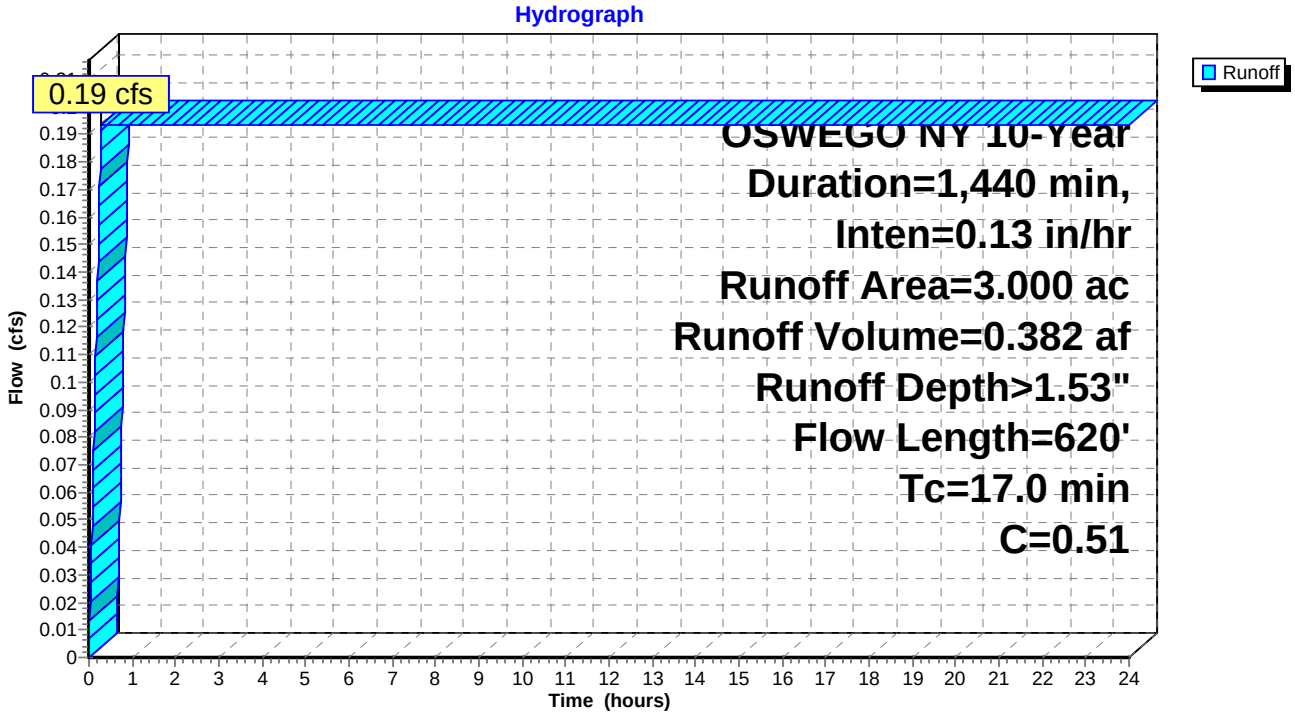
Runoff = 0.19 cfs @ 0.29 hrs, Volume= 0.382 af, Depth> 1.53"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 10-Year Duration=1,440 min, Inten=0.13 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.060	0.25	Meadow, non-grazed, HSG C
1.250	0.90	Paved parking & roofs
3.000	0.51	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment PR#3: PR DA #3



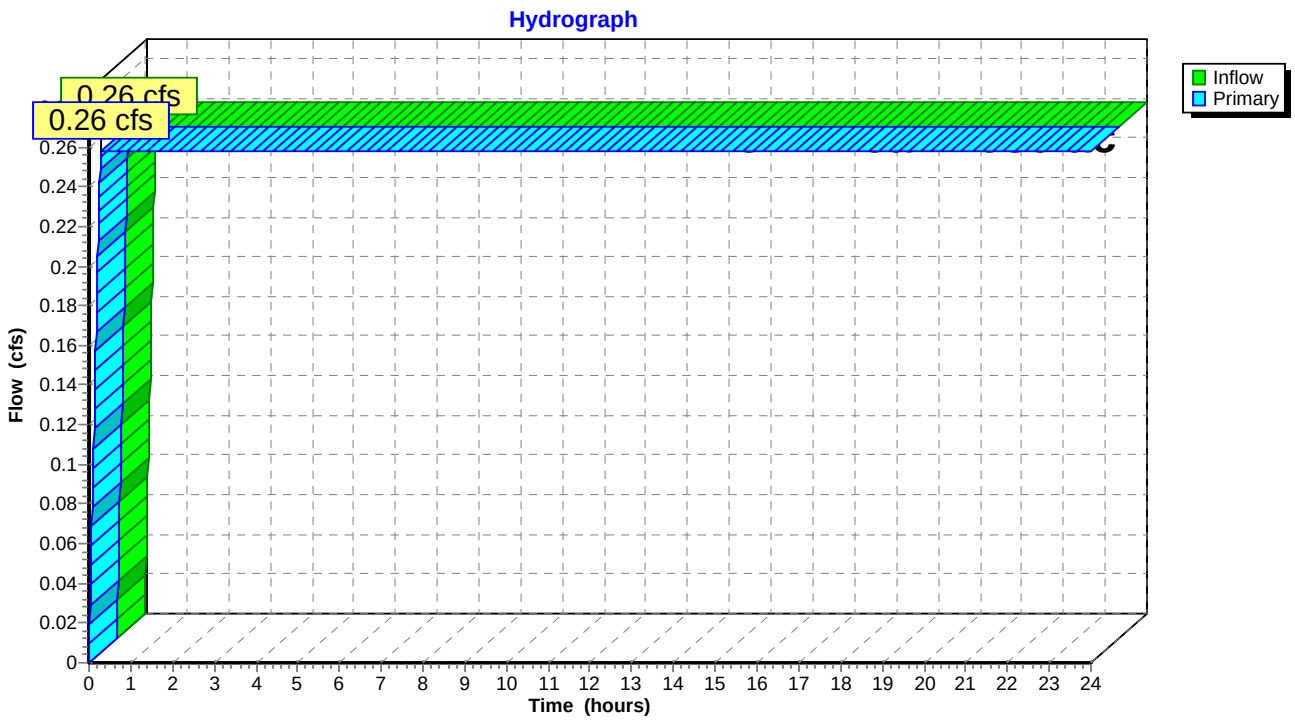
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.51"	for 10-Year event
Inflow =	0.26 cfs @	0.29 hrs,	Volume=	0.509 af	
Primary =	0.26 cfs @	0.29 hrs,	Volume=	0.509 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>1.96"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.04 cfs 0.078 af

