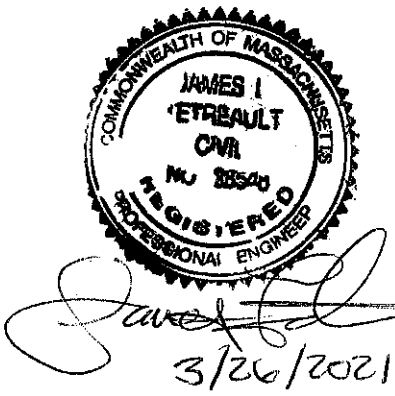
DRAINAGE REPORT

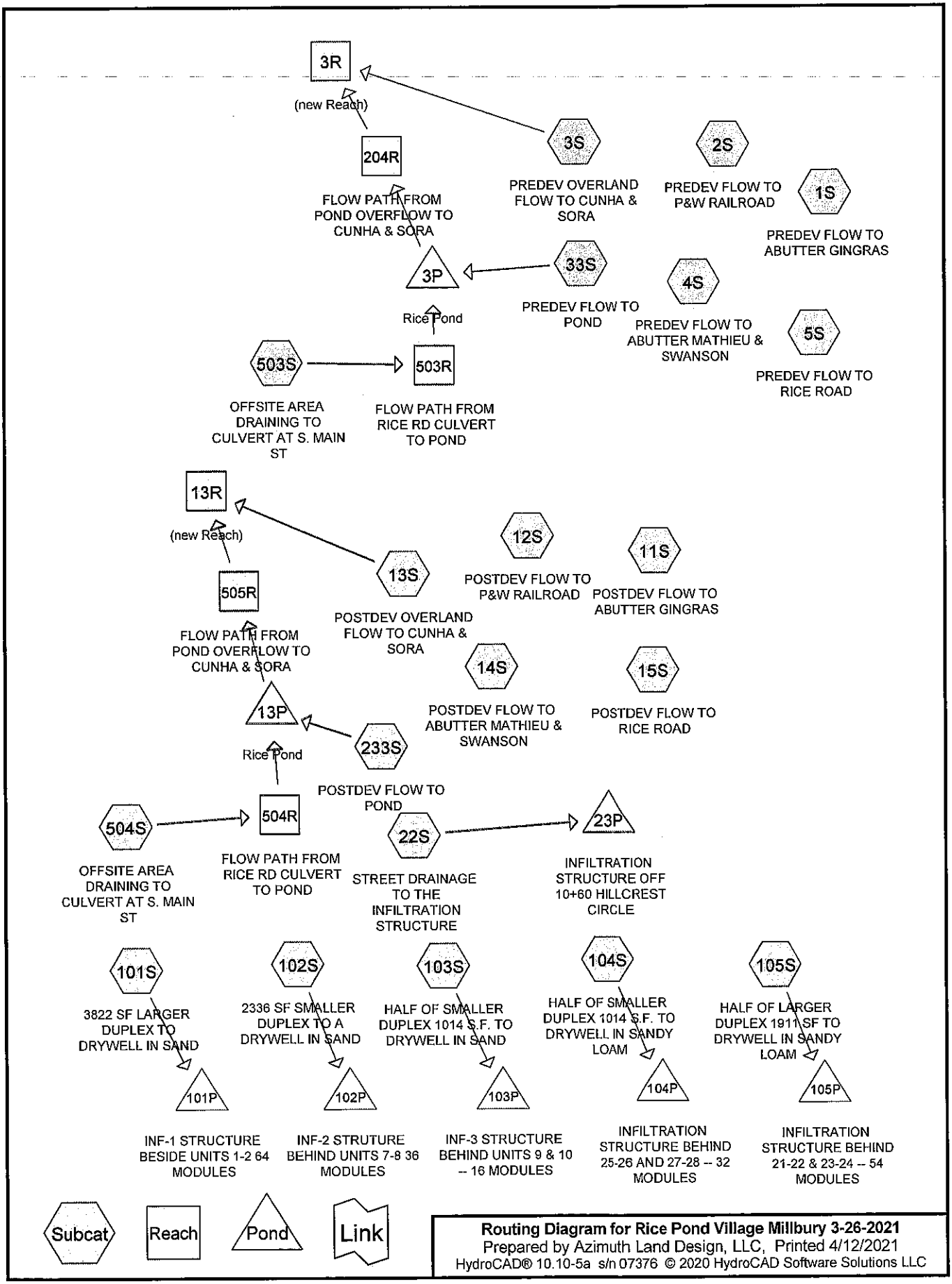
for

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

MARCH 26, 2021



AZIMUTH LAND DESIGN, LLC
325 Donald Lynch Boulevard, Suite 100, Marlborough, MA 01572 (508) 485-0137



Routing Diagram for Rice Pond Village Millbury 3-26-2021
Prepared by Azimuth Land Design, LLC, Printed 4/12/2021

INTRODUCTION

The proposed Rice Pond Village development is a condominium development of 26 duplexes, 52 total units, 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 and also abutters to the south of this property, having frontage on Rice Road, and also 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 and roofs, the rate of stormwater runoff from the site would increase if no measures were taken to prevent it.

Except for the first 62 feet of the new private road, Hillcrest Circle, all of the runoff from the new road will be collected by the site's drainage system and directed through a CDS model 2025 stormwater filtration unit and then into an infiltration structure off the side of station 10+50 of Hillcrest Circle.

This infiltration structure will be located in an area where the observed soil texture was a sand and where there was greater than 9 foot depth to possible seasonal high groundwater. The structure will cover an area measuring 85 feet by 52 feet, and will be a total of 8.5 feet deep. Within double washed, crushed stone, we will install 864 Storm Tank 25 series modules measuring 3 feet long, 1.5 feet wide and 6 feet deep.

This structure will accept all the runoff collected from even the 100 year storm event without piped outflow.

In addition to this structure, 18 of the 26 proposed duplexes will send all or part of their roof runoff to individual infiltration structures the dimensions of which are shown on detail sheet D3 of the Site Plans.

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 3.1, 4.6, 5.3 and 6.6 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	0.01 pre	0.05 pre
Subcat #11 post	0.00	0.00	0.01	0.07
Providence & Worcester railroad property line				
Subcat #2 pre	0.00 pre	0.01	0.05 pre	0.30 pre
Subcat #12 post	0.00	0.01	0.03	0.22
Abutter Cunha & Sora property line				
Reach #3 pre	19.03 pre	54.68 pre	73.65 pre	111.31 pre
Reach #13 post	19.21	54.28	72.87	109.67
Abutter Mathieu & Swanson property line				
Subcat #4 pre	0.00 pre	0.00 pre	0.00 pre	0.01 pre
Subcat #14 post	0.00	0.00	0.01	0.08
Rice Road right of way line				
Subcat #5 pre	0.00 pre	0.04 pre	0.16 pre	0.55 pre
Subcat #15 post	0.00	0.04	0.11	0.36

2 YEAR STORM

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

[45] Hint: Runoff=Zero

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=3.10"

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
4.4	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.3	150	Total			

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

[45] Hint: Runoff=Zero

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=3.10"

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
4.8	50	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
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
6.4	338	Total			

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

[73] Warning: Peak may fall outside time span

Runoff = 0.00 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=3.10"

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
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

[45] Hint: Runoff=Zero

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=3.10"

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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.1	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

[73] Warning: Peak may fall outside time span

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=3.10"

	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
5.4	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	262	Total			

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

[45] Hint: Runoff=Zero

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=3.10"

Area (sf)	CN	Description
12,009	39	>75% Grass cover, Good, HSG A
3,537	30	Woods, Good, HSG A
15,546	37	Weighted Average
15,546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.6	140	0.0700	3.97		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	190	Total			

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

[45] Hint: Runoff=Zero

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=3.10"

Area (sf)	CN	Description
17,500	30	Woods, Good, HSG A
1,160	30	Woods, Good, HSG A
46,614	39	>75% Grass cover, Good, HSG A
65,274	36	Weighted Average
65,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	159	Total			

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

[73] Warning: Peak may fall outside time span

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.002 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 2 YR STORM Rainfall=3.10"

	Area (sf)	CN	Description
*	1,014	98	Back of units 7 & 8
	30,807	98	Water Surface, HSG A
	7,684	39	>75% Grass cover, Good, HSG A
	137,688	30	Woods, Good, HSG A
	177,193	43	Weighted Average
	145,372		82.04% Pervious Area
	31,821		17.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

[45] Hint: Runoff=Zero

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=3.10"

Area (sf)	CN	Description
10,400	30	Woods, Good, HSG A
15,186	39	>75% Grass cover, Good, HSG A
25,586	35	Weighted Average
25,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	44	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.9	152	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

[73] Warning: Peak may fall outside time span

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=3.10"

Area (sf)	CN	Description
2,256	98	Paved parking, HSG A
5,534	30	Woods, Good, HSG A
25,100	39	>75% Grass cover, Good, HSG A
32,890	42	Weighted Average
30,634		93.14% Pervious Area
2,256		6.86% 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= 3.10"
1.9	119	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.2	169	Total			

Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 4.02 cfs @ 12.17 hrs, Volume= 0.326 af, Depth> 1.04"

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 2 YR STORM Rainfall=3.10"

	Area (sf)	CN	Description
	57,069	39	>75% Grass cover, Good, HSG A
*	106,172	98	Drive, driveways & roofs HSG A
	324	39	>75% Grass cover, Good, HSG A
	163,565	77	Weighted Average
	57,393		35.09% Pervious Area
	106,172		64.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	50	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.6	53	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.6	103	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 1.34 cfs @ 12.35 hrs, Volume= 0.191 af, Depth> 0.32"

