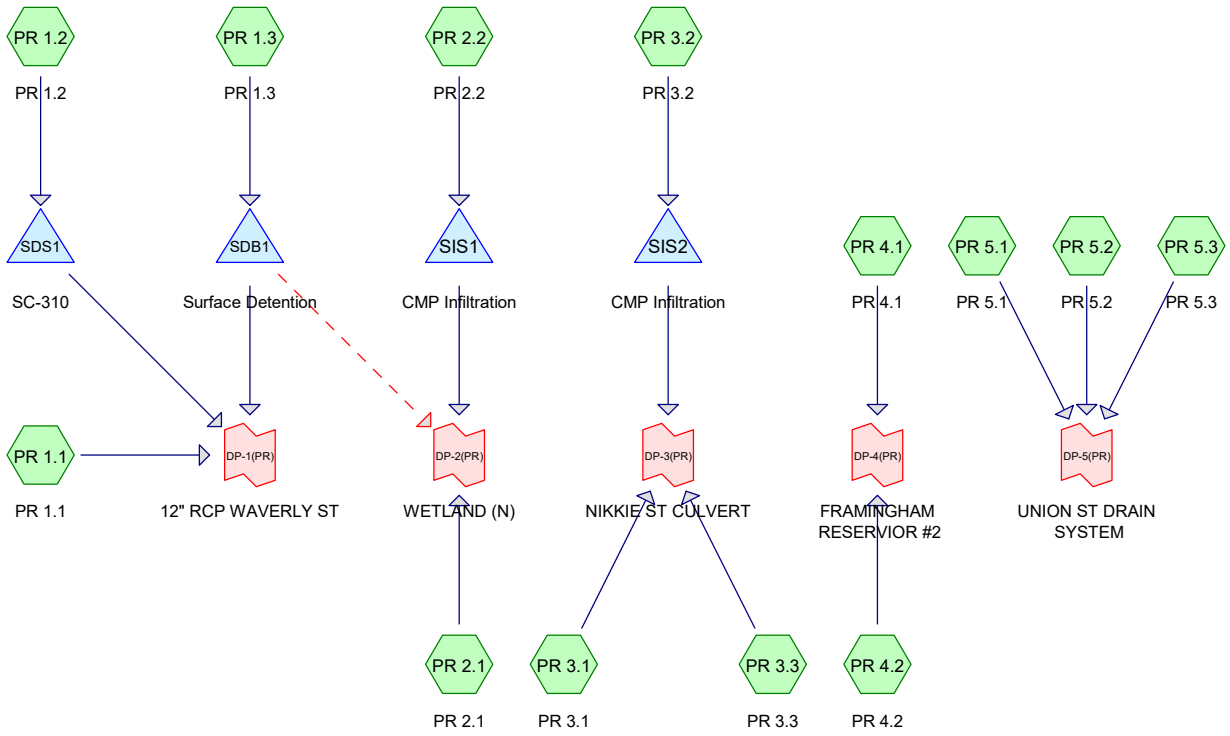

Subcat Reach Pond Link

Routing Diagram for 61 Waverly St Hydrology
Prepared by Symmes, Maini & McKee, Printed 1/22/2026

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.926	39	>75% Grass cover, Good, HSG A (PR 1.2, PR 1.3, PR 2.1, PR 2.2, PR 3.1, PR 3.2, PR 4.1, PR 4.2, PR 5.1, PR 5.2, PR 5.3)
0.520	61	>75% Grass cover, Good, HSG B (PR 1.1, PR 1.2, PR 4.1, PR 4.2, PR 5.2, PR 5.3)
3.809	98	Paved parking, HSG A (PR 1.1, PR 1.2, PR 1.3, PR 2.2, PR 3.2, PR 4.1, PR 5.1)
0.033	63	Pervious Pavers (PR 4.1)
1.276	98	Roofs, HSG A (PR 1.3, PR 2.2, PR 3.2)
0.114	98	Water Surface, 0% imp, HSG A (PR 1.3)
1.451	30	Woods, Good, HSG A (PR 1.3, PR 2.1, PR 3.1, PR 3.3, PR 5.1, PR 5.2)
10.128	**69**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.926	0.520	0.000	0.000	0.000	3.446	>75% Grass cover, Good	PR 1.1, PR 1.2, PR 1.3, PR 2.1, PR 2.2, PR 3.1, PR 3.2, PR 4.1, PR 4.2, PR 5.1, PR 5.2, PR 5.3
3.809	0.000	0.000	0.000	0.000	3.809	Paved parking	PR 1.1, PR 1.2, PR 1.3, PR 2.2, PR 3.2, PR 4.1, PR 5.1
0.000	0.000	0.000	0.000	0.033	0.033	Pervious Pavers	PR 4.1
1.276	0.000	0.000	0.000	0.000	1.276	Roofs	PR 1.3, PR 2.2, PR 3.2
0.114	0.000	0.000	0.000	0.000	0.114	Water Surface, 0% imp	PR 1.3
1.451	0.000	0.000	0.000	0.000	1.451	Woods, Good	PR 1.3, PR 2.1, PR 3.1, PR 3.3, PR 5.1, PR 5.2
9.574	**0.520**	**0.000**	**0.000**	**0.033**	**10.128**	**TOTAL AREA**	

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR 1.1: PR 1.1 Runoff Area=2,705 sf 50.28% Impervious Runoff Depth=1.51"
Tc=6.0 min CN=80 Runoff=0.11 cfs 0.008 af

Subcatchment PR 1.2: PR 1.2 Runoff Area=13,738 sf 36.99% Impervious Runoff Depth=0.67"
Tc=6.0 min CN=65 Runoff=0.20 cfs 0.018 af

Subcatchment PR 1.3: PR 1.3 Runoff Area=76,422 sf 61.69% Impervious Runoff Depth=1.44"
Flow Length=306' Tc=6.8 min CN=79 Runoff=2.85 cfs 0.211 af

Subcatchment PR 2.1: PR 2.1 Runoff Area=14,380 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=29' Slope=0.0200 '/' Tc=8.0 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment PR 2.2: PR 2.2 Runoff Area=133,377 sf 76.23% Impervious Runoff Depth=1.80"
Flow Length=359' Tc=7.2 min CN=84 Runoff=6.20 cfs 0.459 af

Subcatchment PR 3.1: PR 3.1 Runoff Area=17,092 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=112' Tc=6.5 min CN=32 Runoff=0.00 cfs 0.000 af

Subcatchment PR 3.2: PR 3.2 Runoff Area=91,951 sf 71.48% Impervious Runoff Depth=1.58"
Tc=6.0 min CN=81 Runoff=3.89 cfs 0.278 af

Subcatchment PR 3.3: PR 3.3 Runoff Area=10,100 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PR 4.1: PR 4.1 Runoff Area=6,286 sf 3.42% Impervious Runoff Depth=0.11"
Tc=6.0 min CN=48 Runoff=0.00 cfs 0.001 af