Subcatchment PR#2: PR DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.56"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.04 cfs 0.072 af

Subcatchment PR#3: PR DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.81"
Flow Length=620' Tc=17.0 min C=0.51 Runoff=0.23 cfs 0.453 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.31 cfs 0.603 af
Primary=0.31 cfs 0.603 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.603 af Average Runoff Depth = 1.79"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

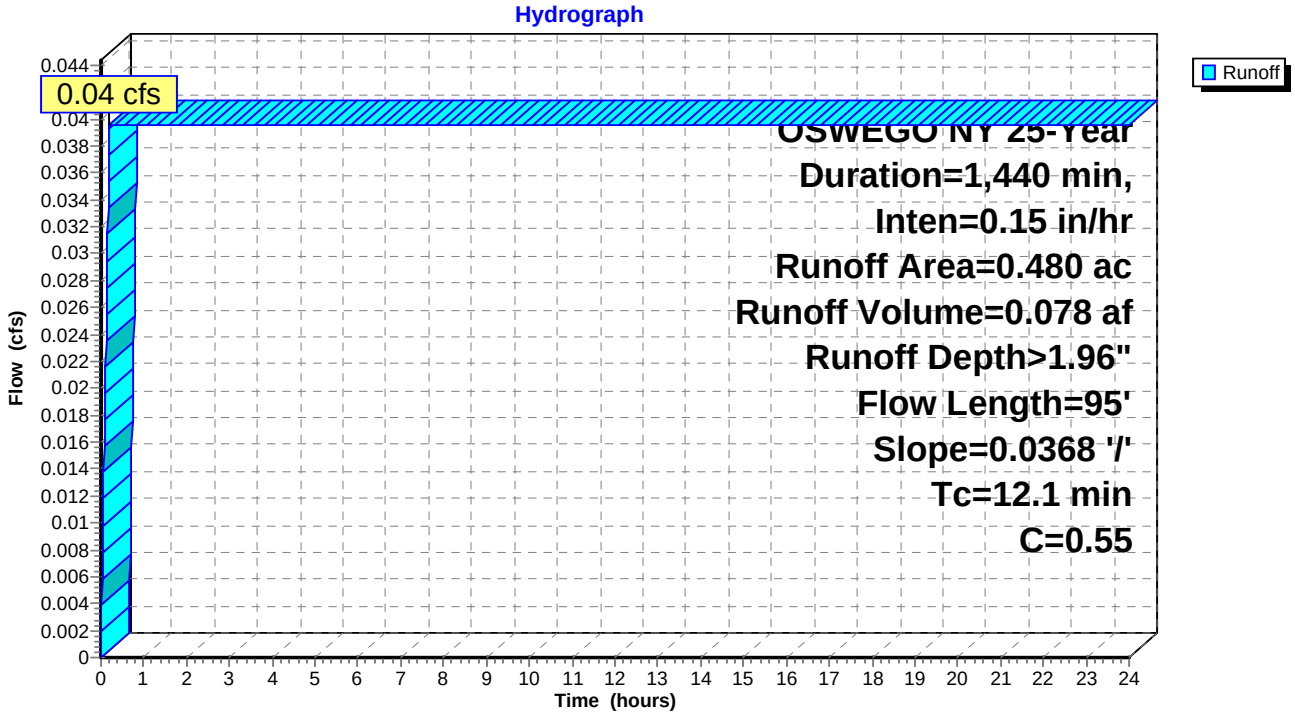
Runoff = 0.04 cfs @ 0.21 hrs, Volume= 0.078 af, Depth> 1.96"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 25-Year Duration=1,440 min, Inten=0.15 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment PR#2: PR DA #2

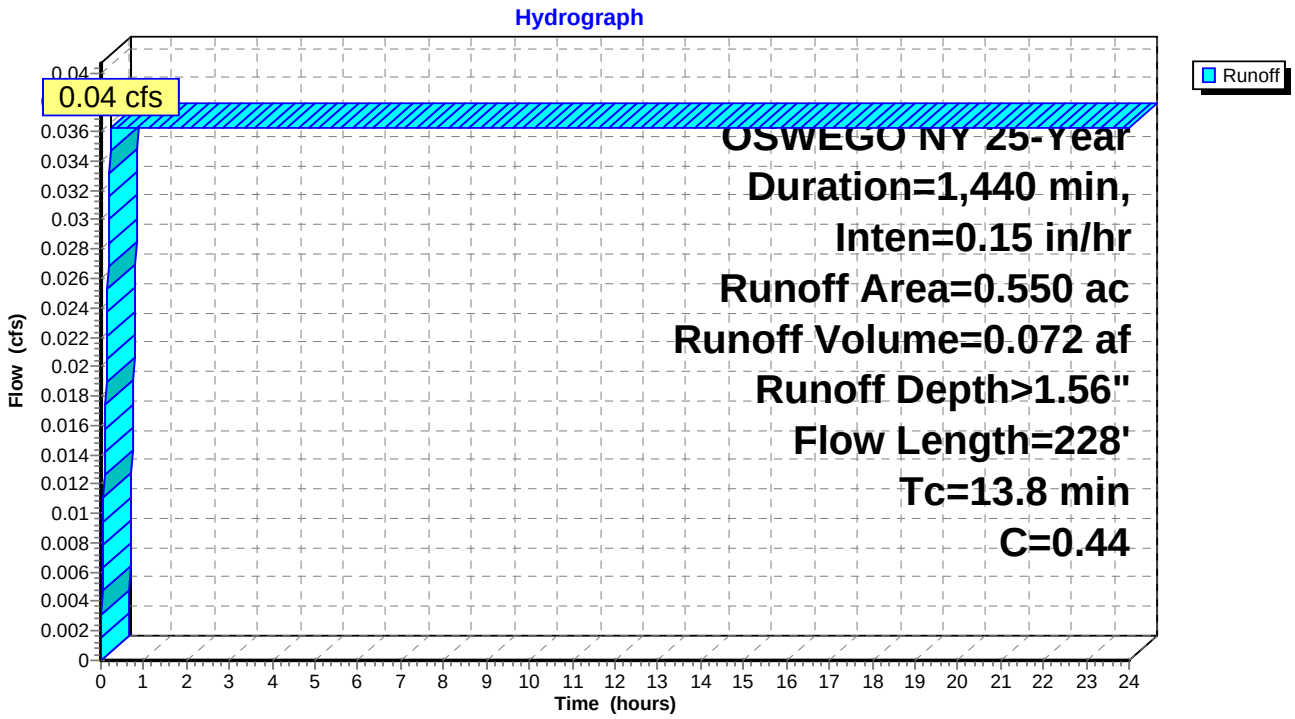
Runoff = 0.04 cfs @ 0.23 hrs, Volume= 0.072 af, Depth> 1.56"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 25-Year Duration=1,440 min, Inten=0.15 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment PR#2: PR DA #2