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=3.10"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 2.68"

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=3.10"

Area (sf)	CN	Description
3,822	98	Unconnected roofs, HSG A
3,822		100.00% Impervious Area
3,822		100.00% Unconnected

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

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Depth> 2.68"

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=3.10"

Area (sf)	CN	Description
2,336	98	Roofs, HSG A
2,336		100.00% Impervious Area

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

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af, Depth> 2.68"

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=3.10"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af, Depth> 2.68"

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=3.10"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

Summary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAI

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.010 af, Depth> 2.68"

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=3.10"

Area (sf)	CN	Description
1,911	98	Unconnected pavement, HSG A
1,911		100.00% Impervious Area
1,911		100.00% Unconnected

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 = 2.37 cfs @ 12.14 hrs, Volume= 0.230 af, Depth> 0.42"

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 2 YR STORM Rainfall=3.10"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
*	0	98	Backs of roofs at units 11-16
	29,995	39	>75% Grass cover, Good, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	28,736	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
	287,801	63	Weighted Average
	224,459		77.99% Pervious Area
	63,342		22.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.8	212	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	320	Total			

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

Runoff = 22.92 cfs @ 12.63 hrs, Volume= 3.327 af, Depth> 0.68"

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=3.10"

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

Runoff = 22.92 cfs @ 12.63 hrs, Volume= 3.327 af, Depth> 0.68"

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=3.10"

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)

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

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 0.56" for 2 YR STORM event
Inflow = 19.03 cfs @ 13.12 hrs, Volume= 3.267 af
Outflow = 19.03 cfs @ 13.12 hrs, Volume= 3.267 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 13R: (new Reach)

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

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 0.57" for 2 YR STORM event
Inflow = 19.21 cfs @ 13.11 hrs, Volume= 3.306 af
Outflow = 19.21 cfs @ 13.11 hrs, Volume= 3.306 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

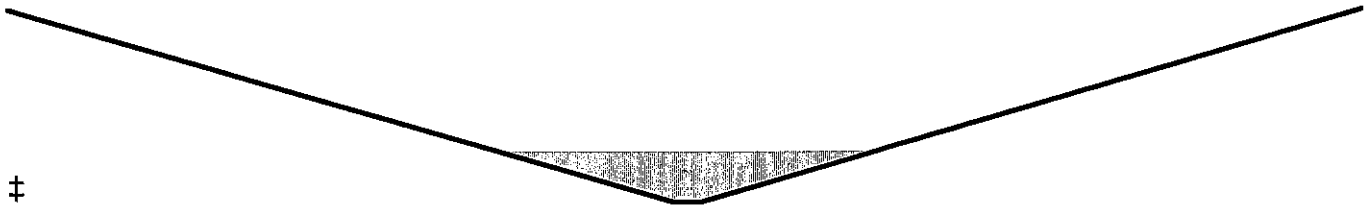
[79] Warning: Submerged Pond 3P Primary device # 1 by 0.39'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.60" for 2 YR STORM event
Inflow = 19.41 cfs @ 12.95 hrs, Volume= 3.300 af
Outflow = 19.03 cfs @ 13.12 hrs, Volume= 3.266 af, Atten= 2%, Lag= 9.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.73 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 7.8 min

Peak Storage= 6,018 cf @ 13.03 hrs
Average Depth at Peak Storage= 0.79' , Surface Width= 25.77'
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'



‡

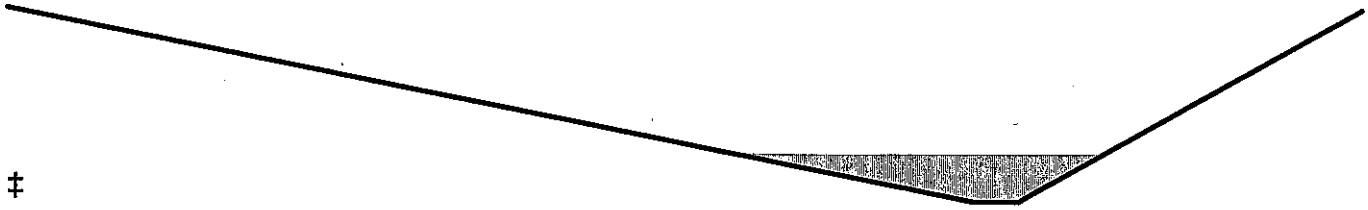
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.68" for 2 YR STORM event
Inflow = 22.92 cfs @ 12.63 hrs, Volume= 3.327 af
Outflow = 22.73 cfs @ 12.72 hrs, Volume= 3.309 af, Atten= 1%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.32 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 2.01 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,165 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.75' , Surface Width= 16.26'
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 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.68" for 2 YR STORM event
Inflow = 22.92 cfs @ 12.63 hrs, Volume= 3.327 af
Outflow = 22.73 cfs @ 12.72 hrs, Volume= 3.309 af, Atten= 1%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.32 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 2.01 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,165 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.75' , Surface Width= 16.26'
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

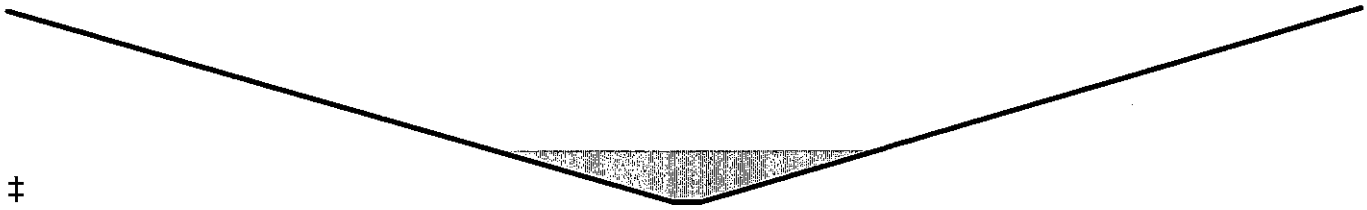
[79] Warning: Submerged Pond 13P Primary device # 1 by 0.39'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 0.61" for 2 YR STORM event
Inflow = 19.57 cfs @ 12.95 hrs, Volume= 3.338 af
Outflow = 19.21 cfs @ 13.11 hrs, Volume= 3.304 af, Atten= 2%, Lag= 9.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.73 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 7.8 min

Peak Storage= 6,059 cf @ 13.02 hrs
Average Depth at Peak Storage= 0.80' , Surface Width= 25.85'
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'



‡

Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.01' @ 13.28 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.64" for 2 YR STORM event
Inflow = 23.43 cfs @ 12.72 hrs, Volume= 3.500 af
Outflow = 19.41 cfs @ 12.95 hrs, Volume= 3.300 af, Atten= 17%, Lag= 14.1 min
Primary = 19.41 cfs @ 12.95 hrs, Volume= 3.300 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 390.63' @ 12.95 hrs Surf.Area= 39,860 sf Storage= 25,633 cf

Plug-Flow detention time= 39.5 min calculated for 3.293 af (94% of inflow)
Center-of-Mass det. time= 21.8 min (883.1 - 861.3)

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=19.38 cfs @ 12.95 hrs HW=390.63' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.38 cfs @ 2.18 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.01' @ 13.28 hrs

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 0.65" for 2 YR STORM event
Inflow = 23.36 cfs @ 12.72 hrs, Volume= 3.539 af
Outflow = 19.57 cfs @ 12.95 hrs, Volume= 3.338 af, Atten= 16%, Lag= 13.5 min
Primary = 19.57 cfs @ 12.95 hrs, Volume= 3.338 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 390.63' @ 12.95 hrs Surf.Area= 39,921 sf Storage= 25,740 cf

Plug-Flow detention time= 39.4 min calculated for 3.331 af (94% of inflow)
Center-of-Mass det. time= 21.8 min (882.1 - 860.3)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	274,915 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	102,581	173,296	274,915

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=19.54 cfs @ 12.95 hrs HW=390.63' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.54 cfs @ 2.18 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area = 3.755 ac, 64.91% Impervious, Inflow Depth > 1.04" for 2 YR STORM event
Inflow = 4.02 cfs @ 12.17 hrs, Volume= 0.326 af
Outflow = 0.85 cfs @ 11.93 hrs, Volume= 0.326 af, Atten= 79%, Lag= 0.0 min
Discarded = 0.85 cfs @ 11.93 hrs, Volume= 0.326 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 375.87' @ 12.74 hrs Surf.Area= 4,420 sf Storage= 4,233 cf

Plug-Flow detention time= 38.1 min calculated for 0.325 af (100% of inflow)
Center-of-Mass det. time= 37.5 min (854.1 - 816.6)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	**85'X52' OUTSIDE OF STONE (Prismatic)** Listed below (Recalc) 37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	**StormTank 25 Series 72"** x 864 Inside #1 Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf 864 Chambers in 32 Rows 23,328 cf Overall x 97.0% Voids
		27,648 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.85 cfs @ 11.93 hrs HW=374.59' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af
Outflow = 0.07 cfs @ 11.78 hrs, Volume= 0.020 af, Atten= 74%, Lag= 0.0 min
Discarded = 0.07 cfs @ 11.78 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 395.82' @ 12.42 hrs Surf.Area= 364 sf Storage= 167 cf

Plug-Flow detention time= 12.0 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (749.9 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	395.00'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,274 cf Overall - 432 cf Embedded = 842 cf x 40.0% Voids
#2	395.50'	395 cf	**StormTank 25 Series 18"** x 64 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 64 Chambers in 8 Rows 432 cf Overall x 96.0% Voids
		732 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
395.00	364	0	0
398.50	364	1,274	1,274

