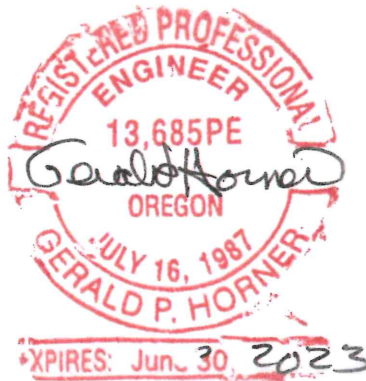
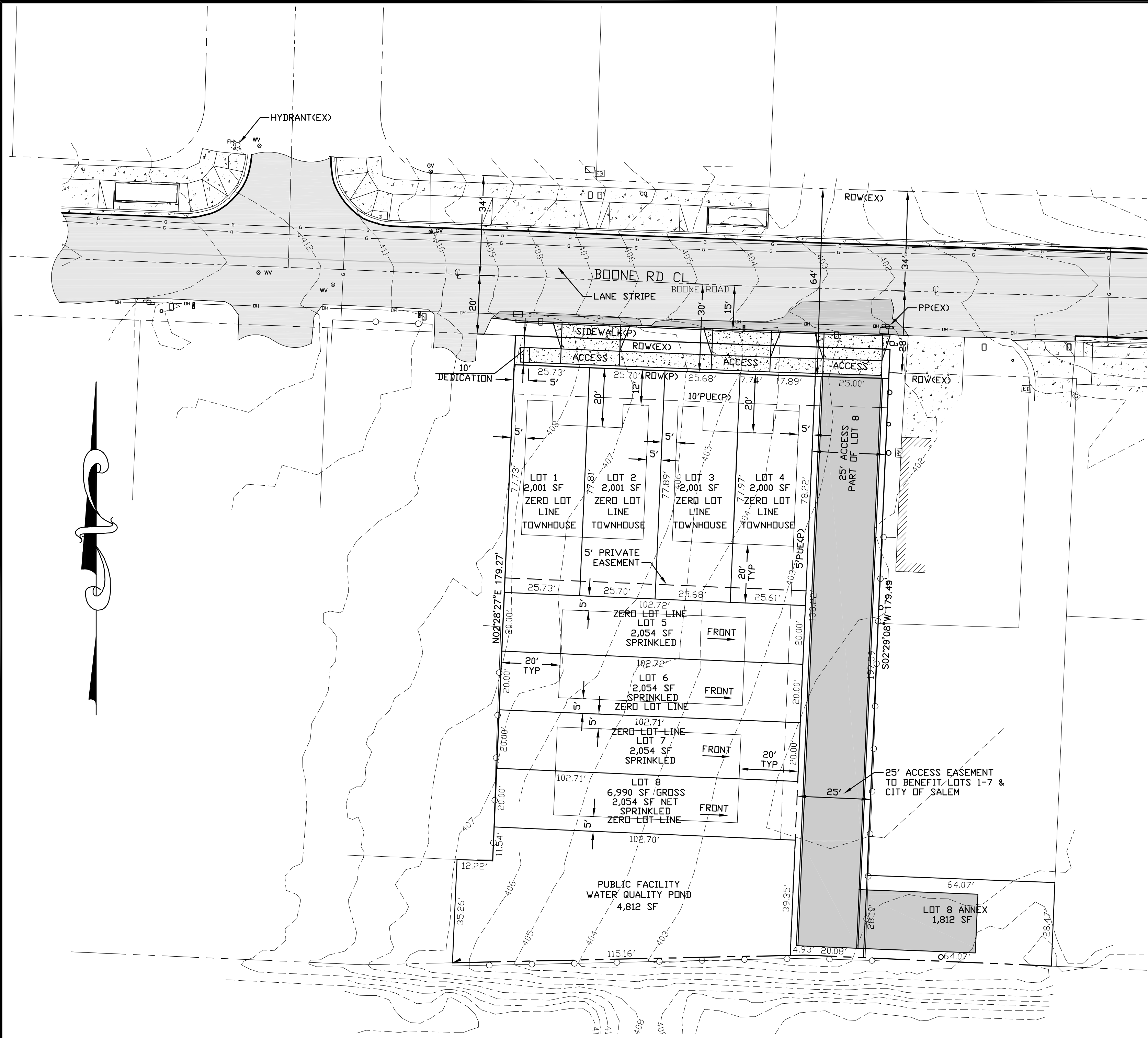


PRELIMINARY
STORMWATER MANAGEMENT REPORT
FOR
MEREDITH HEIGHTS

1440 BOONE RD AND 1450 BOONE RD
MAP 083W14BB00 / TAX LOT 200 AND 100
SALEM, OR 97306
MARION COUNTY, OREGON



BY WILLAMETTE ENGINEERING
PO BOX 9032
SALEM, OREGON 97305
PH: 503-304-0905
JER.WILLENGR@JUNO.COM



DEVELOPER
SALEM PROPERTIES OF DE LLC
5305 RIVER RD N
KEIZER, OR 97303

SUBDIVISION DATA:

SEC. 14BB
T.B.S, R.3.W, W.M.
TAX LDT 200,
MAP 083W14BB00200
MARION COUNTY
ZONE: RA

LOT DATA:

LOTS - 8
AVERAGE SF. - 2,027 NET
LOTS/ACRE - 12.4 LOTS PER ACRE
TOTAL ACREAGE (AFTER ROW
DEDICATIONS) - 0.638 ACRES
TOTAL ACREAGE (BEFORE ROW
DEDICATION) - 0.667 ACRES

BENCHMARK DATUM:

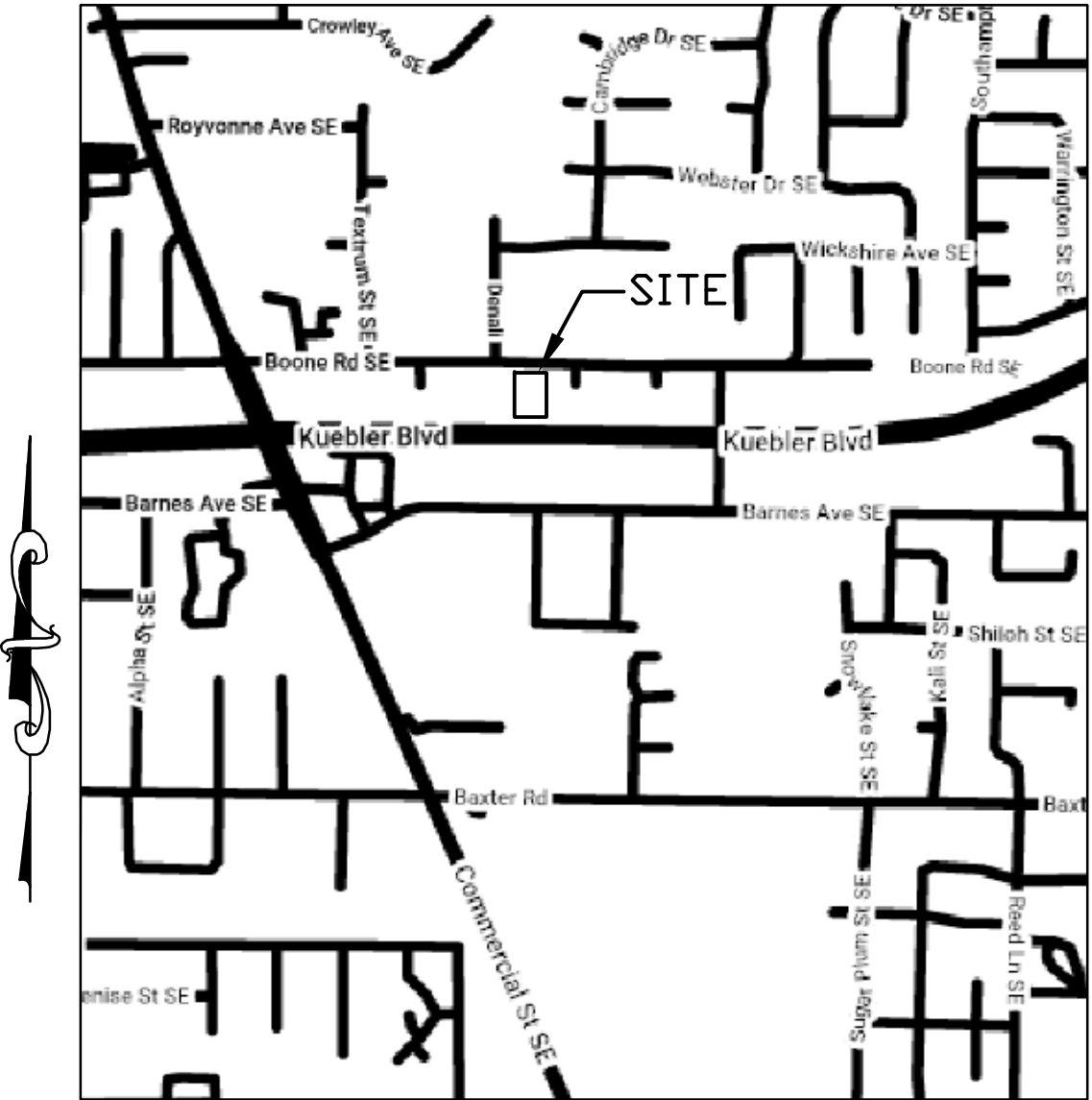
ELEVATIONS WERE ESTABLISHED BY RTK GPS
OBSERVATIONS TO CITY OF SALEM BENCHMARK "8300".
MARK IS A 2" ALUMINUM DISK IN THE CURB AT THE
NORTHEAST CORNER OF BAXTER ROAD SE AND BAXTER
COURT SE. ELEVATION = 406.76' (C.O.S. DATUM, NGVD29)

PROPOSED SUBDIVISION PLAN

SCALE 1"=40' FOR 22" x 34" PAPER
SCALE 1"=80' FOR 11" x 17" PAPER

DRAWING LIST:

- C1 TITLE SHEET, VICINITY MAP, PROJECT DATA, DRAWING LIST, SITE PLAN, GENERAL CONSTRUCTION NOTES, SYMBOLS AND ABBREVIATIONS.
- C2 EXISTING CONDITIONS
- C3 STORM WATER AND GRADING PLAN
- C4 COMPOSITE UTILITY PLAN
- T1 SEWER AND WATER SERVICE PLAN
- T1 TREE PRESERVATION PLAN



VICINITY MAP

**FOR APPLICATION
NOT FOR CONSTRUCTION**

REV.	DATE	BY	DESCRIPTION
0	07-20-22	GPH	ISSUED FOR APPLICATION

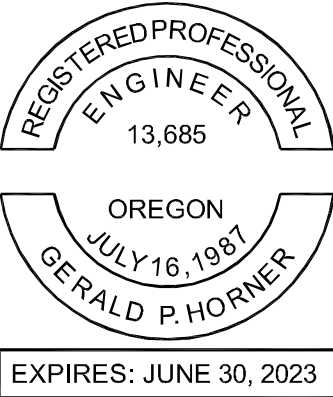
ENGINEER:
WILLAMETTE ENGINEERING INC.
P.O. BOX 9032
SALEM, OREGON 97305
PH: 503-304-0905
FAX: 503-304-9512

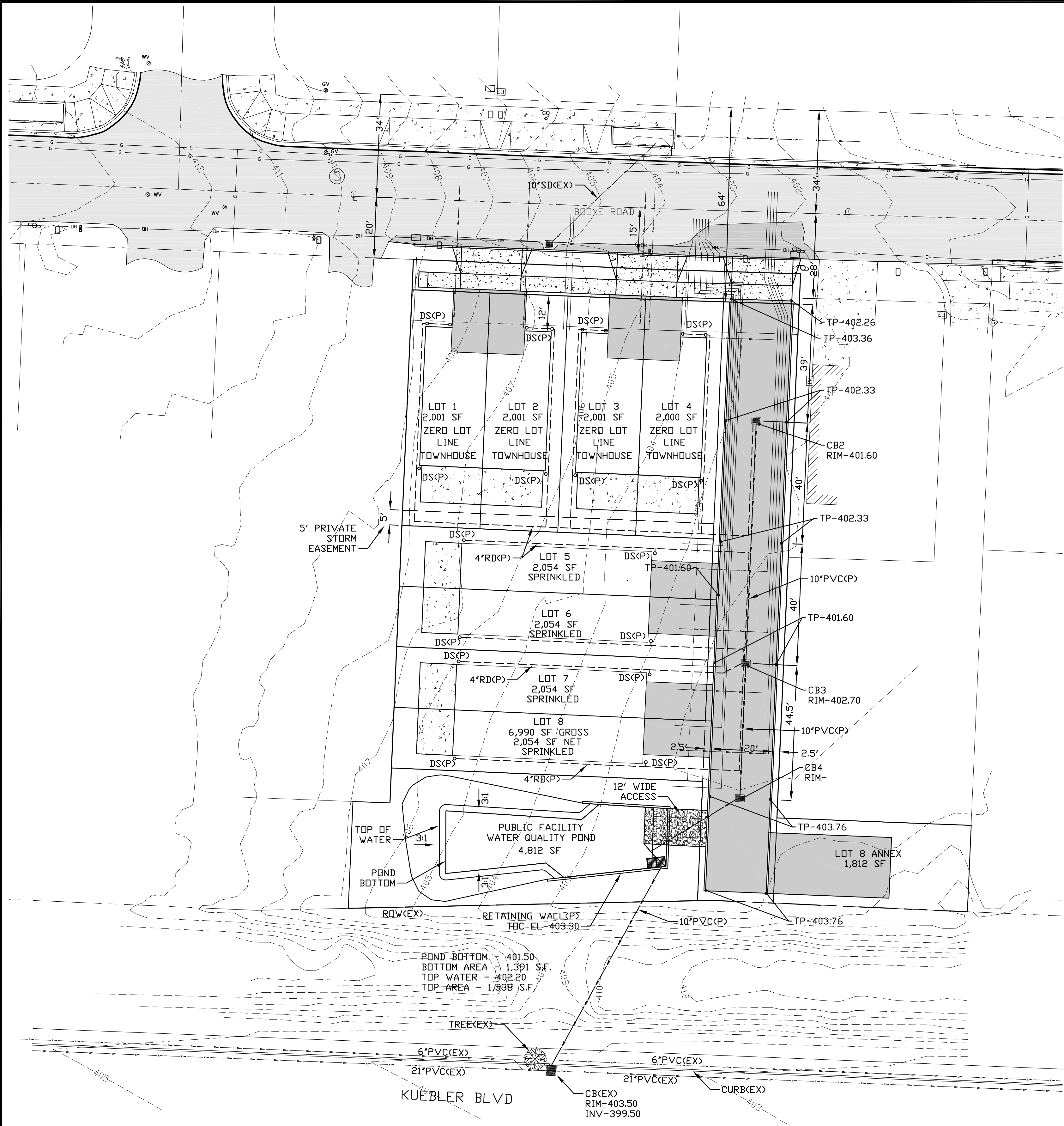
**TENTATIVE
SITE PLAN**

**MEREDITH HEIGHTS
SUBDIVISION APPLICATION**

DESIGNED BY: GPH
DRAWN BY: RW
DATE: 07-20-22
JOB NO. 2021-105
CLIENT NO.
DRAWING NO.

1440 & 1450 BOONE RD
SALEM, OREGON 97306

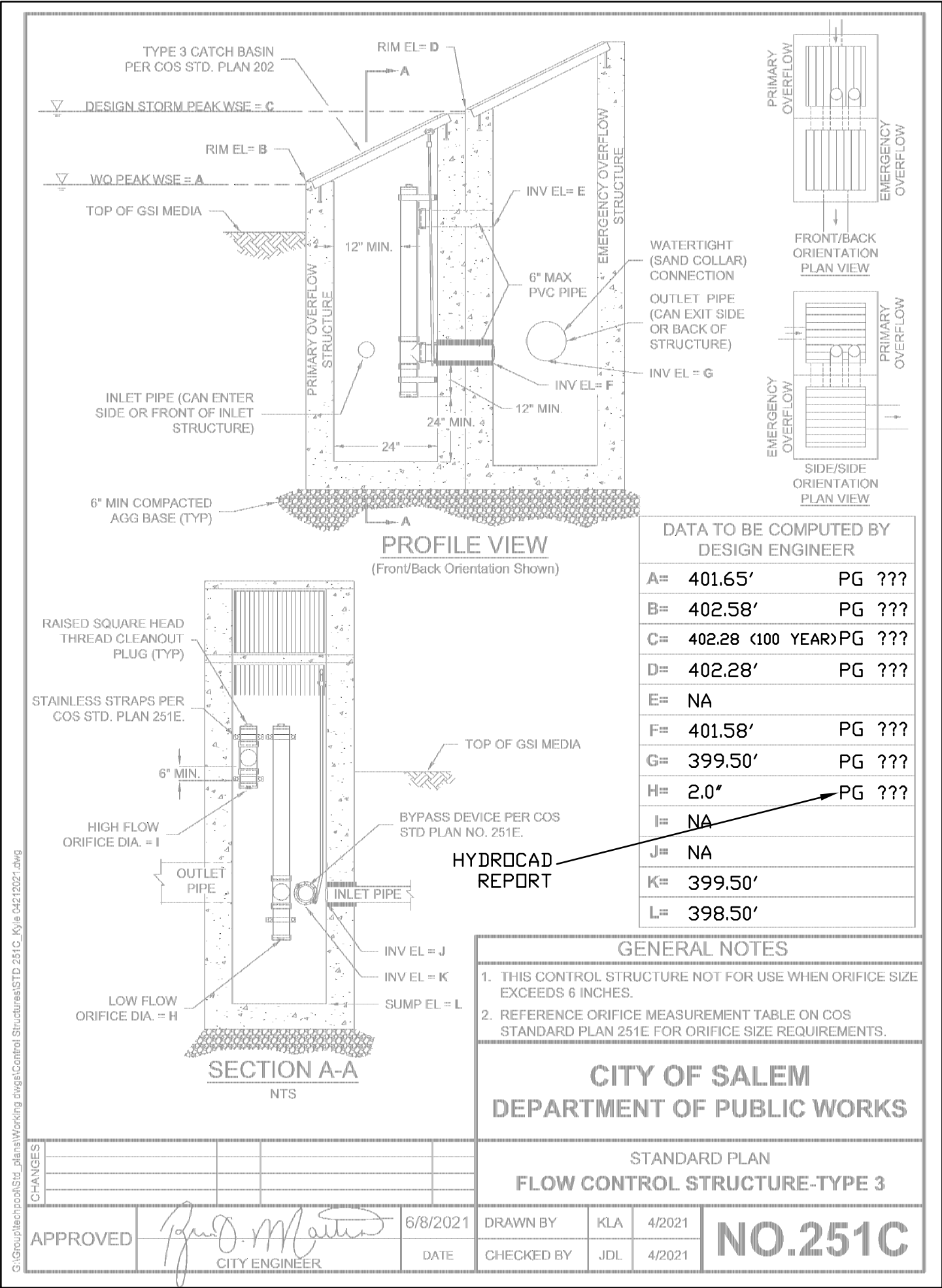




STORMWATER AND GRADING PLAN
SCALE 1"=20' FOR 22" x 34" PAPER
SCALE 1"=40' FOR 11" x 17" PAPER

AREAS:

1. RIGHT OF WAY IMPROVEMENTS DO NOT REQUIRE WATER QUALITY OR DETENTION.
2. AREAS CONTRIBUTING TO THE WATER QUALITY POND.
TOTAL SUBDIVISION - 27,798 S.F. (0.638 ACRES)
- IMPERVIOUS AREAS:
- | | | |
|---------------------|--------|--------------------|
| LOT 1 BLG: | 902 | S.F. |
| LOT 2 BLG: | 902 | S.F. |
| LOT 3 BLG: | 903 | S.F. |
| LOT 4 BLG: | 903 | S.F. |
| LOT 5 BLG: | 941 | S.F. |
| LOT 6 BLG: | 941 | S.F. |
| LOT 7 BLG: | 941 | S.F. |
| LOT 8 BLG: | 941 | S.F. |
| LOT 1 PATIO: | 240 | S.F. |
| LOT 2 PATIO: | 240 | S.F. |
| LOT 3 PATIO: | 240 | S.F. |
| LOT 4 PATIO: | 240 | S.F. |
| LOT 5 PATIO: | 180 | S.F. |
| LOT 6 PATIO: | 180 | S.F. |
| LOT 7 PATIO: | 180 | S.F. |
| LOT 8 PATIO: | 180 | S.F. |
| LOT 5 DRIVEWAY: | 264 | S.F. |
| LOT 6 DRIVEWAY: | 264 | S.F. |
| LOT 7 DRIVEWAY: | 264 | S.F. |
| LOT 8 DRIVEWAY: | 264 | S.F. |
| LOT 8 ANNEX PARKING | 800 | S.F. |
| POND PAVEMENT | 755 | S.F. |
| PRIVATE DRIVE: | 3,346 | S.F. |
| TOTAL IMPERVIOUS: | 15,011 | S.F. (0.344 ACRES) |
| TOTAL PERVIOUS: | 12,787 | S.F. (0.294 ACRES) |