Summary for Subcatchment PR#3: PR DA #3

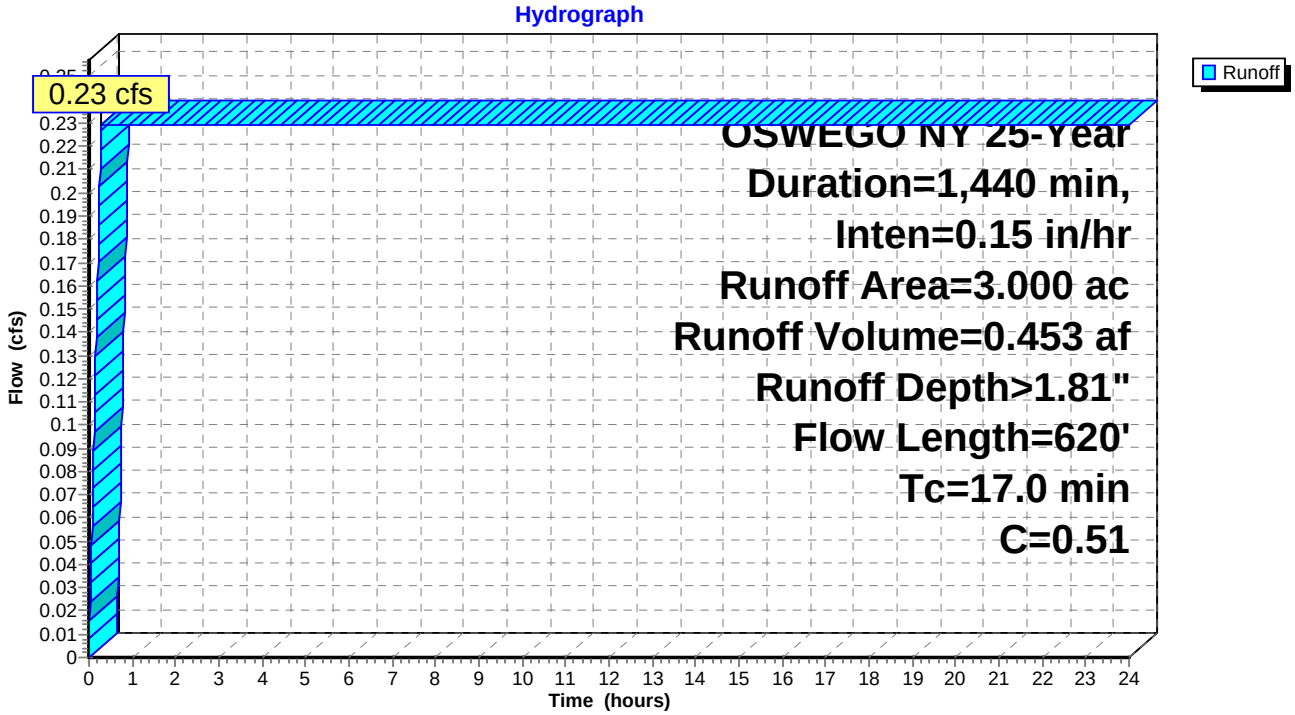
Runoff = 0.23 cfs @ 0.29 hrs, Volume= 0.453 af, Depth> 1.81"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 25-Year Duration=1,440 min, Inten=0.15 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.060	0.25	Meadow, non-grazed, HSG C
1.250	0.90	Paved parking & roofs
3.000	0.51	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment PR#3: PR DA #3