Device	Routing	Invert	Outlet Devices
#1	Discarded	395.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.07 cfs @ 11.78 hrs HW=395.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af
Outflow = 0.04 cfs @ 11.78 hrs, Volume= 0.012 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.78 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 396.84' @ 12.42 hrs Surf.Area= 220 sf Storage= 103 cf

Plug-Flow detention time= 12.3 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 12.1 min (750.2 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	**StormTank 25 Series 18"** x 36 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 36 Chambers in 6 Rows 243 cf Overall x 96.0% Voids
		433 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.78 hrs HW=396.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af
Outflow = 0.02 cfs @ 11.81 hrs, Volume= 0.005 af, Atten= 70%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.81 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 374.84' @ 12.37 hrs Surf.Area= 112 sf Storage= 38 cf

Plug-Flow detention time= 8.6 min calculated for 0.005 af (100% of inflow)
Center-of-Mass det. time= 8.4 min (746.5 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	**Custom Stage Data (Prismatic)** Listed below 392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	**StormTank 25 Series 18"** x 16 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 16 Chambers in 4 Rows 108 cf Overall x 96.0% Voids
		212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.81 hrs HW=374.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af
Outflow = 0.00 cfs @ 11.15 hrs, Volume= 0.005 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.00 cfs @ 11.15 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 379.08' @ 13.29 hrs Surf.Area= 208 sf Storage= 96 cf

Plug-Flow detention time= 152.9 min calculated for 0.005 af (88% of inflow)
Center-of-Mass det. time= 113.9 min (852.0 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	205 cf	**Custom Stage Data (Prismatic)** Listed below 728 cf Overall - 216 cf Embedded = 512 cf x 40.0% Voids
#2	379.00'	198 cf	**StormTank 25 Series 18"** x 32 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 32 Chambers in 4 Rows 216 cf Overall x 96.0% Voids
		403 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	208	0	0
381.50	208	728	728

Device	Routing	Invert	Outlet Devices
#1	Discarded	378.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 11.15 hrs HW=378.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.010 af
Outflow = 0.01 cfs @ 10.64 hrs, Volume= 0.007 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.64 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 380.03' @ 13.82 hrs Surf.Area= 319 sf Storage= 198 cf

Plug-Flow detention time= 162.2 min calculated for 0.007 af (75% of inflow)
Center-of-Mass det. time= 100.6 min (838.7 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	**Custom Stage Data (Prismatic)** Listed below 1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	**StormTank 25 Series 18"** x 54 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 54 Chambers in 6 Rows 365 cf Overall x 96.0% Voids
		634 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	319	0	0
382.50	319	1,117	1,117

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 10.64 hrs HW=379.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

10 YEAR STORM

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 16.80 hrs, Volume= 0.001 af, Depth> 0.02"

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=4.60"

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
4.4	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.3	150	Total			

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

[73] Warning: Peak may fall outside time span

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.002 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=4.60"

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
4.8	50	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
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
6.4	338	Total			

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

Runoff = 0.15 cfs @ 12.87 hrs, Volume= 0.058 af, Depth> 0.17"

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=4.60"

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
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

[45] Hint: Runoff=Zero

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=4.60"

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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.1	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.04 cfs @ 12.53 hrs, Volume= 0.016 af, Depth> 0.14"

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=4.60"

	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
5.4	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	262	Total			

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 15.15 hrs, Volume= 0.002 af, Depth> 0.05"

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=4.60"

Area (sf)	CN	Description
12,009	39	>75% Grass cover, Good, HSG A
3,537	30	Woods, Good, HSG A
15,546	37	Weighted Average
15,546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.6	140	0.0700	3.97		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	190	Total			

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

Runoff = 0.01 cfs @ 15.59 hrs, Volume= 0.005 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 10 YR STORM Rainfall=4.60"

Area (sf)	CN	Description
17,500	30	Woods, Good, HSG A
1,160	30	Woods, Good, HSG A
46,614	39	>75% Grass cover, Good, HSG A
65,274	36	Weighted Average
65,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	159	Total			

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

Runoff = 0.21 cfs @ 12.79 hrs, Volume= 0.067 af, Depth> 0.20"

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=4.60"

	Area (sf)	CN	Description
*	1,014	98	Back of units 7 & 8
	30,807	98	Water Surface, HSG A
	7,684	39	>75% Grass cover, Good, HSG A
	137,688	30	Woods, Good, HSG A
	177,193	43	Weighted Average
	145,372		82.04% Pervious Area
	31,821		17.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

Runoff = 0.00 cfs @ 16.79 hrs, Volume= 0.001 af, Depth> 0.02"

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=4.60"

Area (sf)	CN	Description
10,400	30	Woods, Good, HSG A
15,186	39	>75% Grass cover, Good, HSG A
25,586	35	Weighted Average
25,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	44	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.9	152	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.04 cfs @ 12.51 hrs, Volume= 0.011 af, Depth> 0.17"

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=4.60"

Area (sf)	CN	Description
2,256	98	Paved parking, HSG A
5,534	30	Woods, Good, HSG A
25,100	39	>75% Grass cover, Good, HSG A
32,890	42	Weighted Average
30,634		93.14% Pervious Area
2,256		6.86% 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= 3.10"
1.9	119	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.2	169	Total			

Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 8.34 cfs @ 12.16 hrs, Volume= 0.664 af, Depth> 2.12"

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=4.60"

	Area (sf)	CN	Description
	57,069	39	>75% Grass cover, Good, HSG A
*	106,172	98	Drive, driveways & roofs HSG A
	324	39	>75% Grass cover, Good, HSG A
	163,565	77	Weighted Average
	57,393		35.09% Pervious Area
	106,172		64.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	50	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.6	53	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.6	103	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 5.90 cfs @ 12.23 hrs, Volume= 0.576 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 10 YR STORM Rainfall=4.60"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 4.05"

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=4.60"

Area (sf)	CN	Description
3,822	98	Unconnected roofs, HSG A
3,822		100.00% Impervious Area
3,822		100.00% Unconnected

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

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af, Depth> 4.05"

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=4.60"

Area (sf)	CN	Description
2,336	98	Roofs, HSG A
2,336		100.00% Impervious Area

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

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af, Depth> 4.05"

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=4.60"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af, Depth> 4.05"

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=4.60"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

Summary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAI

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 4.05"

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=4.60"

Area (sf)	CN	Description
1,911	98	Unconnected pavement, HSG A
1,911		100.00% Impervious Area
1,911		100.00% Unconnected

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 = 8.45 cfs @ 12.12 hrs, Volume= 0.628 af, Depth> 1.14"

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=4.60"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
*	0	98	Backs of roofs at units 11-16
	29,995	39	>75% Grass cover, Good, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	28,736	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
	287,801	63	Weighted Average
	224,459		77.99% Pervious Area
	63,342		22.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.8	212	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	320	Total			

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

Runoff = 56.85 cfs @ 12.59 hrs, Volume= 7.702 af, Depth> 1.58"

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=4.60"

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

Runoff = 56.85 cfs @ 12.59 hrs, Volume= 7.702 af, Depth> 1.58"

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=4.60"

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)

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

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 1.37" for 10 YR STORM event
Inflow = 54.68 cfs @ 12.90 hrs, Volume= 7.999 af
Outflow = 54.68 cfs @ 12.90 hrs, Volume= 7.999 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 13R: (new Reach)

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

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 1.40" for 10 YR STORM event
Inflow = 54.28 cfs @ 12.91 hrs, Volume= 8.061 af
Outflow = 54.28 cfs @ 12.91 hrs, Volume= 8.061 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

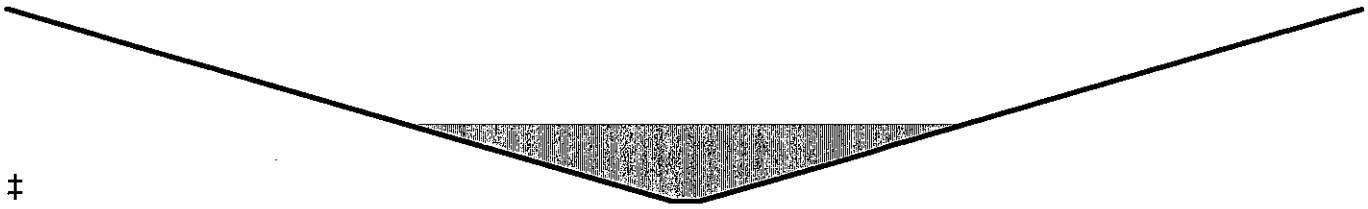
[79] Warning: Submerged Pond 3P Primary device # 1 by 0.81'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.46" for 10 YR STORM event
Inflow = 55.19 cfs @ 12.78 hrs, Volume= 7.994 af
Outflow = 54.53 cfs @ 12.90 hrs, Volume= 7.941 af, Atten= 1%, Lag= 7.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.25 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 6.7 min

Peak Storage= 13,248 cf @ 12.83 hrs
Average Depth at Peak Storage= 1.21' , Surface Width= 38.17'
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'