Subcatchment PR 4.2: PR 4.2 Runoff Area=2,552 sf 0.00% Impervious Runoff Depth=0.02"
Tc=6.0 min CN=42 Runoff=0.00 cfs 0.000 af

Subcatchment PR 5.1: PR 5.1 Runoff Area=5,871 sf 4.56% Impervious Runoff Depth=0.01"
Tc=6.0 min CN=40 Runoff=0.00 cfs 0.000 af

Subcatchment PR 5.2: PR 5.2 Runoff Area=63,985 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=133' Tc=14.0 min CN=41 Runoff=0.00 cfs 0.002 af

Subcatchment PR 5.3: PR 5.3 Runoff Area=2,700 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

Pond SDB1: Surface Detention Peak Elev=227.03' Storage=8,851 cf Inflow=2.85 cfs 0.211 af
Primary=0.01 cfs 0.053 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.053 af

Pond SDS1: SC-310 Peak Elev=216.85' Storage=535 cf Inflow=0.20 cfs 0.018 af
Outflow=0.01 cfs 0.016 af

Pond SIS1: CMP Infiltration Peak Elev=227.78' Storage=7,481 cf Inflow=6.20 cfs 0.459 af
Discarded=0.61 cfs 0.459 af Primary=0.00 cfs 0.000 af Outflow=0.61 cfs 0.459 af

Pond SIS2: CMP Infiltration Peak Elev=230.07' Storage=4,186 cf Inflow=3.89 cfs 0.278 af
Discarded=0.44 cfs 0.278 af Primary=0.00 cfs 0.000 af Outflow=0.44 cfs 0.278 af

Link DP-1(PR): 12" RCP WAVERLY ST Inflow=0.11 cfs 0.077 af
Primary=0.11 cfs 0.077 af

Link DP-2(PR): WETLAND (N) Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link DP-3(PR): NIKKIE ST CULVERT Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link DP-4(PR): FRAMINGHAM RESERVIOR #2 Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af

Link DP-5(PR): UNION ST DRAIN SYSTEM Inflow=0.00 cfs 0.002 af
Primary=0.00 cfs 0.002 af

Total Runoff Area = 10.128 ac Runoff Volume = 0.977 af Average Runoff Depth = 1.16"
49.80% Pervious = 5.043 ac 50.20% Impervious = 5.084 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR 1.1: PR 1.1 Runoff Area=2,705 sf 50.28% Impervious Runoff Depth=3.09"
Tc=6.0 min CN=80 Runoff=0.23 cfs 0.016 af

Subcatchment PR 1.2: PR 1.2 Runoff Area=13,738 sf 36.99% Impervious Runoff Depth=1.81"
Tc=6.0 min CN=65 Runoff=0.64 cfs 0.048 af

Subcatchment PR 1.3: PR 1.3 Runoff Area=76,422 sf 61.69% Impervious Runoff Depth=3.00"
Flow Length=306' Tc=6.8 min CN=79 Runoff=6.00 cfs 0.439 af

Subcatchment PR 2.1: PR 2.1 Runoff Area=14,380 sf 0.00% Impervious Runoff Depth=0.14"
Flow Length=29' Slope=0.0200 '/' Tc=8.0 min CN=36 Runoff=0.01 cfs 0.004 af

Subcatchment PR 2.2: PR 2.2 Runoff Area=133,377 sf 76.23% Impervious Runoff Depth=3.48"
Flow Length=359' Tc=7.2 min CN=84 Runoff=11.89 cfs 0.888 af

Subcatchment PR 3.1: PR 3.1 Runoff Area=17,092 sf 0.00% Impervious Runoff Depth=0.04"
Flow Length=112' Tc=6.5 min CN=32 Runoff=0.00 cfs 0.001 af

Subcatchment PR 3.2: PR 3.2 Runoff Area=91,951 sf 71.48% Impervious Runoff Depth=3.19"
Tc=6.0 min CN=81 Runoff=7.88 cfs 0.561 af

Subcatchment PR 3.3: PR 3.3 Runoff Area=10,100 sf 0.00% Impervious Runoff Depth=0.01"
Tc=6.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PR 4.1: PR 4.1 Runoff Area=6,286 sf 3.42% Impervious Runoff Depth=0.68"
Tc=6.0 min CN=48 Runoff=0.07 cfs 0.008 af

Subcatchment PR 4.2: PR 4.2 Runoff Area=2,552 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=42 Runoff=0.01 cfs 0.002 af

Subcatchment PR 5.1: PR 5.1 Runoff Area=5,871 sf 4.56% Impervious Runoff Depth=0.29"
Tc=6.0 min CN=40 Runoff=0.01 cfs 0.003 af

Subcatchment PR 5.2: PR 5.2 Runoff Area=63,985 sf 0.00% Impervious Runoff Depth=0.33"
Flow Length=133' Tc=14.0 min CN=41 Runoff=0.15 cfs 0.040 af

Subcatchment PR 5.3: PR 5.3 Runoff Area=2,700 sf 0.00% Impervious Runoff Depth=0.25"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.001 af

Pond SDB1: Surface Detention Peak Elev=227.92' Storage=15,153 cf Inflow=6.00 cfs 0.439 af
Primary=0.11 cfs 0.262 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.262 af

Pond SDS1: SC-310 Peak Elev=217.40' Storage=1,001 cf Inflow=0.64 cfs 0.048 af
Outflow=0.07 cfs 0.046 af

Pond SIS1: CMP Infiltration Peak Elev=229.12' Storage=18,892 cf Inflow=11.89 cfs 0.888 af
Discarded=0.61 cfs 0.888 af Primary=0.00 cfs 0.000 af Outflow=0.61 cfs 0.889 af

Pond SIS2: CMP Infiltration Peak Elev=231.29' Storage=11,459 cf Inflow=7.88 cfs 0.561 af
Discarded=0.44 cfs 0.561 af Primary=0.00 cfs 0.000 af Outflow=0.44 cfs 0.561 af

Link DP-1(PR): 12" RCP WAVERLY ST Inflow=0.23 cfs 0.323 af
Primary=0.23 cfs 0.323 af

Link DP-2(PR): WETLAND (N) Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Link DP-3(PR): NIKKIE ST CULVERT Inflow=0.00 cfs 0.002 af
Primary=0.00 cfs 0.002 af

Link DP-4(PR): FRAMINGHAM RESERVIOR #2 Inflow=0.07 cfs 0.010 af
Primary=0.07 cfs 0.010 af

Link DP-5(PR): UNION ST DRAIN SYSTEM Inflow=0.17 cfs 0.045 af
Primary=0.17 cfs 0.045 af

Total Runoff Area = 10.128 ac Runoff Volume = 2.012 af Average Runoff Depth = 2.38"
49.80% Pervious = 5.043 ac 50.20% Impervious = 5.084 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PR 1.1: PR 1.1 Runoff Area=2,705 sf 50.28% Impervious Runoff Depth=5.83"
Tc=6.0 min CN=80 Runoff=0.42 cfs 0.030 af