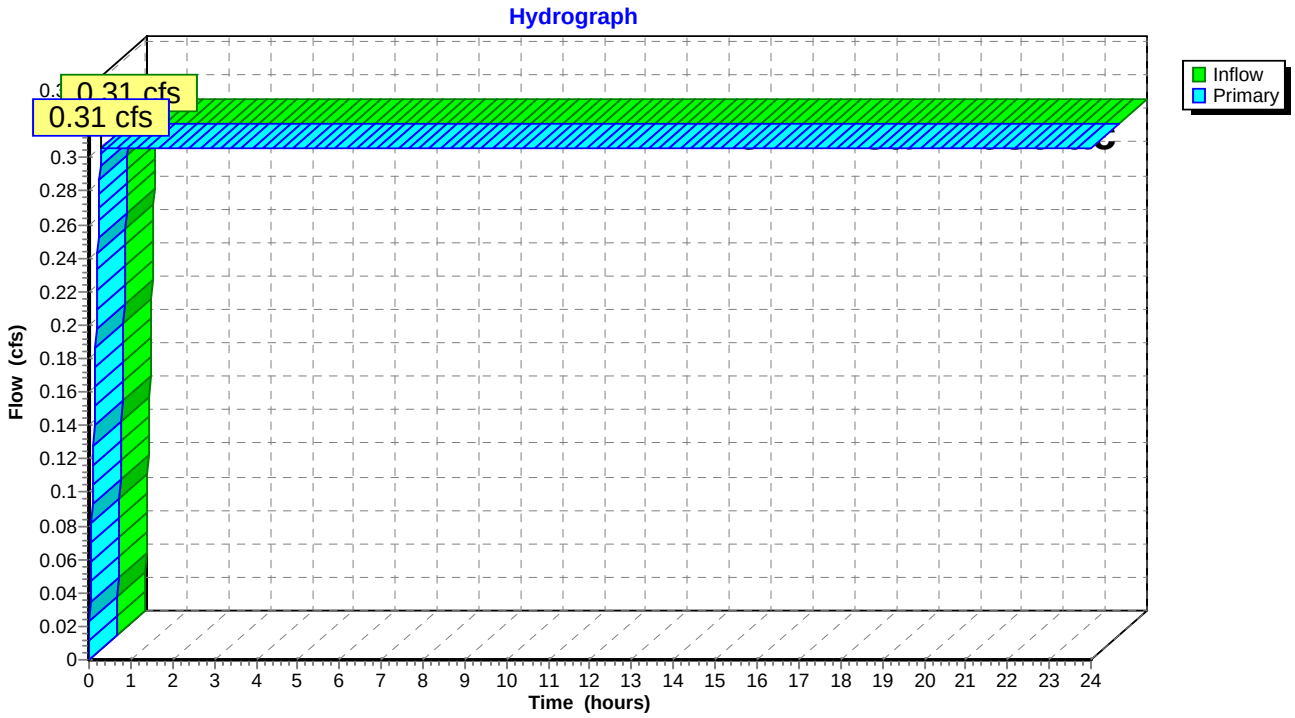
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.79"	for 25-Year event
Inflow =	0.31 cfs @	0.29 hrs,	Volume=	0.603 af	
Primary =	0.31 cfs @	0.29 hrs,	Volume=	0.603 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>2.07"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.04 cfs 0.083 af

Subcatchment PR#2: PR DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.66"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.04 cfs 0.076 af

Subcatchment PR#3: PR DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>1.92"
Flow Length=620' Tc=17.0 min C=0.51 Runoff=0.24 cfs 0.480 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.32 cfs 0.638 af
Primary=0.32 cfs 0.638 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.638 af Average Runoff Depth = 1.90"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

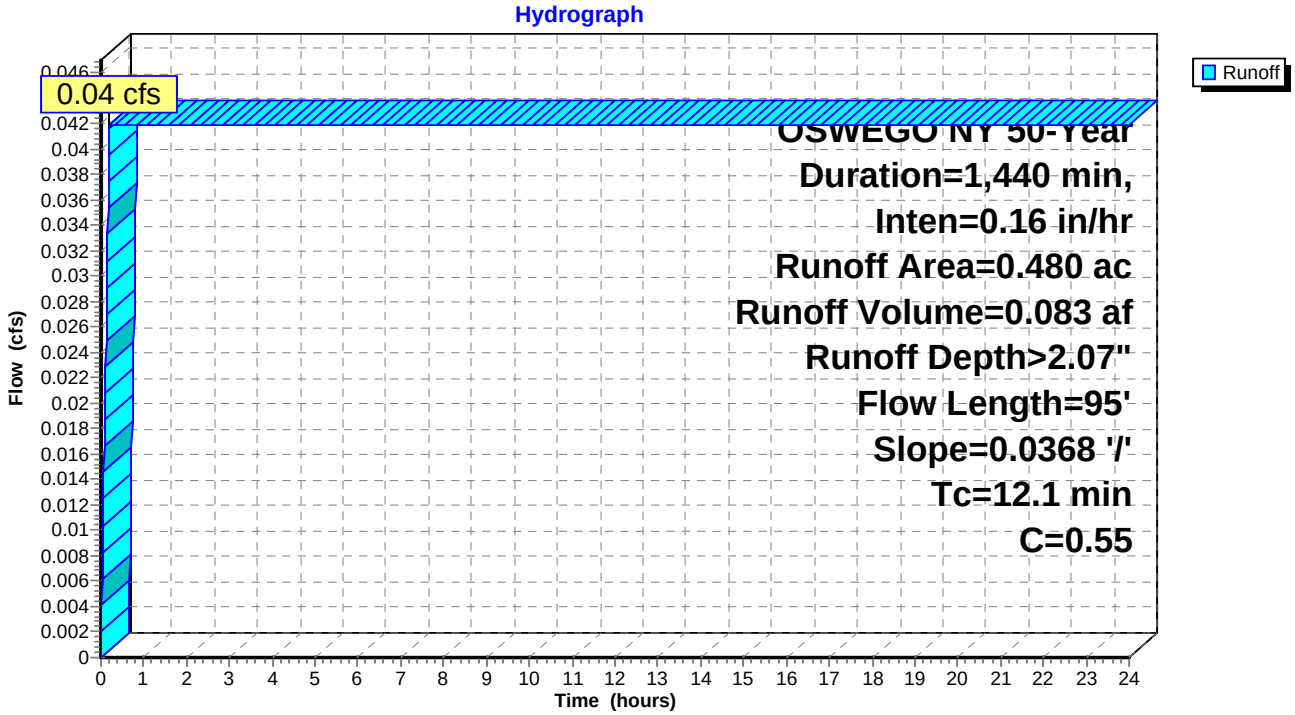
Runoff = 0.04 cfs @ 0.21 hrs, Volume= 0.083 af, Depth> 2.07"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 50-Year Duration=1,440 min, Inten=0.16 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment PR#2: PR DA #2

