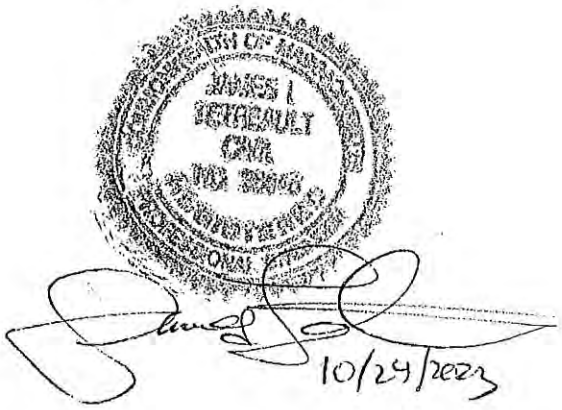
DRAINAGE REPORT

for

RICE POND VILLAGE
A PROPOSED RESIDENTIAL DEVELOPMENT
AT 17 RICE ROAD, MILLBURY

OCTOBER 24, 2023



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INTRODUCTION

The proposed Rice Pond Village development is an apartment development of three buildings each with 64 units for a total of 192 and located at 17 Rice Road in Millbury. The site has an area of 15.6 acres and contains one single family home, a garage and pool area with a large lawn around it but is otherwise undeveloped and wooded.

The topography of the site is defined by a ridge in the middle of the site which separates areas sloping downward to the northeast to the abutting Providence & Worcester Railroad property from areas sloping downward to the southwesterly side of the property to an existing unnamed pond.

The pond receives overland runoff from this site and also from abutters to the south of this property, having frontage on Rice Road. In addition, it receives runoff from some 58 acres of the residential areas south of South Main Street.

A copy of the Web Soil Survey by NRCS is included at the back of this Report and it shows that soils on site are almost all Merrimac series soils categorized as hydrologic soil group A soils. We have excavated some official deep observation holes on site and, at several of these, observed soils had a sandy loam texture inconsistent with that mapping. Nevertheless, this report makes the conservative assumption that that mapping is correct.

There is a small area of Scarboro & Walpole series soils categorized as hydrologic soil group D soils immediately south of the unnamed pond.

There is also a small area of Canton series soils categorized as hydrologic soil group B soils at the southwesterly corner of the property and the entirety of the above referenced offsite drainage area lies over hydrologic soil group B soils, mostly Canton series soils.

Because wooded cover is being converted to lawn and landscaped areas, paved driveways, parking and roofs, the rate of stormwater runoff from the site would increase if no measures were taken to prevent it.

Except for the first few feet of the proposed entrance drive, all of the runoff from the new impervious surfaces will be collected by the site's drainage system and infiltrated.

Roof runoff from building #3 as well as nearly all the proposed parking area will be directed to infiltration structure #1 located near the abutting railroad property.

Roof runoff from building #1, from the clubhouse and a small portion of the parking area will be directed to infiltration structure #2 located on the west side of the proposed entrance driveway.

Roof runoff from building #1 will be directed to infiltration structure #3 located on the east side of the proposed entrance driveway.

In all three cases, because of the very significant size of the proposed structures and because they are located in sand texture soils, there will be no piped outflow of stormwater, even in the 100 year storm event.

The body of this report contains the results of drainage calculations performed for the predevelopment and postdevelopment conditions during 2, 10, 25 and 100 year return frequency type III storm events. The 24 hour rainfalls associated with these storms are 3.15, 4.70, 5.90 and 8.35 inches respectively. Calculations were made using the HydroCAD stormwater modeling program. This program calculates hydrographs using a method very similar to that outlined in the Soil Conservation Service Technical Release Number 20 (TR-20). HydroCAD uses the TR-20 "curve number" evaluations of ground cover and the same times of concentration.

In calculating runoff, we have made certain assumptions. We assume that the maximum distance over which sheet flow will occur is 50 feet.

The following table compares the peak predevelopment and postdevelopment flows of stormwater at the design point:

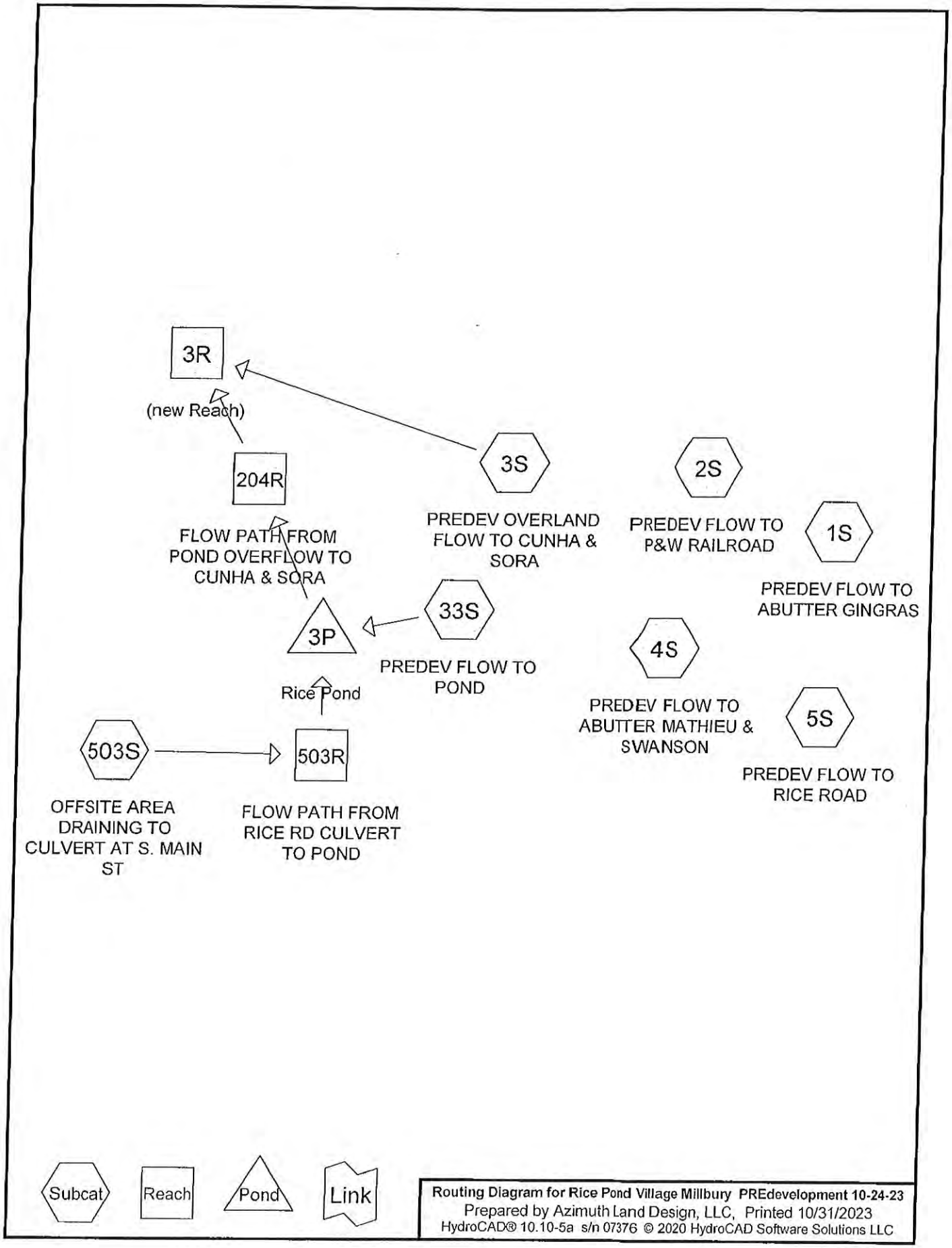
DESIGN POINT

	PEAK FLOW RATE (in cfs)			
	2 yr storm	10 yr storm	25 yr storm	100 yr storm
Abutter Gingras property line				
Subcat #1 pre	0.00 pre	0.00 pre	0.02 pre	0.21 pre
Subcat #11 post	0.00	0.00	0.00	0.05
Providence & Worcester railroad property line				
Subcat #2 pre	0.00 pre	0.01	0.10 pre	1.63 pre
Subcat #12 post	0.00	0.01	0.05	0.69
Abutter Cunha & Sora property line				
Reach #3 pre	20.17 pre	57.61 pre	91.16 pre	166.14 pre
Reach #13 post	20.06	56.58	88.92	160.44
Abutter Mathieu & Swanson property line				
Subcat #4 pre	0.00 pre	0.00 pre	0.00 pre	0.08 pre
Subcat #14 post	0.00	0.01	0.03	0.26
Rice Road right of way line				
Subcat #5 pre	0.00 pre	0.06 pre	0.31 pre	1.61 pre
Subcat #15 post	0.00	0.01	0.06	0.35

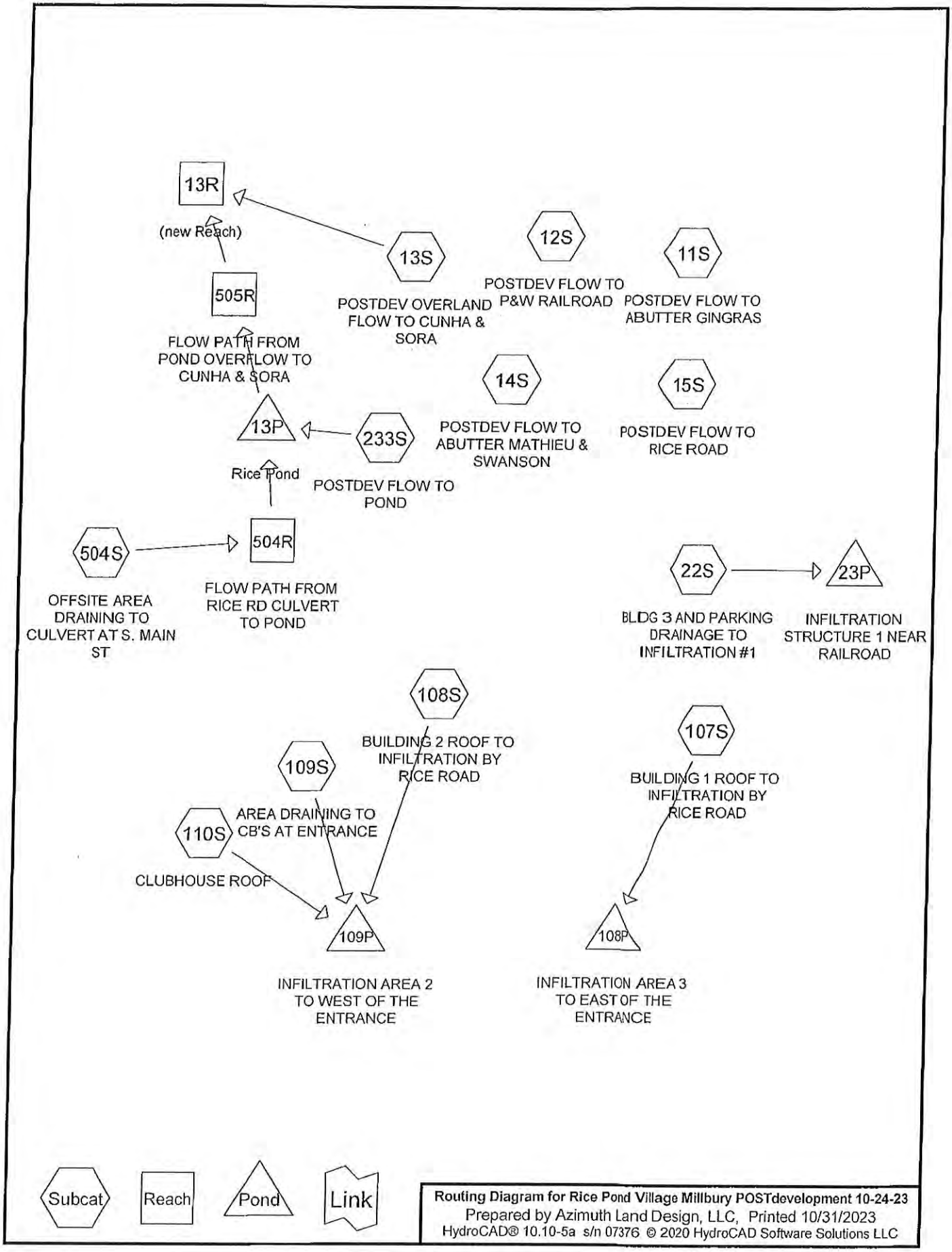
EXPLANATION OF HOW PRE AND POST DRAINAGE AREAS ARE THE SAME

I want to also take this opportunity to explain how these drainage calculations correctly compare the same drainage area in pre and postdevelopment conditions.

At first glance, this might not seem to be the case. But that is because subcatchments #'s 4 and 14, the pre and postdevelopment flows from the site to the abutter Mathieu & Swanson are also parts of subcatchments #'s 33 and 233. They're being double counted and they're not the same pre and post. Leaving aside subcatchments 4 and 14 the total areas pre and post are the same.



Routing Diagram for Rice Pond Village Millbury PREdevelopment 10-24-23
Prepared by Azimuth Land Design, LLC, Printed 10/31/2023


13R
(new Reach)
13S
POSTDEV OVERLAND FLOW TO CUNHA & SORA
12S
POSTDEV FLOW TO P&W RAILROAD
11S
POSTDEV FLOW TO ABUTTER GINGRAS
505R
FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA
14S
POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON
15S
POSTDEV FLOW TO RICE ROAD
13P
233S
Rice Pond
POSTDEV FLOW TO POND
504S
OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST
504R
FLOW PATH FROM RICE RD CULVERT TO POND
22S
BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1
23P
INFILTRATION STRUCTURE 1 NEAR RAILROAD
108S
BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD
107S
BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD
109S
AREA DRAINING TO CB'S AT ENTRANCE
110S
CLUBHOUSE ROOF
109P
108P
INFILTRATION AREA 2 TO WEST OF THE ENTRANCE
INFILTRATION AREA 3 TO EAST OF THE ENTRANCE
Subcat
Reach
Pond
Link
Routing Diagram for Rice Pond Village Millbury POSTdevelopment 10-24-23
Prepared by Azimuth Land Design, LLC, Printed 10/31/2023
HydroCAD® 10.10-5a s/n 07376 © 2020 HydroCAD Software Solutions LLC

2 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.001 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 1.65 cfs @ 12.33 hrs, Volume= 0.220 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 23.92 cfs @ 12.63 hrs, Volume= 3.455 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 0.59" for 2 YR STORM event
Inflow = 20.17 cfs @ 13.10 hrs, Volume= 3.420 af
Outflow = 20.17 cfs @ 13.10 hrs, Volume= 3.420 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

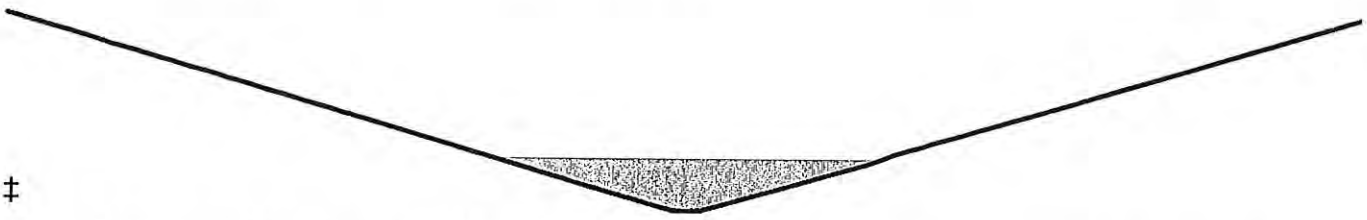
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.63" for 2 YR STORM event
Inflow = 20.56 cfs @ 12.94 hrs, Volume= 3.454 af
Outflow = 20.17 cfs @ 13.10 hrs, Volume= 3.419 af, Atten= 2%, Lag= 9.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 7.8 min

Peak Storage= 6,286 cf @ 13.01 hrs
Average Depth at Peak Storage= 0.81' , Surface Width= 26.33'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.71" for 2 YR STORM event
Inflow = 23.92 cfs @ 12.63 hrs, Volume= 3.455 af
Outflow = 23.72 cfs @ 12.72 hrs, Volume= 3.436 af, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.02 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,300 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 16.51'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'

‡

Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.67" for 2 YR STORM event
Inflow = 24.58 cfs @ 12.71 hrs, Volume= 3.656 af
Outflow = 20.56 cfs @ 12.94 hrs, Volume= 3.454 af, Atten= 16%, Lag= 13.7 min
Primary = 20.56 cfs @ 12.94 hrs, Volume= 3.454 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 390.64' @ 12.94 hrs Surf.Area= 40,277 sf Storage= 26,377 cf

Plug-Flow detention time= 38.7 min calculated for 3.454 af (94% of inflow)
Center-of-Mass det. time= 21.3 min (881.6 - 860.2)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=20.53 cfs @ 12.94 hrs HW=390.64' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.53 cfs @ 2.21 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.001 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 8.77 cfs @ 12.08 hrs, Volume= 0.585 af, Depth> 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 1.52 cfs @ 12.07 hrs, Volume= 0.110 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 1.52 cfs @ 12.07 hrs, Volume= 0.110 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 0.30 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 2.24 cfs @ 12.11 hrs, Volume= 0.218 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 23.92 cfs @ 12.63 hrs, Volume= 3.455 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.15"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 0.59" for 2 YR STORM event
Inflow = 20.06 cfs @ 13.10 hrs, Volume= 3.419 af
Outflow = 20.06 cfs @ 13.10 hrs, Volume= 3.419 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.71" for 2 YR STORM event
Inflow = 23.92 cfs @ 12.63 hrs, Volume= 3.455 af
Outflow = 23.72 cfs @ 12.72 hrs, Volume= 3.436 af, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.02 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,300 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 16.51'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'

‡

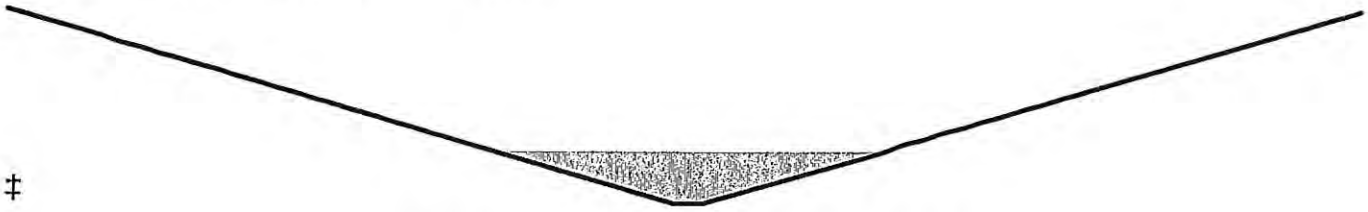
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 0.63" for 2 YR STORM event
Inflow = 20.45 cfs @ 12.94 hrs, Volume= 3.452 af
Outflow = 20.06 cfs @ 13.10 hrs, Volume= 3.417 af, Atten= 2%, Lag= 9.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.75 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 7.8 min

Peak Storage= 6,262 cf @ 13.01 hrs
Average Depth at Peak Storage= 0.81' , Surface Width= 26.28'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area =	65.636 ac, 24.50% Impervious, Inflow Depth >	0.67"	for	2 YR STORM event
Inflow =	24.31 cfs @ 12.72 hrs, Volume=	3.654 af		
Outflow =	20.45 cfs @ 12.94 hrs, Volume=	3.452 af, Atten= 16%, Lag= 13.2 min		
Primary =	20.45 cfs @ 12.94 hrs, Volume=	3.452 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 390.64' @ 12.94 hrs Surf.Area= 40,240 sf Storage= 26,310 cf

Plug-Flow detention time= 38.8 min calculated for 3.452 af (94% of inflow)
Center-of-Mass det. time= 21.4 min (881.2 - 859.8)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=20.43 cfs @ 12.94 hrs HW=390.64' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.43 cfs @ 2.20 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 1.91" for 2 YR STORM event
Inflow = 8.77 cfs @ 12.08 hrs, Volume= 0.585 af
Outflow = 1.50 cfs @ 11.75 hrs, Volume= 0.585 af, Atten= 83%, Lag= 0.0 min
Discarded = 1.50 cfs @ 11.75 hrs, Volume= 0.585 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 374.99' @ 12.56 hrs Surf.Area= 7,856 sf Storage= 7,728 cf

Plug-Flow detention time= 34.9 min calculated for 0.585 af (100% of inflow)
Center-of-Mass det. time= 34.4 min (812.7 - 778.3)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 74,632 cf Overall - 39,168 cf Embedded = 35,464 cf x 40.0% Voids
#2	374.00'	29,193 cf	**retain_it retain_it 5.0'** x 108 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 2,265.0 cf perimeter wall
		43,379 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,856	0	0
383.00	7,856	74,632	74,632

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.50 cfs @ 11.75 hrs HW=373.60' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 1.50 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 2.73" for 2 YR STORM event
Inflow = 1.52 cfs @ 12.07 hrs, Volume= 0.110 af
Outflow = 0.29 cfs @ 11.72 hrs, Volume= 0.110 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.72 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 394.30' @ 12.50 hrs Surf.Area= 1,520 sf Storage= 1,217 cf

Plug-Flow detention time= 23.5 min calculated for 0.110 af (100% of inflow)
Center-of-Mass det. time= 23.1 min (761.1 - 737.9)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.72 hrs HW=393.07' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 2.46" for 2 YR STORM event
Inflow = 2.17 cfs @ 12.07 hrs, Volume= 0.154 af
Outflow = 0.40 cfs @ 11.72 hrs, Volume= 0.154 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.40 cfs @ 11.72 hrs, Volume= 0.154 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 393.31' @ 12.51 hrs Surf.Area= 2,096 sf Storage= 1,767 cf

Plug-Flow detention time= 25.7 min calculated for 0.154 af (100% of inflow)
Center-of-Mass det. time= 25.3 min (770.4 - 745.1)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 14,672 cf Overall - 8,064 cf Embedded = 6,608 cf x 40.0% Voids
#2	392.50'	6,069 cf	**retain_it retain_it 4.0'** x 27 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 4 Rows adjusted for 166.1 cf perimeter wall
		8,712 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,096	0	0
399.00	2,096	14,672	14,672

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 11.72 hrs HW=392.08' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.40 cfs)

10 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 15.62 hrs, Volume= 0.001 af, Depth> 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.004 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.19 cfs @ 12.82 hrs, Volume= 0.065 af, Depth> 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.06 cfs @ 12.50 hrs, Volume= 0.018 af, Depth> 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 6.55 cfs @ 12.24 hrs, Volume= 0.642 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 59.34 cfs @ 12.59 hrs, Volume= 8.027 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 1.44" for 10 YR STORM event
Inflow = 57.61 cfs @ 12.89 hrs, Volume= 8.391 af
Outflow = 57.61 cfs @ 12.89 hrs, Volume= 8.391 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

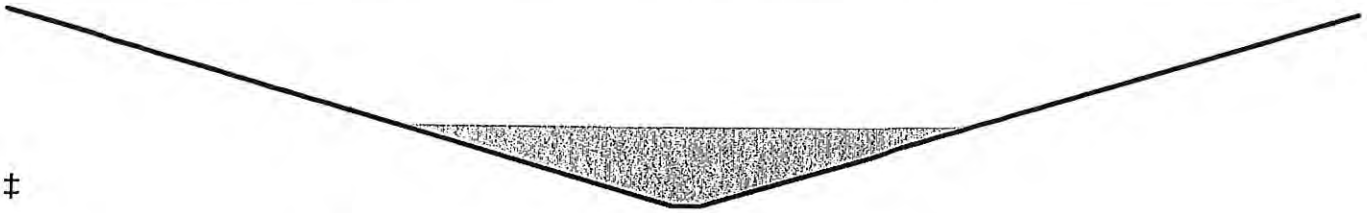
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.53" for 10 YR STORM event
Inflow = 58.09 cfs @ 12.77 hrs, Volume= 8.380 af
Outflow = 57.42 cfs @ 12.89 hrs, Volume= 8.326 af, Atten= 1%, Lag= 7.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.28 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 6.6 min

Peak Storage= 13,771 cf @ 12.83 hrs
Average Depth at Peak Storage= 1.23' , Surface Width= 38.92'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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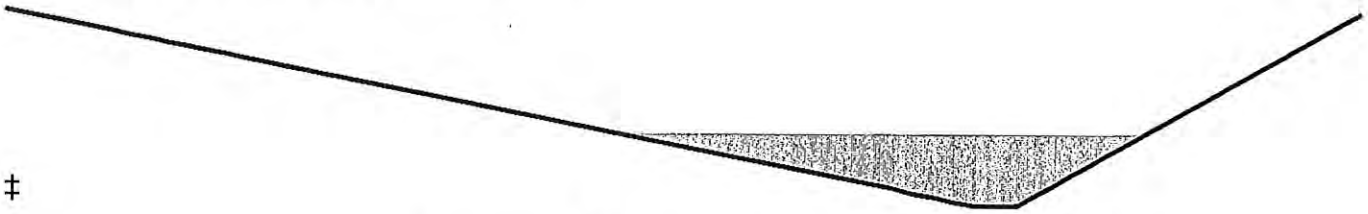
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.64" for 10 YR STORM event
Inflow = 59.34 cfs @ 12.59 hrs, Volume= 8.027 af
Outflow = 59.08 cfs @ 12.66 hrs, Volume= 7.998 af, Atten= 0%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.22 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.33 fps, Avg. Travel Time= 4.4 min

Peak Storage= 8,513 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.11' , Surface Width= 23.15'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.58" for 10 YR STORM event
Inflow = 61.93 cfs @ 12.64 hrs, Volume= 8.640 af
Outflow = 58.09 cfs @ 12.77 hrs, Volume= 8.380 af, Atten= 6%, Lag= 7.9 min
Primary = 58.09 cfs @ 12.77 hrs, Volume= 8.380 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.06' @ 12.77 hrs Surf.Area= 49,622 sf Storage= 45,086 cf

Plug-Flow detention time= 24.8 min calculated for 8.380 af (97% of inflow)
Center-of-Mass det. time= 14.6 min (855.1 - 840.4)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=58.06 cfs @ 12.77 hrs HW=391.06' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 58.06 cfs @ 2.72 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.01 cfs @ 15.77 hrs, Volume= 0.004 af, Depth> 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.24 cfs @ 12.52 hrs, Volume= 0.064 af, Depth> 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.01 cfs @ 15.11 hrs, Volume= 0.002 af, Depth> 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.01 cfs @ 13.80 hrs, Volume= 0.003 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 14.73 cfs @ 12.08 hrs, Volume= 1.007 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.29 cfs @ 12.07 hrs, Volume= 0.167 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.29 cfs @ 12.07 hrs, Volume= 0.167 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 0.55 cfs @ 12.07 hrs, Volume= 0.036 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.52 cfs @ 12.07 hrs, Volume= 0.038 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 9.18 cfs @ 12.08 hrs, Volume= 0.635 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 59.34 cfs @ 12.59 hrs, Volume= 8.027 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.70"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 1.44" for 10 YR STORM event
Inflow = 56.58 cfs @ 12.90 hrs, Volume= 8.384 af
Outflow = 56.58 cfs @ 12.90 hrs, Volume= 8.384 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

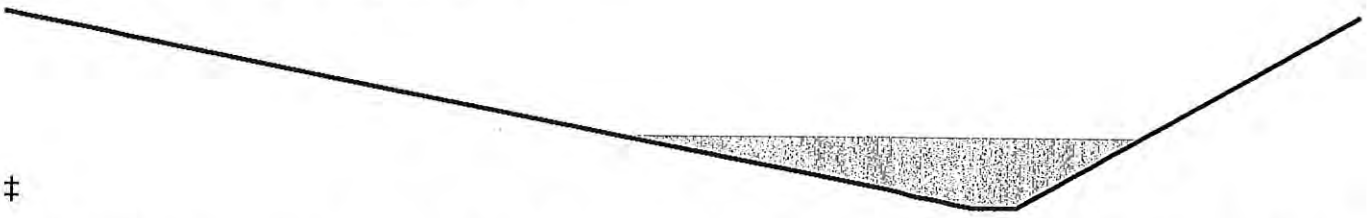
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.64" for 10 YR STORM event
Inflow = 59.34 cfs @ 12.59 hrs, Volume= 8.027 af
Outflow = 59.08 cfs @ 12.66 hrs, Volume= 7.998 af, Atten= 0%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.22 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.33 fps, Avg. Travel Time= 4.4 min

Peak Storage= 8,513 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.11' , Surface Width= 23.15'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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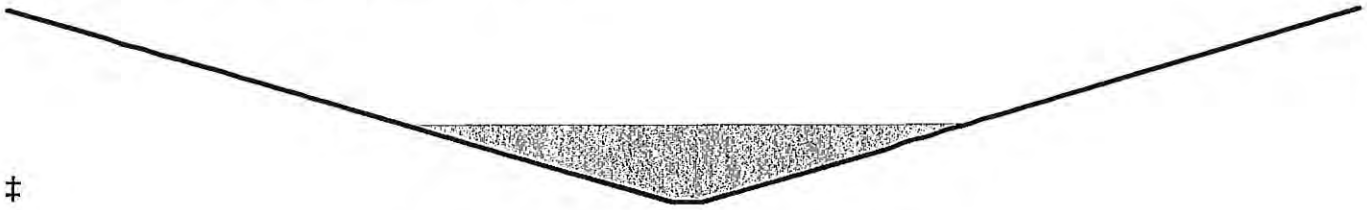
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 1.53" for 10 YR STORM event
Inflow = 57.07 cfs @ 12.78 hrs, Volume= 8.373 af
Outflow = 56.42 cfs @ 12.90 hrs, Volume= 8.319 af, Atten= 1%, Lag= 7.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.27 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 6.6 min

Peak Storage= 13,589 cf @ 12.84 hrs
Average Depth at Peak Storage= 1.22' , Surface Width= 38.66'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 1.58" for 10 YR STORM event
Inflow = 60.69 cfs @ 12.66 hrs, Volume= 8.632 af
Outflow = 57.07 cfs @ 12.78 hrs, Volume= 8.373 af, Atten= 6%, Lag= 7.4 min
Primary = 57.07 cfs @ 12.78 hrs, Volume= 8.373 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.05' @ 12.78 hrs Surf.Area= 49,424 sf Storage= 44,649 cf

Plug-Flow detention time= 24.9 min calculated for 8.373 af (97% of inflow)
Center-of-Mass det. time= 14.7 min (854.5 - 839.8)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=57.00 cfs @ 12.78 hrs HW=391.05' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 57.00 cfs @ 2.71 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 3.29" for 10 YR STORM event
Inflow = 14.73 cfs @ 12.08 hrs, Volume= 1.007 af
Outflow = 1.50 cfs @ 11.60 hrs, Volume= 1.006 af, Atten= 90%, Lag= 0.0 min
Discarded = 1.50 cfs @ 11.60 hrs, Volume= 1.006 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 376.42' @ 12.86 hrs Surf.Area= 7,856 sf Storage= 16,616 cf

Plug-Flow detention time= 87.7 min calculated for 1.006 af (100% of inflow)
Center-of-Mass det. time= 87.3 min (852.7 - 765.4)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 74,632 cf Overall - 39,168 cf Embedded = 35,464 cf x 40.0% Voids
#2	374.00'	29,193 cf	**retain_it retain_it 5.0'** x 108 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 2,265.0 cf perimeter wall
		43,379 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,856	0	0
383.00	7,856	74,632	74,632

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.50 cfs @ 11.60 hrs HW=373.60' (Free Discharge)
1=Exfiltration (Exfiltration Controls 1.50 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 4.14" for 10 YR STORM event
Inflow = 2.29 cfs @ 12.07 hrs, Volume= 0.167 af
Outflow = 0.29 cfs @ 11.63 hrs, Volume= 0.167 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.63 hrs, Volume= 0.167 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 395.24' @ 12.59 hrs Surf.Area= 1,520 sf Storage= 2,297 cf

Plug-Flow detention time= 50.7 min calculated for 0.167 af (100% of inflow)
Center-of-Mass det. time= 50.4 min (785.1 - 734.7)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.63 hrs HW=393.07' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 3.85" for 10 YR STORM event
Inflow = 3.36 cfs @ 12.07 hrs, Volume= 0.241 af
Outflow = 0.40 cfs @ 11.60 hrs, Volume= 0.241 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.40 cfs @ 11.60 hrs, Volume= 0.241 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 394.33' @ 12.63 hrs Surf.Area= 2,096 sf Storage= 3,457 cf

Plug-Flow detention time= 58.5 min calculated for 0.241 af (100% of inflow)
Center-of-Mass det. time= 58.1 min (799.7 - 741.6)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 14,672 cf Overall - 8,064 cf Embedded = 6,608 cf x 40.0% Voids
#2	392.50'	6,069 cf	**retain_it retain_it 4.0'** x 27 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 4 Rows adjusted for 166.1 cf perimeter wall
		8,712 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,096	0	0
399.00	2,096	14,672	14,672

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 11.60 hrs HW=392.07' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.40 cfs)

25 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.02 cfs @ 12.47 hrs, Volume= 0.006 af, Depth> 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 0.10 cfs @ 14.71 hrs, Volume= 0.047 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.87 cfs @ 12.62 hrs, Volume= 0.168 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 15.73 hrs, Volume= 0.002 af, Depth> 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.31 cfs @ 12.35 hrs, Volume= 0.049 af, Depth> 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 11.42 cfs @ 12.23 hrs, Volume= 1.056 af, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 90.74 cfs @ 12.57 hrs, Volume= 12.149 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 2.23" for 25 YR STORM event
Inflow = 91.16 cfs @ 12.83 hrs, Volume= 12.973 af
Outflow = 91.16 cfs @ 12.83 hrs, Volume= 12.973 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

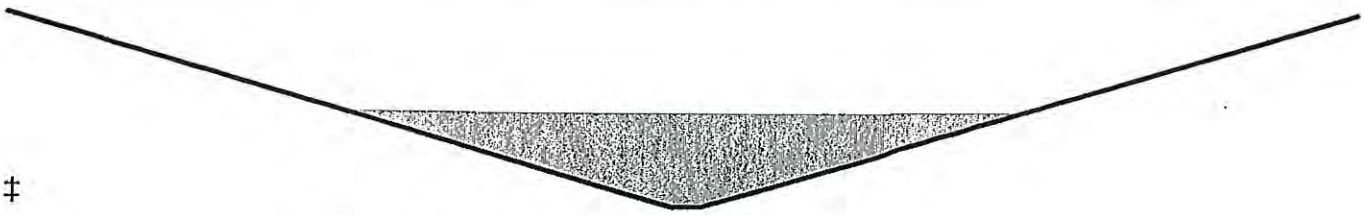
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.35" for 25 YR STORM event
Inflow = 91.21 cfs @ 12.73 hrs, Volume= 12.873 af
Outflow = 90.44 cfs @ 12.83 hrs, Volume= 12.805 af, Atten= 1%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 6.2 min

Peak Storage= 19,350 cf @ 12.77 hrs
Average Depth at Peak Storage= 1.47' , Surface Width= 46.11'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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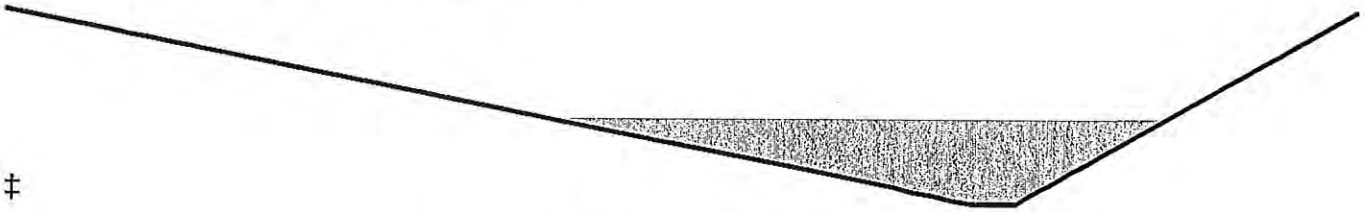
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.49" for 25 YR STORM event
Inflow = 90.74 cfs @ 12.57 hrs, Volume= 12.149 af
Outflow = 90.45 cfs @ 12.64 hrs, Volume= 12.113 af, Atten= 0%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.70 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.50 fps, Avg. Travel Time= 4.0 min

Peak Storage= 11,707 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.32' , Surface Width= 27.12'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.40" for 25 YR STORM event
Inflow = 95.30 cfs @ 12.62 hrs, Volume= 13.169 af
Outflow = 91.21 cfs @ 12.73 hrs, Volume= 12.873 af, Atten= 4%, Lag= 6.5 min
Primary = 91.21 cfs @ 12.73 hrs, Volume= 12.873 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.30' @ 12.73 hrs Surf.Area= 55,061 sf Storage= 57,768 cf

Plug-Flow detention time= 20.6 min calculated for 12.873 af (98% of inflow)
Center-of-Mass det. time= 12.7 min (843.7 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=91.11 cfs @ 12.73 hrs HW=391.30' (Free Discharge)
↑**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 91.11 cfs @ 2.98 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 14.63 hrs, Volume= 0.001 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.05 cfs @ 12.64 hrs, Volume= 0.023 af, Depth> 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 1.06 cfs @ 12.38 hrs, Volume= 0.165 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.03 cfs @ 12.55 hrs, Volume= 0.009 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.06 cfs @ 12.39 hrs, Volume= 0.010 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 19.32 cfs @ 12.08 hrs, Volume= 1.343 af, Depth> 4.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.88 cfs @ 12.07 hrs, Volume= 0.212 af, Depth> 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.88 cfs @ 12.07 hrs, Volume= 0.212 af, Depth> 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 0.75 cfs @ 12.07 hrs, Volume= 0.049 af, Depth> 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.65 cfs @ 12.07 hrs, Volume= 0.048 af, Depth> 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 15.93 cfs @ 12.08 hrs, Volume= 1.044 af, Depth> 1.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 90.74 cfs @ 12.57 hrs, Volume= 12.149 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=5.90"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 2.23" for 25 YR STORM event
Inflow = 88.92 cfs @ 12.84 hrs, Volume= 12.959 af
Outflow = 88.92 cfs @ 12.84 hrs, Volume= 12.959 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

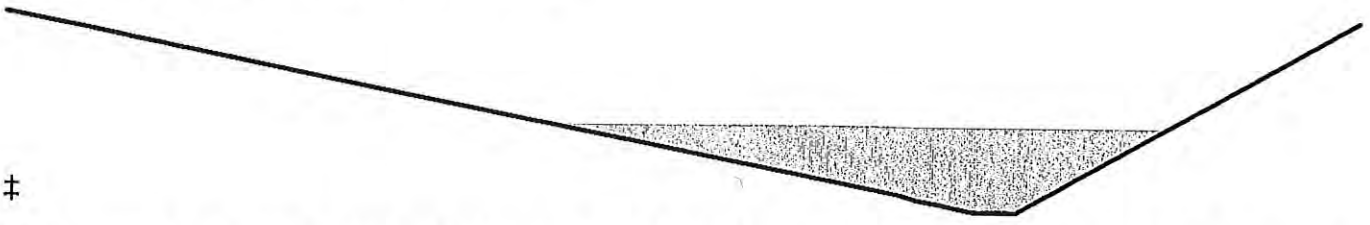
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.49" for 25 YR STORM event
Inflow = 90.74 cfs @ 12.57 hrs, Volume= 12.149 af
Outflow = 90.45 cfs @ 12.64 hrs, Volume= 12.113 af, Atten= 0%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.70 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.50 fps, Avg. Travel Time= 4.0 min

Peak Storage= 11,707 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.32' , Surface Width= 27.12'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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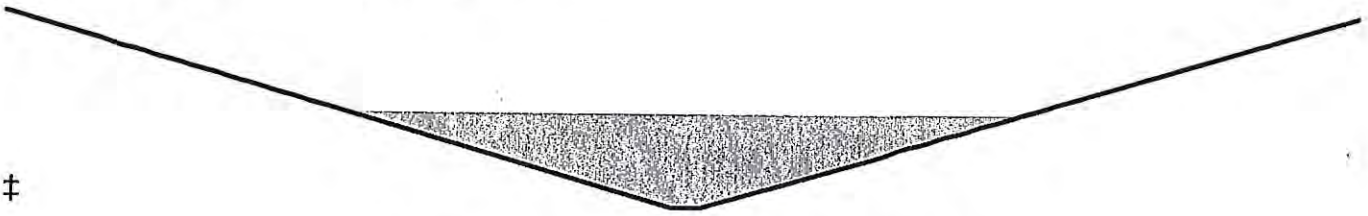
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 2.35" for 25 YR STORM event
Inflow = 89.19 cfs @ 12.74 hrs, Volume= 12.860 af
Outflow = 88.44 cfs @ 12.84 hrs, Volume= 12.793 af, Atten= 1%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.54 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 6.2 min

Peak Storage= 19,027 cf @ 12.78 hrs
Average Depth at Peak Storage= 1.46' , Surface Width= 45.73'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area =	65.636 ac, 24.50% Impervious, Inflow Depth > 2.41"	for 25 YR STORM event		
Inflow =	92.99 cfs @ 12.64 hrs, Volume=	13.156 af		
Outflow =	89.19 cfs @ 12.74 hrs, Volume=	12.860 af, Atten= 4%, Lag= 6.2 min		
Primary =	89.19 cfs @ 12.74 hrs, Volume=	12.860 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.29' @ 12.74 hrs Surf.Area= 54,765 sf Storage= 57,044 cf

Plug-Flow detention time= 20.6 min calculated for 12.835 af (98% of inflow)
Center-of-Mass det. time= 12.8 min (843.1 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=89.14 cfs @ 12.74 hrs HW=391.29' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 89.14 cfs @ 2.97 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 4.38" for 25 YR STORM event
Inflow = 19.32 cfs @ 12.08 hrs, Volume= 1.343 af
Outflow = 1.50 cfs @ 11.33 hrs, Volume= 1.287 af, Atten= 92%, Lag= 0.0 min
Discarded = 1.50 cfs @ 11.33 hrs, Volume= 1.287 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 377.67' @ 13.13 hrs Surf.Area= 7,856 sf Storage= 24,410 cf

Plug-Flow detention time= 139.8 min calculated for 1.287 af (96% of inflow)
Center-of-Mass det. time= 123.5 min (882.4 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 74,632 cf Overall - 39,168 cf Embedded = 35,464 cf x 40.0% Voids
#2	374.00'	29,193 cf	**retain_it retain_it 5.0'** x 108 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 2,265.0 cf perimeter wall
		43,379 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,856	0	0
383.00	7,856	74,632	74,632

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.50 cfs @ 11.33 hrs HW=373.60' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 1.50 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 5.24" for 25 YR STORM event
Inflow = 2.88 cfs @ 12.07 hrs, Volume= 0.212 af
Outflow = 0.29 cfs @ 11.45 hrs, Volume= 0.211 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.45 hrs, Volume= 0.211 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 396.03' @ 12.77 hrs Surf.Area= 1,520 sf Storage= 3,195 cf

Plug-Flow detention time= 76.6 min calculated for 0.211 af (100% of inflow)
Center-of-Mass det. time= 76.2 min (809.7 - 733.5)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	393.50'	3,991 cf	9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids **retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.45 hrs HW=393.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 4.93" for 25 YR STORM event
Inflow = 4.28 cfs @ 12.07 hrs, Volume= 0.309 af
Outflow = 0.40 cfs @ 11.42 hrs, Volume= 0.309 af, Atten= 91%, Lag= 0.0 min
Discarded = 0.40 cfs @ 11.42 hrs, Volume= 0.309 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 395.19' @ 12.87 hrs Surf.Area= 2,096 sf Storage= 4,899 cf

Plug-Flow detention time= 90.1 min calculated for 0.308 af (100% of inflow)
Center-of-Mass det. time= 89.6 min (829.4 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	392.50'	6,069 cf	14,672 cf Overall - 8,064 cf Embedded = 6,608 cf x 40.0% Voids **retain_it retain_it 4.0'** x 27 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 4 Rows adjusted for 166.1 cf perimeter wall
		8,712 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,096	0	0
399.00	2,096	14,672	14,672

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 11.42 hrs HW=392.07' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.40 cfs)

100 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.026 af, Depth> 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 1.63 cfs @ 12.38 hrs, Volume= 0.265 af, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 3.59 cfs @ 12.50 hrs, Volume= 0.486 af, Depth> 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.08 cfs @ 12.47 hrs, Volume= 0.017 af, Depth> 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 1.61 cfs @ 12.15 hrs, Volume= 0.149 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 22.89 cfs @ 12.22 hrs, Volume= 2.050 af, Depth> 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 160.17 cfs @ 12.55 hrs, Volume= 21.459 af, Depth> 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 4.03" for 100YR STORM event
Inflow = 166.14 cfs @ 12.77 hrs, Volume= 23.492 af
Outflow = 166.14 cfs @ 12.77 hrs, Volume= 23.492 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

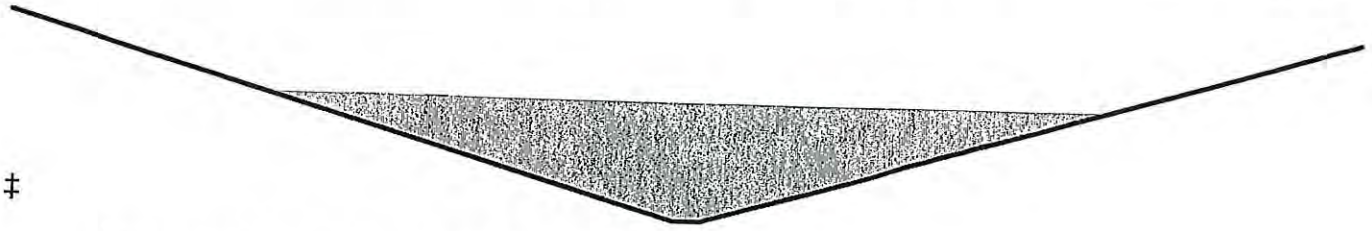
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 4.22" for 100YR STORM event
Inflow = 164.67 cfs @ 12.68 hrs, Volume= 23.099 af
Outflow = 163.52 cfs @ 12.77 hrs, Volume= 23.006 af, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.97 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 5.6 min

Peak Storage= 30,181 cf @ 12.72 hrs
Average Depth at Peak Storage= 1.85' , Surface Width= 57.57'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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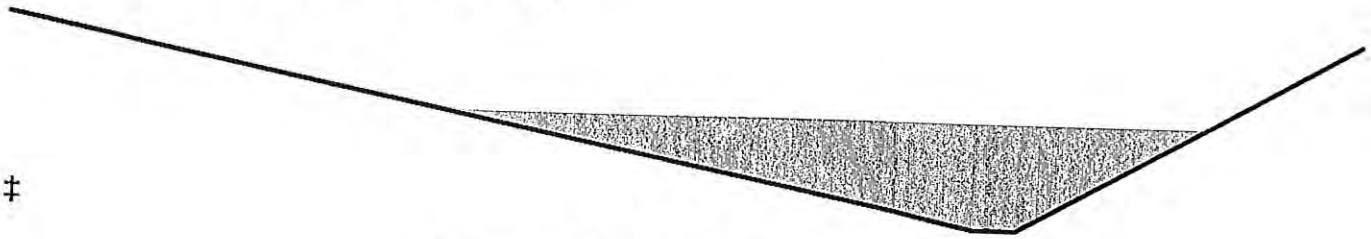
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 4.40" for 100YR STORM event
Inflow = 160.17 cfs @ 12.55 hrs, Volume= 21.459 af
Outflow = 159.78 cfs @ 12.61 hrs, Volume= 21.408 af, Atten= 0%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 5.42 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 3.7 min

Peak Storage= 17,925 cf @ 12.58 hrs
Average Depth at Peak Storage= 1.66' , Surface Width= 33.53'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 4.28" for 100YR STORM event
Inflow = 169.53 cfs @ 12.59 hrs, Volume= 23.459 af
Outflow = 164.67 cfs @ 12.68 hrs, Volume= 23.099 af, Atten= 3%, Lag= 5.3 min
Primary = 164.67 cfs @ 12.68 hrs, Volume= 23.099 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.69' @ 12.68 hrs Surf.Area= 63,855 sf Storage= 81,060 cf

Plug-Flow detention time= 16.2 min calculated for 23.053 af (98% of inflow)
Center-of-Mass det. time= 10.6 min (828.6 - 817.9)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=164.61 cfs @ 12.68 hrs HW=391.69' (Free Discharge)
↑**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 164.61 cfs @ 3.36 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.05 cfs @ 12.27 hrs, Volume= 0.008 af, Depth> 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.69 cfs @ 12.38 hrs, Volume= 0.103 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 4.79 cfs @ 12.21 hrs, Volume= 0.478 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.26 cfs @ 12.31 hrs, Volume= 0.034 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.35 cfs @ 12.15 hrs, Volume= 0.034 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 28.60 cfs @ 12.08 hrs, Volume= 2.034 af, Depth> 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 4.08 cfs @ 12.07 hrs, Volume= 0.301 af, Depth> 7.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 4.08 cfs @ 12.07 hrs, Volume= 0.301 af, Depth> 7.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 1.16 cfs @ 12.07 hrs, Volume= 0.078 af, Depth> 5.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.93 cfs @ 12.07 hrs, Volume= 0.069 af, Depth> 7.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 31.75 cfs @ 12.08 hrs, Volume= 2.024 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 160.17 cfs @ 12.55 hrs, Volume= 21.459 af, Depth> 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.35"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 4.04" for 100YR STORM event
Inflow = 160.44 cfs @ 12.78 hrs, Volume= 23.459 af
Outflow = 160.44 cfs @ 12.78 hrs, Volume= 23.459 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

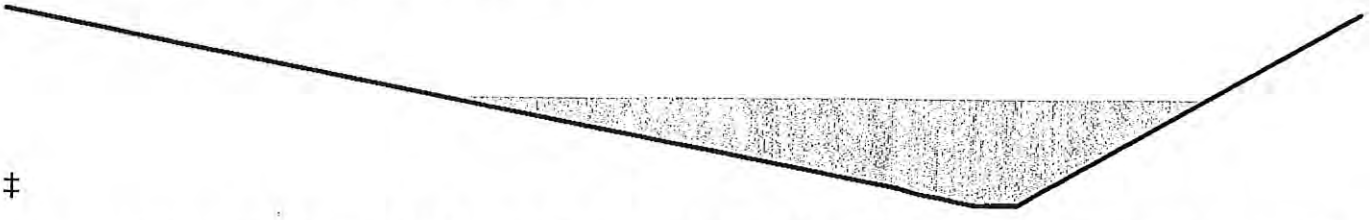
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 4.40" for 100YR STORM event
Inflow = 160.17 cfs @ 12.55 hrs, Volume= 21.459 af
Outflow = 159.78 cfs @ 12.61 hrs, Volume= 21.408 af, Atten= 0%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 5.42 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 3.7 min

Peak Storage= 17,925 cf @ 12.58 hrs
Average Depth at Peak Storage= 1.66' , Surface Width= 33.53'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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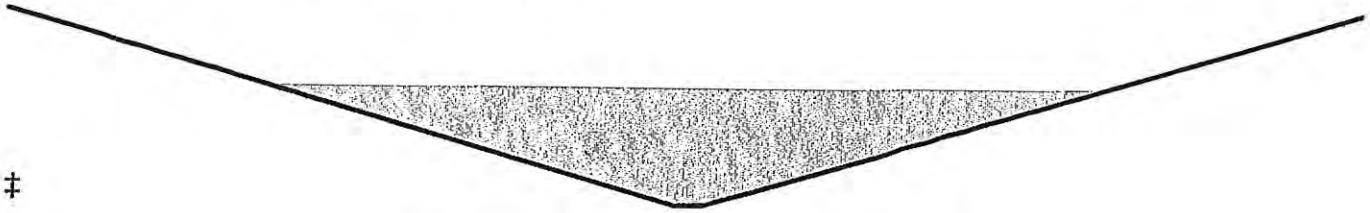
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 4.22" for 100YR STORM event
Inflow = 160.16 cfs @ 12.69 hrs, Volume= 23.074 af
Outflow = 159.08 cfs @ 12.78 hrs, Volume= 22.981 af, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.95 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 5.6 min

Peak Storage= 29,563 cf @ 12.73 hrs
Average Depth at Peak Storage= 1.83' , Surface Width= 56.98'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 4.28" for 100YR STORM event
Inflow = 164.49 cfs @ 12.61 hrs, Volume= 23.433 af
Outflow = 160.16 cfs @ 12.69 hrs, Volume= 23.074 af, Atten= 3%, Lag= 5.2 min
Primary = 160.16 cfs @ 12.69 hrs, Volume= 23.074 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.67' @ 12.69 hrs Surf.Area= 63,392 sf Storage= 79,746 cf

Plug-Flow detention time= 16.3 min calculated for 23.074 af (98% of inflow)
Center-of-Mass det. time= 10.7 min (827.9 - 817.2)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=159.98 cfs @ 12.69 hrs HW=391.67' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 159.98 cfs @ 3.34 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 6.64" for 100YR STORM event
Inflow = 28.60 cfs @ 12.08 hrs, Volume= 2.034 af
Outflow = 1.50 cfs @ 10.64 hrs, Volume= 1.422 af, Atten= 95%, Lag= 0.0 min
Discarded = 1.50 cfs @ 10.64 hrs, Volume= 1.422 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 382.85' @ 14.05 hrs Surf.Area= 7,856 sf Storage= 42,918 cf

Plug-Flow detention time= 165.6 min calculated for 1.419 af (70% of inflow)
Center-of-Mass det. time= 99.2 min (850.0 - 750.8)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			74,632 cf Overall - 39,168 cf Embedded = 35,464 cf x 40.0% Voids
#2	374.00'	29,193 cf	**retain_it retain_it 5.0'** x 108 Inside #1
			Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf
			Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf
			1 Rows adjusted for 2,265.0 cf perimeter wall
		43,379 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,856	0	0
383.00	7,856	74,632	74,632

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.50 cfs @ 10.64 hrs HW=373.60' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.50 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 7.46" for 100YR STORM event
Inflow = 4.08 cfs @ 12.07 hrs, Volume= 0.301 af
Outflow = 0.29 cfs @ 11.06 hrs, Volume= 0.278 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.06 hrs, Volume= 0.278 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 398.64' @ 13.15 hrs Surf.Area= 1,520 sf Storage= 5,269 cf

Plug-Flow detention time= 139.4 min calculated for 0.278 af (92% of inflow)
Center-of-Mass det. time= 110.7 min (842.9 - 732.2)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.06 hrs HW=393.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 7.15" for 100YR STORM event
Inflow = 6.18 cfs @ 12.07 hrs, Volume= 0.448 af
Outflow = 0.40 cfs @ 10.94 hrs, Volume= 0.383 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.40 cfs @ 10.94 hrs, Volume= 0.383 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 398.45' @ 13.44 hrs Surf.Area= 2,096 sf Storage= 8,250 cf

Plug-Flow detention time= 150.8 min calculated for 0.382 af (85% of inflow)
Center-of-Mass det. time= 106.4 min (843.9 - 737.5)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 14,672 cf Overall - 8,064 cf Embedded = 6,608 cf x 40.0% Voids
#2	392.50'	6,069 cf	**retain_it retain_it 4.0'** x 27 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 4 Rows adjusted for 166.1 cf perimeter wall
		8,712 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,096	0	0
399.00	2,096	14,672	14,672

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.40 cfs @ 10.94 hrs HW=392.07' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.40 cfs)