Subcatchment PR 1.2: PR 1.2 Runoff Area=13,738 sf 36.99% Impervious Runoff Depth=4.07"
Tc=6.0 min CN=65 Runoff=1.50 cfs 0.107 af

Subcatchment PR 1.3: PR 1.3 Runoff Area=76,422 sf 61.69% Impervious Runoff Depth=5.71"
Flow Length=306' Tc=6.8 min CN=79 Runoff=11.27 cfs 0.835 af

Subcatchment PR 2.1: PR 2.1 Runoff Area=14,380 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=29' Slope=0.0200 '/' Tc=8.0 min CN=36 Runoff=0.18 cfs 0.027 af

Subcatchment PR 2.2: PR 2.2 Runoff Area=133,377 sf 76.23% Impervious Runoff Depth=6.31"
Flow Length=359' Tc=7.2 min CN=84 Runoff=21.02 cfs 1.609 af

Subcatchment PR 3.1: PR 3.1 Runoff Area=17,092 sf 0.00% Impervious Runoff Depth=0.62"
Flow Length=112' Tc=6.5 min CN=32 Runoff=0.10 cfs 0.020 af

Subcatchment PR 3.2: PR 3.2 Runoff Area=91,951 sf 71.48% Impervious Runoff Depth=5.95"
Tc=6.0 min CN=81 Runoff=14.42 cfs 1.047 af

Subcatchment PR 3.3: PR 3.3 Runoff Area=10,100 sf 0.00% Impervious Runoff Depth=0.47"
Tc=6.0 min CN=30 Runoff=0.03 cfs 0.009 af

Subcatchment PR 4.1: PR 4.1 Runoff Area=6,286 sf 3.42% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=48 Runoff=0.33 cfs 0.026 af

Subcatchment PR 4.2: PR 4.2 Runoff Area=2,552 sf 0.00% Impervious Runoff Depth=1.55"
Tc=6.0 min CN=42 Runoff=0.08 cfs 0.008 af

Subcatchment PR 5.1: PR 5.1 Runoff Area=5,871 sf 4.56% Impervious Runoff Depth=1.35"
Tc=6.0 min CN=40 Runoff=0.15 cfs 0.015 af

Subcatchment PR 5.2: PR 5.2 Runoff Area=63,985 sf 0.00% Impervious Runoff Depth=1.45"
Flow Length=133' Tc=14.0 min CN=41 Runoff=1.43 cfs 0.177 af

Subcatchment PR 5.3: PR 5.3 Runoff Area=2,700 sf 0.00% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=39 Runoff=0.06 cfs 0.006 af

Pond SDB1: Surface Detention Peak Elev=228.68' Storage=21,284 cf Inflow=11.27 cfs 0.835 af
Primary=1.43 cfs 0.651 af Secondary=0.00 cfs 0.000 af Outflow=1.43 cfs 0.651 af

Pond SDS1: SC-310 Peak Elev=218.13' Storage=1,452 cf Inflow=1.50 cfs 0.107 af
Outflow=0.82 cfs 0.105 af

Pond SIS1: CMP Infiltration Peak Elev=231.44' Storage=35,492 cf Inflow=21.02 cfs 1.609 af
Discarded=0.61 cfs 1.391 af Primary=1.31 cfs 0.218 af Outflow=1.92 cfs 1.609 af

Pond SIS2: CMP Infiltration Peak Elev=233.82' Storage=24,950 cf Inflow=14.42 cfs 1.047 af
Discarded=0.44 cfs 0.908 af Primary=0.16 cfs 0.139 af Outflow=0.60 cfs 1.047 af

Link DP-1(PR): 12" RCP WAVERLY ST Inflow=1.80 cfs 0.786 af
Primary=1.80 cfs 0.786 af

Link DP-2(PR): WETLAND (N) Inflow=1.36 cfs 0.245 af
Primary=1.36 cfs 0.245 af

Link DP-3(PR): NIKKIE ST CULVERT Inflow=0.25 cfs 0.169 af
Primary=0.25 cfs 0.169 af

Link DP-4(PR): FRAMINGHAM RESERVIOR #2 Inflow=0.41 cfs 0.034 af
Primary=0.41 cfs 0.034 af

Link DP-5(PR): UNION ST DRAIN SYSTEM Inflow=1.59 cfs 0.199 af
Primary=1.59 cfs 0.199 af

Total Runoff Area = 10.128 ac Runoff Volume = 3.917 af Average Runoff Depth = 4.64"
49.80% Pervious = 5.043 ac 50.20% Impervious = 5.084 ac

Summary for Subcatchment PR 1.1: PR 1.1

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.030 af, Depth= 5.83"
Routed to Link DP-1(PR) : 12" RCP WAVERLY ST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
1,345	61	>75% Grass cover, Good, HSG B
1,360	98	Paved parking, HSG A
2,705	80	Weighted Average
1,345		49.72% Pervious Area
1,360		50.28% Impervious Area

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

Summary for Subcatchment PR 1.2: PR 1.2

Runoff = 1.50 cfs @ 12.09 hrs, Volume= 0.107 af, Depth= 4.07"
Routed to Pond SDS1 : SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
5,081	98	Paved parking, HSG A
6,109	39	>75% Grass cover, Good, HSG A
2,548	61	>75% Grass cover, Good, HSG B
13,738	65	Weighted Average
8,657		63.01% Pervious Area
5,081		36.99% Impervious Area

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

Summary for Subcatchment PR 1.3: PR 1.3

[47] Hint: Peak is 316% of capacity of segment #4

Runoff = 11.27 cfs @ 12.10 hrs, Volume= 0.835 af, Depth= 5.71"
Routed to Pond SDB1 : Surface Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
10,500	98	Roofs, HSG A
36,641	98	Paved parking, HSG A
23,565	39	>75% Grass cover, Good, HSG A
4,957	98	Water Surface, 0% imp, HSG A
759	30	Woods, Good, HSG A
76,422	79	Weighted Average
29,281		38.31% Pervious Area
47,141		61.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.20"
0.4	56	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	160	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	40	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
6.8	306	Total			

Summary for Subcatchment PR 2.1: PR 2.1

Runoff = 0.18 cfs @ 12.17 hrs, Volume= 0.027 af, Depth= 0.97"
Routed to Link DP-2(PR) : WETLAND (N)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
9,911	39	>75% Grass cover, Good, HSG A
4,469	30	Woods, Good, HSG A
14,380	36	Weighted Average
14,380		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	29	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment PR 2.2: PR 2.2

[47] Hint: Peak is 590% of capacity of segment #4

Runoff = 21.02 cfs @ 12.10 hrs, Volume= 1.609 af, Depth= 6.31"
Routed to Pond SIS1 : CMP Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