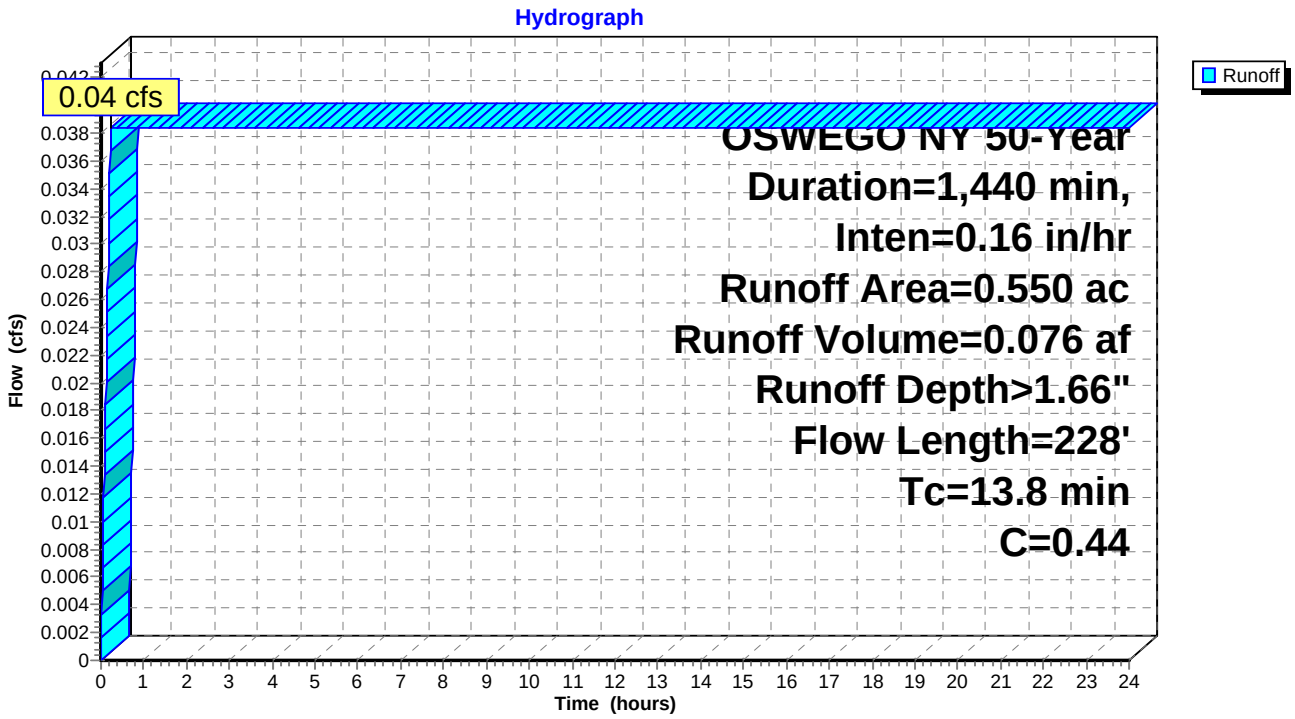
Runoff = 0.04 cfs @ 0.23 hrs, Volume= 0.076 af, Depth> 1.66"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 50-Year Duration=1,440 min, Inten=0.16 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment PR#2: PR DA #2



Summary for Subcatchment PR#3: PR DA #3

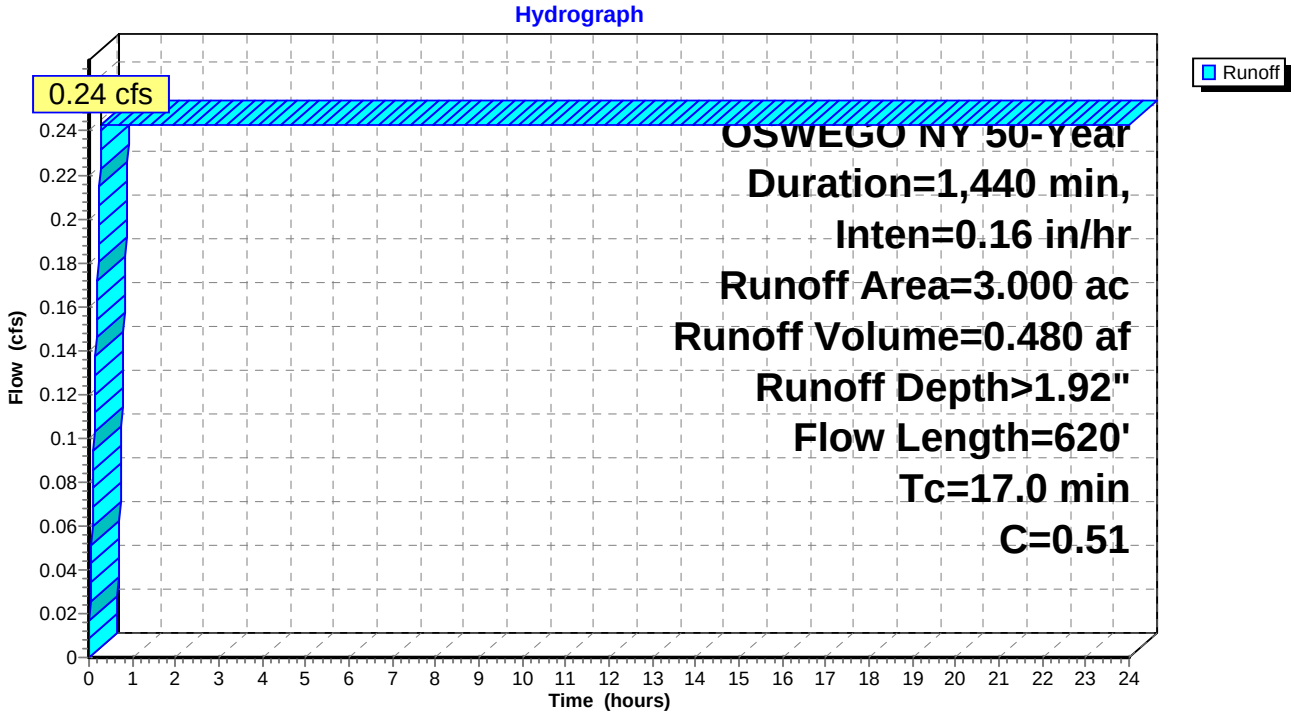
Runoff = 0.24 cfs @ 0.29 hrs, Volume= 0.480 af, Depth> 1.92"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 50-Year Duration=1,440 min, Inten=0.16 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.060	0.25	Meadow, non-grazed, HSG C
1.250	0.90	Paved parking & roofs
3.000	0.51	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