REV.	DATE	BY	DESCRIPTION
0	07-18-22	GPH	ISSUED FOR APPLICATION

ENGINEER:
WILLAMETTE ENGINEERING INC.
P.O. BOX 9032
SALEM, OREGON 97305
PH: 503-304-0905
FAX: 503-304-9512

STORM WATER
AND GRADING PLAN

MEREDITH HEIGHTS
SUBDIVISION APPLICATION
1440 & 1450 BOONE RD
SALEM, OREGON 97306

DESIGNED BY: GPH
DRAWN BY: RW
DATE: 07-18-22
JOB NO: 2021-105
CLIENT NO:
DRAWING NO:

C3 O

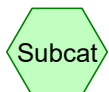
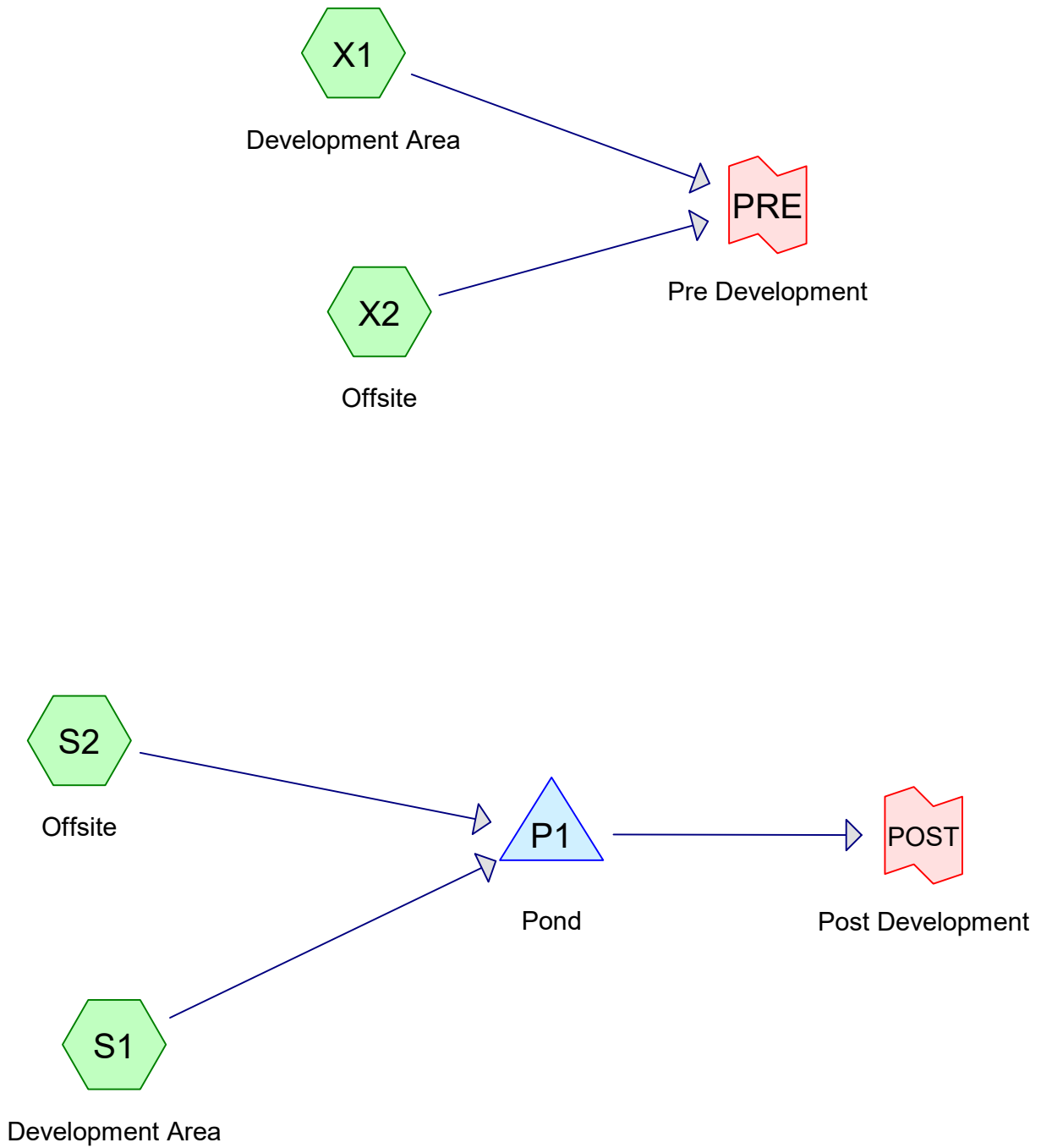
REFERENCE ONLY



Attachment C - Meredith Estates Off site Plan

1 inch = 45 feet

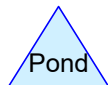
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Subcat



Reach



Pond



Link

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
800	98	Annex Parking (S1)
1,056	98	Driveway (S1)
7,374	98	Houses (S1)
36,000	98	Impervious (S2, X2)
103,471	74	Landscaping (S1, S2, X2)
1,680	98	Patio (S1)
755	98	Pond Pavement (S1)
3,346	98	Private Drive (S1)
13,621	58	Salem Pre-Dev Soil Group B (X1)
14,177	72	Salem Pre-Dev Soil Group C (X1)
182,280	79	TOTAL AREA

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	S1	0.00	0.00	100.0	0.0820	0.011	10.000	0.000	0.000
2	P1	400.00	399.50	100.0	0.0050	0.011	10.000	0.000	0.000

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Type IA 24-hr 10 yr Rainfall=3.20"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: Development Area Runoff Area=27,798 sf 54.00% Impervious Runoff Depth=2.08"
Flow Length=250' Tc=14.0 min CN=74/98 Runoff=0.28 cfs 4,818 cf

Subcatchment S2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=1.59"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.30 cfs 8,372 cf

Subcatchment X1: Development Area Runoff Area=27,798 sf 0.00% Impervious Runoff Depth=0.60"
Flow Length=160' Slope=0.0300 '/' Tc=25.5 min CN=65/0 Runoff=0.03 cfs 1,391 cf

Subcatchment X2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=1.59"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.30 cfs 8,372 cf

Pond P1: Pond Peak Elev=401.99' Storage=758 cf Inflow=0.58 cfs 13,189 cf
Discarded=0.10 cfs 5,413 cf Primary=0.31 cfs 7,776 cf Outflow=0.40 cfs 13,189 cf

Link POST: Post Development Inflow=0.31 cfs 7,776 cf
Primary=0.31 cfs 7,776 cf

Link PRE: Pre Development Inflow=0.32 cfs 9,762 cf
Primary=0.32 cfs 9,762 cf

Total Runoff Area = 182,280 sf Runoff Volume = 22,952 cf Average Runoff Depth = 1.51"
72.02% Pervious = 131,269 sf 27.98% Impervious = 51,011 sf

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Type IA 24-hr 10 yr Rainfall=3.20"

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Summary for Subcatchment S1: Development Area

Runoff = 0.28 cfs @ 8.00 hrs, Volume= 4,818 cf, Depth= 2.08"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=3.20"

	Area (sf)	CN	Description
*	7,374	98	Houses
*	1,680	98	Patio
*	1,056	98	Driveway
*	800	98	Annex Parking
*	755	98	Pond Pavement
*	3,346	98	Private Drive
*	12,787	74	Landscaping
	27,798	87	Weighted Average
	12,787	74	46.00% Pervious Area
	15,011	98	54.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0300	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 2.20"
0.1	100	0.0820	13.59	7.41	Pipe Channel, 10.000" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011
14.0	250	Total			

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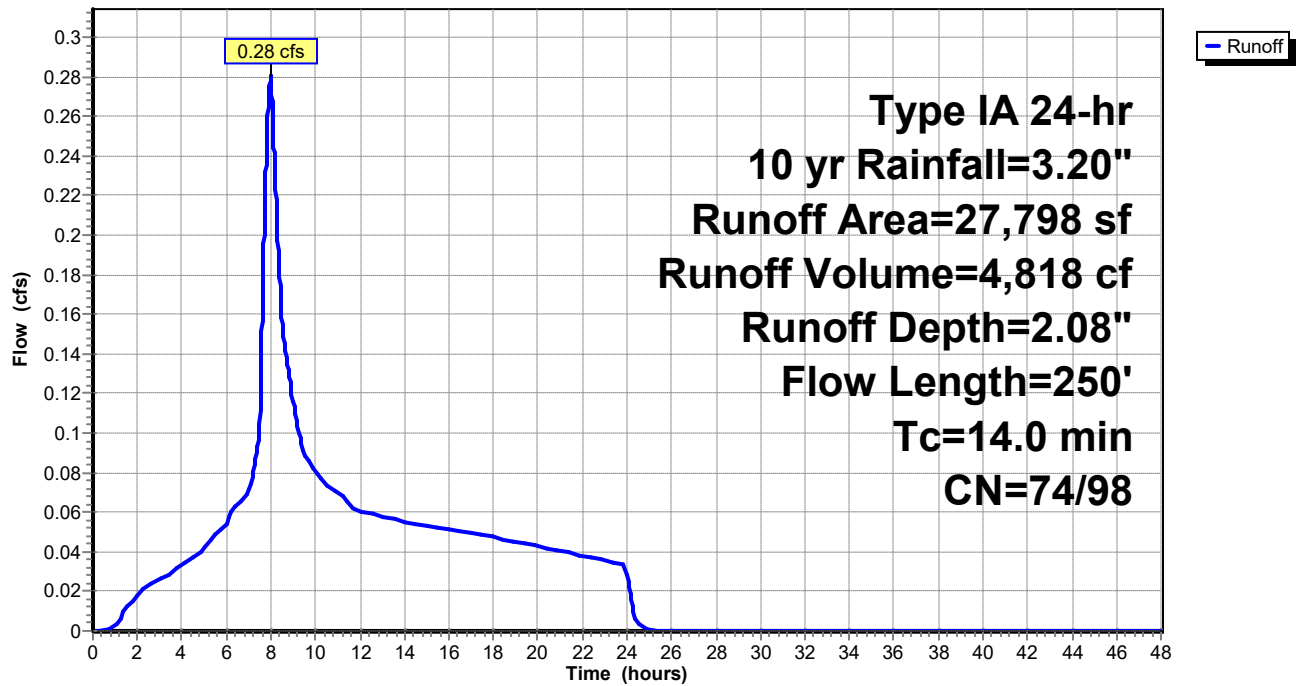
Type IA 24-hr 10 yr Rainfall=3.20"

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Subcatchment S1: Development Area

Hydrograph



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Type IA 24-hr 10 yr Rainfall=3.20"

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Summary for Subcatchment S2: Offsite

Runoff = 0.30 cfs @ 8.12 hrs, Volume= 8,372 cf, Depth= 1.59"

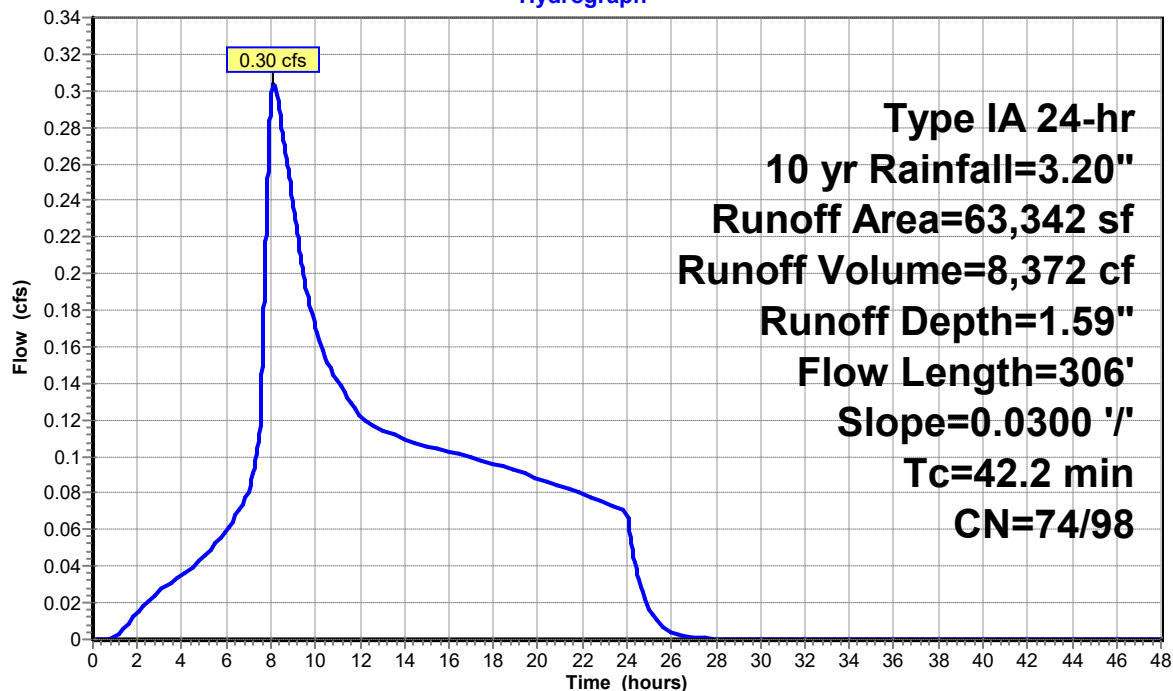
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=3.20"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment S2: Offsite

Hydrograph



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Type IA 24-hr 10 yr Rainfall=3.20"

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Summary for Subcatchment X1: Development Area

Runoff = 0.03 cfs @ 8.98 hrs, Volume= 1,391 cf, Depth= 0.60"

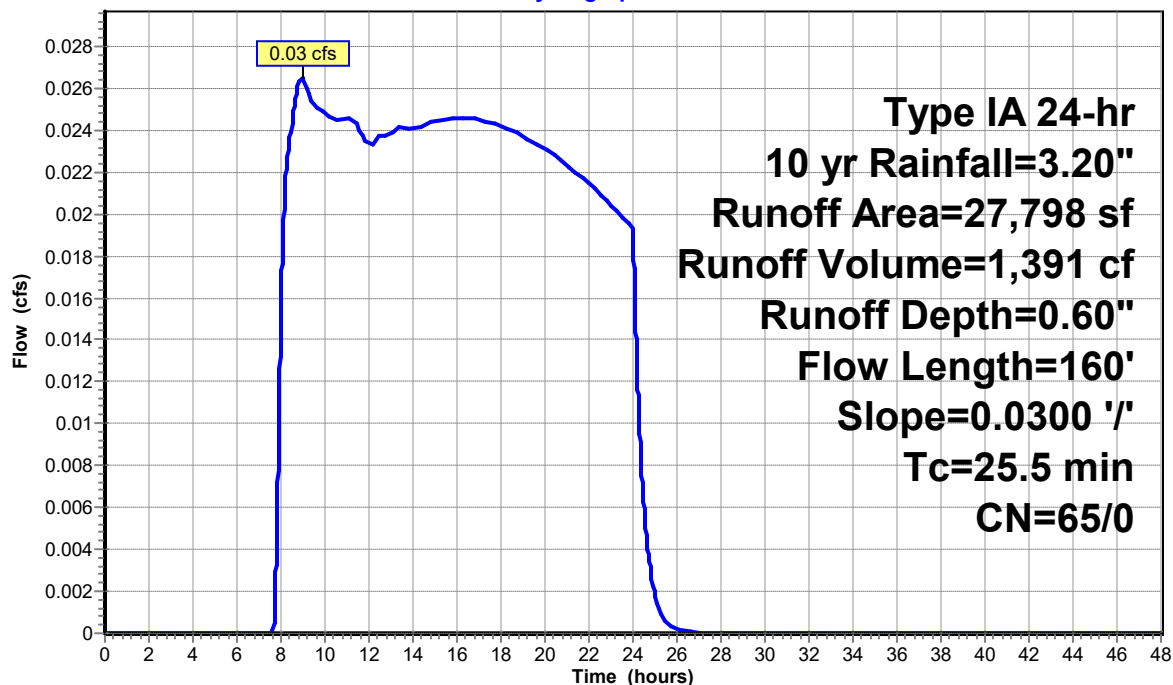
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=3.20"

	Area (sf)	CN	Description
*	14,177	72	Salem Pre-Dev Soil Group C
*	13,621	58	Salem Pre-Dev Soil Group B
	27,798	65	Weighted Average
	27,798	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.5	160	0.0300	0.10		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"

Subcatchment X1: Development Area

Hydrograph



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Type IA 24-hr 10 yr Rainfall=3.20"

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Summary for Subcatchment X2: Offsite

Runoff = 0.30 cfs @ 8.12 hrs, Volume= 8,372 cf, Depth= 1.59"

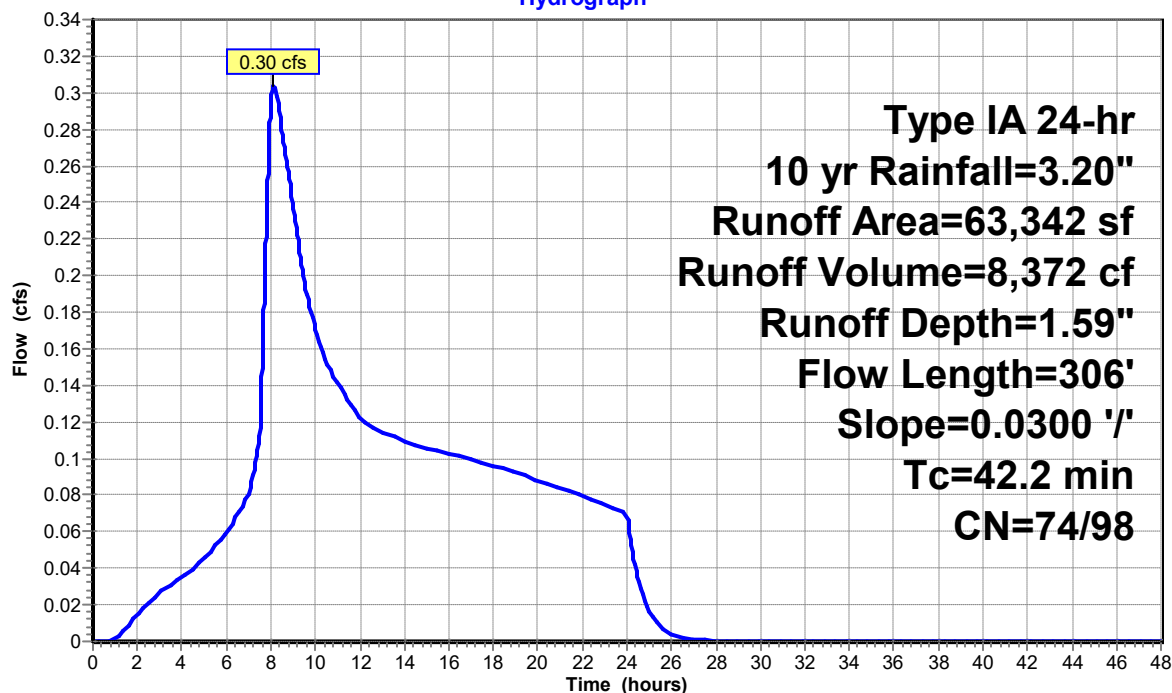
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 yr Rainfall=3.20"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment X2: Offsite

Hydrograph



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Type IA 24-hr 10 yr Rainfall=3.20"

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Summary for Pond P1: Pond

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 1.74" for 10 yr event
Inflow = 0.58 cfs @ 8.01 hrs, Volume= 13,189 cf
Outflow = 0.40 cfs @ 8.70 hrs, Volume= 13,189 cf, Atten= 31%, Lag= 41.3 min
Discarded = 0.10 cfs @ 8.70 hrs, Volume= 5,413 cf
Primary = 0.31 cfs @ 8.70 hrs, Volume= 7,776 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 401.99' @ 8.70 hrs Surf.Area= 2,055 sf Storage= 758 cf