	Area (sf)	CN	Description
	24,000	98	Roofs, HSG A
*	77,676	98	Paved parking, HSG A
	31,701	39	>75% Grass cover, Good, HSG A
	133,377	84	Weighted Average
	31,701		23.77% Pervious Area
	101,676		76.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.20"
0.4	52	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	96	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.6	161	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	359	Total			

Summary for Subcatchment PR 3.1: PR 3.1

Runoff = 0.10 cfs @ 12.35 hrs, Volume= 0.020 af, Depth= 0.62"
Routed to Link DP-3(PR) : NIKKIE ST CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
13,487	30	Woods, Good, HSG A
3,605	39	>75% Grass cover, Good, HSG A
17,092	32	Weighted Average
17,092		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.1200	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	62	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.5	112	Total			

Summary for Subcatchment PR 3.2: PR 3.2

Runoff = 14.42 cfs @ 12.09 hrs, Volume= 1.047 af, Depth= 5.95"
Routed to Pond SIS2 : CMP Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
21,062	98	Roofs, HSG A
44,664	98	Paved parking, HSG A
26,225	39	>75% Grass cover, Good, HSG A
91,951	81	Weighted Average
26,225		28.52% Pervious Area
65,726		71.48% Impervious Area

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

Summary for Subcatchment PR 3.3: PR 3.3

Runoff = 0.03 cfs @ 12.40 hrs, Volume= 0.009 af, Depth= 0.47"
Routed to Link DP-3(PR) : NIKKIE ST CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
10,100	30	Woods, Good, HSG A
10,100		100.00% Pervious Area

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

Summary for Subcatchment PR 4.1: PR 4.1

Runoff = 0.33 cfs @ 12.10 hrs, Volume= 0.026 af, Depth= 2.17"
Routed to Link DP-4(PR) : FRAMINGHAM RESERVIOR #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

	Area (sf)	CN	Description
	215	98	Paved parking, HSG A
*	1,450	63	Pervious Pavers
	4,161	39	>75% Grass cover, Good, HSG A
	460	61	>75% Grass cover, Good, HSG B
	6,286	48	Weighted Average
	6,071		96.58% Pervious Area
	215		3.42% Impervious Area

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

Summary for Subcatchment PR 4.2: PR 4.2

Runoff = 0.08 cfs @ 12.11 hrs, Volume= 0.008 af, Depth= 1.55"
Routed to Link DP-4(PR) : FRAMINGHAM RESERVIOR #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
2,172	39	>75% Grass cover, Good, HSG A
380	61	>75% Grass cover, Good, HSG B
2,552	42	Weighted Average
2,552		100.00% Pervious Area

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

Summary for Subcatchment PR 5.1: PR 5.1

Runoff = 0.15 cfs @ 12.11 hrs, Volume= 0.015 af, Depth= 1.35"
Routed to Link DP-5(PR) : UNION ST DRAIN SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
1,338	30	Woods, Good, HSG A
268	98	Paved parking, HSG A
4,265	39	>75% Grass cover, Good, HSG A
5,871	40	Weighted Average
5,603		95.44% Pervious Area
268		4.56% Impervious Area

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

Summary for Subcatchment PR 5.2: PR 5.2

Runoff = 1.43 cfs @ 12.24 hrs, Volume= 0.177 af, Depth= 1.45"
Routed to Link DP-5(PR) : UNION ST DRAIN SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
13,041	39	>75% Grass cover, Good, HSG A
17,899	61	>75% Grass cover, Good, HSG B
33,045	30	Woods, Good, HSG A
63,985	41	Weighted Average
63,985		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.7	83	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.0	133	Total			

Summary for Subcatchment PR 5.3: PR 5.3

Runoff = 0.06 cfs @ 12.12 hrs, Volume= 0.006 af, Depth= 1.25"
Routed to Link DP-5(PR) : UNION ST DRAIN SYSTEM

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.22"

Area (sf)	CN	Description
2,682	39	>75% Grass cover, Good, HSG A
18	61	>75% Grass cover, Good, HSG B
2,700	39	Weighted Average
2,700		100.00% Pervious Area

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

Summary for Pond SDB1: Surface Detention

Inflow Area = 1.754 ac, 61.69% Impervious, Inflow Depth = 5.71" for 100-yr event
Inflow = 11.27 cfs @ 12.10 hrs, Volume= 0.835 af
Outflow = 1.43 cfs @ 12.71 hrs, Volume= 0.651 af, Atten= 87%, Lag= 37.0 min
Primary = 1.43 cfs @ 12.71 hrs, Volume= 0.651 af
Routed to Link DP-1(PR) : 12" RCP WAVERLY ST
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-2(PR) : WETLAND (N)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 228.68' @ 12.71 hrs Surf.Area= 8,507 sf Storage= 21,284 cf

Plug-Flow detention time= 866.1 min calculated for 0.651 af (78% of inflow)
Center-of-Mass det. time= 786.4 min (1,591.3 - 804.9)

Volume	Invert	Avail.Storage	Storage Description
#1	225.50'	33,533 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
225.50	4,957	0	0
226.00	5,469	2,607	2,607
228.00	7,674	13,143	15,750
230.00	10,109	17,783	33,533

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**12.0" Round Culvert** L= 179.0' Ke= 0.500 Inlet / Outlet Invert= 224.50' / 215.62' S= 0.0496 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	225.50'	**0.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	227.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	228.50'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	229.00'	**8.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=1.43 cfs @ 12.71 hrs HW=228.68' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.43 cfs of 7.26 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.56 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.13 cfs @ 6.09 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Weir Controls 1.28 cfs @ 1.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=225.50' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond SDB1: Surface Detention