‡

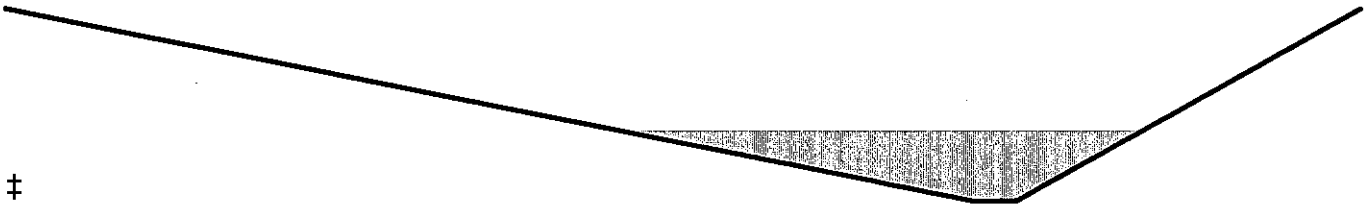
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.58" for 10 YR STORM event
Inflow = 56.85 cfs @ 12.59 hrs, Volume= 7.702 af
Outflow = 56.60 cfs @ 12.66 hrs, Volume= 7.674 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= 4.18 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 4.4 min

Peak Storage= 8,242 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.09' , Surface Width= 22.78'
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'



‡

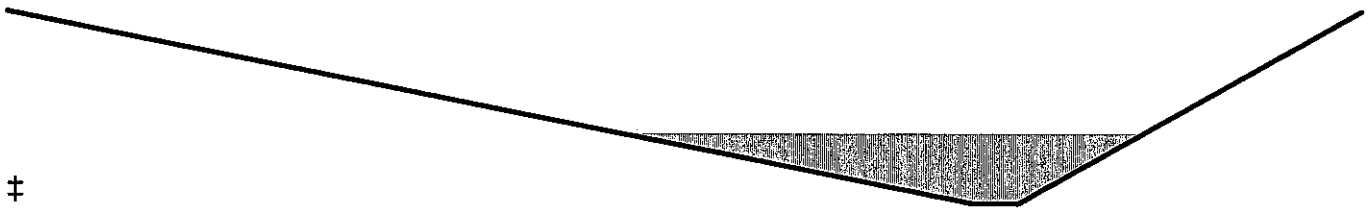
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.58" for 10 YR STORM event
Inflow = 56.85 cfs @ 12.59 hrs, Volume= 7.702 af
Outflow = 56.60 cfs @ 12.66 hrs, Volume= 7.674 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= 4.18 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 4.4 min

Peak Storage= 8,242 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.09' , Surface Width= 22.78'
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

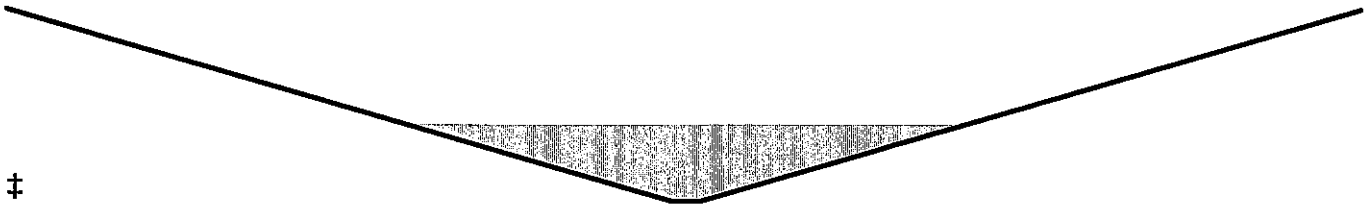
[79] Warning: Submerged Pond 13P Primary device # 1 by 0.80'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 1.48" for 10 YR STORM event
Inflow = 54.72 cfs @ 12.78 hrs, Volume= 8.046 af
Outflow = 54.08 cfs @ 12.91 hrs, Volume= 7.994 af, Atten= 1%, Lag= 7.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.25 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 1.37 fps, Avg. Travel Time= 6.7 min

Peak Storage= 13,167 cf @ 12.84 hrs
Average Depth at Peak Storage= 1.20' , Surface Width= 38.06'
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'



‡

Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.06' @ 13.13 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.51" for 10 YR STORM event
Inflow = 58.99 cfs @ 12.65 hrs, Volume= 8.250 af
Outflow = 55.19 cfs @ 12.78 hrs, Volume= 7.994 af, Atten= 6%, Lag= 8.0 min
Primary = 55.19 cfs @ 12.78 hrs, Volume= 7.994 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.04' @ 12.78 hrs Surf.Area= 49,058 sf Storage= 43,847 cf

Plug-Flow detention time= 25.4 min calculated for 7.994 af (97% of inflow)
Center-of-Mass det. time= 14.9 min (856.4 - 841.5)

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=55.11 cfs @ 12.78 hrs HW=391.03' (Free Discharge)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 55.11 cfs @ 2.69 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.05' @ 13.13 hrs

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 1.53" for 10 YR STORM event
Inflow = 58.27 cfs @ 12.66 hrs, Volume= 8.302 af
Outflow = 54.72 cfs @ 12.78 hrs, Volume= 8.046 af, Atten= 6%, Lag= 7.6 min
Primary = 54.72 cfs @ 12.78 hrs, Volume= 8.046 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.03' @ 12.78 hrs Surf.Area= 48,968 sf Storage= 43,650 cf

Plug-Flow detention time= 25.3 min calculated for 8.030 af (97% of inflow)
Center-of-Mass det. time= 14.9 min (855.4 - 840.5)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	274,915 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	102,581	173,296	274,915

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=54.64 cfs @ 12.78 hrs HW=391.03' (Free Discharge)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 54.64 cfs @ 2.69 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area = 3.755 ac, 64.91% Impervious, Inflow Depth > 2.12" for 10 YR STORM event
Inflow = 8.34 cfs @ 12.16 hrs, Volume= 0.664 af
Outflow = 0.85 cfs @ 11.72 hrs, Volume= 0.630 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.85 cfs @ 11.72 hrs, Volume= 0.630 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 377.98' @ 13.51 hrs Surf.Area= 4,420 sf Storage= 12,414 cf

Plug-Flow detention time= 146.3 min calculated for 0.629 af (95% of inflow)
Center-of-Mass det. time= 127.9 min (928.7 - 800.8)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	**85'X52' OUTSIDE OF STONE (Prismatic)** Listed below (Recalc) 37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	**StormTank 25 Series 72"** x 864 Inside #1 Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf 864 Chambers in 32 Rows 23,328 cf Overall x 97.0% Voids
		27,648 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.85 cfs @ 11.72 hrs HW=374.60' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event
Inflow = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af
Outflow = 0.07 cfs @ 11.66 hrs, Volume= 0.030 af, Atten= 83%, Lag= 0.0 min
Discarded = 0.07 cfs @ 11.66 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 396.42' @ 12.52 hrs Surf.Area= 364 sf Storage= 344 cf

Plug-Flow detention time= 27.8 min calculated for 0.030 af (100% of inflow)
Center-of-Mass det. time= 27.6 min (762.4 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	395.00'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,274 cf Overall - 432 cf Embedded = 842 cf x 40.0% Voids
#2	395.50'	395 cf	**StormTank 25 Series 18"** x 64 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 64 Chambers in 8 Rows 432 cf Overall x 96.0% Voids
		732 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
395.00	364	0	0
398.50	364	1,274	1,274

Device	Routing	Invert	Outlet Devices
#1	Discarded	395.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.07 cfs @ 11.66 hrs HW=395.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af
Outflow = 0.04 cfs @ 11.66 hrs, Volume= 0.018 af, Atten= 83%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.66 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 397.48' @ 12.52 hrs Surf.Area= 220 sf Storage= 212 cf

Plug-Flow detention time= 28.5 min calculated for 0.018 af (100% of inflow)
Center-of-Mass det. time= 28.2 min (763.1 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	**StormTank 25 Series 18"** x 36 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 36 Chambers in 6 Rows 243 cf Overall x 96.0% Voids
		433 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.66 hrs HW=396.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.008 af, Atten= 80%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 375.46' @ 12.49 hrs Surf.Area= 112 sf Storage= 82 cf

Plug-Flow detention time= 20.6 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 20.3 min (755.2 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	**Custom Stage Data (Prismatic)** Listed below 392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	**StormTank 25 Series 18"** x 16 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 16 Chambers in 4 Rows 108 cf Overall x 96.0% Voids
		212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=374.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.00 cfs @ 10.13 hrs, Volume= 0.005 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.00 cfs @ 10.13 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 379.56' @ 14.37 hrs Surf.Area= 208 sf Storage= 172 cf

Plug-Flow detention time= 161.3 min calculated for 0.005 af (64% of inflow)
Center-of-Mass det. time= 85.7 min (820.6 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	205 cf	**Custom Stage Data (Prismatic)** Listed below 728 cf Overall - 216 cf Embedded = 512 cf x 40.0% Voids
#2	379.00'	198 cf	**StormTank 25 Series 18"** x 32 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 32 Chambers in 4 Rows 216 cf Overall x 96.0% Voids
		403 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	208	0	0
381.50	208	728	728

Device	Routing	Invert	Outlet Devices
#1	Discarded	378.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 10.13 hrs HW=378.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af
Outflow = 0.01 cfs @ 9.41 hrs, Volume= 0.008 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.41 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 380.65' @ 15.11 hrs Surf.Area= 319 sf Storage= 354 cf

Plug-Flow detention time= 160.9 min calculated for 0.008 af (54% of inflow)
Center-of-Mass det. time= 72.6 min (807.5 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	**Custom Stage Data (Prismatic)** Listed below 1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	**StormTank 25 Series 18"** x 54 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 54 Chambers in 6 Rows 365 cf Overall x 96.0% Voids
		634 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	319	0	0
382.50	319	1,117	1,117

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 9.41 hrs HW=379.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

25 YEAR STORM

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.01 cfs @ 14.75 hrs, Volume= 0.003 af, Depth> 0.09"

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=5.30"

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
4.4	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.3	150	Total			

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

Runoff = 0.05 cfs @ 15.38 hrs, Volume= 0.020 af, Depth> 0.05"

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=5.30"

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
4.8	50	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
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
6.4	338	Total			

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

Runoff = 0.47 cfs @ 12.69 hrs, Volume= 0.111 af, Depth> 0.32"

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=5.30"

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
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

[73] Warning: Peak may fall outside time span

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 25 YR STORM Rainfall=5.30"

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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.1	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.16 cfs @ 12.42 hrs, Volume= 0.032 af, Depth> 0.29"

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 25 YR STORM Rainfall=5.30"

	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
5.4	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	262	Total			

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.01 cfs @ 13.64 hrs, Volume= 0.004 af, Depth> 0.15"

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 25 YR STORM Rainfall=5.30"

Area (sf)	CN	Description
12,009	39	>75% Grass cover, Good, HSG A
3,537	30	Woods, Good, HSG A
15,546	37	Weighted Average
15,546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.6	140	0.0700	3.97		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	190	Total			

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

Runoff = 0.03 cfs @ 13.93 hrs, Volume= 0.015 af, Depth> 0.12"

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=5.30"

Area (sf)	CN	Description
17,500	30	Woods, Good, HSG A
1,160	30	Woods, Good, HSG A
46,614	39	>75% Grass cover, Good, HSG A
65,274	36	Weighted Average
65,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	159	Total			

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

Runoff = 0.57 cfs @ 12.66 hrs, Volume= 0.124 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 25 YR STORM Rainfall=5.30"

	Area (sf)	CN	Description
*	1,014	98	Back of units 7 & 8
	30,807	98	Water Surface, HSG A
	7,684	39	>75% Grass cover, Good, HSG A
	137,688	30	Woods, Good, HSG A
	177,193	43	Weighted Average
	145,372		82.04% Pervious Area
	31,821		17.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

Runoff = 0.01 cfs @ 14.74 hrs, Volume= 0.005 af, Depth> 0.09"

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=5.30"

Area (sf)	CN	Description
10,400	30	Woods, Good, HSG A
15,186	39	>75% Grass cover, Good, HSG A
25,586	35	Weighted Average
25,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	44	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.9	152	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.11 cfs @ 12.41 hrs, Volume= 0.021 af, Depth> 0.33"

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 25 YR STORM Rainfall=5.30"

Area (sf)	CN	Description
2,256	98	Paved parking, HSG A
5,534	30	Woods, Good, HSG A
25,100	39	>75% Grass cover, Good, HSG A
32,890	42	Weighted Average
30,634		93.14% Pervious Area
2,256		6.86% 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= 3.10"
1.9	119	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.2	169	Total			

Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 10.49 cfs @ 12.16 hrs, Volume= 0.837 af, Depth> 2.67"

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=5.30"

	Area (sf)	CN	Description
	57,069	39	>75% Grass cover, Good, HSG A
*	106,172	98	Drive, driveways & roofs HSG A
	324	39	>75% Grass cover, Good, HSG A
	163,565	77	Weighted Average
	57,393		35.09% Pervious Area
	106,172		64.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	50	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.6	53	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.6	103	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 8.62 cfs @ 12.22 hrs, Volume= 0.800 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 25 YR STORM Rainfall=5.30"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.034 af, Depth> 4.69"

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=5.30"

Area (sf)	CN	Description
3,822	98	Unconnected roofs, HSG A
3,822		100.00% Impervious Area
3,822		100.00% Unconnected

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

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.021 af, Depth> 4.69"

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=5.30"

Area (sf)	CN	Description
2,336	98	Roofs, HSG A
2,336		100.00% Impervious Area

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

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 4.69"

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=5.30"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 4.69"

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=5.30"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

Summary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAM

Runoff = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 4.69"

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=5.30"

Area (sf)	CN	Description
1,911	98	Unconnected pavement, HSG A
1,911		100.00% Impervious Area
1,911		100.00% Unconnected

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 = 11.85 cfs @ 12.11 hrs, Volume= 0.854 af, Depth> 1.55"

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=5.30"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
*	0	98	Backs of roofs at units 11-16
	29,995	39	>75% Grass cover, Good, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	28,736	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
	287,801	63	Weighted Average
	224,459		77.99% Pervious Area
	63,342		22.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.8	212	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	320	Total			

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

Runoff = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af, Depth> 2.06"

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 25 YR STORM Rainfall=5.30"

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

Runoff = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af, Depth> 2.06"

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 25 YR STORM Rainfall=5.30"

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)

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

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 1.82" for 25 YR STORM event
Inflow = 73.65 cfs @ 12.86 hrs, Volume= 10.580 af
Outflow = 73.65 cfs @ 12.86 hrs, Volume= 10.580 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 13R: (new Reach)

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

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 1.85" for 25 YR STORM event
Inflow = 72.87 cfs @ 12.87 hrs, Volume= 10.646 af
Outflow = 72.87 cfs @ 12.87 hrs, Volume= 10.646 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

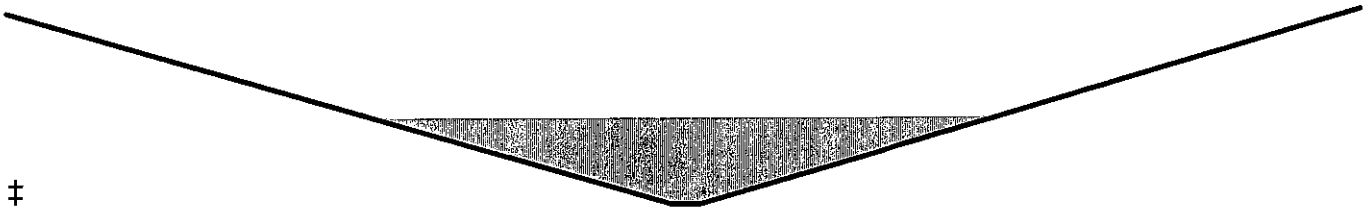
[79] Warning: Submerged Pond 3P Primary device # 1 by 0.95'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.92" for 25 YR STORM event
Inflow = 73.95 cfs @ 12.75 hrs, Volume= 10.529 af
Outflow = 73.23 cfs @ 12.86 hrs, Volume= 10.469 af, Atten= 1%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.43 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 1.42 fps, Avg. Travel Time= 6.4 min

Peak Storage= 16,521 cf @ 12.80 hrs
Average Depth at Peak Storage= 1.35' , Surface Width= 42.62'
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'



‡

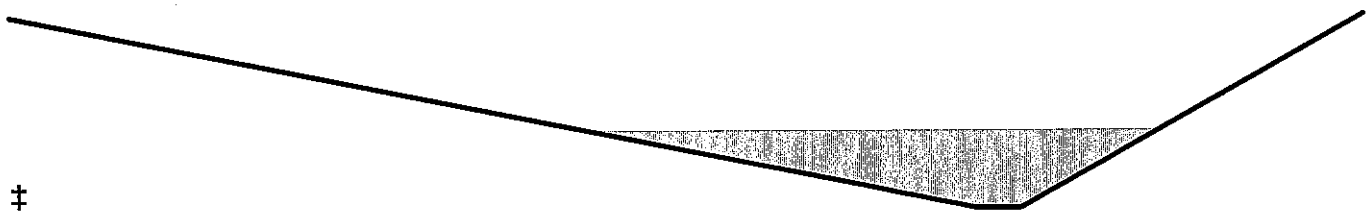
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.06" for 25 YR STORM event
Inflow = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af
Outflow = 74.46 cfs @ 12.65 hrs, Volume= 10.007 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.48 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 4.2 min

Peak Storage= 10,121 cf @ 12.61 hrs
Average Depth at Peak Storage= 1.22' , Surface Width= 25.23'
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'



‡

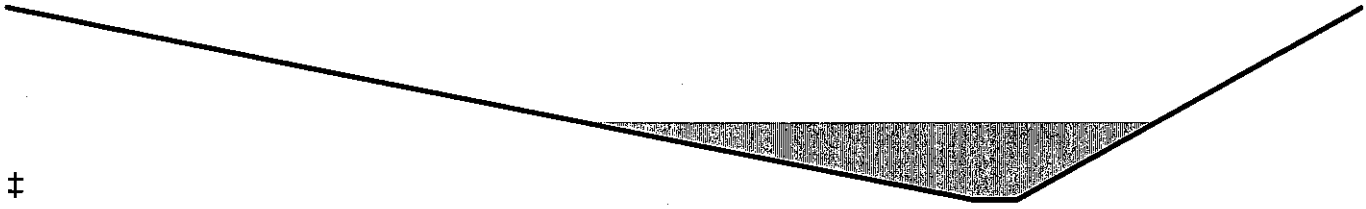
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.06" for 25 YR STORM event
Inflow = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af
Outflow = 74.46 cfs @ 12.65 hrs, Volume= 10.007 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.48 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 4.2 min

Peak Storage= 10,121 cf @ 12.61 hrs
Average Depth at Peak Storage= 1.22' , Surface Width= 25.23'
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