Plug-Flow detention time= 22.7 min calculated for 13,189 cf (100% of inflow)

Center-of-Mass det. time= 22.7 min (790.3 - 767.6)

Volume	Invert	Avail.Storage	Storage Description
#1	401.50'	5,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
401.50	1,011	0	0
403.30	4,812	5,241	5,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	401.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	400.00'	10.000" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 400.00' / 399.50' S= 0.0050 '/ Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Device 2	401.58'	4.250" Horiz. 10-year Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 2	402.25'	24.000" x 24.000" Horiz. Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.10 cfs @ 8.70 hrs HW=401.99' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.31 cfs @ 8.70 hrs HW=401.99' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 0.31 cfs of 2.70 cfs potential flow)

↑ **3=10-year Orifice** (Orifice Controls 0.31 cfs @ 3.10 fps)

↑ **4=Overflow** (Controls 0.00 cfs)

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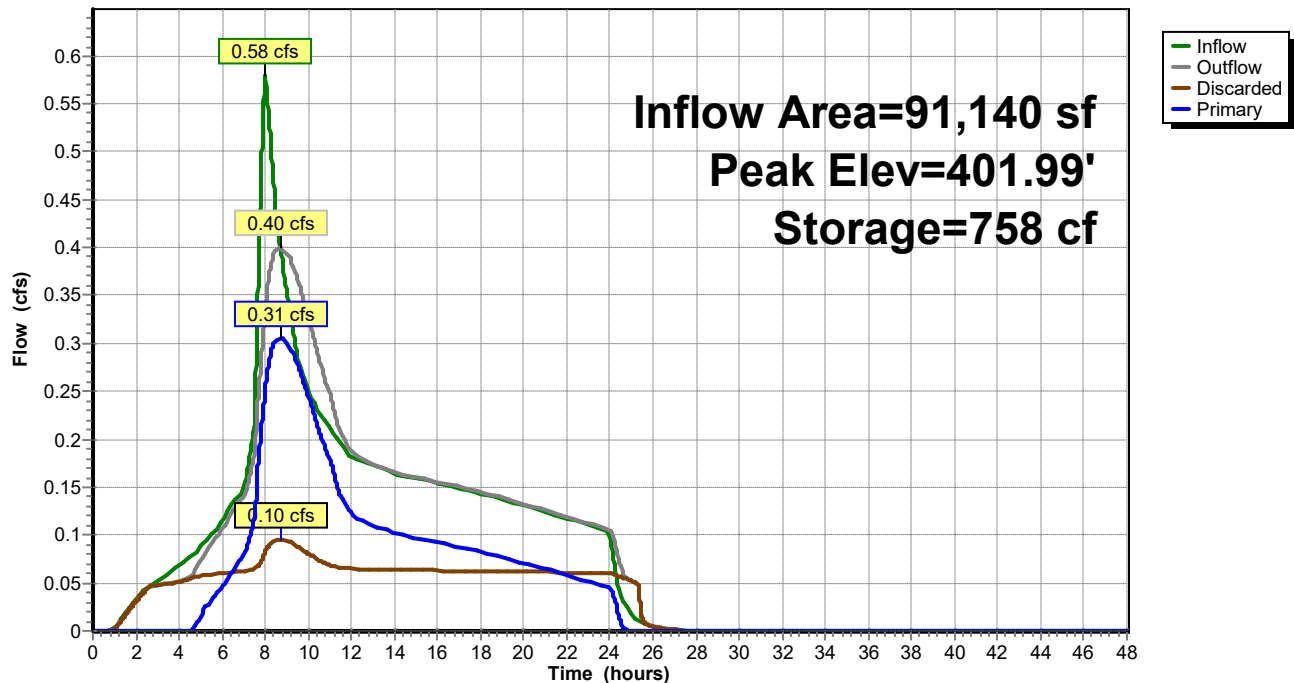
Type IA 24-hr 10 yr Rainfall=3.20"

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Pond P1: Pond

Hydrograph



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Type IA 24-hr 10 yr Rainfall=3.20"

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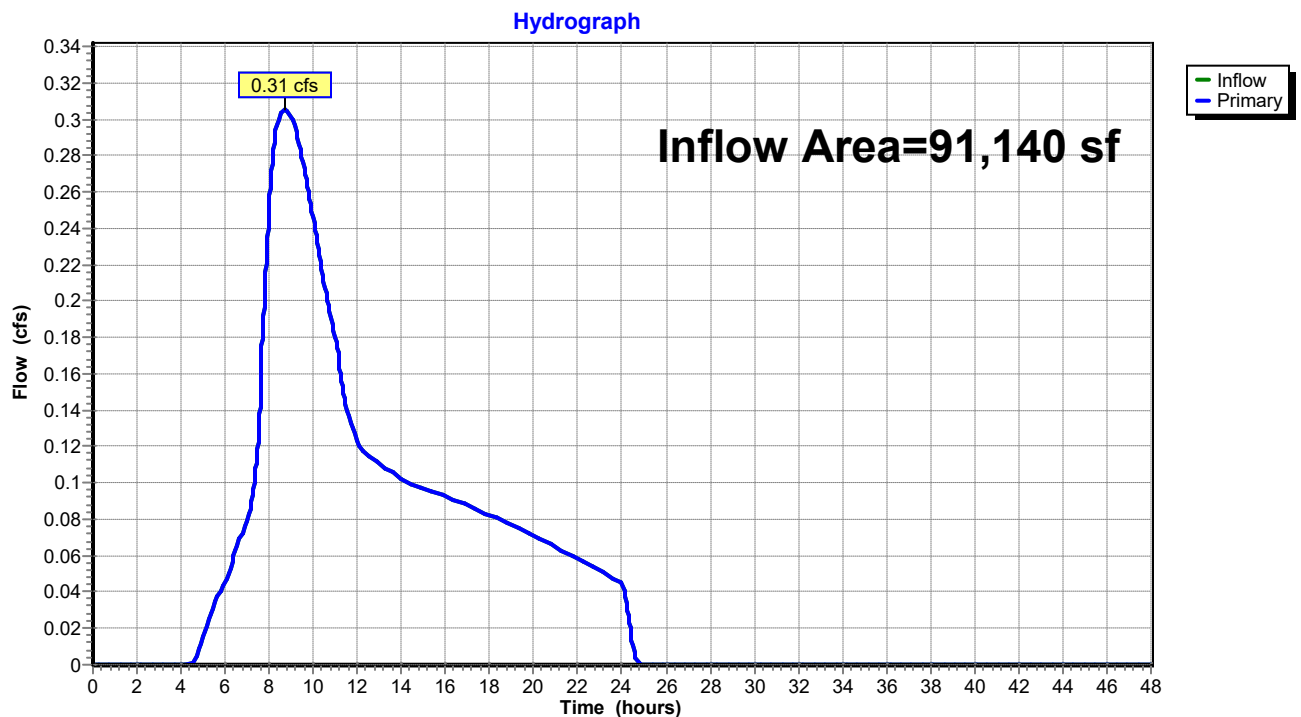
Page 12

Summary for Link POST: Post Development

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 1.02" for 10 yr event
Inflow = 0.31 cfs @ 8.70 hrs, Volume= 7,776 cf
Primary = 0.31 cfs @ 8.70 hrs, Volume= 7,776 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POST: Post Development



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22-412 Meredith Heights
Type IA 24-hr 10 yr Rainfall=3.20"

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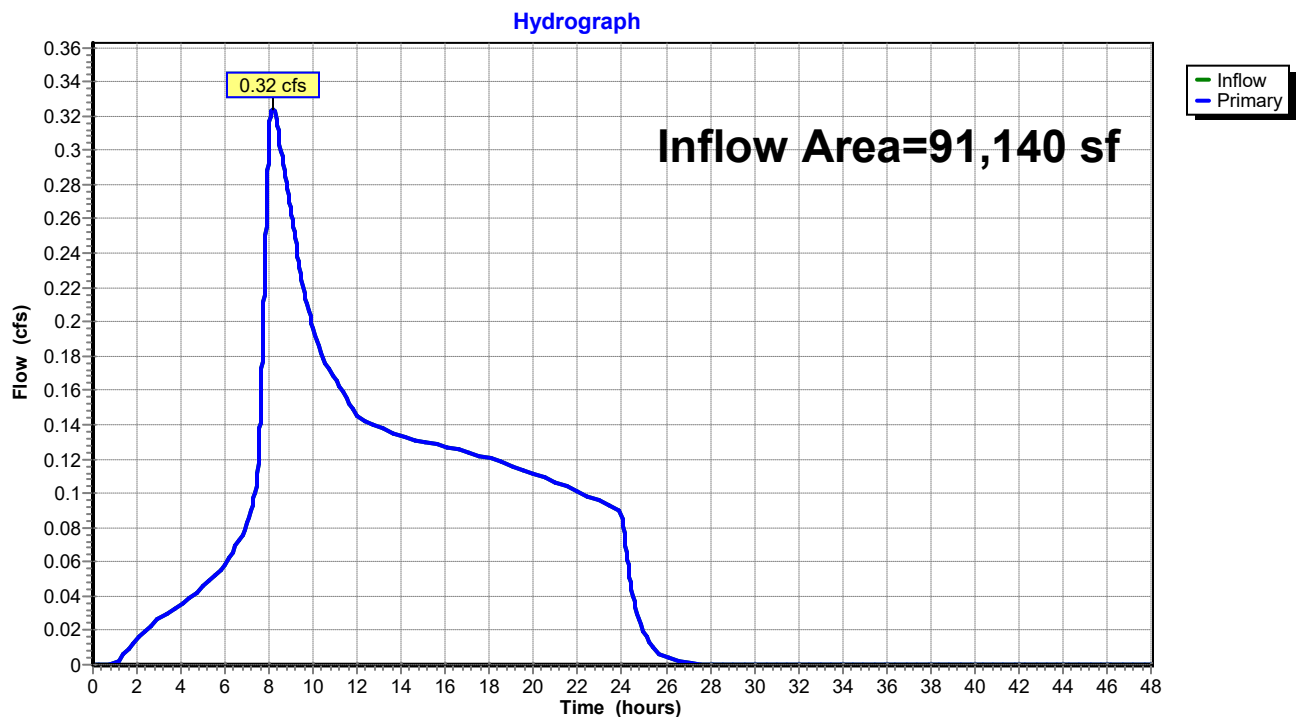
Page 13

Summary for Link PRE: Pre Development

Inflow Area = 91,140 sf, 19.75% Impervious, Inflow Depth = 1.29" for 10 yr event
Inflow = 0.32 cfs @ 8.16 hrs, Volume= 9,762 cf
Primary = 0.32 cfs @ 8.16 hrs, Volume= 9,762 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PRE: Pre Development



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22-412 Meredith Heights
Type IA 24-hr 25 yr Rainfall=3.60"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: Development Area Runoff Area=27,798 sf 54.00% Impervious Runoff Depth=2.42"
Flow Length=250' Tc=14.0 min CN=74/98 Runoff=0.33 cfs 5,606 cf

Subcatchment S2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=1.89"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.37 cfs 9,997 cf

Subcatchment X1: Development Area Runoff Area=27,798 sf 0.00% Impervious Runoff Depth=0.81"
Flow Length=160' Slope=0.0300 '/' Tc=25.5 min CN=65/0 Runoff=0.04 cfs 1,865 cf

Subcatchment X2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=1.89"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.37 cfs 9,997 cf

Pond P1: Pond Peak Elev=402.12' Storage=1,026 cf Inflow=0.70 cfs 15,603 cf
Discarded=0.11 cfs 5,730 cf Primary=0.35 cfs 9,873 cf Outflow=0.45 cfs 15,603 cf

Link POST: Post Development Inflow=0.35 cfs 9,873 cf
Primary=0.35 cfs 9,873 cf

Link PRE: Pre Development Inflow=0.41 cfs 11,862 cf
Primary=0.41 cfs 11,862 cf

Total Runoff Area = 182,280 sf Runoff Volume = 27,465 cf Average Runoff Depth = 1.81"
72.02% Pervious = 131,269 sf 27.98% Impervious = 51,011 sf

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22-412 Meredith Heights

Type IA 24-hr 25 yr Rainfall=3.60"

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Summary for Subcatchment S1: Development Area

Runoff = 0.33 cfs @ 8.00 hrs, Volume= 5,606 cf, Depth= 2.42"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=3.60"

	Area (sf)	CN	Description
*	7,374	98	Houses
*	1,680	98	Patio
*	1,056	98	Driveway
*	800	98	Annex Parking
*	755	98	Pond Pavement
*	3,346	98	Private Drive
*	12,787	74	Landscaping
	27,798	87	Weighted Average
	12,787	74	46.00% Pervious Area
	15,011	98	54.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0300	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 2.20"
0.1	100	0.0820	13.59	7.41	Pipe Channel, 10.000" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011
14.0	250	Total			

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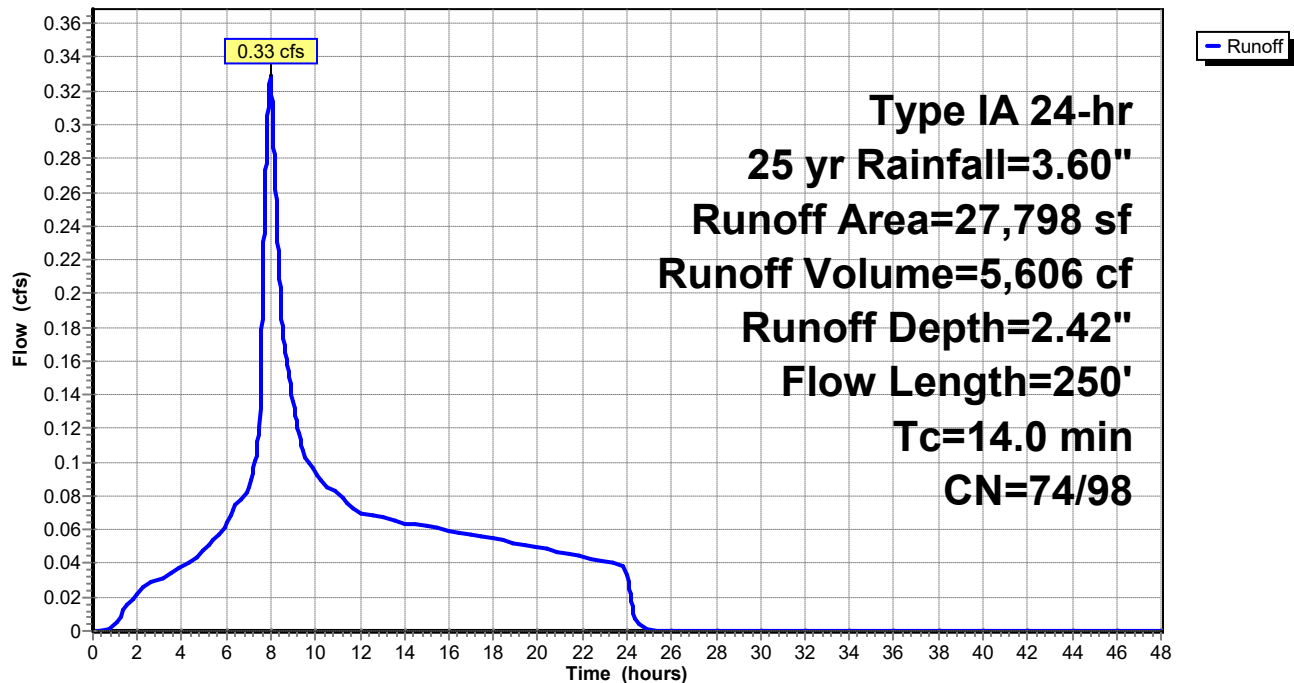
Type IA 24-hr 25 yr Rainfall=3.60"

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Subcatchment S1: Development Area

Hydrograph



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Type IA 24-hr 25 yr Rainfall=3.60"

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Summary for Subcatchment S2: Offsite

Runoff = 0.37 cfs @ 8.11 hrs, Volume= 9,997 cf, Depth= 1.89"

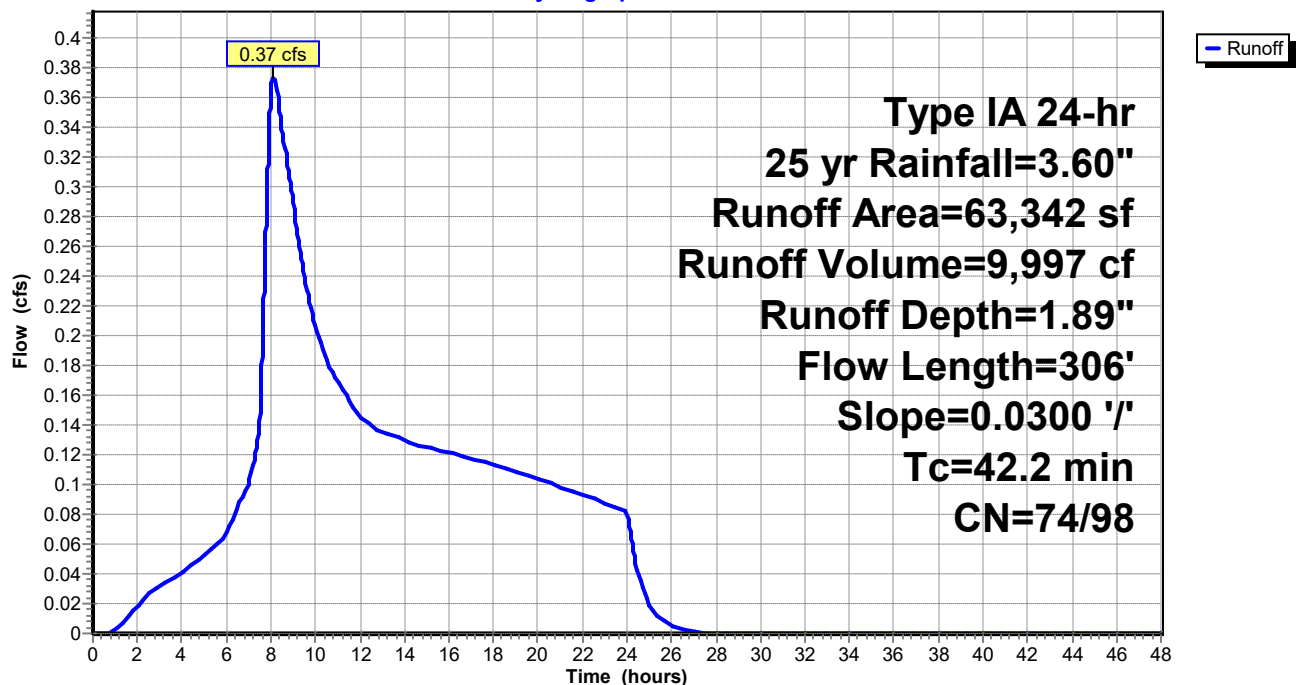
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=3.60"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment S2: Offsite

Hydrograph



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Type IA 24-hr 25 yr Rainfall=3.60"

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Summary for Subcatchment X1: Development Area

Runoff = 0.04 cfs @ 8.33 hrs, Volume= 1,865 cf, Depth= 0.81"