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
225.50	0.00	0.00	0.00
225.55	0.00	0.00	0.00
225.60	0.00	0.00	0.00
225.65	0.00	0.00	0.00
225.70	0.00	0.00	0.00
225.75	0.00	0.00	0.00
225.80	0.00	0.00	0.00
225.85	0.00	0.00	0.00
225.90	0.00	0.00	0.00
225.95	0.00	0.00	0.00
226.00	0.00	0.00	0.00
226.05	0.00	0.00	0.00
226.10	0.00	0.00	0.00
226.15	0.01	0.01	0.00
226.20	0.01	0.01	0.00
226.25	0.01	0.01	0.00
226.30	0.01	0.01	0.00
226.35	0.01	0.01	0.00
226.40	0.01	0.01	0.00
226.45	0.01	0.01	0.00
226.50	0.01	0.01	0.00
226.55	0.01	0.01	0.00
226.60	0.01	0.01	0.00
226.65	0.01	0.01	0.00
226.70	0.01	0.01	0.00
226.75	0.01	0.01	0.00
226.80	0.01	0.01	0.00
226.85	0.01	0.01	0.00
226.90	0.01	0.01	0.00
226.95	0.01	0.01	0.00
227.00	0.01	0.01	0.00
227.05	0.01	0.01	0.00
227.10	0.02	0.02	0.00
227.15	0.04	0.04	0.00
227.20	0.04	0.04	0.00
227.25	0.05	0.05	0.00
227.30	0.06	0.06	0.00
227.35	0.06	0.06	0.00
227.40	0.07	0.07	0.00
227.45	0.07	0.07	0.00
227.50	0.08	0.08	0.00
227.55	0.08	0.08	0.00
227.60	0.08	0.08	0.00
227.65	0.09	0.09	0.00
227.70	0.09	0.09	0.00
227.75	0.10	0.10	0.00
227.80	0.10	0.10	0.00
227.85	0.10	0.10	0.00
227.90	0.11	0.11	0.00
227.95	0.11	0.11	0.00
228.00	0.11	0.11	0.00
228.05	0.11	0.11	0.00
228.10	0.12	0.12	0.00
228.15	0.12	0.12	0.00
228.20	0.12	0.12	0.00
228.25	0.12	0.12	0.00
228.30	0.13	0.13	0.00
228.35	0.13	0.13	0.00
228.40	0.13	0.13	0.00
228.45	0.13	0.13	0.00
228.50	0.14	0.14	0.00
228.55	0.32	0.32	0.00
228.60	0.66	0.66	0.00
228.65	1.09	1.09	0.00
228.70	1.60	1.60	0.00
228.75	2.17	2.17	0.00
228.80	2.80	2.80	0.00
228.85	3.49	3.49	0.00
228.90	4.22	4.22	0.00
228.95	5.00	5.00	0.00
229.00	5.82	5.82	0.00
229.05	6.98	6.68	0.30
229.10	8.42	7.58	0.85
229.15	9.27	7.70	1.57
229.20	10.19	7.75	2.44
229.25	11.24	7.80	3.45
229.30	12.42	7.84	4.58
229.35	13.72	7.89	5.83
229.40	15.13	7.93	7.19
229.45	16.65	7.98	8.67
229.50	18.27	8.02	10.25
229.55	20.01	8.07	11.94
229.60	21.84	8.11	13.73
229.65	23.79	8.15	15.63
229.70	25.83	8.20	17.63
229.75	27.97	8.24	19.73
229.80	30.22	8.29	21.93
229.85	32.57	8.33	24.24
229.90	35.01	8.37	26.64
229.95	37.56	8.41	29.14
230.00	**40.20**	**8.46**	**31.75**

Stage-Area-Storage for Pond SDB1: Surface Detention

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
225.50	4,957	0
225.55	5,008	249
225.60	5,059	501
225.65	5,111	755
225.70	5,162	1,012
225.75	5,213	1,271
225.80	5,264	1,533
225.85	5,315	1,798
225.90	5,367	2,065
225.95	5,418	2,334
226.00	5,469	2,607
226.05	5,524	2,881
226.10	5,579	3,159
226.15	5,634	3,439
226.20	5,689	3,722
226.25	5,745	4,008
226.30	5,800	4,297
226.35	5,855	4,588
226.40	5,910	4,882
226.45	5,965	5,179
226.50	6,020	5,479
226.55	6,075	5,781
226.60	6,130	6,086
226.65	6,186	6,394
226.70	6,241	6,705
226.75	6,296	7,018
226.80	6,351	7,335
226.85	6,406	7,653
226.90	6,461	7,975
226.95	6,516	8,300
227.00	6,572	8,627
227.05	6,627	8,957
227.10	6,682	9,289
227.15	6,737	9,625
227.20	6,792	9,963
227.25	6,847	10,304
227.30	6,902	10,648
227.35	6,957	10,994
227.40	7,013	11,344
227.45	7,068	11,696
227.50	7,123	12,050
227.55	7,178	12,408
227.60	7,233	12,768
227.65	7,288	13,131
227.70	7,343	13,497
227.75	7,398	13,865
227.80	7,454	14,237
227.85	7,509	14,611
227.90	7,564	14,988
227.95	7,619	15,367
228.00	7,674	15,750
228.05	7,735	16,135
228.10	7,796	16,523
228.15	7,857	16,914
228.20	7,917	17,309
228.25	7,978	17,706
228.30	8,039	18,106
228.35	8,100	18,510
228.40	8,161	18,917
228.45	8,222	19,326
228.50	8,283	19,739
228.55	8,344	20,154
228.60	8,404	20,573
228.65	8,465	20,995
228.70	8,526	21,420
228.75	8,587	21,847
228.80	8,648	22,278
228.85	8,709	22,712
228.90	8,770	23,149
228.95	8,831	23,589
229.00	8,892	24,032
229.05	8,952	24,478
229.10	9,013	24,927
229.15	9,074	25,380
229.20	9,135	25,835
229.25	9,196	26,293
229.30	9,257	26,754
229.35	9,318	27,219
229.40	9,379	27,686
229.45	9,439	28,157
229.50	9,500	28,630
229.55	9,561	29,107
229.60	9,622	29,586
229.65	9,683	30,069
229.70	9,744	30,555
229.75	9,805	31,043
229.80	9,866	31,535
229.85	9,926	32,030
229.90	9,987	32,528
229.95	10,048	33,029
230.00	**10,109**	**33,533**

Summary for Pond SDS1: SC-310

Inflow Area = 0.315 ac, 36.99% Impervious, Inflow Depth = 4.07" for 100-yr event
Inflow = 1.50 cfs @ 12.09 hrs, Volume= 0.107 af
Outflow = 0.82 cfs @ 12.23 hrs, Volume= 0.105 af, Atten= 45%, Lag= 8.2 min
Primary = 0.82 cfs @ 12.23 hrs, Volume= 0.105 af
Routed to Link DP-1(PR) : 12" RCP WAVERLY ST

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 218.13' @ 12.23 hrs Surf.Area= 1,140 sf Storage= 1,452 cf
Flood Elev= 393.59' Surf.Area= 1,140 sf Storage= 1,664 cf

Plug-Flow detention time= 368.0 min calculated for 0.105 af (98% of inflow)
Center-of-Mass det. time= 356.4 min (1,190.5 - 834.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	215.76'	1,045 cf	**21.50'W x 53.04'L x 2.83'H Field A** 3,231 cf Overall - 619 cf Embedded = 2,612 cf x 40.0% Voids
#2A	216.76'	619 cf	**ADS_StormTech SC-310 +Cap** x 42 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 42 Chambers in 6 Rows
		1,664 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	215.76'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 215.76' / 215.63' S= 0.0048 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf
#2	Device 1	215.76'	**0.3" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	216.76'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	217.25'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	217.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	218.25'	**4.5' long x 2.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.82 cfs @ 12.23 hrs HW=218.13' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.82 cfs of 5.03 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 7.39 fps)
  - **3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 5.55 fps)
  - **4=Orifice/Grate** (Orifice Controls 0.21 cfs @ 4.18 fps)
  - **5=Orifice/Grate** (Orifice Controls 0.58 cfs @ 2.96 fps)
- **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond SDS1: SC-310