Subcatchment PR#3: PR DA #3



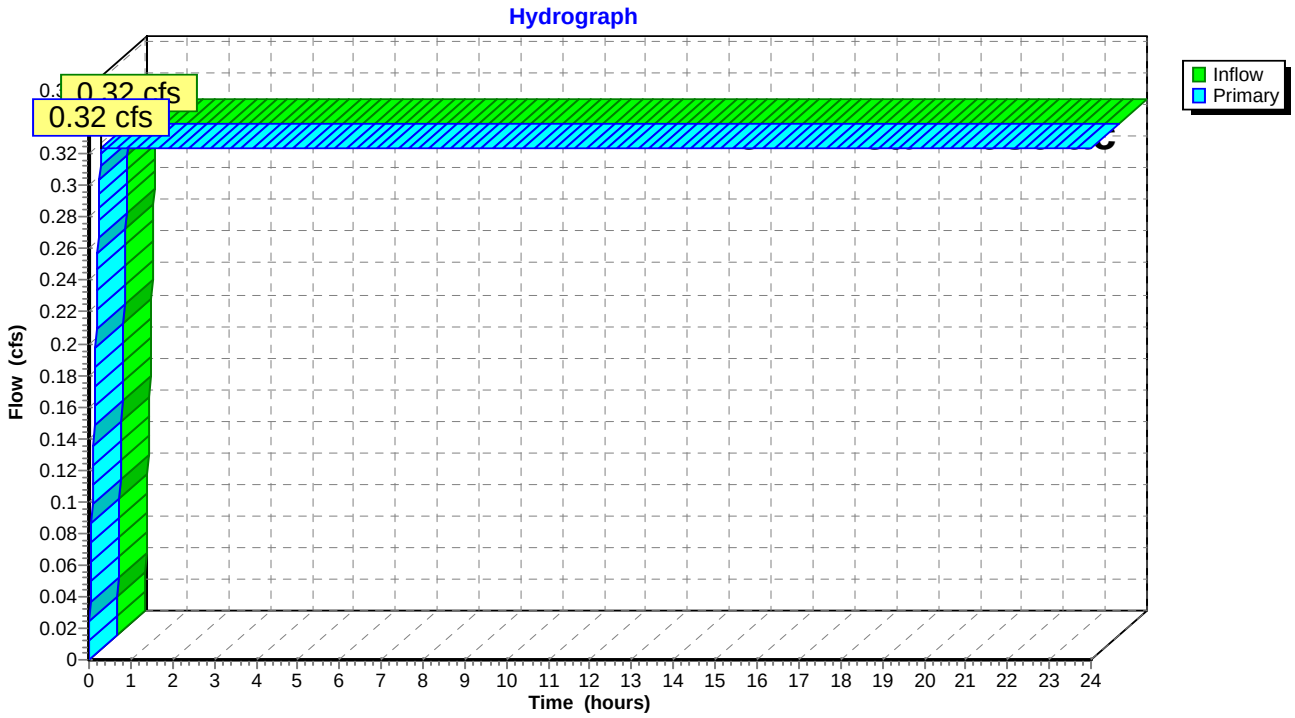
Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	1.90"	for 50-Year event
Inflow =	0.32 cfs @	0.29 hrs,	Volume=	0.638 af	
Primary =	0.32 cfs @	0.29 hrs,	Volume=	0.638 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX#1: EX DA #1 Runoff Area=0.480 ac 0.00% Impervious Runoff Depth>2.39"
Flow Length=95' Slope=0.0368 '/' Tc=12.1 min C=0.55 Runoff=0.05 cfs 0.096 af

Subcatchment PR#2: PR DA #2 Runoff Area=0.550 ac 0.00% Impervious Runoff Depth>1.91"
Flow Length=228' Tc=13.8 min C=0.44 Runoff=0.04 cfs 0.087 af

Subcatchment PR#3: PR DA #3 Runoff Area=3.000 ac 0.00% Impervious Runoff Depth>2.21"
Flow Length=620' Tc=17.0 min C=0.51 Runoff=0.28 cfs 0.553 af

Pond SITE: DESIGN POINT SITE TOTAL Inflow=0.37 cfs 0.736 af
Primary=0.37 cfs 0.736 af

Total Runoff Area = 4.030 ac Runoff Volume = 0.736 af Average Runoff Depth = 2.19"
100.00% Pervious = 4.030 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX#1: EX DA #1

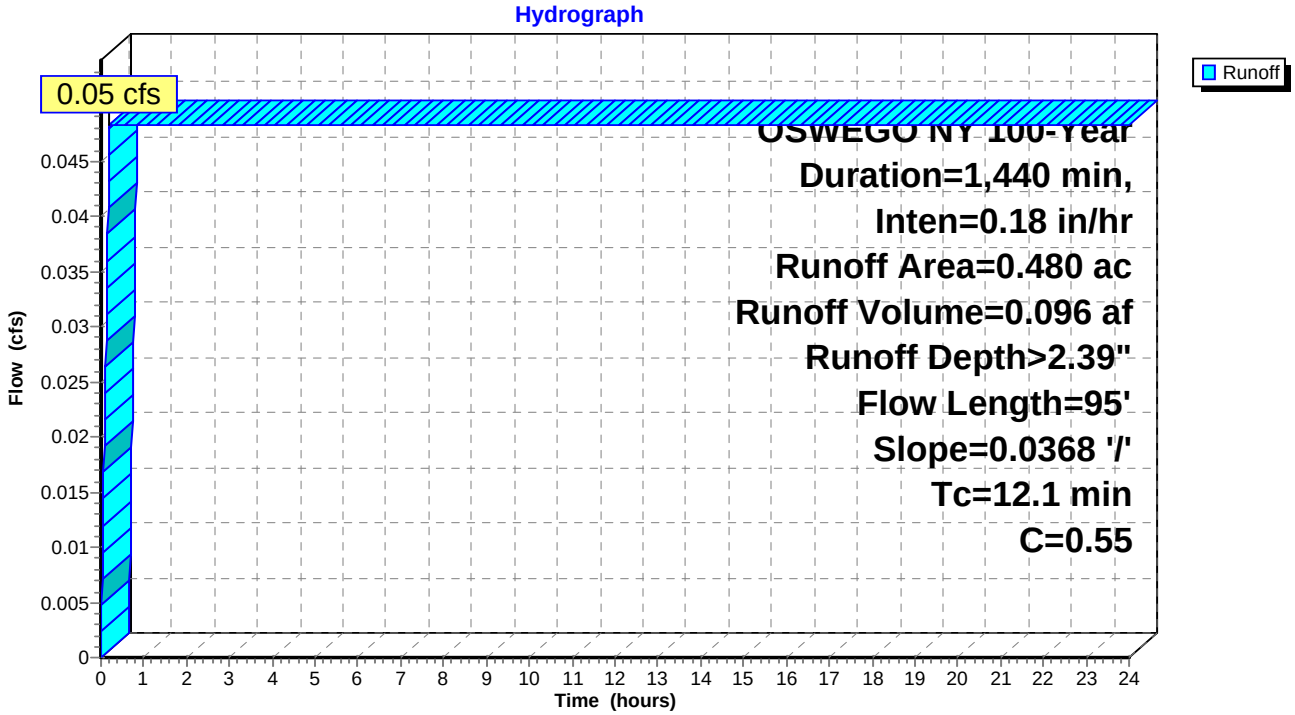
Runoff = 0.05 cfs @ 0.21 hrs, Volume= 0.096 af, Depth> 2.39"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 100-Year Duration=1,440 min, Inten=0.18 in/hr