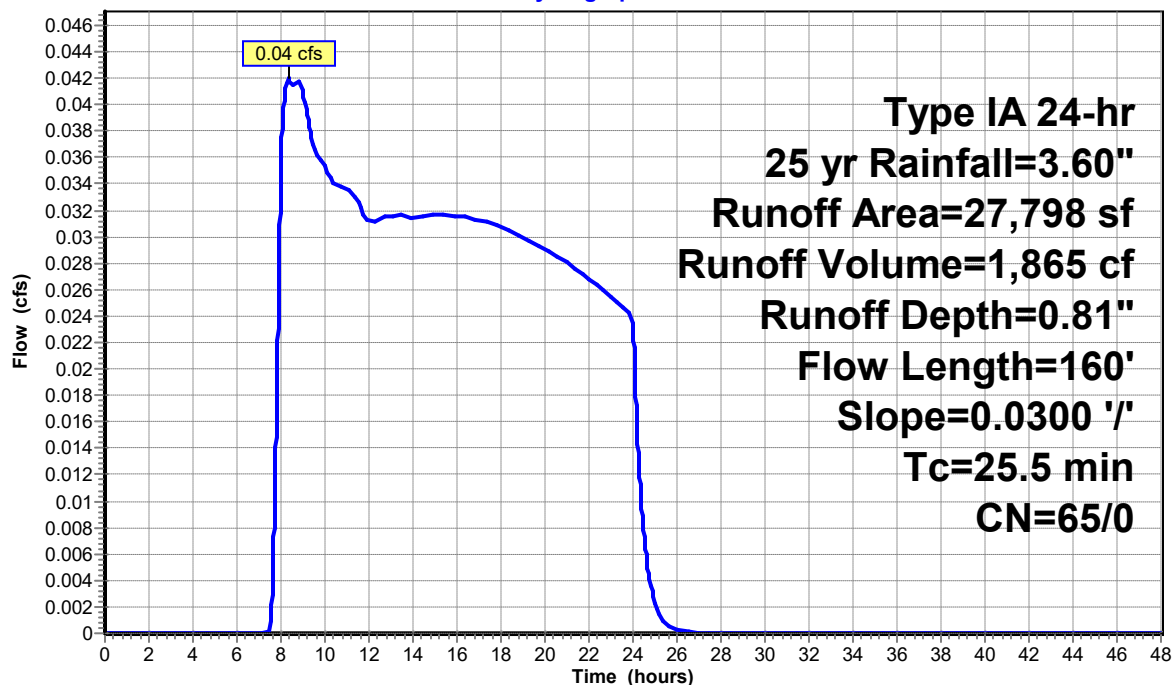
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=3.60"

	Area (sf)	CN	Description
*	14,177	72	Salem Pre-Dev Soil Group C
*	13,621	58	Salem Pre-Dev Soil Group B
	27,798	65	Weighted Average
	27,798	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.5	160	0.0300	0.10		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"

Subcatchment X1: Development Area

Hydrograph



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Type IA 24-hr 25 yr Rainfall=3.60"

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Summary for Subcatchment X2: Offsite

Runoff = 0.37 cfs @ 8.11 hrs, Volume= 9,997 cf, Depth= 1.89"

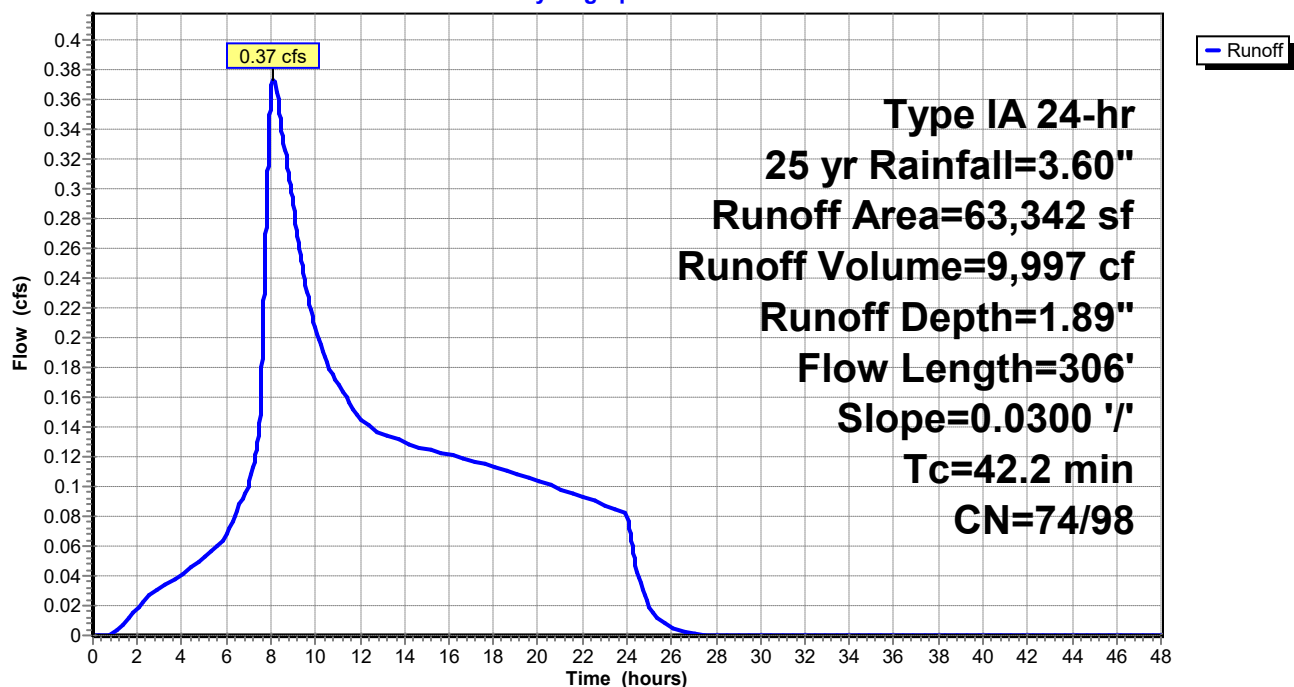
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 yr Rainfall=3.60"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment X2: Offsite

Hydrograph



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Type IA 24-hr 25 yr Rainfall=3.60"

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Summary for Pond P1: Pond

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 2.05" for 25 yr event
Inflow = 0.70 cfs @ 8.01 hrs, Volume= 15,603 cf
Outflow = 0.45 cfs @ 8.83 hrs, Volume= 15,603 cf, Atten= 35%, Lag= 49.7 min
Discarded = 0.11 cfs @ 8.83 hrs, Volume= 5,730 cf
Primary = 0.35 cfs @ 8.83 hrs, Volume= 9,873 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 402.12' @ 8.83 hrs Surf.Area= 2,314 sf Storage= 1,026 cf

Plug-Flow detention time= 24.0 min calculated for 15,603 cf (100% of inflow)
Center-of-Mass det. time= 24.0 min (788.5 - 764.5)

Volume	Invert	Avail.Storage	Storage Description
#1	401.50'	5,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
401.50	1,011	0	0
403.30	4,812	5,241	5,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	401.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	400.00'	10.000" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 400.00' / 399.50' S= 0.0050 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Device 2	401.58'	4.250" Horiz. 10-year Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 2	402.25'	24.000" x 24.000" Horiz. Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 8.83 hrs HW=402.12' (Free Discharge)
↑ **1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.35 cfs @ 8.83 hrs HW=402.12' TW=0.00' (Dynamic Tailwater)
↑ **2=Culvert** (Passes 0.35 cfs of 2.80 cfs potential flow)
↑ **3=10-year Orifice** (Orifice Controls 0.35 cfs @ 3.53 fps)
↑ **4=Overflow** (Controls 0.00 cfs)

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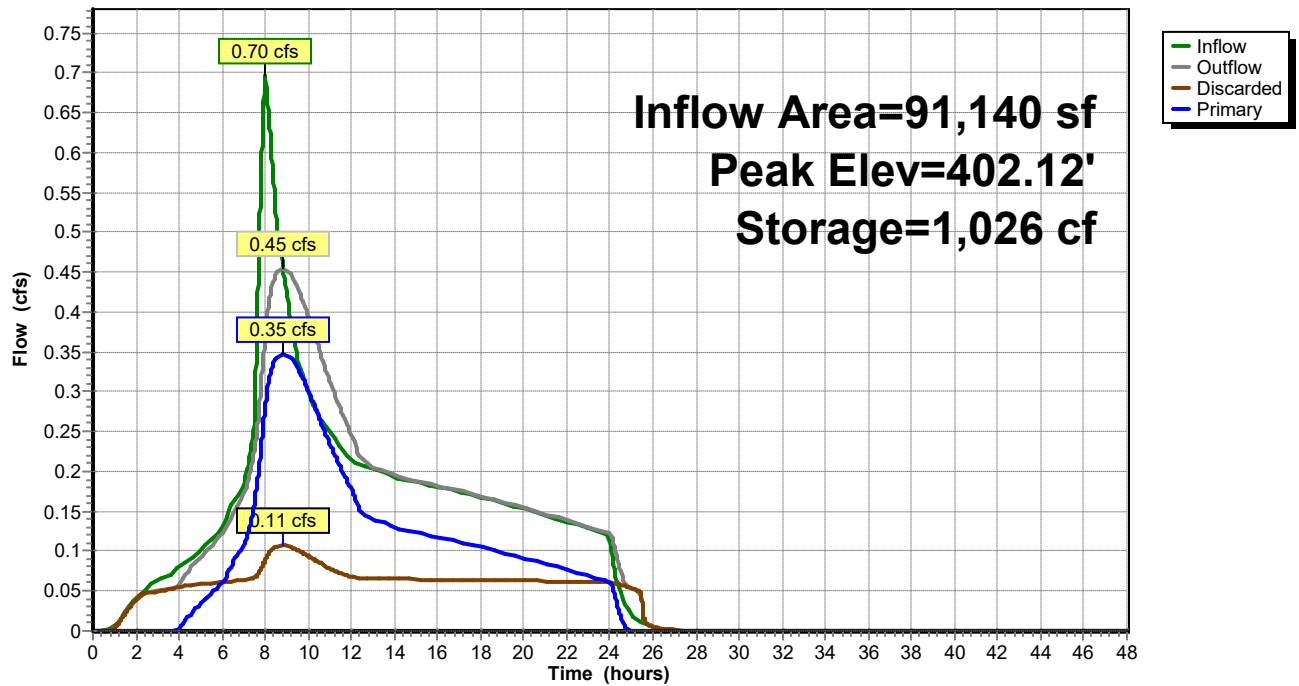
22-412 Meredith Heights
Type IA 24-hr 25 yr Rainfall=3.60"

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Pond P1: Pond

Hydrograph



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Type IA 24-hr 25 yr Rainfall=3.60"

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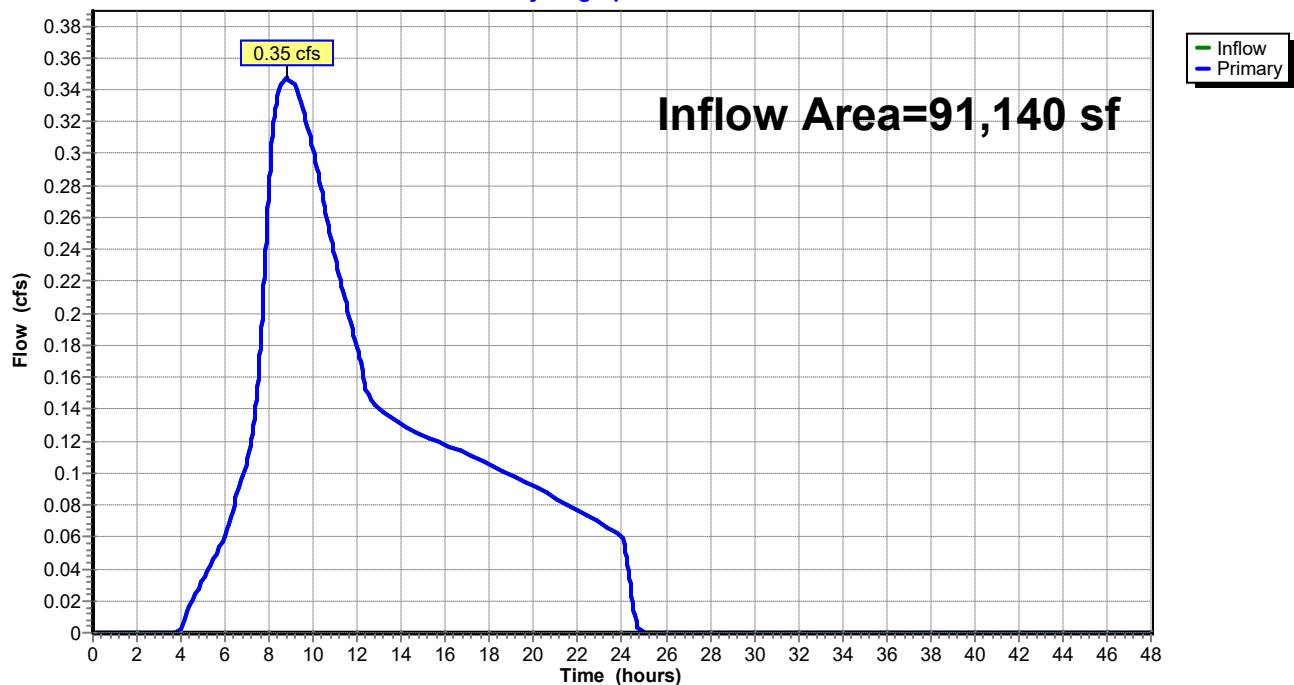
Summary for Link POST: Post Development

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 1.30" for 25 yr event
Inflow = 0.35 cfs @ 8.83 hrs, Volume= 9,873 cf
Primary = 0.35 cfs @ 8.83 hrs, Volume= 9,873 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POST: Post Development

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Type IA 24-hr 25 yr Rainfall=3.60"

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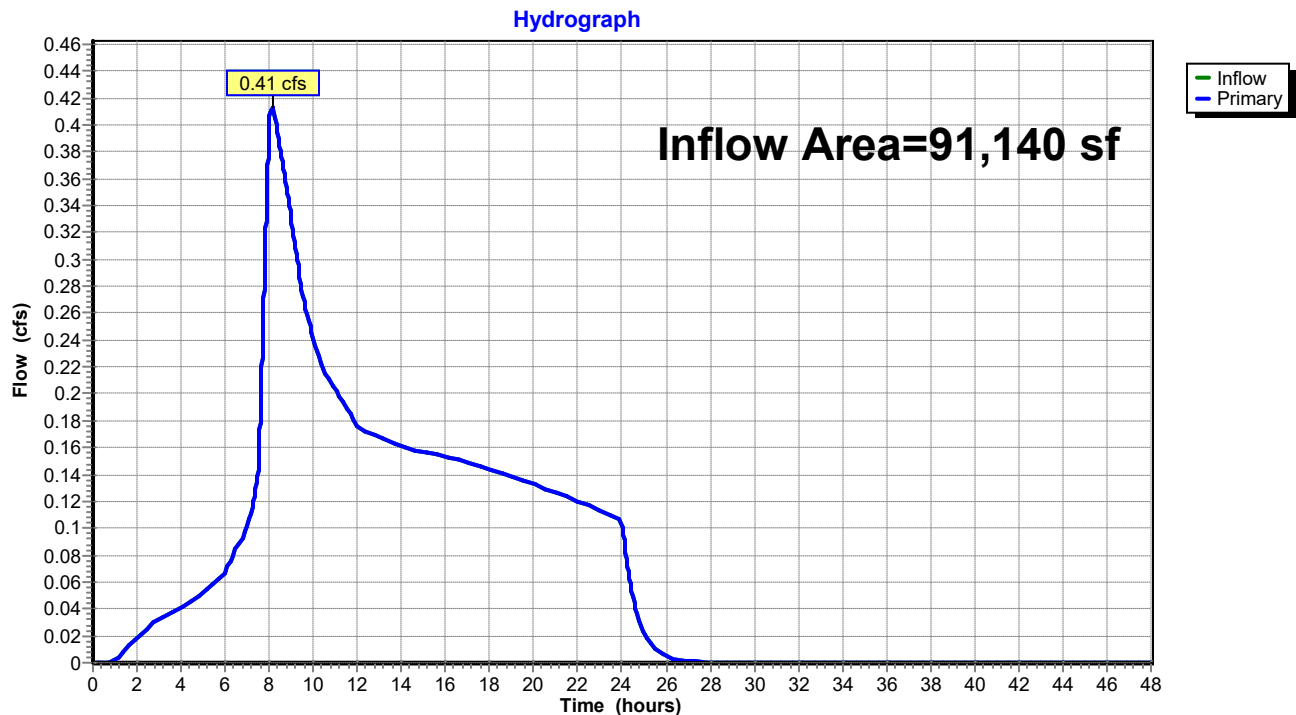
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Summary for Link PRE: Pre Development

Inflow Area = 91,140 sf, 19.75% Impervious, Inflow Depth = 1.56" for 25 yr event
Inflow = 0.41 cfs @ 8.14 hrs, Volume= 11,862 cf
Primary = 0.41 cfs @ 8.14 hrs, Volume= 11,862 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PRE: Pre Development



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Type IA 24-hr 100 yr Rainfall=4.40"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: Development Area Runoff Area=27,798 sf 54.00% Impervious Runoff Depth=3.12"
Flow Length=250' Tc=14.0 min CN=74/98 Runoff=0.43 cfs 7,229 cf

Subcatchment S2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=2.54"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.52 cfs 13,409 cf

Subcatchment X1: Development Area Runoff Area=27,798 sf 0.00% Impervious Runoff Depth=1.27"
Flow Length=160' Slope=0.0300 '/' Tc=25.5 min CN=65/0 Runoff=0.09 cfs 2,938 cf

Subcatchment X2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=2.54"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.52 cfs 13,409 cf

Pond P1: Pond Peak Elev=402.29' Storage=1,451 cf Inflow=0.94 cfs 20,639 cf
Discarded=0.12 cfs 6,356 cf Primary=0.59 cfs 14,282 cf Outflow=0.71 cfs 20,639 cf

Link POST: Post Development Inflow=0.59 cfs 14,282 cf
Primary=0.59 cfs 14,282 cf

Link PRE: Pre Development Inflow=0.61 cfs 16,347 cf
Primary=0.61 cfs 16,347 cf

Total Runoff Area = 182,280 sf Runoff Volume = 36,986 cf Average Runoff Depth = 2.43"
72.02% Pervious = 131,269 sf 27.98% Impervious = 51,011 sf

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Type IA 24-hr 100 yr Rainfall=4.40"

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Summary for Subcatchment S1: Development Area

Runoff = 0.43 cfs @ 8.00 hrs, Volume= 7,229 cf, Depth= 3.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100 yr Rainfall=4.40"

	Area (sf)	CN	Description
*	7,374	98	Houses
*	1,680	98	Patio
*	1,056	98	Driveway
*	800	98	Annex Parking
*	755	98	Pond Pavement
*	3,346	98	Private Drive
*	12,787	74	Landscaping
	27,798	87	Weighted Average
	12,787	74	46.00% Pervious Area
	15,011	98	54.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0300	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 2.20"
0.1	100	0.0820	13.59	7.41	Pipe Channel, 10.000" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011
14.0	250	Total			

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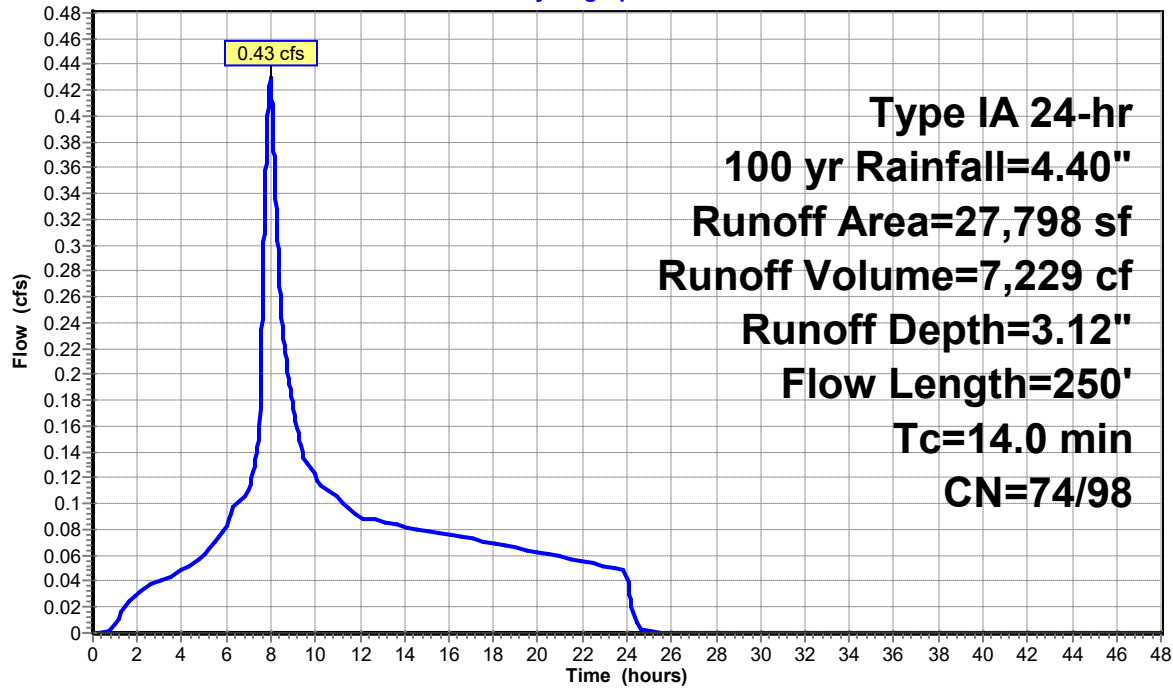
Type IA 24-hr 100 yr Rainfall=4.40"

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Subcatchment S1: Development Area

Hydrograph



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Type IA 24-hr 100 yr Rainfall=4.40"

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Summary for Subcatchment S2: Offsite

Runoff = 0.52 cfs @ 8.10 hrs, Volume= 13,409 cf, Depth= 2.54"

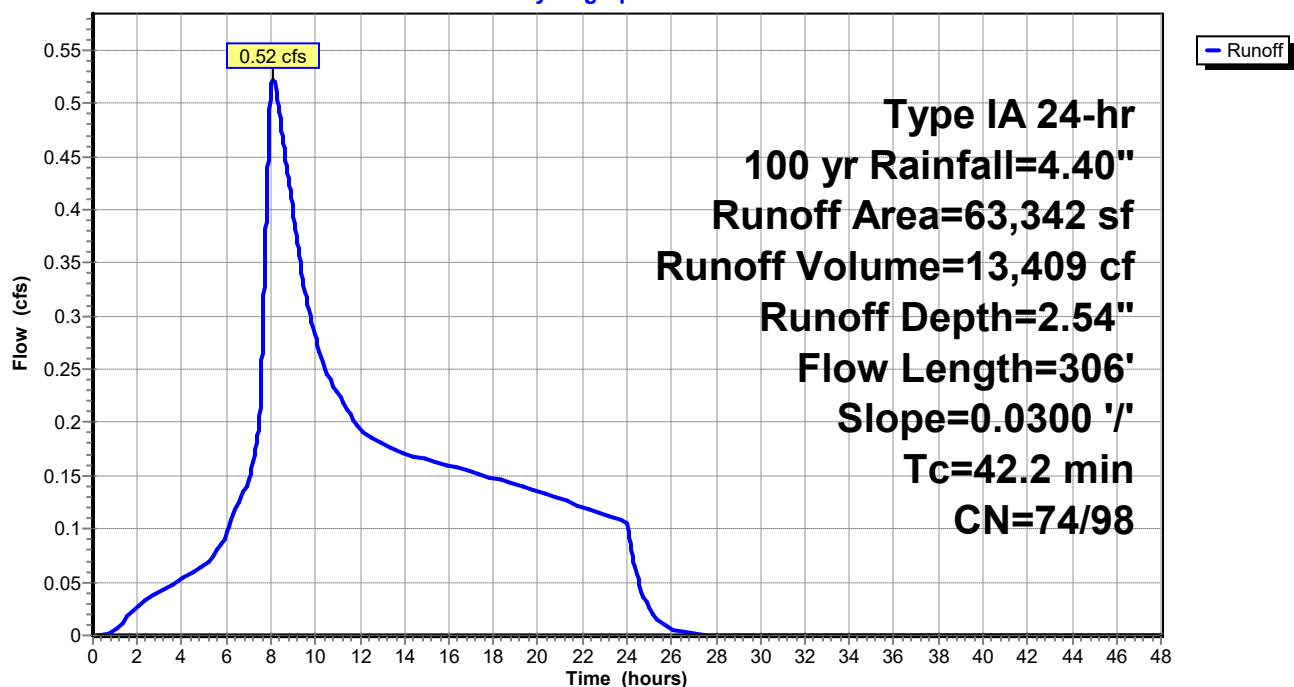
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100 yr Rainfall=4.40"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment S2: Offsite

Hydrograph



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Type IA 24-hr 100 yr Rainfall=4.40"

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Summary for Subcatchment X1: Development Area

Runoff = 0.09 cfs @ 8.16 hrs, Volume= 2,938 cf, Depth= 1.27"

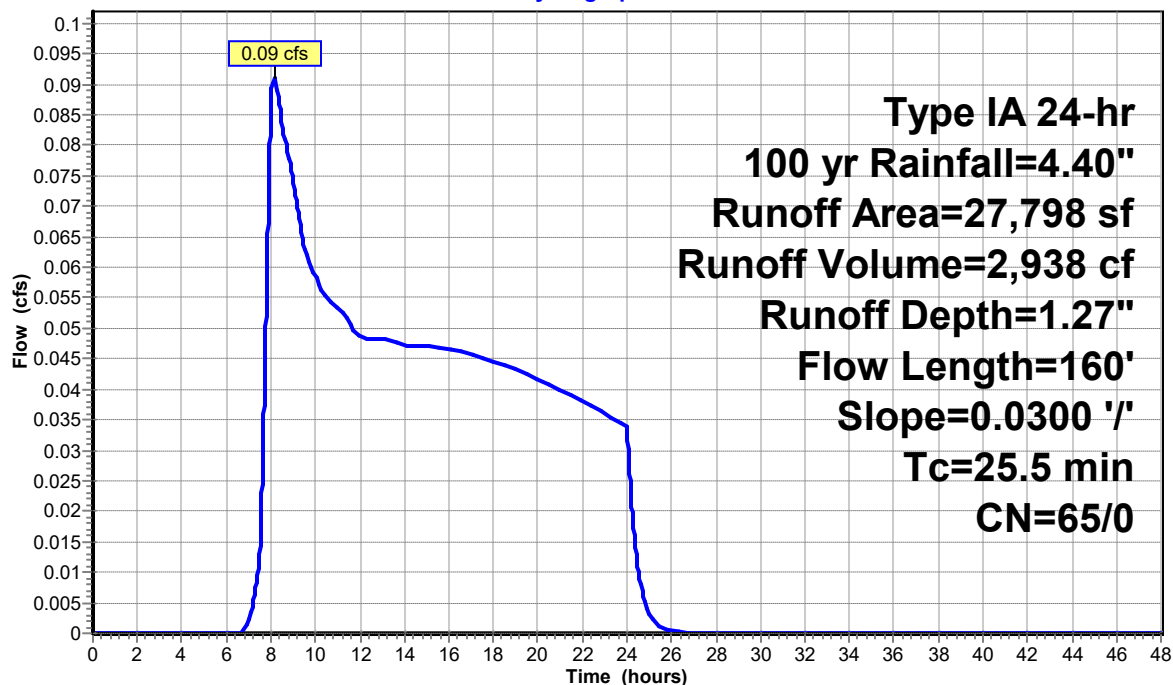
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100 yr Rainfall=4.40"

	Area (sf)	CN	Description
*	14,177	72	Salem Pre-Dev Soil Group C
*	13,621	58	Salem Pre-Dev Soil Group B
	27,798	65	Weighted Average
	27,798	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.5	160	0.0300	0.10		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"

Subcatchment X1: Development Area

Hydrograph



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Type IA 24-hr 100 yr Rainfall=4.40"

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Summary for Subcatchment X2: Offsite

Runoff = 0.52 cfs @ 8.10 hrs, Volume= 13,409 cf, Depth= 2.54"

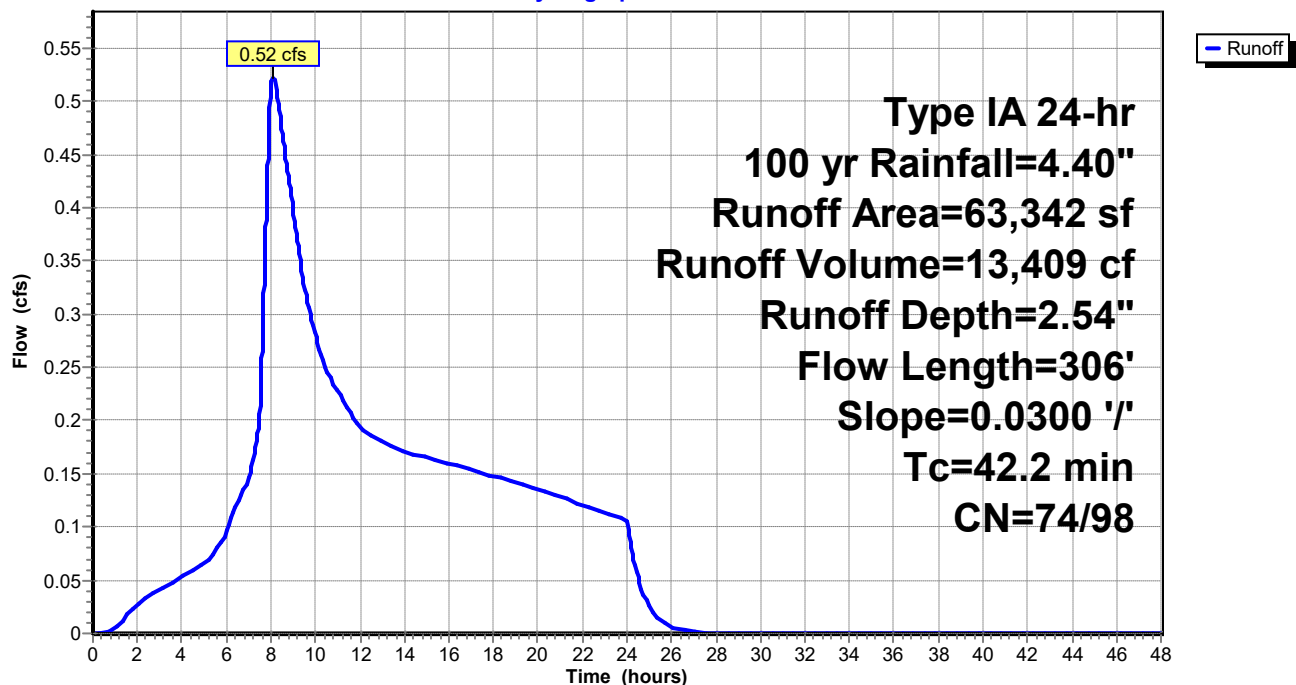
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100 yr Rainfall=4.40"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment X2: Offsite

Hydrograph



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Type IA 24-hr 100 yr Rainfall=4.40"

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Summary for Pond P1: Pond

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 2.72" for 100 yr event
Inflow = 0.94 cfs @ 8.01 hrs, Volume= 20,639 cf
Outflow = 0.71 cfs @ 8.48 hrs, Volume= 20,639 cf, Atten= 25%, Lag= 28.7 min
Discarded = 0.12 cfs @ 8.48 hrs, Volume= 6,356 cf
Primary = 0.59 cfs @ 8.48 hrs, Volume= 14,282 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 402.29' @ 8.48 hrs Surf.Area= 2,674 sf Storage= 1,451 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 26.4 min (784.9 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	401.50'	5,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
401.50	1,011	0	0
403.30	4,812	5,241	5,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	401.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	400.00'	10.000" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 400.00' / 399.50' S= 0.0050 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Device 2	401.58'	4.250" Horiz. 10-year Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 2	402.25'	24.000" x 24.000" Horiz. Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.12 cfs @ 8.48 hrs HW=402.29' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.59 cfs @ 8.48 hrs HW=402.29' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 0.59 cfs of 2.93 cfs potential flow)

↑ **3=10-year Orifice** (Orifice Controls 0.40 cfs @ 4.05 fps)

↑ **4=Overflow** (Weir Controls 0.19 cfs @ 0.63 fps)

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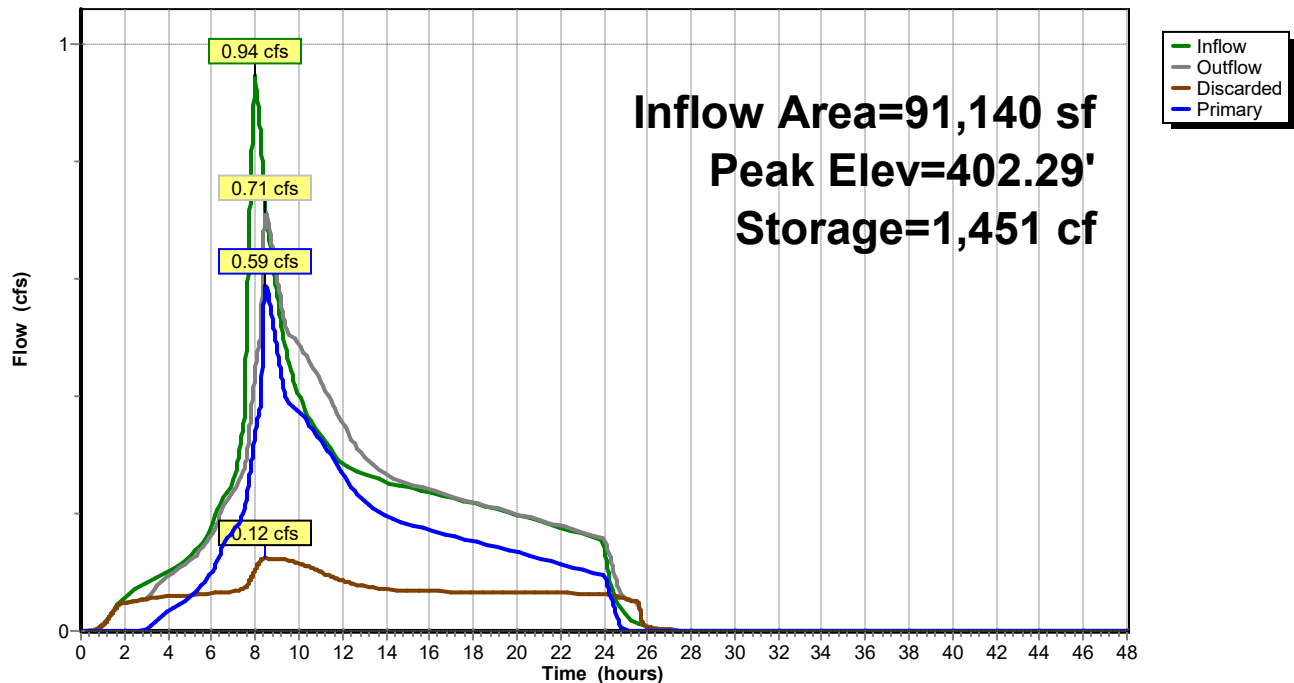
Type IA 24-hr 100 yr Rainfall=4.40"

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Pond P1: Pond

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Type IA 24-hr 100 yr Rainfall=4.40"

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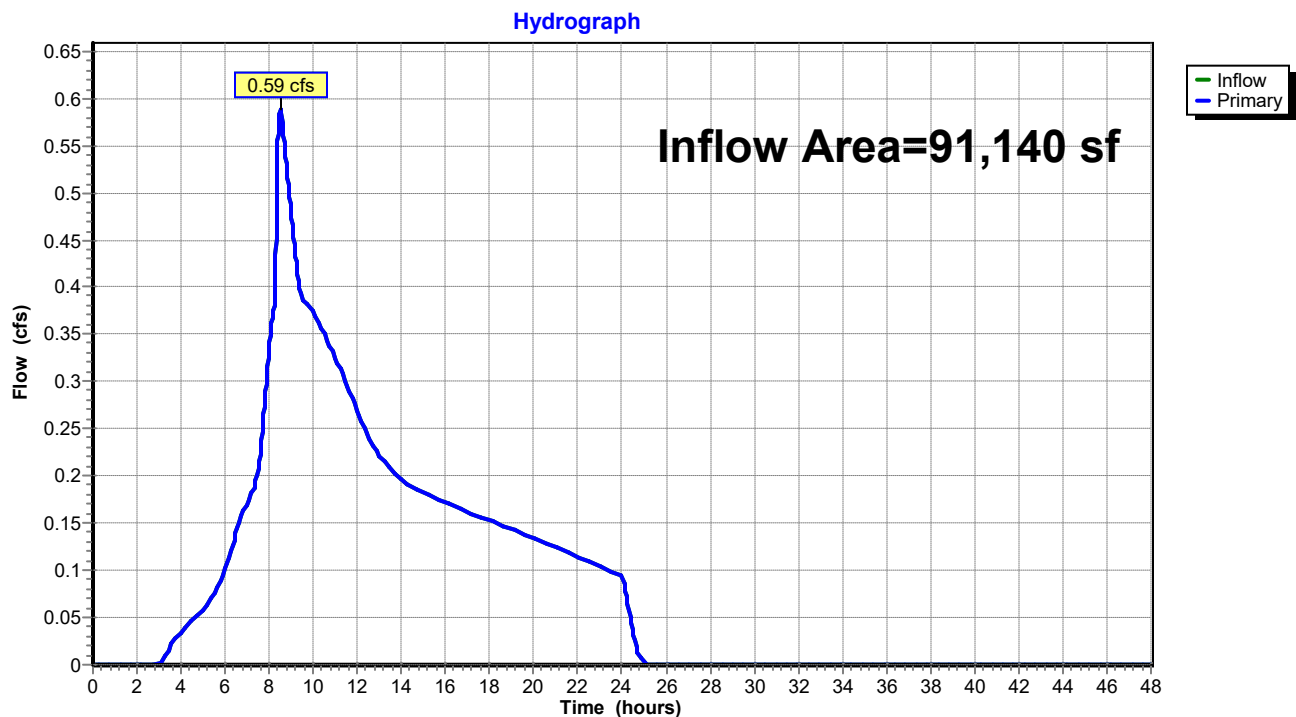
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Summary for Link POST: Post Development

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 1.88" for 100 yr event
Inflow = 0.59 cfs @ 8.48 hrs, Volume= 14,282 cf
Primary = 0.59 cfs @ 8.48 hrs, Volume= 14,282 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POST: Post Development



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Type IA 24-hr 100 yr Rainfall=4.40"

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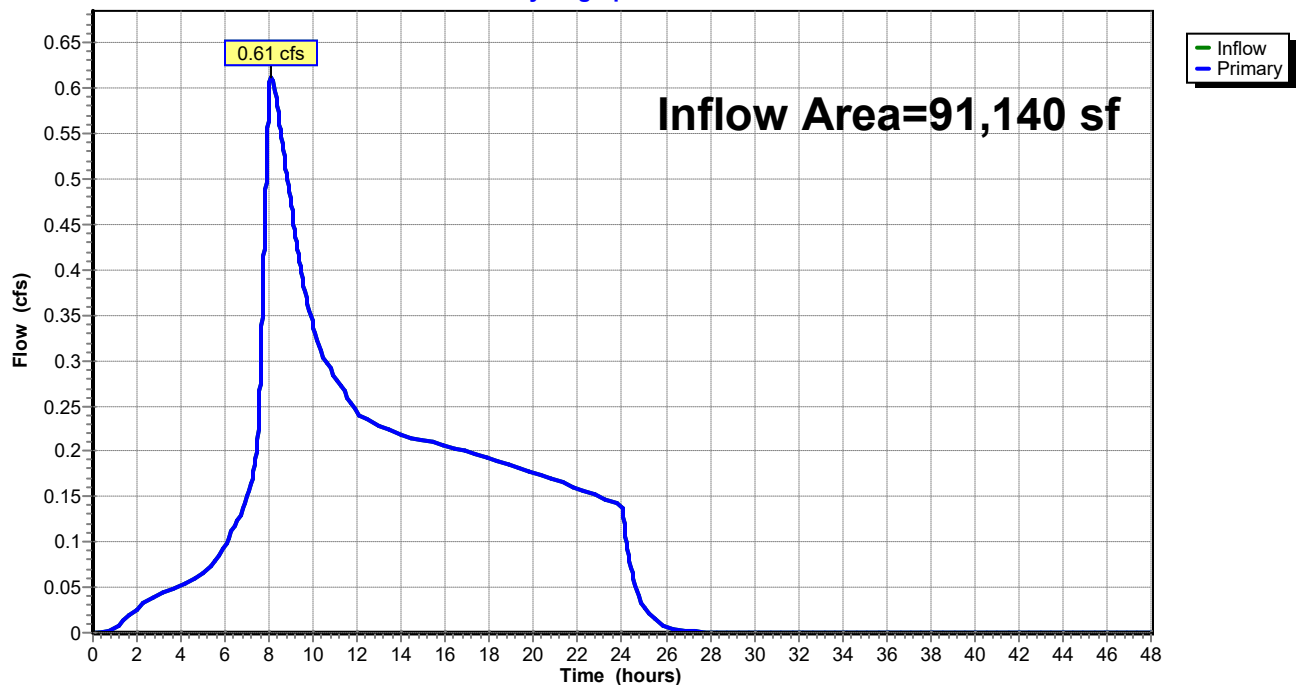
Summary for Link PRE: Pre Development

Inflow Area = 91,140 sf, 19.75% Impervious, Inflow Depth = 2.15" for 100 yr event
Inflow = 0.61 cfs @ 8.11 hrs, Volume= 16,347 cf
Primary = 0.61 cfs @ 8.11 hrs, Volume= 16,347 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PRE: Pre Development

Hydrograph



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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: Development Area Runoff Area=27,798 sf 54.00% Impervious Runoff Depth=0.50"
Flow Length=250' Tc=14.0 min CN=74/98 Runoff=0.07 cfs 1,154 cf

Subcatchment S2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=0.28"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.06 cfs 1,485 cf

Subcatchment X1: Development Area Runoff Area=27,798 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=160' Slope=0.0300 '/' Tc=25.5 min CN=65/0 Runoff=0.00 cfs 0 cf

Subcatchment X2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=0.28"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.06 cfs 1,485 cf

Pond P1: Pond Peak Elev=401.63' Storage=145 cf Inflow=0.13 cfs 2,639 cf
Discarded=0.06 cfs 2,498 cf Primary=0.04 cfs 140 cf Outflow=0.10 cfs 2,639 cf

Link POST: Post Development Inflow=0.04 cfs 140 cf
Primary=0.04 cfs 140 cf

Link PRE: Pre Development Inflow=0.06 cfs 1,485 cf
Primary=0.06 cfs 1,485 cf

Total Runoff Area = 182,280 sf Runoff Volume = 4,123 cf Average Runoff Depth = 0.27"
72.02% Pervious = 131,269 sf 27.98% Impervious = 51,011 sf

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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Summary for Subcatchment S1: Development Area

Runoff = 0.07 cfs @ 8.00 hrs, Volume= 1,154 cf, Depth= 0.50"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr Half-2 yr Rainfall=1.10"

	Area (sf)	CN	Description
*	7,374	98	Houses
*	1,680	98	Patio
*	1,056	98	Driveway
*	800	98	Annex Parking
*	755	98	Pond Pavement
*	3,346	98	Private Drive
*	12,787	74	Landscaping
	27,798	87	Weighted Average
	12,787	74	46.00% Pervious Area
	15,011	98	54.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0300	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 2.20"
0.1	100	0.0820	13.59	7.41	Pipe Channel, 10.000" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011
14.0	250	Total			

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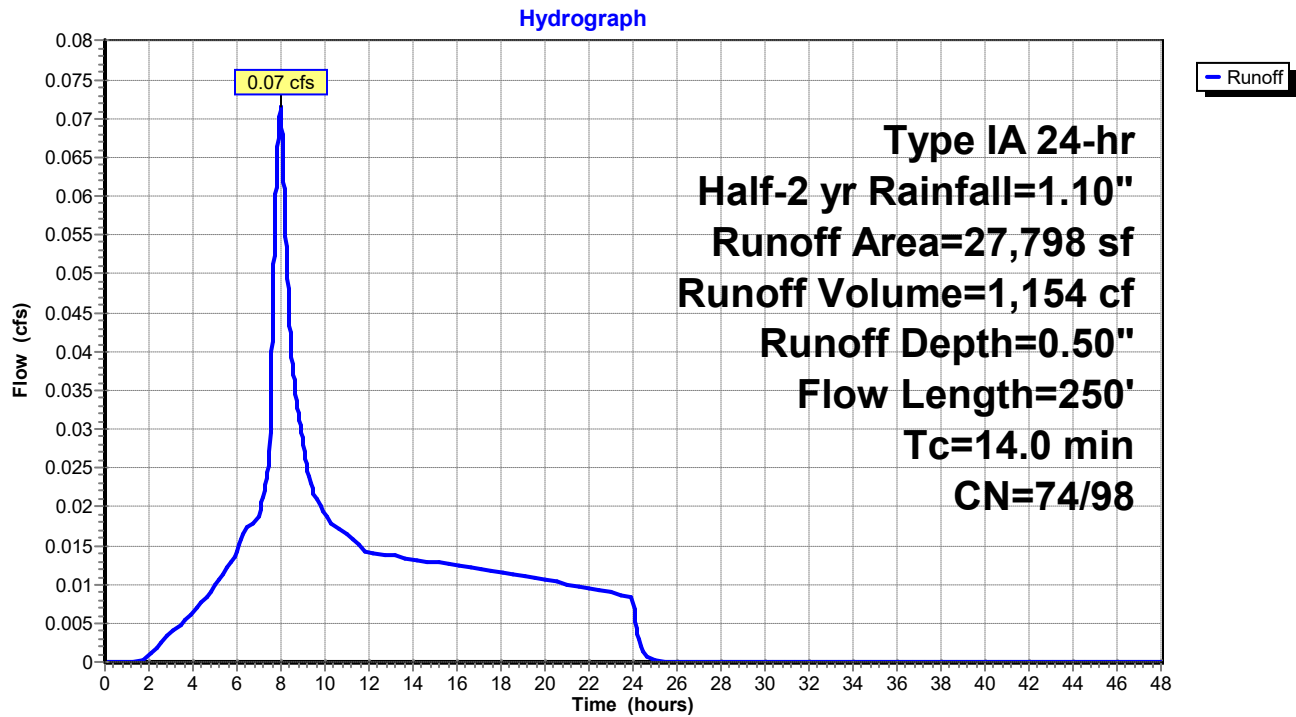
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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Subcatchment S1: Development Area



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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Summary for Subcatchment S2: Offsite

Runoff = 0.06 cfs @ 8.04 hrs, Volume= 1,485 cf, Depth= 0.28"

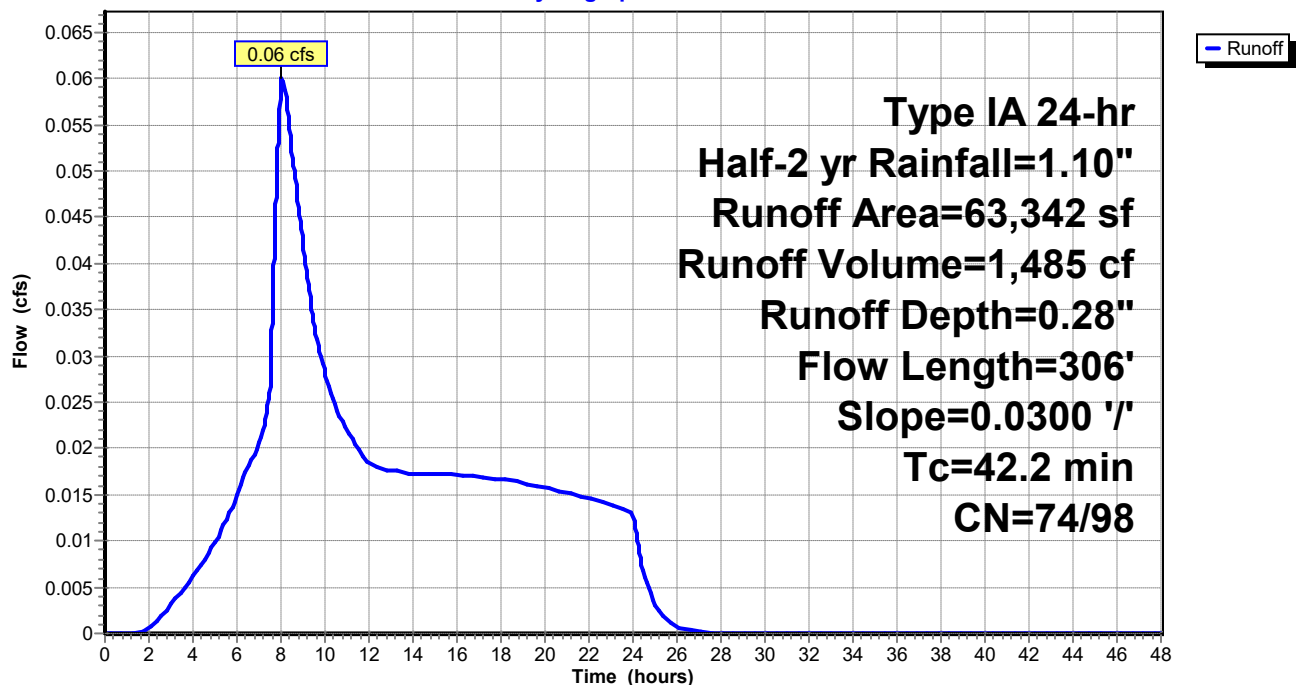
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr Half-2 yr Rainfall=1.10"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment S2: Offsite

Hydrograph



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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Summary for Subcatchment X1: Development Area

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0 cf, Depth= 0.00"

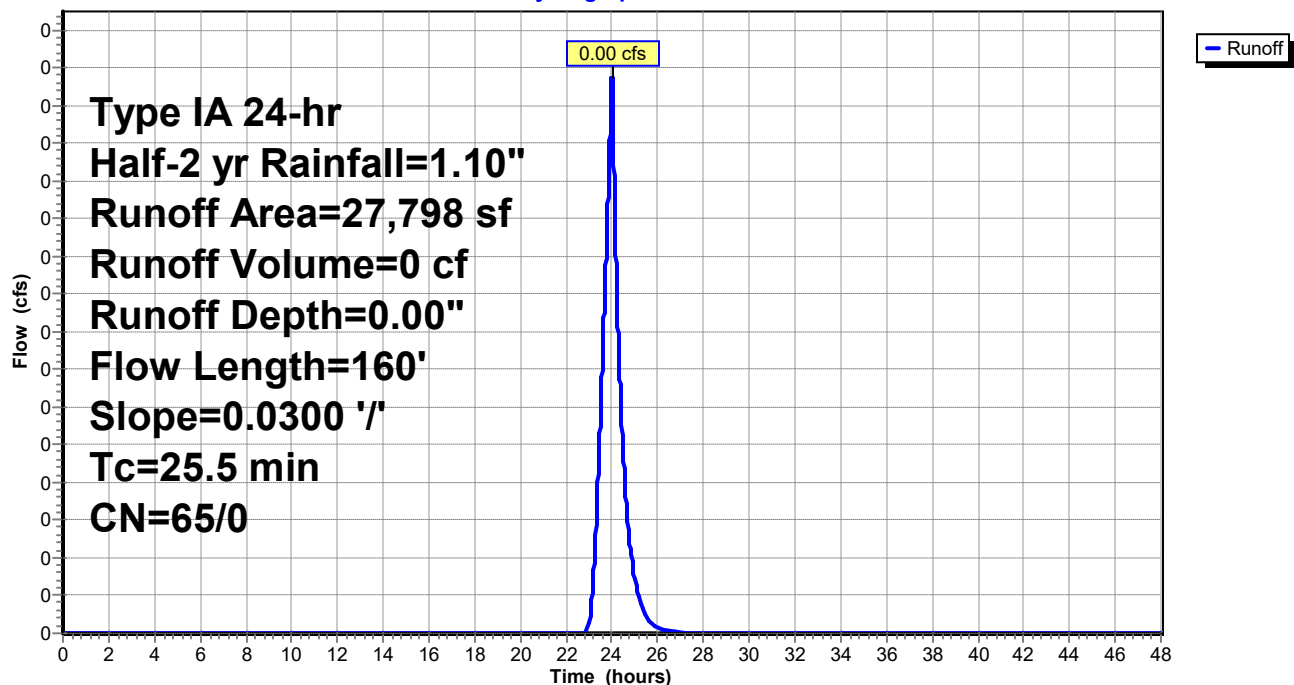
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr Half-2 yr Rainfall=1.10"

	Area (sf)	CN	Description
*	14,177	72	Salem Pre-Dev Soil Group C
*	13,621	58	Salem Pre-Dev Soil Group B
	27,798	65	Weighted Average
	27,798	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.5	160	0.0300	0.10		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"

Subcatchment X1: Development Area

Hydrograph



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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Summary for Subcatchment X2: Offsite

Runoff = 0.06 cfs @ 8.04 hrs, Volume= 1,485 cf, Depth= 0.28"

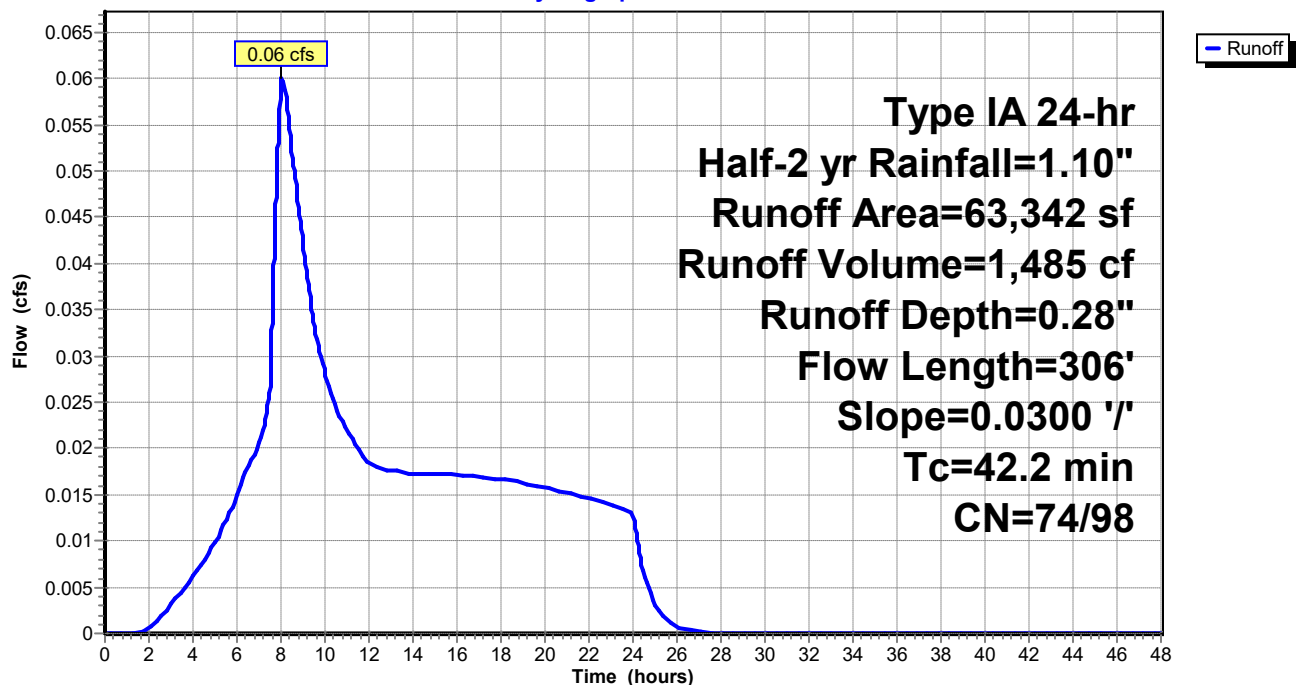
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr Half-2 yr Rainfall=1.10"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment X2: Offsite

Hydrograph



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Type IA 24-hr Half-2 yr Rainfall=1.10"

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Summary for Pond P1: Pond

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 0.35" for Half-2 yr event
Inflow = 0.13 cfs @ 8.00 hrs, Volume= 2,639 cf
Outflow = 0.10 cfs @ 8.43 hrs, Volume= 2,639 cf, Atten= 27%, Lag= 25.4 min
Discarded = 0.06 cfs @ 8.43 hrs, Volume= 2,498 cf
Primary = 0.04 cfs @ 8.43 hrs, Volume= 140 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 401.63' @ 8.43 hrs Surf.Area= 1,279 sf Storage= 145 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 10.6 min (774.8 - 764.2)

Volume	Invert	Avail.Storage	Storage Description
#1	401.50'	5,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
401.50	1,011	0	0
403.30	4,812	5,241	5,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	401.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	400.00'	10.000" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 400.00' / 399.50' S= 0.0050 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Device 2	401.58'	4.250" Horiz. 10-year Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 2	402.25'	24.000" x 24.000" Horiz. Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 8.43 hrs HW=401.63' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.04 cfs @ 8.43 hrs HW=401.63' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 0.04 cfs of 2.38 cfs potential flow)

↑ **3=10-year Orifice** (Weir Controls 0.04 cfs @ 0.71 fps)

↑ **4=Overflow** (Controls 0.00 cfs)

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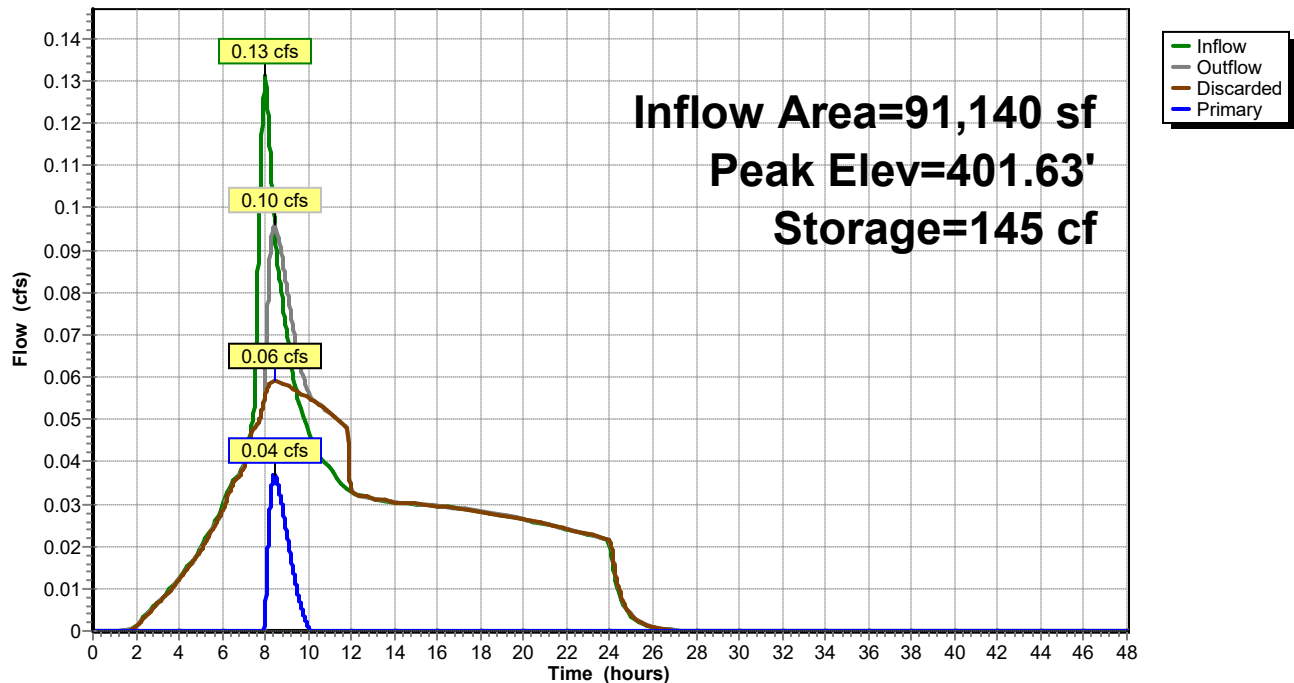
Type IA 24-hr Half-2 yr Rainfall=1.10"

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Pond P1: Pond

Hydrograph



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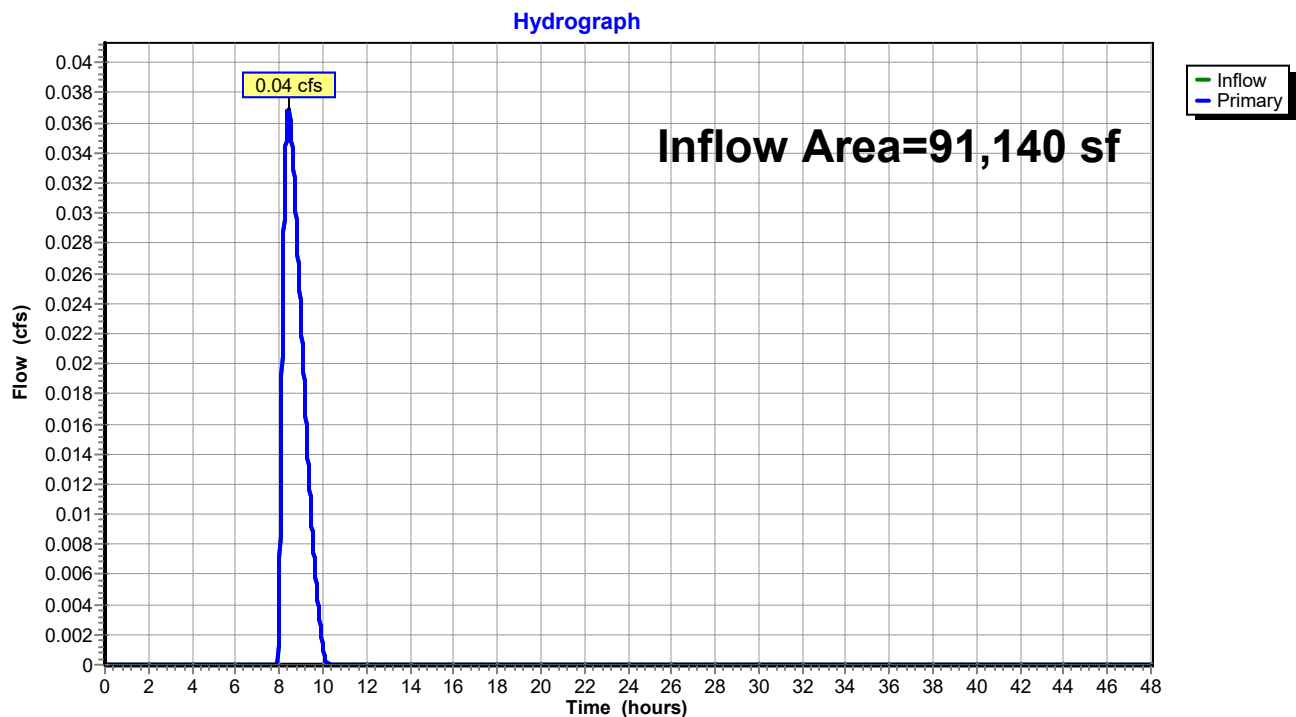
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Summary for Link POST: Post Development

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 0.02" for Half-2 yr event
Inflow = 0.04 cfs @ 8.43 hrs, Volume= 140 cf
Primary = 0.04 cfs @ 8.43 hrs, Volume= 140 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POST: Post Development



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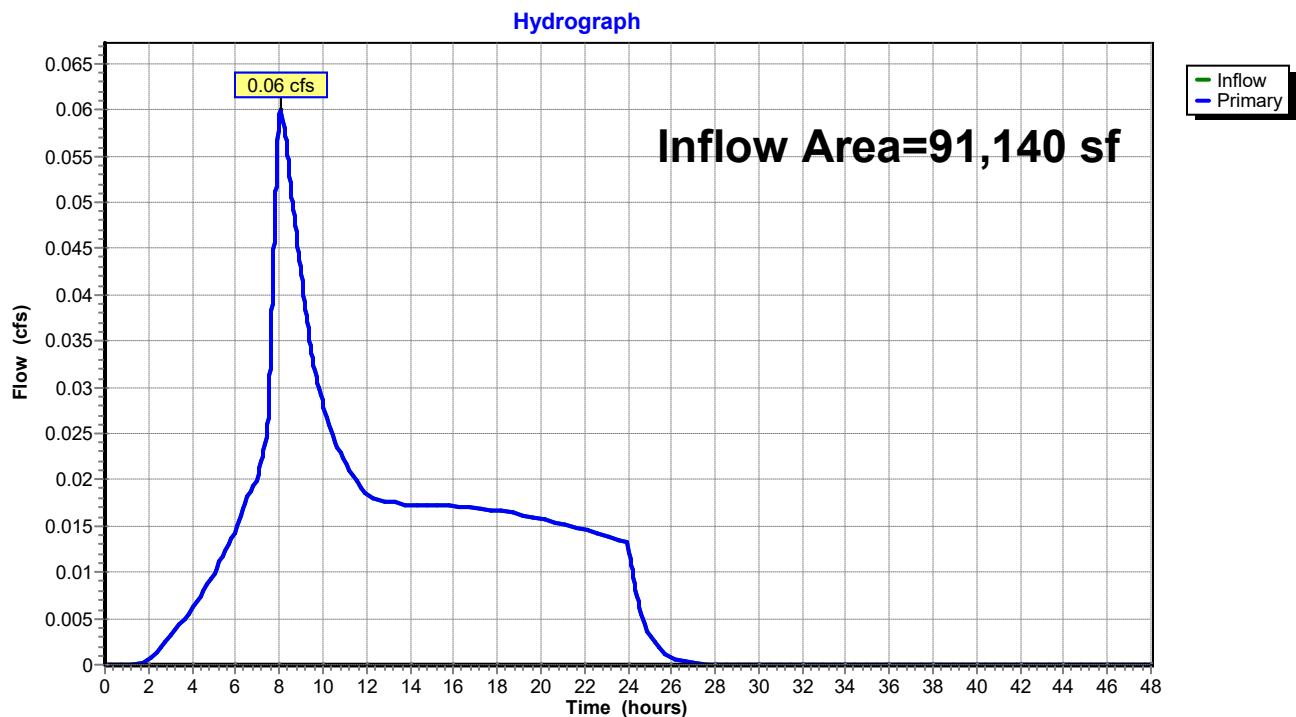
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Summary for Link PRE: Pre Development

Inflow Area = 91,140 sf, 19.75% Impervious, Inflow Depth = 0.20" for Half-2 yr event
Inflow = 0.06 cfs @ 8.04 hrs, Volume= 1,485 cf
Primary = 0.06 cfs @ 8.04 hrs, Volume= 1,485 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PRE: Pre Development



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Type IA 24-hr WQ Rainfall=1.38"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: Development Area Runoff Area=27,798 sf 54.00% Impervious Runoff Depth=0.68"
Flow Length=250' Tc=14.0 min CN=74/98 Runoff=0.09 cfs 1,570 cf

Subcatchment S2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=0.41"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.08 cfs 2,157 cf

Subcatchment X1: Development Area Runoff Area=27,798 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=160' Slope=0.0300 '/' Tc=25.5 min CN=65/0 Runoff=0.00 cfs 37 cf

Subcatchment X2: Offsite Runoff Area=63,342 sf 28.42% Impervious Runoff Depth=0.41"
Flow Length=306' Slope=0.0300 '/' Tc=42.2 min CN=74/98 Runoff=0.08 cfs 2,157 cf

Pond P1: Pond Peak Elev=401.66' Storage=184 cf Inflow=0.17 cfs 3,727 cf
Discarded=0.06 cfs 3,354 cf Primary=0.08 cfs 373 cf Outflow=0.14 cfs 3,727 cf

Link POST: Post Development Inflow=0.08 cfs 373 cf
Primary=0.08 cfs 373 cf

Link PRE: Pre Development Inflow=0.08 cfs 2,194 cf
Primary=0.08 cfs 2,194 cf

Total Runoff Area = 182,280 sf Runoff Volume = 5,921 cf Average Runoff Depth = 0.39"
72.02% Pervious = 131,269 sf 27.98% Impervious = 51,011 sf

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Type IA 24-hr WQ Rainfall=1.38"

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Summary for Subcatchment S1: Development Area

Runoff = 0.09 cfs @ 8.00 hrs, Volume= 1,570 cf, Depth= 0.68"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (sf)	CN	Description
*	7,374	98	Houses
*	1,680	98	Patio
*	1,056	98	Driveway
*	800	98	Annex Parking
*	755	98	Pond Pavement
*	3,346	98	Private Drive
*	12,787	74	Landscaping
	27,798	87	Weighted Average
	12,787	74	46.00% Pervious Area
	15,011	98	54.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0300	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 2.20"
0.1	100	0.0820	13.59	7.41	Pipe Channel, 10.000" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011
14.0	250	Total			

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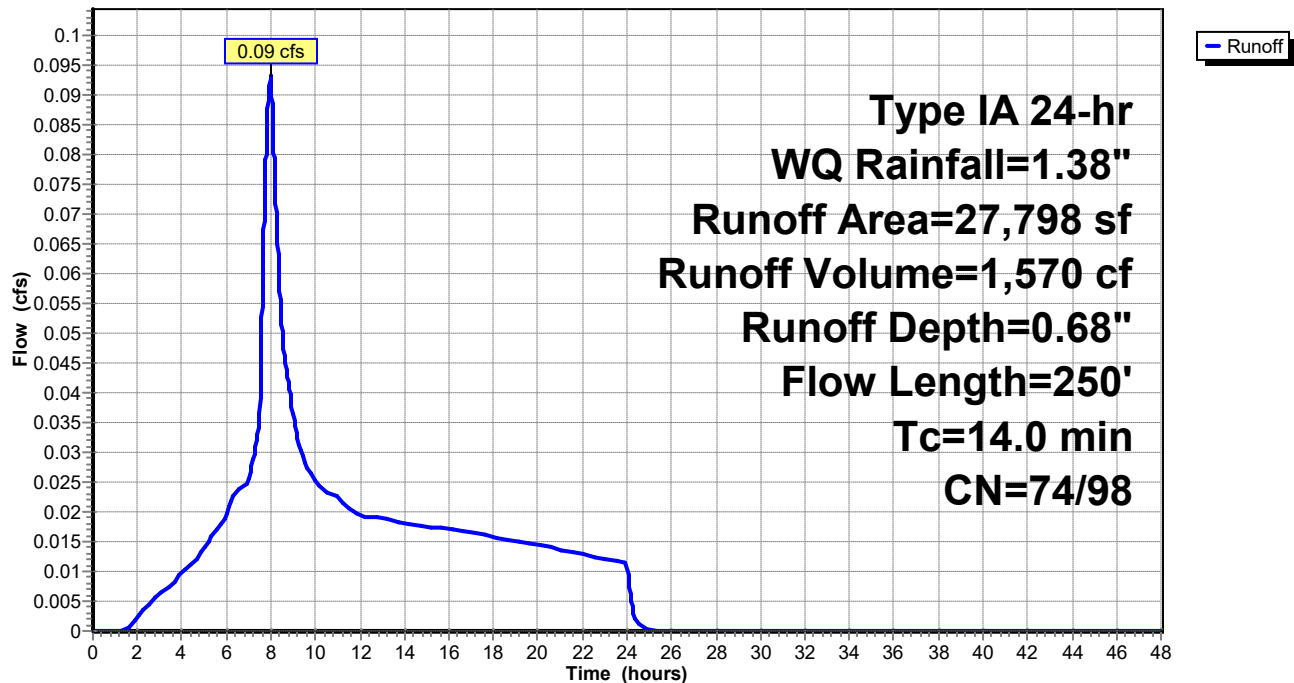
Type IA 24-hr WQ Rainfall=1.38"

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Subcatchment S1: Development Area

Hydrograph



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Summary for Subcatchment S2: Offsite

Runoff = 0.08 cfs @ 8.04 hrs, Volume= 2,157 cf, Depth= 0.41"

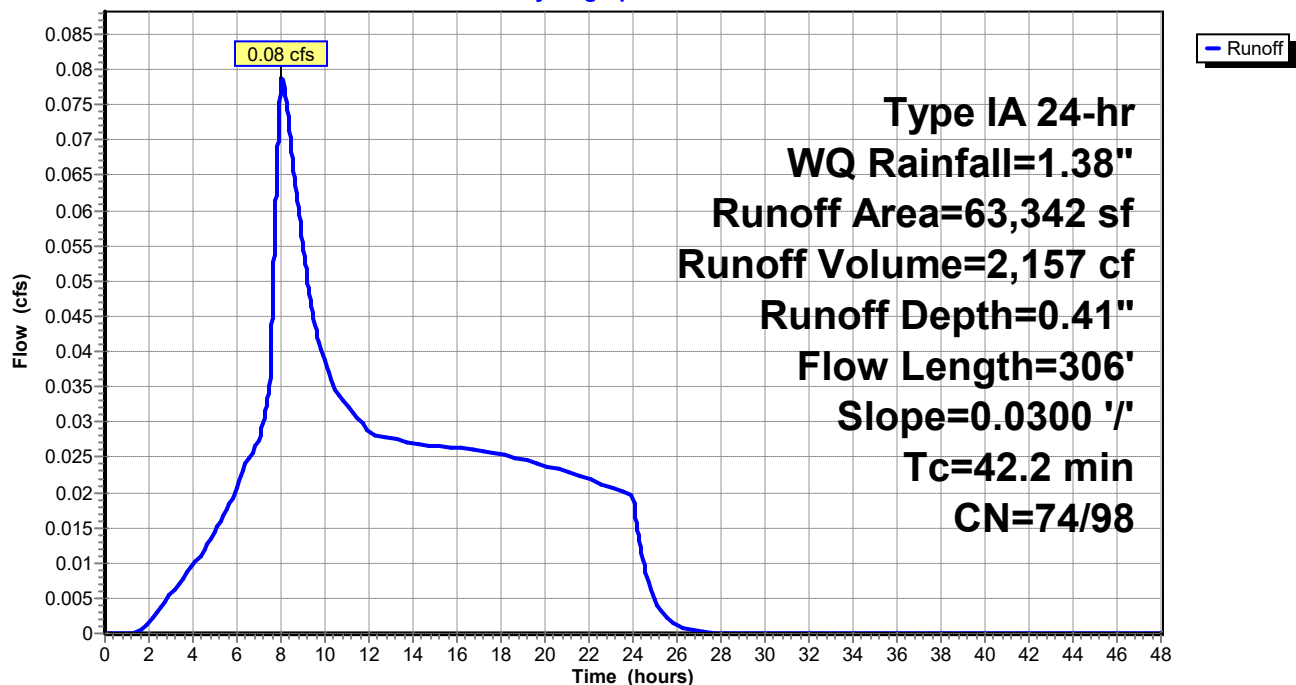
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.38"

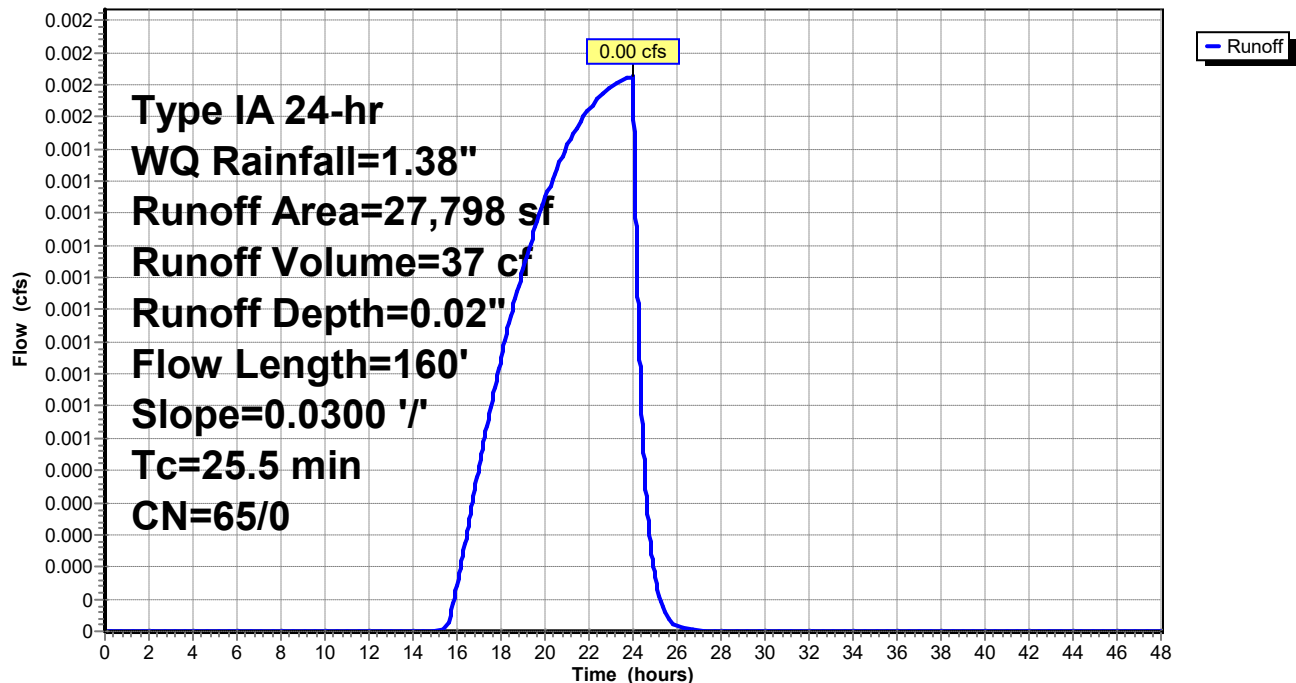
	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment S2: Offsite

Hydrograph





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Type IA 24-hr WQ Rainfall=1.38"

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Summary for Subcatchment X2: Offsite

Runoff = 0.08 cfs @ 8.04 hrs, Volume= 2,157 cf, Depth= 0.41"

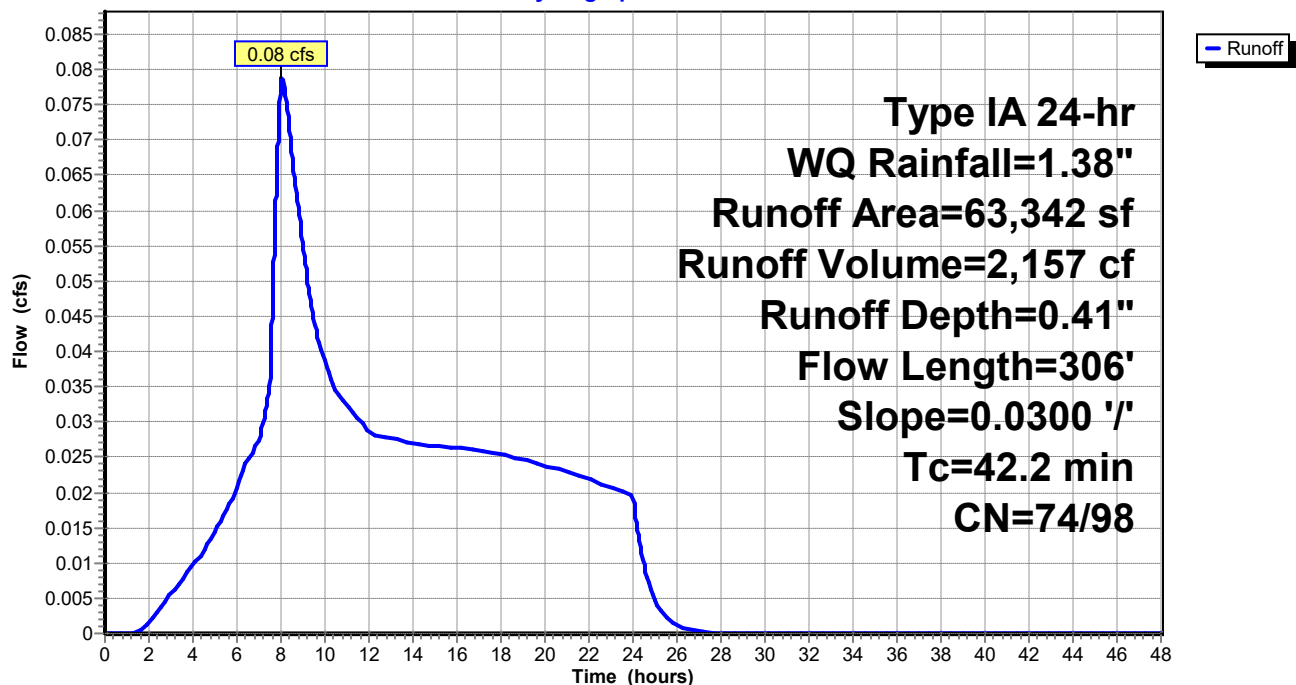
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (sf)	CN	Description
*	45,342	74	Landscaping
*	18,000	98	Impervious
	63,342	81	Weighted Average
	45,342	74	71.58% Pervious Area
	18,000	98	28.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.1	300	0.0300	0.12		Sheet Flow, Sheet Flow n= 0.300 P2= 2.20"
0.1	6	0.0300	1.21		Shallow Concentrated Flow, Channel Flow Short Grass Pasture Kv= 7.0 fps
42.2	306	Total			

Subcatchment X2: Offsite

Hydrograph



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Type IA 24-hr WQ Rainfall=1.38"

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Summary for Pond P1: Pond

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 0.49" for WQ event
Inflow = 0.17 cfs @ 8.00 hrs, Volume= 3,727 cf
Outflow = 0.14 cfs @ 8.29 hrs, Volume= 3,727 cf, Atten= 19%, Lag= 17.5 min
Discarded = 0.06 cfs @ 8.29 hrs, Volume= 3,354 cf
Primary = 0.08 cfs @ 8.29 hrs, Volume= 373 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 401.66' @ 8.29 hrs Surf.Area= 1,342 sf Storage= 184 cf

Plug-Flow detention time= 13.2 min calculated for 3,727 cf (100% of inflow)

Center-of-Mass det. time= 13.2 min (784.5 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	401.50'	5,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
401.50	1,011	0	0
403.30	4,812	5,241	5,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	401.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	400.00'	10.000" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 400.00' / 399.50' S= 0.0050 ' / ' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Device 2	401.58'	4.250" Horiz. 10-year Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 2	402.25'	24.000" x 24.000" Horiz. Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 8.29 hrs HW=401.66' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.08 cfs @ 8.29 hrs HW=401.66' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 0.08 cfs of 2.41 cfs potential flow)

↑ **3=10-year Orifice** (Weir Controls 0.08 cfs @ 0.91 fps)

↑ **4=Overflow** (Controls 0.00 cfs)

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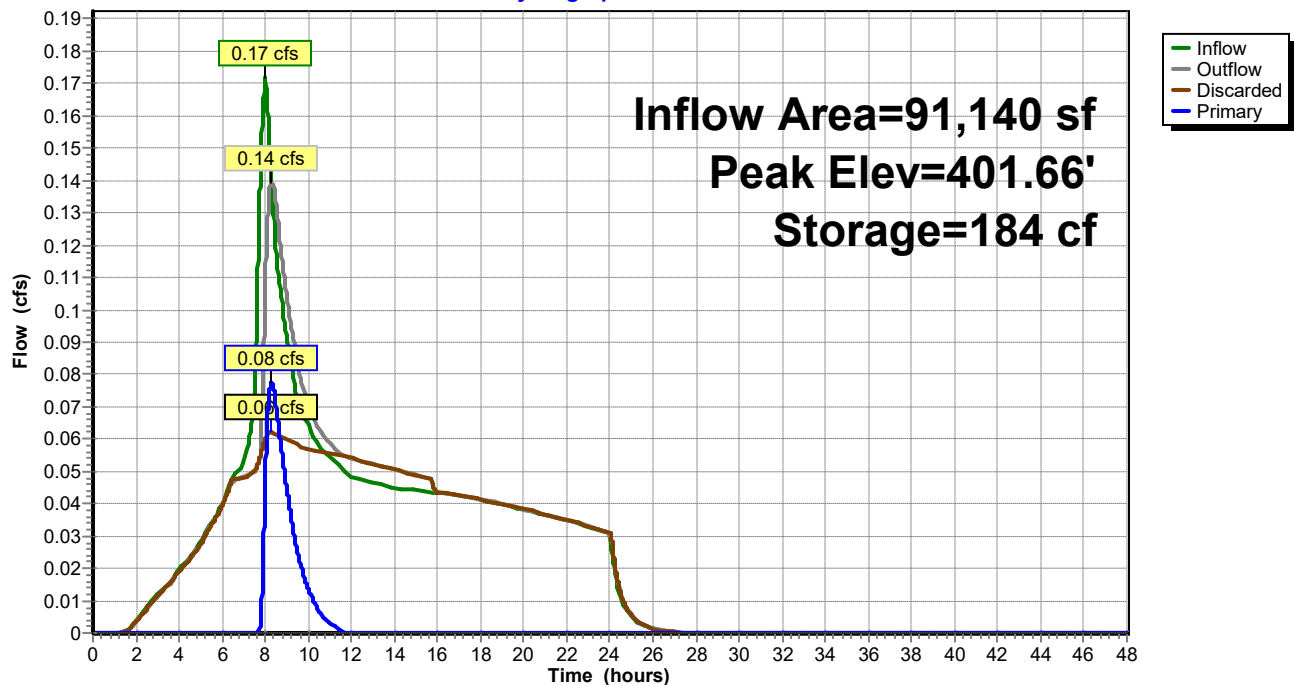
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Type IA 24-hr WQ Rainfall=1.38"

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Pond P1: Pond

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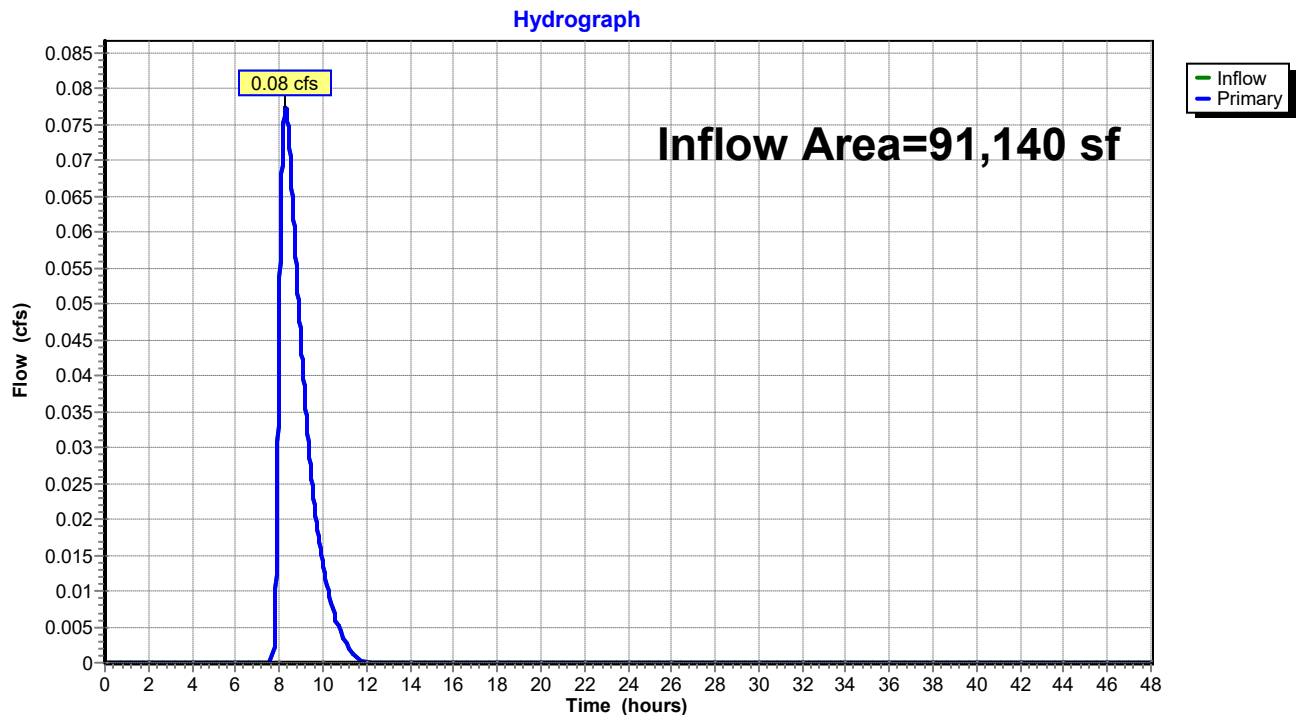
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Summary for Link POST: Post Development

Inflow Area = 91,140 sf, 36.22% Impervious, Inflow Depth = 0.05" for WQ event
Inflow = 0.08 cfs @ 8.29 hrs, Volume= 373 cf
Primary = 0.08 cfs @ 8.29 hrs, Volume= 373 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POST: Post Development



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Type IA 24-hr WQ Rainfall=1.38"

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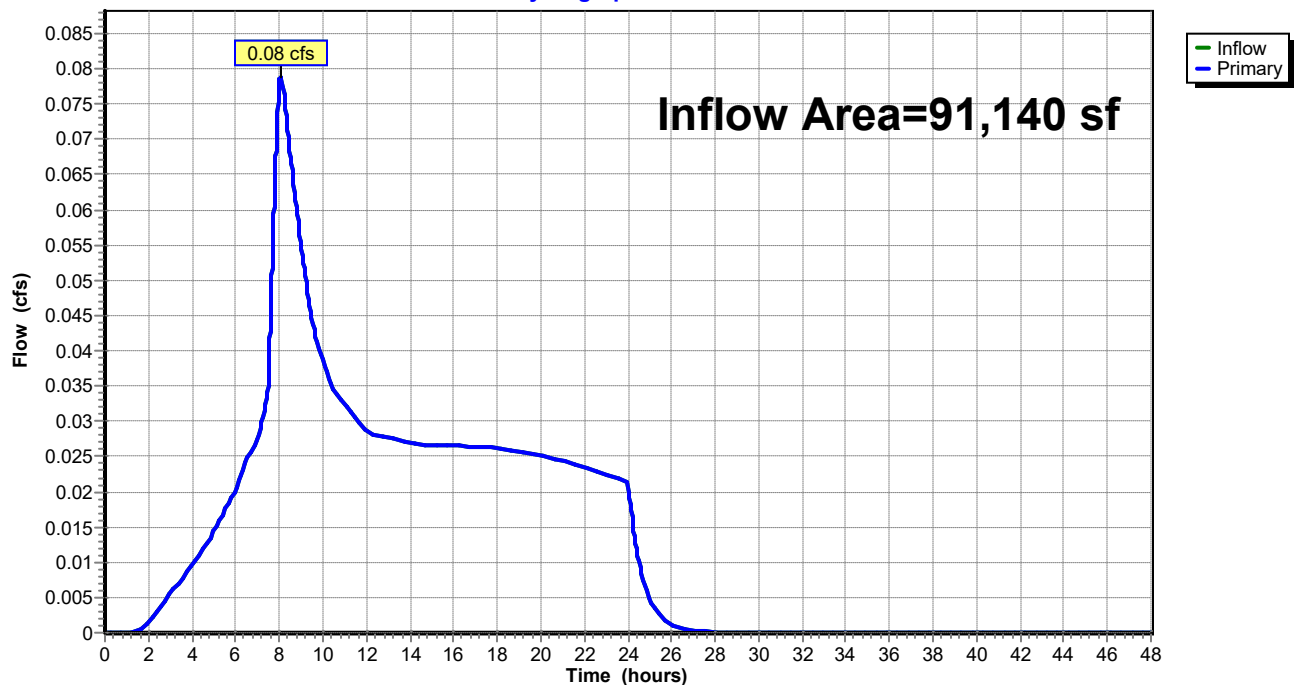
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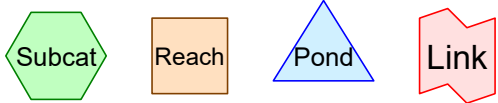
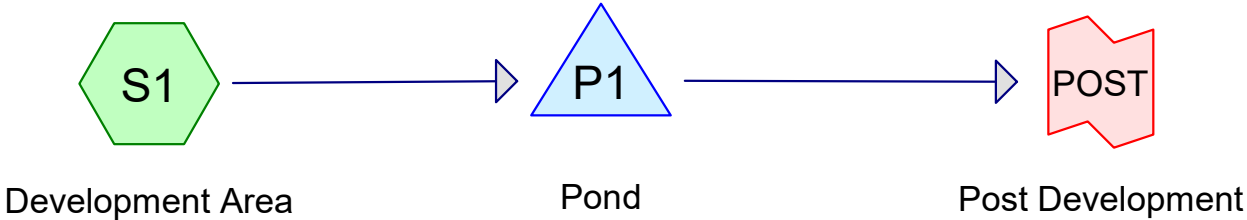
Inflow Area = 91,140 sf, 19.75% Impervious, Inflow Depth = 0.29" for WQ event
Inflow = 0.08 cfs @ 8.04 hrs, Volume= 2,194 cf
Primary = 0.08 cfs @ 8.04 hrs, Volume= 2,194 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PRE: Pre Development

Hydrograph





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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
800	98	Annex Parking (S1)
1,056	98	Driveway (S1)
7,374	98	Houses (S1)
12,787	74	Landscaping (S1)
1,680	98	Patio (S1)
755	98	Pond Pavement (S1)
3,346	98	Private Drive (S1)
27,798	87	TOTAL AREA

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	S1	0.00	0.00	415.0	0.0820	0.011	10.000	0.000	0.000

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Type IA 24-hr WQ Rainfall=1.38"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: Development Area

Runoff Area=27,798 sf 54.00% Impervious Runoff Depth=0.68"
Flow Length=565' Tc=14.4 min CN=74/98 Runoff=0.09 cfs 1,570 cf

Pond P1: Pond

Peak Elev=401.58' Storage=83 cf Inflow=0.09 cfs 1,570 cf
Outflow=0.05 cfs 1,570 cf

Link POST: Post Development

Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Total Runoff Area = 27,798 sf Runoff Volume = 1,570 cf Average Runoff Depth = 0.68"
46.00% Pervious = 12,787 sf 54.00% Impervious = 15,011 sf

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Type IA 24-hr WQ Rainfall=1.38"

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Summary for Subcatchment S1: Development Area

Runoff = 0.09 cfs @ 8.00 hrs, Volume= 1,570 cf, Depth= 0.68"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.38"

	Area (sf)	CN	Description
*	7,374	98	Houses
*	1,680	98	Patio
*	1,056	98	Driveway
*	800	98	Annex Parking
*	755	98	Pond Pavement
*	3,346	98	Private Drive
*	12,787	74	Landscaping
	27,798	87	Weighted Average
	12,787	74	46.00% Pervious Area
	15,011	98	54.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0300	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 2.20"
0.5	415	0.0820	13.59	7.41	Pipe Channel, 10.000" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011
14.4	565	Total			

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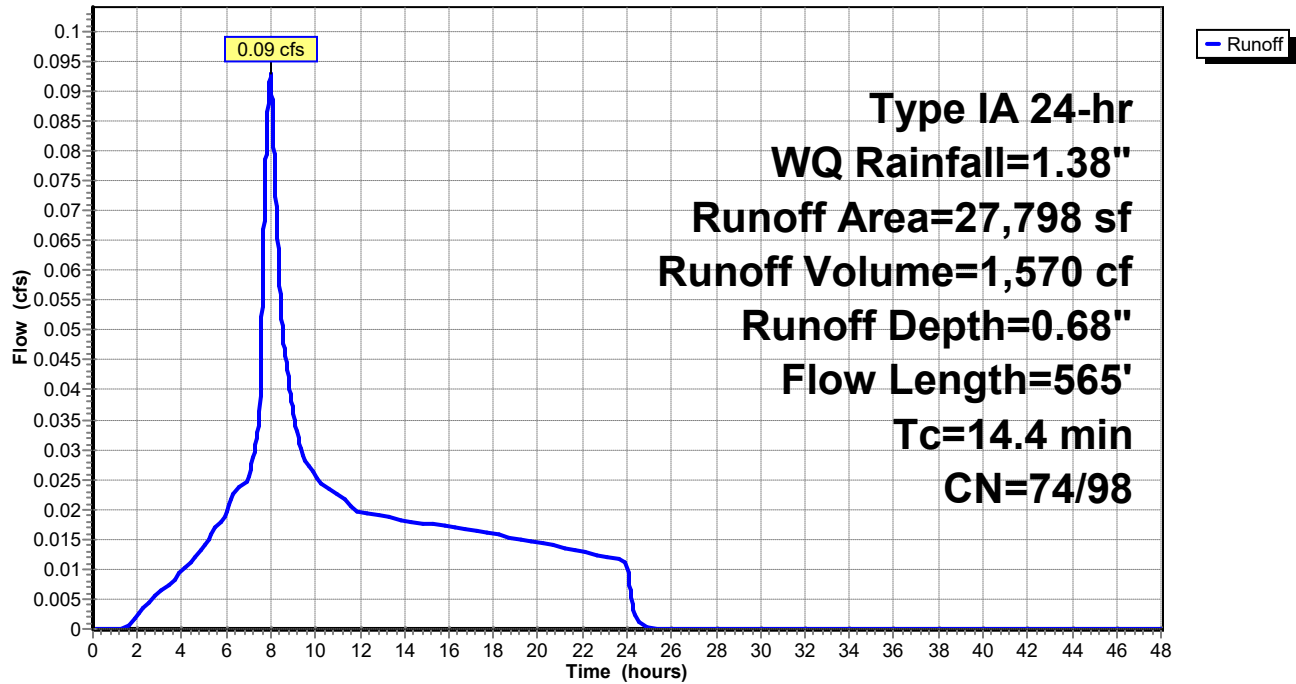
Type IA 24-hr WQ Rainfall=1.38"

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Subcatchment S1: Development Area

Hydrograph



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Type IA 24-hr WQ Rainfall=1.38"

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Summary for Pond P1: Pond

Inflow Area = 27,798 sf, 54.00% Impervious, Inflow Depth = 0.68" for WQ event
Inflow = 0.09 cfs @ 8.00 hrs, Volume= 1,570 cf
Outflow = 0.05 cfs @ 8.44 hrs, Volume= 1,570 cf, Atten= 42%, Lag= 26.6 min
Discarded = 0.05 cfs @ 8.44 hrs, Volume= 1,570 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 401.58' @ 8.44 hrs Surf.Area= 1,171 sf Storage= 83 cf

Plug-Flow detention time= 7.0 min calculated for 1,570 cf (100% of inflow)

Center-of-Mass det. time= 7.0 min (738.5 - 731.5)

Volume	Invert	Avail.Storage	Storage Description
#1	401.50'	5,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
401.50	1,011	0	0
403.30	4,812	5,241	5,241

Device	Routing	Invert	Outlet Devices
#1	Discarded	401.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 8.44 hrs HW=401.58' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

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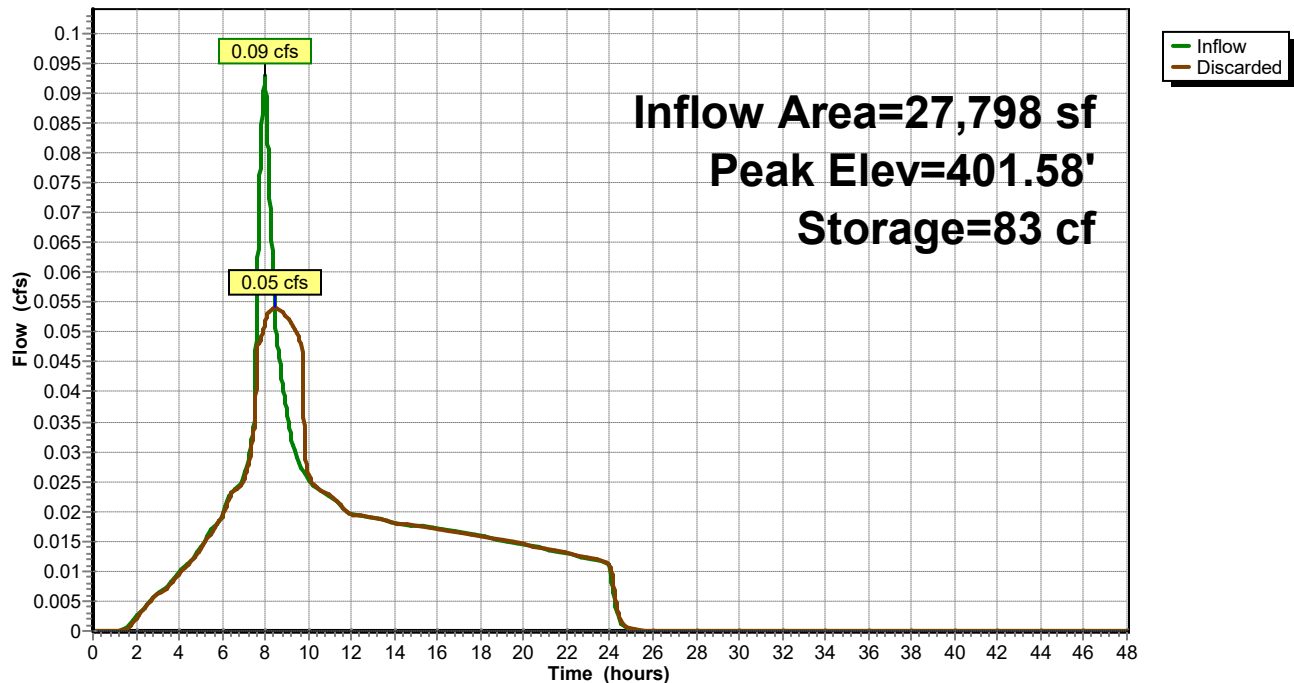
22-412 Meredith Heights
Type IA 24-hr WQ Rainfall=1.38"

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Pond P1: Pond

Hydrograph



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Type IA 24-hr WQ Rainfall=1.38"

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Summary for Link POST: Post Development

Inflow Area = 27,798 sf, 54.00% Impervious, Inflow Depth = 0.00" for WQ event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POST: Post Development