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
215.76	0.00	267.76	288.70	319.76	415.46	371.76	511.73
216.76	0.00	268.76	291.66	320.76	417.52	372.76	513.41
217.76	0.35	269.76	294.58	321.76	419.57	373.76	515.08
218.76	6.51	270.76	297.48	322.76	421.62	374.76	516.74
219.76	27.23	271.76	300.36	323.76	423.65	375.76	518.40
220.76	50.56	272.76	303.20	324.76	425.67	376.76	520.05
221.76	65.74	273.76	306.02	325.76	427.68	377.76	521.70
222.76	77.83	274.76	308.81	326.76	429.68	378.76	523.34
223.76	88.23	275.76	311.58	327.76	431.67	379.76	524.98
224.76	97.51	276.76	314.32	328.76	433.66	380.76	526.61
225.76	105.97	277.76	317.04	329.76	435.63	381.76	528.24
226.76	113.79	278.76	319.73	330.76	437.60	382.76	529.86
227.76	121.11	279.76	322.41	331.76	439.56	383.76	531.48
228.76	128.01	280.76	325.06	332.76	441.50	384.76	533.09
229.76	134.56	281.76	327.69	333.76	443.44	385.76	534.70
230.76	140.79	282.76	330.30	334.76	445.37	386.76	536.30
231.76	146.77	283.76	332.89	335.76	447.30	387.76	537.90
232.76	152.51	284.76	335.45	336.76	449.21	388.76	539.49
233.76	158.04	285.76	338.00	337.76	451.12	389.76	541.08
234.76	163.38	286.76	340.53	338.76	453.02	390.76	542.67
235.76	168.55	287.76	343.04	339.76	454.91	391.76	544.25
236.76	173.57	288.76	345.54	340.76	456.79	392.76	**545.82**
237.76	178.45	289.76	348.01	341.76	458.67		
238.76	183.20	290.76	350.47	342.76	460.53		
239.76	187.83	291.76	352.91	343.76	462.39		
240.76	192.34	292.76	355.33	344.76	464.25		
241.76	196.75	293.76	357.74	345.76	466.09		
242.76	201.07	294.76	360.13	346.76	467.93		
243.76	205.30	295.76	362.51	347.76	469.76		
244.76	209.43	296.76	364.87	348.76	471.58		
245.76	213.49	297.76	367.21	349.76	473.40		
246.76	217.48	298.76	369.54	350.76	475.21		
247.76	221.39	299.76	371.86	351.76	477.01		
248.76	225.23	300.76	374.16	352.76	478.81		
249.76	229.01	301.76	376.45	353.76	480.60		
250.76	232.73	302.76	378.72	354.76	482.38		
251.76	236.39	303.76	380.98	355.76	484.16		
252.76	239.99	304.76	383.22	356.76	485.93		
253.76	243.54	305.76	385.46	357.76	487.69		
254.76	247.04	306.76	387.68	358.76	489.44		
255.76	250.49	307.76	389.89	359.76	491.20		
256.76	253.90	308.76	392.08	360.76	492.94		
257.76	257.26	309.76	394.26	361.76	494.68		
258.76	260.57	310.76	396.44	362.76	496.41		
259.76	263.84	311.76	398.59	363.76	498.14		
260.76	267.08	312.76	400.74	364.76	499.86		
261.76	270.27	313.76	402.88	365.76	501.57		
262.76	273.43	314.76	405.00	366.76	503.28		
263.76	276.55	315.76	407.12	367.76	504.98		
264.76	279.64	316.76	409.22	368.76	506.68		
265.76	282.69	317.76	411.31	369.76	508.37		
266.76	285.71	318.76	413.39	370.76	510.05		

Stage-Area-Storage for Pond SDS1: SC-310

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
215.76	0	319.76	1,664
217.76	**1,258**	321.76	1,664
219.76	**1,664**	323.76	1,664
221.76	1,664	325.76	1,664
223.76	1,664	327.76	1,664
225.76	1,664	329.76	1,664
227.76	1,664	331.76	1,664
229.76	1,664	333.76	1,664
231.76	1,664	335.76	1,664
233.76	1,664	337.76	1,664
235.76	1,664	339.76	1,664
237.76	1,664	341.76	1,664
239.76	1,664	343.76	1,664
241.76	1,664	345.76	1,664
243.76	1,664	347.76	1,664
245.76	1,664	349.76	1,664
247.76	1,664	351.76	1,664
249.76	1,664	353.76	1,664
251.76	1,664	355.76	1,664
253.76	1,664	357.76	1,664
255.76	1,664	359.76	1,664
257.76	1,664	361.76	1,664
259.76	1,664	363.76	1,664
261.76	1,664	365.76	1,664
263.76	1,664	367.76	1,664
265.76	1,664	369.76	1,664
267.76	1,664	371.76	1,664
269.76	1,664	373.76	1,664
271.76	1,664	375.76	1,664
273.76	1,664	377.76	1,664
275.76	1,664	379.76	1,664
277.76	1,664	381.76	1,664
279.76	1,664	383.76	1,664
281.76	1,664	385.76	1,664
283.76	1,664	387.76	1,664
285.76	1,664	389.76	1,664
287.76	1,664	391.76	1,664
289.76	1,664		
291.76	1,664		
293.76	1,664		
295.76	1,664		
297.76	1,664		
299.76	1,664		
301.76	1,664		
303.76	1,664		
305.76	1,664		
307.76	1,664		
309.76	1,664		
311.76	1,664		
313.76	1,664		
315.76	1,664		
317.76	1,664		

Summary for Pond SIS1: CMP Infiltration

Inflow Area = 3.062 ac, 76.23% Impervious, Inflow Depth = 6.31" for 100-yr event
Inflow = 21.02 cfs @ 12.10 hrs, Volume= 1.609 af
Outflow = 1.92 cfs @ 13.03 hrs, Volume= 1.609 af, Atten= 91%, Lag= 55.7 min
Discarded = 0.61 cfs @ 10.31 hrs, Volume= 1.391 af
Primary = 1.31 cfs @ 13.03 hrs, Volume= 0.218 af
Routed to Link DP-2(PR) : WETLAND (N)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 231.44' @ 13.03 hrs Surf.Area= 10,920 sf Storage= 35,492 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 456.7 min (1,250.0 - 793.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	12,571 cf	**84.00'W x 130.00'L x 5.00'H Field A** 54,600 cf Overall - 23,172 cf Embedded = 31,428 cf x 40.0% Voids
#2A	227.00'	23,172 cf	**CMP Round 48** x 84 Inside #1 Effective Size= 48.0"W x 48.0"H => 12.57 sf x 20.00'L = 251.3 cf Overall Size= 48.0"W x 48.0"H x 20.00'L 84 Chambers in 14 Rows 82.00' Header x 12.57 sf x 2 = 2,060.9 cf Inside
		35,743 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	226.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	229.05'	**12.0" Round Culvert** L= 158.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 229.05' / 228.00' S= 0.0066 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf
#3	Device 2	229.10'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	229.15'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	231.25'	**4.5' long x 2.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.61 cfs @ 10.31 hrs HW=226.57' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=1.31 cfs @ 13.03 hrs HW=231.44' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.31 cfs of 3.88 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.30 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.22 fps)
  └**5=Sharp-Crested Rectangular Weir** (Weir Controls 1.23 cfs @ 1.43 fps)