Area (ac)	C	Description
0.220	0.90	Paved parking & roofs
0.260	0.25	Meadow, non-grazed, HSG C
0.480	0.55	Weighted Average
0.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0368	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"

Subcatchment EX#1: EX DA #1



Summary for Subcatchment PR#2: PR DA #2

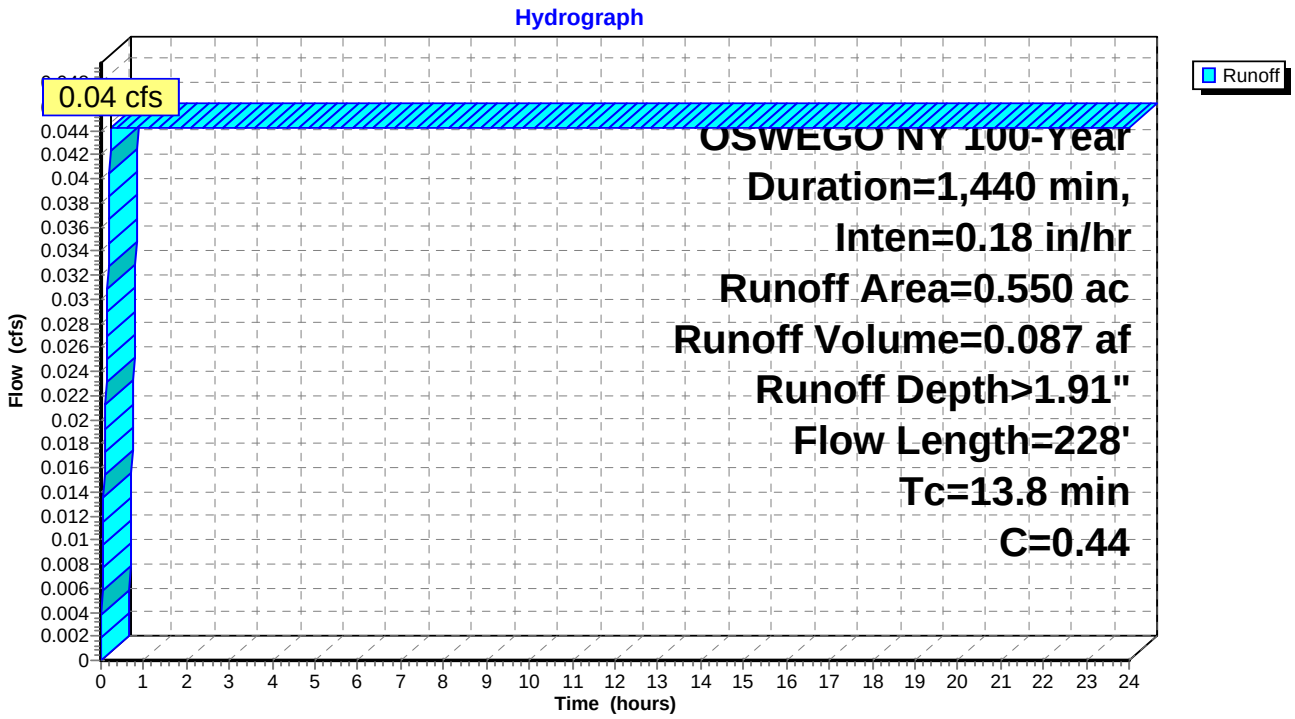
Runoff = 0.04 cfs @ 0.23 hrs, Volume= 0.087 af, Depth> 1.91"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 100-Year Duration=1,440 min, Inten=0.18 in/hr

Area (ac)	C	Description
0.390	0.25	Meadow, non-grazed, HSG C
0.160	0.90	Paved parking & roofs
0.550	0.44	Weighted Average
0.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0460	0.14		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
2.2	128	0.0188	0.96		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
13.8	228	Total			