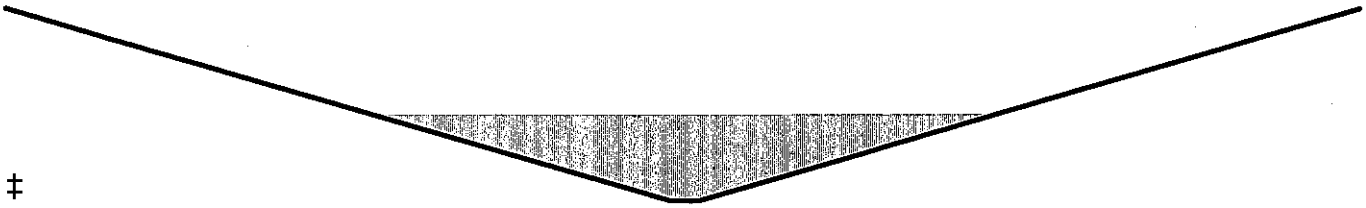
[79] Warning: Submerged Pond 13P Primary device # 1 by 0.95'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 1.95" for 25 YR STORM event
Inflow = 73.07 cfs @ 12.75 hrs, Volume= 10.582 af
Outflow = 72.38 cfs @ 12.87 hrs, Volume= 10.522 af, Atten= 1%, Lag= 6.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.42 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 1.43 fps, Avg. Travel Time= 6.4 min

Peak Storage= 16,377 cf @ 12.80 hrs
Average Depth at Peak Storage= 1.35' , Surface Width= 42.43'
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'



‡

Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.07' @ 13.10 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.97" for 25 YR STORM event
Inflow = 77.87 cfs @ 12.63 hrs, Volume= 10.808 af
Outflow = 73.95 cfs @ 12.75 hrs, Volume= 10.529 af, Atten= 5%, Lag= 7.1 min
Primary = 73.95 cfs @ 12.75 hrs, Volume= 10.529 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.18' @ 12.75 hrs Surf.Area= 52,410 sf Storage= 51,423 cf

Plug-Flow detention time= 22.4 min calculated for 10.508 af (97% of inflow)
Center-of-Mass det. time= 13.6 min (849.0 - 835.5)

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=73.89 cfs @ 12.75 hrs HW=391.18' (Free Discharge)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 73.89 cfs @ 2.86 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.07' @ 13.10 hrs

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 2.00" for 25 YR STORM event
Inflow = 76.72 cfs @ 12.64 hrs, Volume= 10.861 af
Outflow = 73.07 cfs @ 12.75 hrs, Volume= 10.582 af, Atten= 5%, Lag= 6.8 min
Primary = 73.07 cfs @ 12.75 hrs, Volume= 10.582 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.18' @ 12.75 hrs Surf.Area= 52,264 sf Storage= 51,082 cf

Plug-Flow detention time= 22.4 min calculated for 10.582 af (97% of inflow)
Center-of-Mass det. time= 13.6 min (848.1 - 834.5)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	274,915 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	102,581	173,296	274,915

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=72.99 cfs @ 12.75 hrs HW=391.18' (Free Discharge)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 72.99 cfs @ 2.85 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area = 3.755 ac, 64.91% Impervious, Inflow Depth > 2.67" for 25 YR STORM event
Inflow = 10.49 cfs @ 12.16 hrs, Volume= 0.837 af
Outflow = 0.85 cfs @ 11.57 hrs, Volume= 0.655 af, Atten= 92%, Lag= 0.0 min
Discarded = 0.85 cfs @ 11.57 hrs, Volume= 0.655 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 379.21' @ 14.02 hrs Surf.Area= 4,420 sf Storage= 17,185 cf

Plug-Flow detention time= 177.4 min calculated for 0.653 af (78% of inflow)
Center-of-Mass det. time= 122.0 min (917.7 - 795.6)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	**85'X52' OUTSIDE OF STONE (Prismatic)** Listed below (Recalc) 37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	**StormTank 25 Series 72"** x 864 Inside #1 Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf 864 Chambers in 32 Rows 23,328 cf Overall x 97.0% Voids
		27,648 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.85 cfs @ 11.57 hrs HW=374.59' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 0.034 af
Outflow = 0.07 cfs @ 11.63 hrs, Volume= 0.034 af, Atten= 85%, Lag= 0.0 min
Discarded = 0.07 cfs @ 11.63 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 396.72' @ 12.55 hrs Surf.Area= 364 sf Storage= 432 cf

Plug-Flow detention time= 36.9 min calculated for 0.034 af (100% of inflow)
Center-of-Mass det. time= 36.5 min (770.6 - 734.0)

Volume	Invert	Avail.Storage	Storage Description
#1	395.00'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,274 cf Overall - 432 cf Embedded = 842 cf x 40.0% Voids
#2	395.50'	395 cf	**StormTank 25 Series 18"** x 64 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 64 Chambers in 8 Rows 432 cf Overall x 96.0% Voids
		732 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
395.00	364	0	0
398.50	364	1,274	1,274

Device	Routing	Invert	Outlet Devices
#1	Discarded	395.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.07 cfs @ 11.63 hrs HW=395.04' (Free Discharge)
↳**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 0.021 af
Outflow = 0.04 cfs @ 11.63 hrs, Volume= 0.021 af, Atten= 85%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.63 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 397.79' @ 12.55 hrs Surf.Area= 220 sf Storage= 265 cf

Plug-Flow detention time= 37.7 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 37.4 min (771.4 - 734.0)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	**StormTank 25 Series 18"** x 36 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 36 Chambers in 6 Rows 243 cf Overall x 96.0% Voids
		433 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.63 hrs HW=396.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.66 hrs, Volume= 0.009 af, Atten= 83%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.66 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 375.74' @ 12.52 hrs Surf.Area= 112 sf Storage= 105 cf

Plug-Flow detention time= 27.5 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 27.2 min (761.2 - 734.0)

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	**Custom Stage Data (Prismatic)** Listed below 392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	**StormTank 25 Series 18"** x 16 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 16 Chambers in 4 Rows 108 cf Overall x 96.0% Voids
		212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.66 hrs HW=374.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 9.59 hrs, Volume= 0.005 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.00 cfs @ 9.59 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 379.81' @ 14.90 hrs Surf.Area= 208 sf Storage= 211 cf

Plug-Flow detention time= 160.8 min calculated for 0.005 af (57% of inflow)
Center-of-Mass det. time= 75.9 min (809.9 - 734.0)

Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	205 cf	**Custom Stage Data (Prismatic)** Listed below 728 cf Overall - 216 cf Embedded = 512 cf x 40.0% Voids
#2	379.00'	198 cf	**StormTank 25 Series 18"** x 32 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 32 Chambers in 4 Rows 216 cf Overall x 96.0% Voids
		403 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	208	0	0
381.50	208	728	728

Device	Routing	Invert	Outlet Devices
#1	Discarded	378.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 9.59 hrs HW=378.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event
Inflow = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af
Outflow = 0.01 cfs @ 8.96 hrs, Volume= 0.008 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.96 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 380.97' @ 15.54 hrs Surf.Area= 319 sf Storage= 435 cf

Plug-Flow detention time= 162.6 min calculated for 0.008 af (48% of inflow)
Center-of-Mass det. time= 63.3 min (797.3 - 734.0)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	**Custom Stage Data (Prismatic)** Listed below 1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	**StormTank 25 Series 18"** x 54 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 54 Chambers in 6 Rows 365 cf Overall x 96.0% Voids
		634 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	319	0	0
382.50	319	1,117	1,117

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.96 hrs HW=379.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

100 YEAR STORM

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.05 cfs @ 12.38 hrs, Volume= 0.010 af, Depth> 0.32"

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=6.60"

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
4.4	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.3	150	Total			

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

Runoff = 0.30 cfs @ 12.47 hrs, Volume= 0.094 af, Depth> 0.22"

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=6.60"

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
4.8	50	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
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
6.4	338	Total			

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

Runoff = 1.48 cfs @ 12.57 hrs, Volume= 0.245 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 100YR STORM Rainfall=6.60"

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
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

Runoff = 0.01 cfs @ 14.89 hrs, Volume= 0.004 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 100YR STORM Rainfall=6.60"

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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.1	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.55 cfs @ 12.21 hrs, Volume= 0.074 af, Depth> 0.66"

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=6.60"

	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
5.4	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	262	Total			

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.07 cfs @ 12.37 hrs, Volume= 0.013 af, Depth> 0.42"

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=6.60"

Area (sf)	CN	Description
12,009	39	>75% Grass cover, Good, HSG A
3,537	30	Woods, Good, HSG A
15,546	37	Weighted Average
15,546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.6	140	0.0700	3.97		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	190	Total			

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

Runoff = 0.22 cfs @ 12.50 hrs, Volume= 0.046 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 100YR STORM Rainfall=6.60"

Area (sf)	CN	Description
17,500	30	Woods, Good, HSG A
1,160	30	Woods, Good, HSG A
46,614	39	>75% Grass cover, Good, HSG A
65,274	36	Weighted Average
65,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	159	Total			

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

Runoff = 1.67 cfs @ 12.55 hrs, Volume= 0.264 af, Depth> 0.78"

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=6.60"

	Area (sf)	CN	Description
*	1,014	98	Back of units 7 & 8
	30,807	98	Water Surface, HSG A
	7,684	39	>75% Grass cover, Good, HSG A
	137,688	30	Woods, Good, HSG A
	177,193	43	Weighted Average
	145,372		82.04% Pervious Area
	31,821		17.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

Runoff = 0.08 cfs @ 12.36 hrs, Volume= 0.016 af, Depth> 0.32"

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=6.60"

Area (sf)	CN	Description
10,400	30	Woods, Good, HSG A
15,186	39	>75% Grass cover, Good, HSG A
25,586	35	Weighted Average
25,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	44	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.9	152	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.36 cfs @ 12.21 hrs, Volume= 0.045 af, Depth> 0.72"

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 100YR STORM Rainfall=6.60"

Area (sf)	CN	Description
2,256	98	Paved parking, HSG A
5,534	30	Woods, Good, HSG A
25,100	39	>75% Grass cover, Good, HSG A
32,890	42	Weighted Average
30,634		93.14% Pervious Area
2,256		6.86% 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= 3.10"
1.9	119	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.2	169	Total			

Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 14.61 cfs @ 12.16 hrs, Volume= 1.172 af, Depth> 3.74"

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=6.60"

	Area (sf)	CN	Description
	57,069	39	>75% Grass cover, Good, HSG A
*	106,172	98	Drive, driveways & roofs HSG A
	324	39	>75% Grass cover, Good, HSG A
	163,565	77	Weighted Average
	57,393		35.09% Pervious Area
	106,172		64.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	50	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.6	53	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.6	103	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 14.31 cfs @ 12.21 hrs, Volume= 1.271 af, Depth> 2.12"

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=6.60"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	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
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.043 af, Depth> 5.87"

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=6.60"

Area (sf)	CN	Description
3,822	98	Unconnected roofs, HSG A
3,822		100.00% Impervious Area
3,822		100.00% Unconnected

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

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 5.87"

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=6.60"

Area (sf)	CN	Description
2,336	98	Roofs, HSG A
2,336		100.00% Impervious Area

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

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af, Depth> 5.87"

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=6.60"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af, Depth> 5.87"

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=6.60"

Area (sf)	CN	Description
1,014	98	Unconnected roofs, HSG A
1,014		100.00% Impervious Area
1,014		100.00% Unconnected

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

Summary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAI

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.021 af, Depth> 5.87"

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=6.60"

Area (sf)	CN	Description
1,911	98	Unconnected pavement, HSG A
1,911		100.00% Impervious Area
1,911		100.00% Unconnected

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 = 18.77 cfs @ 12.11 hrs, Volume= 1.318 af, Depth> 2.39"

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=6.60"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
*	0	98	Backs of roofs at units 11-16
	29,995	39	>75% Grass cover, Good, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	28,736	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
	287,801	63	Weighted Average
	224,459		77.99% Pervious Area
	63,342		22.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	58	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.8	212	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	320	Total			

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

Runoff = 110.03 cfs @ 12.57 hrs, Volume= 14.710 af, Depth> 3.01"

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 100YR STORM Rainfall=6.60"

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

Runoff = 110.03 cfs @ 12.57 hrs, Volume= 14.710 af, Depth> 3.01"

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 100YR STORM Rainfall=6.60"

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)

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

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 2.71" for 100YR STORM event
Inflow = 111.31 cfs @ 12.81 hrs, Volume= 15.794 af
Outflow = 111.31 cfs @ 12.81 hrs, Volume= 15.794 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 13R: (new Reach)

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

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 2.75" for 100YR STORM event
Inflow = 109.67 cfs @ 12.82 hrs, Volume= 15.861 af
Outflow = 109.67 cfs @ 12.82 hrs, Volume= 15.861 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

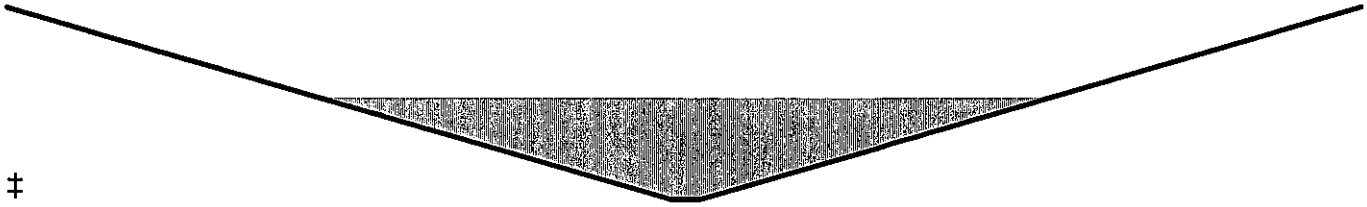
[79] Warning: Submerged Pond 3P Primary device # 1 by 1.19'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.85" for 100YR STORM event
Inflow = 111.01 cfs @ 12.71 hrs, Volume= 15.624 af
Outflow = 110.14 cfs @ 12.81 hrs, Volume= 15.549 af, Atten= 1%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.69 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 1.52 fps, Avg. Travel Time= 6.0 min

Peak Storage= 22,435 cf @ 12.75 hrs
Average Depth at Peak Storage= 1.59' , Surface Width= 49.65'
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'



‡

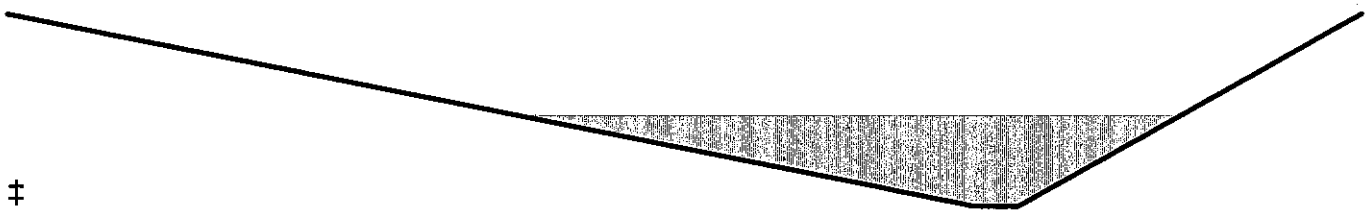
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 3.01" for 100YR STORM event
Inflow = 110.03 cfs @ 12.57 hrs, Volume= 14.710 af
Outflow = 109.71 cfs @ 12.63 hrs, Volume= 14.669 af, Atten= 0%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.93 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 3.9 min

Peak Storage= 13,527 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.43' , Surface Width= 29.14'
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'



‡

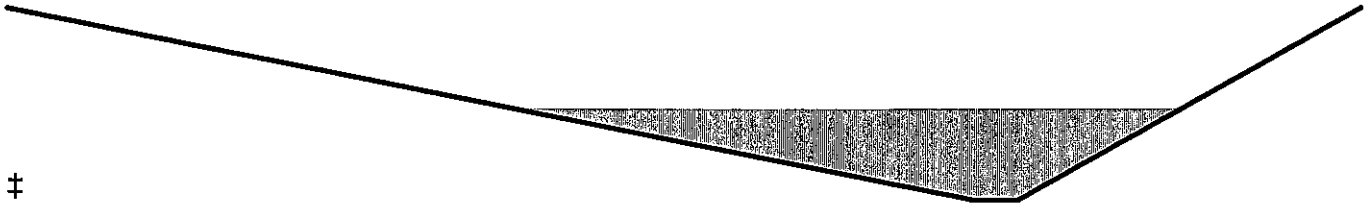
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 3.01" for 100YR STORM event
Inflow = 110.03 cfs @ 12.57 hrs, Volume= 14.710 af
Outflow = 109.71 cfs @ 12.63 hrs, Volume= 14.669 af, Atten= 0%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.93 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 3.9 min

Peak Storage= 13,527 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.43' , Surface Width= 29.14'
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

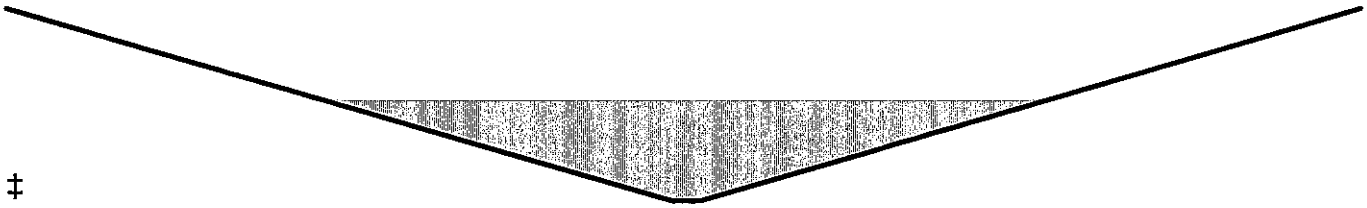
[79] Warning: Submerged Pond 13P Primary device # 1 by 1.18'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 2.89" for 100YR STORM event
Inflow = 109.25 cfs @ 12.72 hrs, Volume= 15.672 af
Outflow = 108.41 cfs @ 12.82 hrs, Volume= 15.597 af, Atten= 1%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 1.52 fps, Avg. Travel Time= 6.0 min

Peak Storage= 22,169 cf @ 12.76 hrs
Average Depth at Peak Storage= 1.58' , Surface Width= 49.35'
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'



‡

Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.10' @ 13.01 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.91" for 100YR STORM event
Inflow = 115.28 cfs @ 12.61 hrs, Volume= 15.940 af
Outflow = 111.01 cfs @ 12.71 hrs, Volume= 15.624 af, Atten= 4%, Lag= 6.2 min
Primary = 111.01 cfs @ 12.71 hrs, Volume= 15.624 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.42' @ 12.71 hrs Surf.Area= 57,757 sf Storage= 64,542 cf

Plug-Flow detention time= 19.0 min calculated for 15.624 af (98% of inflow)
Center-of-Mass det. time= 12.0 min (838.7 - 826.7)

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=110.98 cfs @ 12.71 hrs HW=391.42' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 110.98 cfs @ 3.10 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.10' @ 13.04 hrs

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 2.94" for 100YR STORM event
Inflow = 113.18 cfs @ 12.62 hrs, Volume= 15.987 af
Outflow = 109.25 cfs @ 12.72 hrs, Volume= 15.672 af, Atten= 3%, Lag= 6.0 min
Primary = 109.25 cfs @ 12.72 hrs, Volume= 15.672 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.41' @ 12.72 hrs Surf.Area= 57,529 sf Storage= 63,958 cf

Plug-Flow detention time= 19.0 min calculated for 15.672 af (98% of inflow)
Center-of-Mass det. time= 12.0 min (837.8 - 825.8)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	274,915 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	102,581	173,296	274,915

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=109.14 cfs @ 12.72 hrs HW=391.41' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 109.14 cfs @ 3.09 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area = 3.755 ac, 64.91% Impervious, Inflow Depth > 3.74" for 100YR STORM event
Inflow = 14.61 cfs @ 12.16 hrs, Volume= 1.172 af
Outflow = 0.85 cfs @ 11.24 hrs, Volume= 0.701 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.85 cfs @ 11.24 hrs, Volume= 0.701 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 382.84' @ 15.02 hrs Surf.Area= 4,420 sf Storage= 27,363 cf

Plug-Flow detention time= 183.8 min calculated for 0.699 af (60% of inflow)
Center-of-Mass det. time= 109.4 min (897.3 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	**85'X52' OUTSIDE OF STONE (Prismatic)** Listed below (Recalc) 37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	**StormTank 25 Series 72"** x 864 Inside #1 Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf 864 Chambers in 32 Rows 23,328 cf Overall x 97.0% Voids
		27,648 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.85 cfs @ 11.24 hrs HW=374.59' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event
Inflow = 0.58 cfs @ 12.07 hrs, Volume= 0.043 af
Outflow = 0.07 cfs @ 11.57 hrs, Volume= 0.043 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.07 cfs @ 11.57 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 397.58' @ 12.62 hrs Surf.Area= 364 sf Storage= 599 cf

Plug-Flow detention time= 55.7 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 55.4 min (788.5 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	395.00'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,274 cf Overall - 432 cf Embedded = 842 cf x 40.0% Voids
#2	395.50'	395 cf	**StormTank 25 Series 18"** x 64 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 64 Chambers in 8 Rows 432 cf Overall x 96.0% Voids
		732 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
395.00	364	0	0
398.50	364	1,274	1,274

Device	Routing	Invert	Outlet Devices
#1	Discarded	395.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.07 cfs @ 11.57 hrs HW=395.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event
Inflow = 0.36 cfs @ 12.07 hrs, Volume= 0.026 af
Outflow = 0.04 cfs @ 11.57 hrs, Volume= 0.026 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.57 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 398.76' @ 12.62 hrs Surf.Area= 220 sf Storage= 368 cf

Plug-Flow detention time= 57.0 min calculated for 0.026 af (100% of inflow)
Center-of-Mass det. time= 56.6 min (789.6 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	**StormTank 25 Series 18"** x 36 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 36 Chambers in 6 Rows 243 cf Overall x 96.0% Voids
		433 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.57 hrs HW=396.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.63 hrs, Volume= 0.011 af, Atten= 86%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.63 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 376.26' @ 12.56 hrs Surf.Area= 112 sf Storage= 148 cf

Plug-Flow detention time= 42.3 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 42.0 min (775.0 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	**Custom Stage Data (Prismatic)** Listed below 392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	**StormTank 25 Series 18"** x 16 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 16 Chambers in 4 Rows 108 cf Overall x 96.0% Voids
		212 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.63 hrs HW=374.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af
Outflow = 0.00 cfs @ 8.87 hrs, Volume= 0.005 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.00 cfs @ 8.87 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 380.32' @ 15.58 hrs Surf.Area= 208 sf Storage= 291 cf

Plug-Flow detention time= 161.8 min calculated for 0.005 af (48% of inflow)
Center-of-Mass det. time= 61.5 min (794.5 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	205 cf	**Custom Stage Data (Prismatic)** Listed below 728 cf Overall - 216 cf Embedded = 512 cf x 40.0% Voids
#2	379.00'	198 cf	**StormTank 25 Series 18"** x 32 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 32 Chambers in 4 Rows 216 cf Overall x 96.0% Voids
		403 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	208	0	0
381.50	208	728	728

Device	Routing	Invert	Outlet Devices
#1	Discarded	378.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 8.87 hrs HW=378.04' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 0.021 af
Outflow = 0.01 cfs @ 8.33 hrs, Volume= 0.009 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.33 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 382.17' @ 16.12 hrs Surf.Area= 319 sf Storage= 593 cf

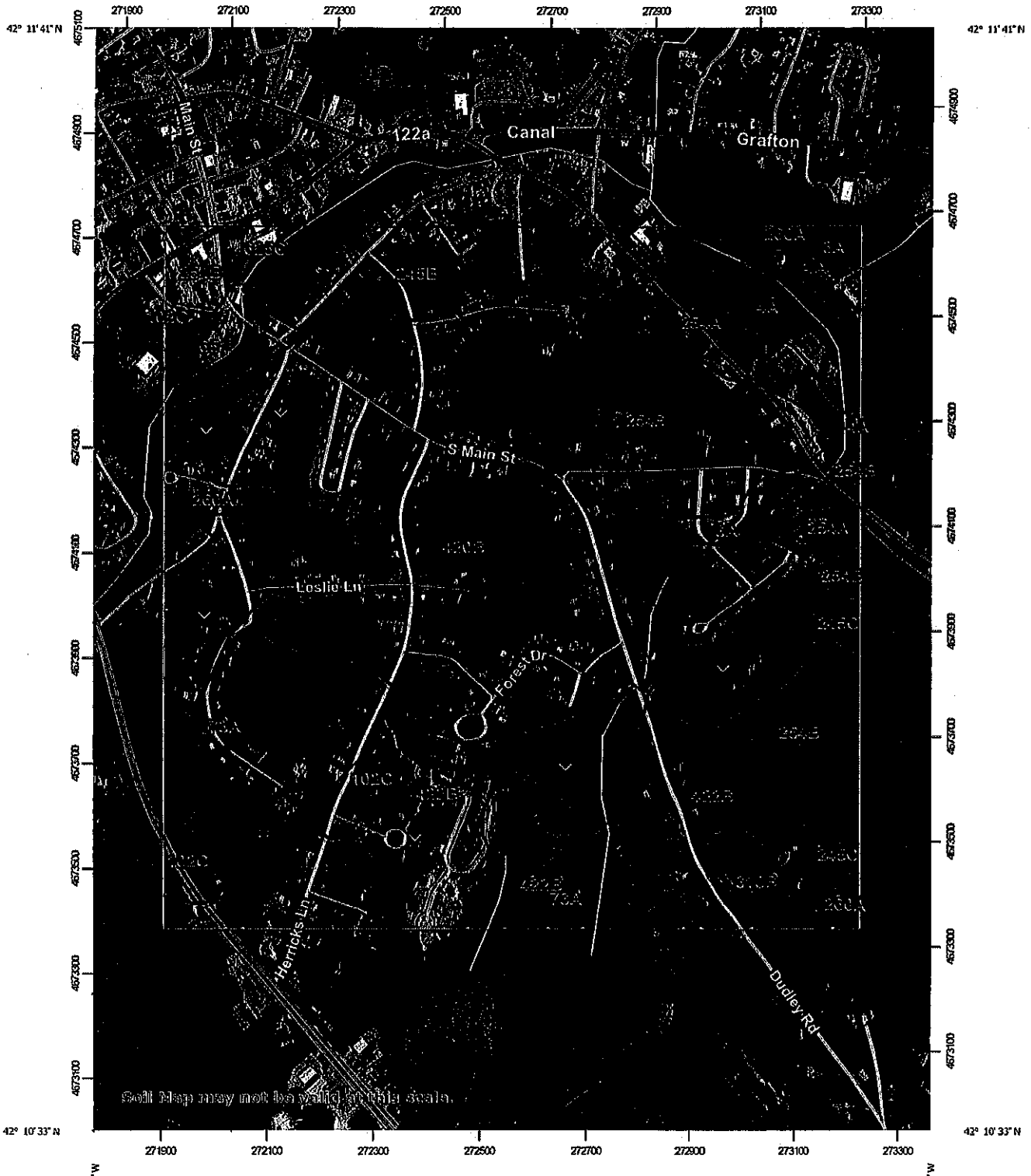
Plug-Flow detention time= 166.8 min calculated for 0.009 af (40% of inflow)
Center-of-Mass det. time= 49.5 min (782.5 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	**Custom Stage Data (Prismatic)** Listed below 1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	**StormTank 25 Series 18"** x 54 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 54 Chambers in 6 Rows 365 cf Overall x 96.0% Voids
		634 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	319	0	0
382.50	319	1,117	1,117

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.33 hrs HW=379.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)



Map Scale: 1:10,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

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

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

Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Worcester County, Massachusetts, Southern Part
Survey Area Data: Version 13, Jun 11, 2020

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

Date(s) aerial images were photographed: Jul 26, 2019—Oct 5, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	14.3	3.3%
3A	Scarboro and Walpole soils, 0 to 3 percent slopes	12.2	2.8%
4A	Rippowam fine sandy loam, 0 to 3 percent slopes	14.9	3.4%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	26.7	6.1%
102C	Chatfield-Hollis-Rock outcrop complex, 0 to 15 percent slopes	15.8	3.6%
245B	Hinckley loamy sand, 3 to 8 percent slopes	22.9	5.2%
245C	Hinckley loamy sand, 8 to 15 percent slopes	3.3	0.7%
254A	Merrimac fine sandy loam, 0 to 3 percent slopes	19.0	4.3%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	58.6	13.4%
260A	Sudbury fine sandy loam, 0 to 3 percent slopes	10.2	2.3%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	5.6	1.3%
420B	Canton fine sandy loam, 3 to 8 percent slopes	141.6	32.3%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	86.3	19.7%
625C	Hinckley-Urban land complex, 0 to 15 percent slopes	2.2	0.5%
651	Udorthents, smoothed	5.0	1.1%
Totals for Area of Interest		438.4	100.0%