Stage-Discharge for Pond SIS1: CMP Infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
226.50	0.00	**0.00**	0.00
226.60	0.61	**0.61**	0.00
226.70	0.61	0.61	0.00
226.80	0.61	0.61	0.00
226.90	0.61	0.61	0.00
227.00	0.61	0.61	0.00
227.10	0.61	0.61	0.00
227.20	0.61	0.61	0.00
227.30	0.61	0.61	0.00
227.40	0.61	0.61	0.00
227.50	0.61	0.61	0.00
227.60	0.61	0.61	0.00
227.70	0.61	0.61	0.00
227.80	0.61	0.61	0.00
227.90	0.61	0.61	0.00
228.00	0.61	0.61	0.00
228.10	0.61	0.61	0.00
228.20	0.61	0.61	0.00
228.30	0.61	0.61	0.00
228.40	0.61	0.61	0.00
228.50	0.61	0.61	0.00
228.60	0.61	0.61	0.00
228.70	0.61	0.61	0.00
228.80	0.61	0.61	0.00
228.90	0.61	0.61	0.00
229.00	0.61	0.61	0.00
229.10	0.61	0.61	0.00
229.20	0.62	0.61	0.01
229.30	0.63	0.61	0.02
229.40	0.63	0.61	0.03
229.50	0.64	0.61	0.03
229.60	0.64	0.61	0.03
229.70	0.65	0.61	0.04
229.80	0.65	0.61	0.04
229.90	0.65	0.61	0.04
230.00	0.66	0.61	0.05
230.10	0.66	0.61	0.05
230.20	0.66	0.61	0.05
230.30	0.67	0.61	0.06
230.40	0.67	0.61	0.06
230.50	0.67	0.61	0.06
230.60	0.67	0.61	0.06
230.70	0.67	0.61	0.07
230.80	0.68	0.61	0.07
230.90	0.68	0.61	0.07
231.00	0.68	0.61	0.07
231.10	0.68	0.61	0.07
231.20	0.68	0.61	0.07
231.30	0.85	0.61	0.24
231.40	1.54	0.61	0.93
231.50	2.51	0.61	1.90
231.60	3.69	0.61	3.08
231.70	4.68	0.61	4.07
231.80	4.76	0.61	4.15
231.90	4.83	0.61	4.22
232.00	4.90	0.61	4.29
232.10	4.98	0.61	4.37
232.20	5.04	0.61	4.44
232.30	5.11	0.61	4.50
232.40	5.18	0.61	4.57
232.50	5.25	0.61	4.64
232.60	5.31	0.61	4.70
232.70	5.38	0.61	4.77
232.80	5.44	0.61	4.83
232.90	5.51	0.61	4.90
233.00	5.57	0.61	4.96
233.10	5.63	0.61	5.02
233.20	**5.69**	0.61	**5.08**

Stage-Area-Storage for Pond SIS1: CMP Infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
226.50	**10,920**	0
226.60	10,920	437
226.70	10,920	874
226.80	10,920	1,310
226.90	10,920	1,747
227.00	10,920	2,184
227.10	10,920	2,713
227.20	10,920	3,317
227.30	10,920	3,968
227.40	10,920	4,655
227.50	10,920	5,371
227.60	10,920	6,113
227.70	10,920	6,876
227.80	10,920	7,658
227.90	10,920	8,457
228.00	10,920	9,270
228.10	10,920	10,096
228.20	10,920	10,934
228.30	10,920	11,781
228.40	10,920	12,636
228.50	10,920	13,498
228.60	10,920	14,366
228.70	10,920	15,239
228.80	10,920	16,114
228.90	10,920	16,993
229.00	10,920	17,872
229.10	10,920	18,751
229.20	10,920	19,629
229.30	10,920	20,505
229.40	10,920	21,377
229.50	10,920	22,245
229.60	10,920	23,107
229.70	10,920	23,963
229.80	10,920	24,810
229.90	10,920	25,647
230.00	10,920	26,473
230.10	10,920	27,287
230.20	10,920	28,085
230.30	10,920	28,868
230.40	10,920	29,631
230.50	10,920	30,372
230.60	10,920	31,089
230.70	10,920	31,775
230.80	10,920	32,426
230.90	10,920	33,030
231.00	10,920	33,559
231.10	10,920	33,996
231.20	10,920	34,433
231.30	10,920	34,870
231.40	10,920	35,307
231.50	10,920	**35,743**
231.60	10,920	35,743
231.70	10,920	35,743
231.80	10,920	35,743
231.90	10,920	35,743
232.00	10,920	35,743
232.10	10,920	35,743
232.20	10,920	35,743
232.30	10,920	35,743
232.40	10,920	35,743
232.50	10,920	35,743
232.60	10,920	35,743
232.70	10,920	35,743
232.80	10,920	35,743
232.90	10,920	35,743
233.00	10,920	35,743
233.10	10,920	35,743
233.20	10,920	35,743

Summary for Pond SIS2: CMP Infiltration

Inflow Area = 2.111 ac, 71.48% Impervious, Inflow Depth = 5.95" for 100-yr event
Inflow = 14.42 cfs @ 12.09 hrs, Volume= 1.047 af
Outflow = 0.60 cfs @ 15.15 hrs, Volume= 1.047 af, Atten= 96%, Lag= 184.0 min
Discarded = 0.44 cfs @ 10.63 hrs, Volume= 0.908 af
Primary = 0.16 cfs @ 15.15 hrs, Volume= 0.139 af
Routed to Link DP-3(PR) : NIKKIE ST CULVERT

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 233.82' @ 15.15 hrs Surf.Area= 7,800 sf Storage= 24,950 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 437.1 min (1,236.7 - 799.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	229.00'	8,985 cf	**60.00'W x 130.00'L x 5.00'H Field A** 39,000 cf Overall - 16,537 cf Embedded = 22,463 cf x 40.0% Voids
#2A	229.50'	16,537 cf	**CMP Round 48** x 60 Inside #1 Effective Size= 48.0"W x 48.0"H => 12.57 sf x 20.00'L = 251.3 cf Overall Size= 48.0"W x 48.0"H x 20.00'L 60 Chambers in 10 Rows 58.00' Header x 12.57 sf x 2 = 1,457.7 cf Inside
		25,522 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	229.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	231.25'	**12.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 231.25' / 231.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf
#3	Device 2	231.29'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	233.95'	**4.5' long x 2.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.44 cfs @ 10.63 hrs HW=229.07' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.44 cfs)