Subcatchment PR#2: PR DA #2



Summary for Subcatchment PR#3: PR DA #3

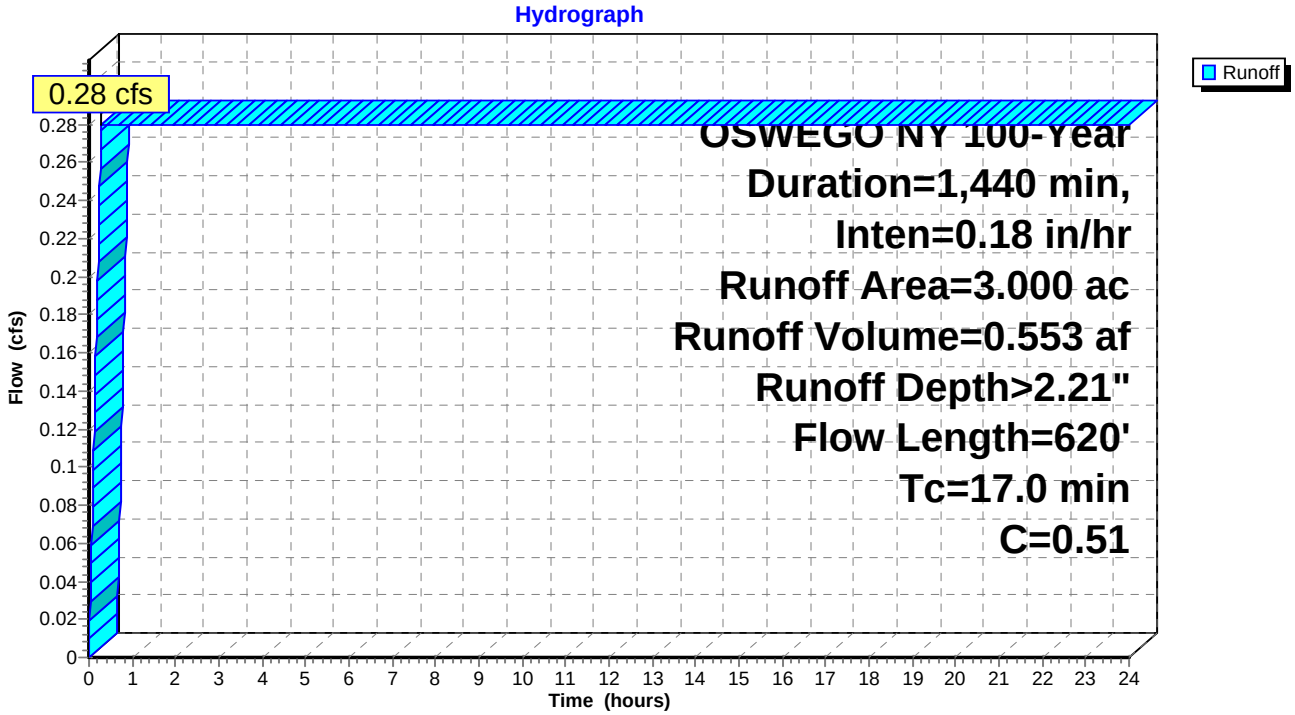
Runoff = 0.28 cfs @ 0.29 hrs, Volume= 0.553 af, Depth> 2.21"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
OSWEGO NY 100-Year Duration=1,440 min, Inten=0.18 in/hr

Area (ac)	C	Description
0.690	0.20	Meadow, non-grazed, HSG B
1.060	0.25	Meadow, non-grazed, HSG C
1.250	0.90	Paved parking & roofs
3.000	0.51	Weighted Average
3.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0370	0.13		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.50"
3.3	205	0.0225	1.05		**Shallow Concentrated Flow, Shallow Concentrated** Short Grass Pasture Kv= 7.0 fps
1.1	315	0.0298	4.93	0.97	**Pipe Channel, 6" PIPE** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.013 Cast iron, coated
17.0	620	Total			

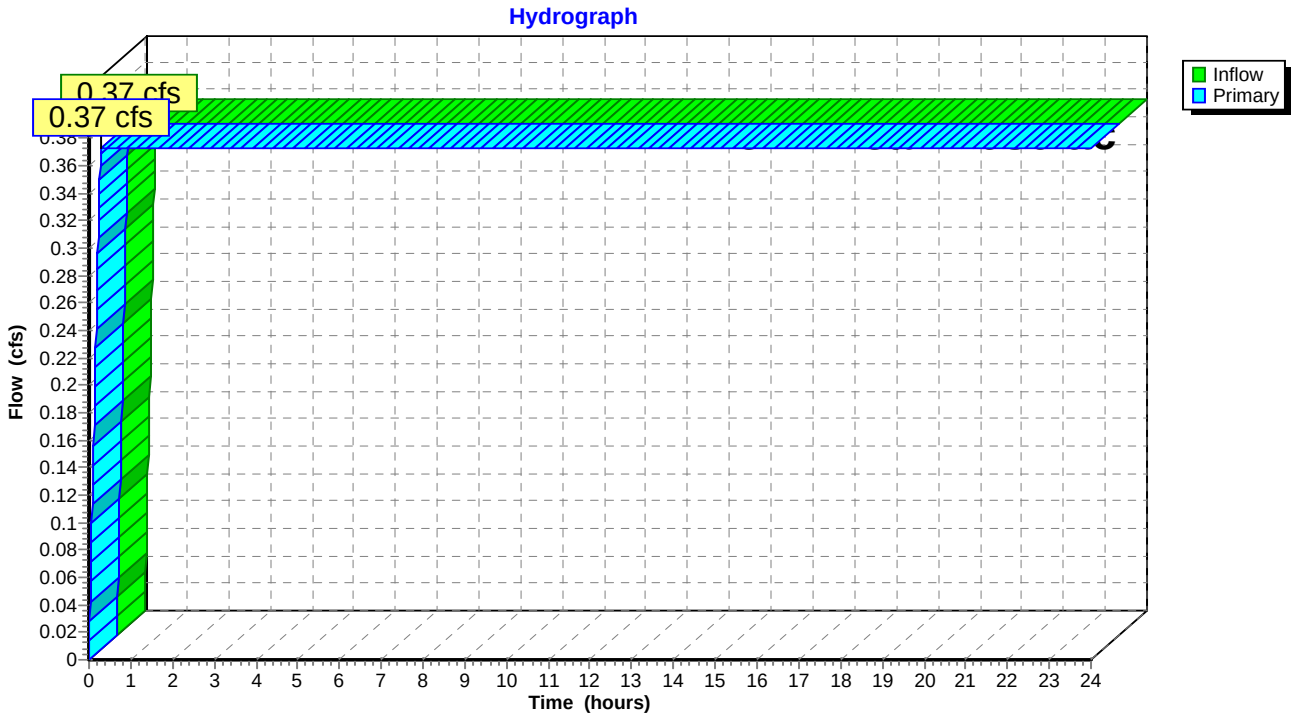
Subcatchment PR#3: PR DA #3



Summary for Pond SITE: DESIGN POINT SITE TOTAL

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	4.030 ac,	0.00% Impervious,	Inflow Depth >	2.19"	for 100-Year event
Inflow =	0.37 cfs @	0.29 hrs,	Volume=	0.736 af	
Primary =	0.37 cfs @	0.29 hrs,	Volume=	0.736 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Pond SITE: DESIGN POINT SITE TOTAL