Primary OutFlow Max=0.16 cfs @ 15.15 hrs HW=233.82' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.16 cfs of 4.85 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.16 cfs @ 7.53 fps)
  └**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond SIS2: CMP Infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
229.00	0.00	**0.00**	0.00
229.10	0.44	**0.44**	0.00
229.20	0.44	0.44	0.00
229.30	0.44	0.44	0.00
229.40	0.44	0.44	0.00
229.50	0.44	0.44	0.00
229.60	0.44	0.44	0.00
229.70	0.44	0.44	0.00
229.80	0.44	0.44	0.00
229.90	0.44	0.44	0.00
230.00	0.44	0.44	0.00
230.10	0.44	0.44	0.00
230.20	0.44	0.44	0.00
230.30	0.44	0.44	0.00
230.40	0.44	0.44	0.00
230.50	0.44	0.44	0.00
230.60	0.44	0.44	0.00
230.70	0.44	0.44	0.00
230.80	0.44	0.44	0.00
230.90	0.44	0.44	0.00
231.00	0.44	0.44	0.00
231.10	0.44	0.44	0.00
231.20	0.44	0.44	0.00
231.30	0.44	0.44	0.00
231.40	0.45	0.44	0.02
231.50	0.47	0.44	0.04
231.60	0.49	0.44	0.05
231.70	0.50	0.44	0.06
231.80	0.50	0.44	0.07
231.90	0.51	0.44	0.08
232.00	0.52	0.44	0.08
232.10	0.52	0.44	0.09
232.20	0.53	0.44	0.10
232.30	0.54	0.44	0.10
232.40	0.54	0.44	0.11
232.50	0.55	0.44	0.11
232.60	0.55	0.44	0.12
232.70	0.56	0.44	0.12
232.80	0.56	0.44	0.13
232.90	0.56	0.44	0.13
233.00	0.57	0.44	0.13
233.10	0.57	0.44	0.14
233.20	0.58	0.44	0.14
233.30	0.58	0.44	0.15
233.40	0.58	0.44	0.15
233.50	0.59	0.44	0.15
233.60	0.59	0.44	0.16
233.70	0.60	0.44	0.16
233.80	0.60	0.44	0.16
233.90	0.60	0.44	0.17
234.00	0.77	0.44	0.33
234.10	1.46	0.44	1.02
234.20	2.43	0.44	2.00
234.30	3.61	0.44	3.18
234.40	4.97	0.44	4.54
234.50	6.12	0.44	5.69
234.60	6.24	0.44	5.80
234.70	6.35	0.44	5.91
234.80	6.45	0.44	6.02
234.90	6.56	0.44	6.13
235.00	6.67	0.44	6.23
235.10	6.77	0.44	6.33
235.20	6.87	0.44	6.43
235.30	6.97	0.44	6.53
235.40	7.07	0.44	6.63
235.50	7.17	0.44	6.73
235.60	7.26	0.44	6.83
235.70	7.35	0.44	6.92
235.80	7.45	0.44	7.01
235.90	**7.54**	0.44	**7.10**

Stage-Area-Storage for Pond SIS2: CMP Infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
229.00	**7,800**	0
229.10	7,800	312
229.20	7,800	624
229.30	7,800	936
229.40	7,800	1,248
229.50	7,800	1,560
229.60	7,800	1,938
229.70	7,800	2,369
229.80	7,800	2,834
229.90	7,800	3,324
230.00	7,800	3,836
230.10	7,800	4,365
230.20	7,800	4,910
230.30	7,800	5,469
230.40	7,800	6,039
230.50	7,800	6,620
230.60	7,800	7,210
230.70	7,800	7,808
230.80	7,800	8,412
230.90	7,800	9,023
231.00	7,800	9,639
231.10	7,800	10,258
231.20	7,800	10,881
231.30	7,800	11,507
231.40	7,800	12,133
231.50	7,800	12,761
231.60	7,800	13,389
231.70	7,800	14,016
231.80	7,800	14,641
231.90	7,800	15,264
232.00	7,800	15,884
232.10	7,800	16,499
232.20	7,800	17,110
232.30	7,800	17,715
232.40	7,800	18,313
232.50	7,800	18,903
232.60	7,800	19,483
232.70	7,800	20,054
232.80	7,800	20,612
232.90	7,800	21,157
233.00	7,800	21,687
233.10	7,800	22,198
233.20	7,800	22,688
233.30	7,800	23,153
233.40	7,800	23,584
233.50	7,800	23,962
233.60	7,800	24,274
233.70	7,800	24,586
233.80	7,800	24,898
233.90	7,800	25,210
234.00	7,800	**25,522**
234.10	7,800	25,522
234.20	7,800	25,522
234.30	7,800	25,522
234.40	7,800	25,522
234.50	7,800	25,522
234.60	7,800	25,522
234.70	7,800	25,522
234.80	7,800	25,522
234.90	7,800	25,522
235.00	7,800	25,522
235.10	7,800	25,522
235.20	7,800	25,522
235.30	7,800	25,522
235.40	7,800	25,522
235.50	7,800	25,522
235.60	7,800	25,522
235.70	7,800	25,522
235.80	7,800	25,522
235.90	7,800	25,522

Summary for Link DP-1(PR): 12" RCP WAVERLY ST

Inflow Area = 2.132 ac, 57.70% Impervious, Inflow Depth > 4.43" for 100-yr event
Inflow = 1.80 cfs @ 12.62 hrs, Volume= 0.786 af
Primary = 1.80 cfs @ 12.62 hrs, Volume= 0.786 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Summary for Link DP-2(PR): WETLAND (N)

Inflow Area = 3.392 ac, 68.81% Impervious, Inflow Depth = 0.87" for 100-yr event
Inflow = 1.36 cfs @ 13.03 hrs, Volume= 0.245 af
Primary = 1.36 cfs @ 13.03 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Summary for Link DP-3(PR): NIKKIE ST CULVERT

Inflow Area = 2.735 ac, 55.17% Impervious, Inflow Depth = 0.74" for 100-yr event
Inflow = 0.25 cfs @ 12.40 hrs, Volume= 0.169 af
Primary = 0.25 cfs @ 12.40 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Summary for Link DP-4(PR): FRAMINGHAM RESERVIOR #2

Inflow Area = 0.203 ac, 2.43% Impervious, Inflow Depth = 1.99" for 100-yr event
Inflow = 0.41 cfs @ 12.10 hrs, Volume= 0.034 af
Primary = 0.41 cfs @ 12.10 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Summary for Link DP-5(PR): UNION ST DRAIN SYSTEM

Inflow Area = 1.666 ac, 0.37% Impervious, Inflow Depth = 1.43" for 100-yr event
Inflow = 1.59 cfs @ 12.24 hrs, Volume= 0.199 af
Primary = 1.59 cfs @ 12.24 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs