

**APPENDIX B**  
**TR-20 Model Data**



**ExistingConditions\_2011.08**

Prepared by Wright-Pierce

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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
17.537	30	Woods, Good, HSG A (U)
7.937	39	>75% Grass cover, Good, HSG A (U)
292.793	55	Woods, Good, HSG B (Q, R1, R2, S, T, U, V)
114.839	60	Woods, Fair, HSG B (A, B, C, D1, D2, E, F, G, H, I, JK, L, M, N, O, P)
86.598	61	>75% Grass cover, Good, HSG B (Q, R1, R2, S, T, U, V)
42.777	69	Pasture/grassland/range, Fair, HSG B (A, B, C, D1, D2, E, F, G, H, I, JK, L, M, N, O, P)
162.207	70	Woods, Good, HSG C (Q, R1, R2, S, V)
12.760	73	Woods, Fair, HSG C (B, C, D1, D2, F, H, I, JK, M, N, O)
52.033	74	>75% Grass cover, Good, HSG C (Q, R1, R2, V)
64.210	77	Woods, Good, HSG D (Q, R1, R2, V)
6.177	79	Pasture/grassland/range, Fair, HSG C (B, C, D2, I, JK, L, M, N, O)
7.927	79	Woods, Fair, HSG D (A, N, O, P)
1.374	84	Pasture/grassland/range, Fair, HSG D (A, O, P)
4.842	98	Paved parking, HSG A (U)
59.754	98	Paved parking, HSG B (A, B, C, D1, D2, E, F, G, H, I, JK, L, M, N, O, P, Q, R1, R2, S, T, U, V)
63.861	98	Paved parking, HSG C (B, C, D1, D2, I, JK, M, N, O, Q, R1, R2, S, T, V)
0.482	98	Paved parking, HSG D (O, P)
0.192	98	Water Surface, HSG D (A)
<b>998.301</b>		<b>TOTAL AREA</b>

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### Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
30.316	HSG A	U
596.761	HSG B	A, B, C, D1, D2, E, F, G, H, I, JK, L, M, N, O, P, Q, R1, R2, S, T, U, V
297.038	HSG C	B, C, D1, D2, F, H, I, JK, L, M, N, O, Q, R1, R2, S, T, V
74.185	HSG D	A, N, O, P, Q, R1, R2, V
0.000	Other	
<b>998.301</b>		<b>TOTAL AREA</b>

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**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)
1	CBL	232.00	231.25	150.0	0.0050	0.013	12.0	0.0
2	CBM	230.50	229.00	165.0	0.0091	0.013	15.0	0.0
3	CI	250.00	243.90	70.0	0.0871	0.013	15.0	0.0
4	DMHH	238.00	237.15	160.0	0.0053	0.013	15.0	0.0
5	DMHP	186.50	183.52	1,190.0	0.0025	0.013	18.0	0.0
6	PA	183.80	183.75	60.5	0.0008	0.025	48.0	0.0
7	PBb	186.80	185.80	205.0	0.0049	0.013	12.0	0.0
8	PBc	185.80	185.00	277.0	0.0029	0.025	30.0	0.0
9	PE	245.50	235.00	65.0	0.1615	0.013	6.0	0.0
10	PG	254.50	254.20	25.0	0.0120	0.013	12.0	0.0
11	PJK	258.00	232.00	385.0	0.0675	0.011	10.0	0.0
12	PN	226.00	225.90	200.0	0.0005	0.013	12.0	0.0
13	PO	228.50	228.50	400.0	0.0000	0.020	6.0	0.0
14	PQ	216.00	214.30	340.0	0.0050	0.013	15.0	0.0
15	PR1	199.00	198.00	210.0	0.0048	0.013	48.0	0.0
16	PR2	201.00	200.00	200.0	0.0050	0.013	36.0	0.0
17	PS	200.00	199.00	50.0	0.0200	0.030	24.0	24.0
18	PT	197.50	197.11	78.0	0.0050	0.030	24.0	30.0
19	PU	192.00	188.00	220.0	0.0182	0.013	36.0	0.0
20	PV	181.40	181.30	50.0	0.0020	0.025	57.0	38.0

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points x 3

Runoff by SCS TR-20 method, UH=SCS

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

<b>Subcatchment A: Watershed A</b>	Runoff Area=1,863,914 sf 14.18% Impervious Runoff Depth=2.91" Flow Length=1,653' Tc=32.0 min CN=71 Runoff=72.30 cfs 10.365 af
<b>Subcatchment B: Watershed B</b>	Runoff Area=792,860 sf 17.53% Impervious Runoff Depth=2.91" Flow Length=1,066' Tc=23.9 min CN=71 Runoff=36.14 cfs 4.409 af
<b>Subcatchment C: Watershed C</b>	Runoff Area=336,288 sf 13.68% Impervious Runoff Depth=3.00" Flow Length=735' Tc=19.0 min CN=72 Runoff=17.66 cfs 1.931 af
<b>Subcatchment D1: Watershed D1</b>	Runoff Area=187,862 sf 7.47% Impervious Runoff Depth=2.27" Flow Length=929' Tc=23.1 min CN=64 Runoff=6.62 cfs 0.816 af
<b>Subcatchment D2: Watershed D2</b>	Runoff Area=303,882 sf 10.68% Impervious Runoff Depth=2.72" Flow Length=388' Tc=13.8 min CN=69 Runoff=16.70 cfs 1.581 af
<b>Subcatchment E: Watershed E</b>	Runoff Area=356,830 sf 6.77% Impervious Runoff Depth=2.18" Flow Length=1,073' Tc=33.8 min CN=63 Runoff=9.76 cfs 1.490 af
<b>Subcatchment F: Watershed F</b>	Runoff Area=612,323 sf 14.24% Impervious Runoff Depth=2.63" Flow Length=813' Tc=25.5 min CN=68 Runoff=24.15 cfs 3.079 af
<b>Subcatchment G: Watershed G</b>	Runoff Area=140,137 sf 8.25% Impervious Runoff Depth=2.27" Flow Length=703' Tc=25.0 min CN=64 Runoff=4.75 cfs 0.609 af
<b>Subcatchment H: Watershed H</b>	Runoff Area=188,886 sf 21.66% Impervious Runoff Depth=2.91" Flow Length=551' Tc=10.0 min CN=71 Runoff=12.72 cfs 1.050 af
<b>Subcatchment I: Watershed I</b>	Runoff Area=732,325 sf 11.49% Impervious Runoff Depth=2.54" Flow Length=1,032' Tc=31.3 min CN=67 Runoff=24.85 cfs 3.555 af
<b>Subcatchment JK: Watershed JK</b>	Runoff Area=491,224 sf 18.39% Impervious Runoff Depth=2.72" Flow Length=774' Tc=18.9 min CN=69 Runoff=23.38 cfs 2.556 af
<b>Subcatchment L: Watershed L</b>	Runoff Area=161,896 sf 13.93% Impervious Runoff Depth=2.63" Flow Length=412' Tc=17.3 min CN=68 Runoff=7.73 cfs 0.814 af
<b>Subcatchment M: Watershed M</b>	Runoff Area=497,525 sf 19.90% Impervious Runoff Depth=2.91" Flow Length=730' Tc=19.0 min CN=71 Runoff=25.27 cfs 2.767 af
<b>Subcatchment N: Watershed N</b>	Runoff Area=454,144 sf 14.78% Impervious Runoff Depth=3.10" Flow Length=683' Tc=28.4 min CN=73 Runoff=20.18 cfs 2.691 af
<b>Subcatchment O: Watershed O</b>	Runoff Area=666,855 sf 16.03% Impervious Runoff Depth=3.10" Flow Length=1,224' Tc=22.8 min CN=73 Runoff=33.20 cfs 3.951 af
<b>Subcatchment P: Watershed P</b>	Runoff Area=1,708,455 sf 15.80% Impervious Runoff Depth=2.72" Flow Length=1,612' Tc=39.8 min CN=69 Runoff=54.68 cfs 8.891 af

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<b>Subcatchment Q: Watershed Q</b>	Runoff Area=8,398,670 sf 3.04% Impervious Runoff Depth=2.10" Flow Length=4,731' Tc=110.6 min CN=62 Runoff=106.04 cfs 33.698 af
<b>Subcatchment R1: Watershed R1</b>	Runoff Area=11,325,853 sf 16.72% Impervious Runoff Depth=2.81" Flow Length=4,735' Tc=64.5 min CN=70 Runoff=281.66 cfs 60.953 af
<b>Subcatchment R2: Watershed R2</b>	Runoff Area=2,338,394 sf 17.77% Impervious Runoff Depth=2.63" Flow Length=1,657' Tc=24.4 min CN=68 Runoff=94.12 cfs 11.759 af
<b>Subcatchment S: Watershed S</b>	Runoff Area=641,852 sf 27.91% Impervious Runoff Depth=2.91" Flow Length=600' Tc=8.2 min CN=71 Runoff=46.65 cfs 3.569 af
<b>Subcatchment T: Watershed T</b>	Runoff Area=2,760,251 sf 17.19% Impervious Runoff Depth=2.45" Flow Length=2,659' Tc=51.9 min CN=66 Runoff=67.43 cfs 12.925 af
<b>Subcatchment U: Watershed U</b>	Runoff Area=3,144,857 sf 17.00% Impervious Runoff Depth=1.52" Flow Length=3,269' Tc=98.0 min CN=55 Runoff=28.80 cfs 9.166 af
<b>Subcatchment V: Watershed V</b>	Runoff Area=5,380,693 sf 8.78% Impervious Runoff Depth=3.00" Flow Length=1,147' Tc=15.6 min CN=72 Runoff=311.25 cfs 30.895 af
<b>Reach 1R: Wetland Culvert</b>	Avg. Depth=2.60' Max Vel=2.45 fps Inflow=62.05 cfs 116.475 af n=0.040 L=50.0' S=0.0024 '/ Capacity=83.51 cfs Outflow=62.05 cfs 116.450 af
<b>Reach RQ: Channel Q</b>	Avg. Depth=0.99' Max Vel=1.19 fps Inflow=8.29 cfs 15.093 af n=0.040 L=1,475.0' S=0.0016 '/ Capacity=8.39 cfs Outflow=8.29 cfs 14.870 af
<b>Pond CBC: Pond C</b>	Peak Elev=202.88' Storage=34,987 cf Inflow=41.05 cfs 4.599 af Primary=10.65 cfs 3.870 af Secondary=11.01 cfs 0.729 af Outflow=21.66 cfs 4.599 af
<b>Pond CBH: CB Outlet H</b>	Peak Elev=245.12' Inflow=12.72 cfs 1.050 af Outflow=12.72 cfs 1.050 af
<b>Pond CBL: CB Outlet L</b>	Peak Elev=245.44' Inflow=8.56 cfs 3.034 af 12.0" Round Culvert n=0.013 L=150.0' S=0.0050 '/ Outflow=8.56 cfs 3.034 af
<b>Pond CBM: CB Outlet M</b>	Peak Elev=233.98' Inflow=33.83 cfs 5.801 af Primary=8.23 cfs 4.876 af Secondary=25.60 cfs 0.925 af Outflow=33.83 cfs 5.801 af
<b>Pond CI: Culvert I</b>	Peak Elev=252.33' Inflow=12.46 cfs 3.531 af Primary=7.71 cfs 3.236 af Secondary=4.75 cfs 0.295 af Outflow=12.46 cfs 3.531 af
<b>Pond DMHH: DMH</b>	Peak Elev=244.35' Inflow=16.67 cfs 5.168 af Primary=10.50 cfs 4.677 af Secondary=6.17 cfs 0.491 af Outflow=16.67 cfs 5.168 af
<b>Pond DMHP: DMHP</b>	Peak Elev=530.84' Inflow=54.68 cfs 8.891 af 18.0" Round Culvert n=0.013 L=1,190.0' S=0.0025 '/ Outflow=54.68 cfs 8.891 af
<b>Pond PA: Pond A</b>	Peak Elev=188.04' Storage=197,467 cf Inflow=104.40 cfs 37.280 af Primary=54.50 cfs 37.244 af Secondary=0.00 cfs 0.000 af Outflow=54.50 cfs 37.244 af

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<b>Pond PB: Pond B</b>	Peak Elev=195.16' Storage=64,442 cf Inflow=83.78 cfs 27.145 af Primary=37.42 cfs 23.155 af Secondary=38.75 cfs 3.788 af Outflow=76.16 cfs 26.943 af
<b>Pond PBa: PBa</b>	Peak Elev=194.84' Inflow=76.16 cfs 26.943 af Primary=29.64 cfs 22.509 af Secondary=46.71 cfs 4.448 af Outflow=76.16 cfs 26.943 af
<b>Pond PBb: PBb</b>	Peak Elev=194.39' Storage=44,760 cf Inflow=46.71 cfs 4.448 af Primary=4.40 cfs 1.370 af Secondary=38.88 cfs 3.034 af Outflow=43.16 cfs 4.404 af
<b>Pond PBc: PBc</b>	Peak Elev=191.73' Storage=47,362 cf Inflow=72.80 cfs 26.913 af 30.0" Round Culvert x 2.00 n=0.025 L=277.0' S=0.0029 'l' Outflow=45.93 cfs 26.915 af
<b>Pond PD1: Pond D</b>	Peak Elev=207.62' Storage=1,079 cf Inflow=6.62 cfs 0.816 af Outflow=6.82 cfs 0.799 af
<b>Pond PD2: Pond D2</b>	Peak Elev=209.53' Storage=19,154 cf Inflow=16.70 cfs 1.581 af Outflow=10.18 cfs 1.337 af
<b>Pond PE: Pond E</b>	Peak Elev=248.27' Storage=3,908 cf Inflow=9.76 cfs 1.490 af Primary=1.50 cfs 0.959 af Secondary=9.10 cfs 0.532 af Outflow=10.60 cfs 1.490 af
<b>Pond PF: Pond F</b>	Peak Elev=209.45' Storage=35,158 cf Inflow=43.45 cfs 18.158 af Primary=20.66 cfs 17.214 af Secondary=18.03 cfs 0.923 af Outflow=38.69 cfs 18.137 af
<b>Pond PG: Pond G</b>	Peak Elev=257.93' Storage=1,771 cf Inflow=4.75 cfs 0.609 af Outflow=4.65 cfs 0.587 af
<b>Pond PI: Pond I</b>	Peak Elev=253.33' Storage=43,690 cf Inflow=24.85 cfs 3.555 af Primary=9.03 cfs 3.278 af Secondary=3.43 cfs 0.253 af Outflow=12.46 cfs 3.531 af
<b>Pond PJK: Pond JK</b>	Peak Elev=261.34' Storage=63,490 cf Inflow=23.38 cfs 2.556 af Outflow=1.52 cfs 2.220 af
<b>Pond PN: Pond N</b>	Peak Elev=231.00' Storage=164,533 cf Inflow=54.45 cfs 10.893 af Outflow=4.57 cfs 8.952 af
<b>Pond PO: Pond O</b>	Peak Elev=231.00' Storage=139,270 cf Inflow=33.20 cfs 3.951 af Primary=0.11 cfs 0.030 af Secondary=3.09 cfs 2.372 af Outflow=3.13 cfs 2.400 af
<b>Pond PQ: Pond Q</b>	Peak Elev=222.23' Storage=1,165,853 cf Inflow=106.04 cfs 33.698 af 15.0" Round Culvert n=0.013 L=340.0' S=0.0050 'l' Outflow=8.29 cfs 15.093 af
<b>Pond PR1: Pond R1</b>	Peak Elev=204.95' Storage=1,212,085 cf Inflow=282.66 cfs 75.823 af Primary=65.55 cfs 36.893 af Secondary=76.74 cfs 17.874 af Outflow=142.11 cfs 54.757 af
<b>Pond PR2: Pond R2</b>	Peak Elev=204.95' Storage=670,706 cf Inflow=99.48 cfs 29.632 af 36.0" Round Culvert n=0.013 L=200.0' S=0.0050 'l' Outflow=24.26 cfs 18.479 af
<b>Pond PS: Pond S</b>	Peak Elev=204.89' Storage=741,271 cf Inflow=92.22 cfs 58.941 af Primary=23.70 cfs 44.806 af Secondary=0.00 cfs 0.000 af Outflow=23.70 cfs 44.806 af



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**Pond PT: Pond T**

Peak Elev=202.28' Storage=459,346 cf Inflow=78.97 cfs 57.731 af  
Primary=26.79 cfs 49.112 af Secondary=0.00 cfs 0.000 af Outflow=26.79 cfs 49.112 af

**Pond PU: Pond U**

Peak Elev=194.13' Storage=28,222 cf Inflow=28.80 cfs 9.166 af  
36.0" Round Culvert n=0.013 L=220.0' S=0.0182 '/ Outflow=26.75 cfs 9.165 af

**Pond PV: Pond V**

Peak Elev=185.78' Storage=1,981,952 cf Inflow=375.91 cfs 135.308 af  
57.0" x 38.0", R=31.0"/100.0" Arch Culvert n=0.025 L=50.0' S=0.0020 '/ Outflow=62.05 cfs 116.475 af

**Total Runoff Area = 998.301 ac Runoff Volume = 213.521 af Average Runoff Depth = 2.57"**  
**87.06% Pervious = 869.170 ac 12.94% Impervious = 129.131 ac**

**Summary for Subcatchment A: Watershed A**

Runoff = 72.30 cfs @ 12.45 hrs, Volume= 10.365 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
255,906	98	Paved parking, HSG B
591,158	69	Pasture/grassland/range, Fair, HSG B
746,541	60	Woods, Fair, HSG B
8,372	98	Water Surface, HSG D
6,906	84	Pasture/grassland/range, Fair, HSG D
255,031	79	Woods, Fair, HSG D
1,863,914	71	Weighted Average
1,599,636		85.82% Pervious Area
264,278		14.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	115	0.0600	0.12		<b>Sheet Flow, A1-A2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
1.9	138	0.0290	1.19		<b>Shallow Concentrated Flow, A2-A3</b> Short Grass Pasture Kv= 7.0 fps
0.6	93	0.2580	2.54		<b>Shallow Concentrated Flow, A3-A4</b> Woodland Kv= 5.0 fps
3.9	190	0.0260	0.81		<b>Shallow Concentrated Flow, A4-A5</b> Woodland Kv= 5.0 fps
4.3	240	0.0180	0.94		<b>Shallow Concentrated Flow, A5-A6</b> Short Grass Pasture Kv= 7.0 fps
2.1	207	0.0050	1.67	1.31	<b>Pipe Channel, A6-A7</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
3.6	670	0.0050	3.07	15.08	<b>Pipe Channel, A7-A8</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.025 Corrugated metal
32.0	1,653	Total			

**Summary for Subcatchment B: Watershed B**

Runoff = 36.14 cfs @ 12.35 hrs, Volume= 4.409 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Area (sf)	CN	Description
126,991	98	Paved parking, HSG B
245,660	69	Pasture/grassland/range, Fair, HSG B
336,432	60	Woods, Fair, HSG B
11,972	98	Paved parking, HSG C
14,257	79	Pasture/grassland/range, Fair, HSG C
57,548	73	Woods, Fair, HSG C
792,860	71	Weighted Average
653,897		82.47% Pervious Area
138,963		17.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	103	0.0490	0.24		<b>Sheet Flow, B1-B2</b> Grass: Short n= 0.150 P2= 3.14"
1.2	155	0.0900	2.10		<b>Shallow Concentrated Flow, B2-B3</b> Short Grass Pasture Kv= 7.0 fps
0.5	95	0.1890	3.04		<b>Shallow Concentrated Flow, B3-B4</b> Short Grass Pasture Kv= 7.0 fps
3.1	288	0.0970	1.56		<b>Shallow Concentrated Flow, B4-B5</b> Woodland Kv= 5.0 fps
12.0	425	0.0140	0.59		<b>Shallow Concentrated Flow, B5-B6</b> Woodland Kv= 5.0 fps
23.9	1,066	Total			

**Summary for Subcatchment C: Watershed C**

Runoff = 17.66 cfs @ 12.28 hrs, Volume= 1.931 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
30,270	98	Paved parking, HSG B
20,796	69	Pasture/grassland/range, Fair, HSG B
114,575	60	Woods, Fair, HSG B
15,718	98	Paved parking, HSG C
14,752	79	Pasture/grassland/range, Fair, HSG C
140,177	73	Woods, Fair, HSG C
336,288	72	Weighted Average
290,300		86.32% Pervious Area
45,988		13.68% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	70	0.1290	0.33		<b>Sheet Flow, C1-C2</b> Grass: Short n= 0.150 P2= 3.14"
0.4	75	0.0270	3.34		<b>Shallow Concentrated Flow, C2-C3</b> Paved Kv= 20.3 fps
1.0	90	0.0890	1.49		<b>Shallow Concentrated Flow, C3-C4</b> Woodland Kv= 5.0 fps
14.1	500	0.0140	0.59		<b>Shallow Concentrated Flow, C4-C5</b> Woodland Kv= 5.0 fps
19.0	735	Total			

**Summary for Subcatchment D1: Watershed D1**

Runoff = 6.62 cfs @ 12.34 hrs, Volume= 0.816 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
11,405	98	Paved parking, HSG B
15,407	69	Pasture/grassland/range, Fair, HSG B
155,153	60	Woods, Fair, HSG B
2,628	98	Paved parking, HSG C
3,269	73	Woods, Fair, HSG C
187,862	64	Weighted Average
173,829		92.53% Pervious Area
14,033		7.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8	123	0.0570	0.12		<b>Sheet Flow, D1_1-D1_2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
2.1	168	0.0710	1.33		<b>Shallow Concentrated Flow, D1_2-D1_3</b> Woodland Kv= 5.0 fps
0.7	125	0.1600	2.80		<b>Shallow Concentrated Flow, D1_3-D1_4</b> Short Grass Pasture Kv= 7.0 fps
0.7	150	0.0330	3.69		<b>Shallow Concentrated Flow, D1_4-D1_5</b> Paved Kv= 20.3 fps
1.5	140	0.0930	1.52		<b>Shallow Concentrated Flow, D1_5-D1_6</b> Woodland Kv= 5.0 fps
1.2	143	0.1610	2.01		<b>Shallow Concentrated Flow, D1_6-D1_7</b> Woodland Kv= 5.0 fps
0.1	80	0.0750	12.42	9.76	<b>Pipe Channel, D1_7-D1_8</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Cast iron, coated
23.1	929	Total			

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**Summary for Subcatchment D2: Watershed D2**

Runoff = 16.70 cfs @ 12.22 hrs, Volume= 1.581 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
19,424	98	Paved parking, HSG B
43,958	69	Pasture/grassland/range, Fair, HSG B
154,825	60	Woods, Fair, HSG B
13,036	98	Paved parking, HSG C
50,283	79	Pasture/grassland/range, Fair, HSG C
22,356	73	Woods, Fair, HSG C
303,882	69	Weighted Average
271,422		89.32% Pervious Area
32,460		10.68% Impervious Area

  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	76	0.2105	0.19		<b>Sheet Flow, D2_1-D2_2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
1.7	80	0.0250	0.79		<b>Shallow Concentrated Flow, D2_2-D2_3</b> Woodland Kv= 5.0 fps
2.7	110	0.0182	0.67		<b>Shallow Concentrated Flow, D2_3-D2_4</b> Woodland Kv= 5.0 fps
2.6	122	0.0246	0.78		<b>Shallow Concentrated Flow, D2_4-D2_5</b> Woodland Kv= 5.0 fps
13.8	388	Total			

**Summary for Subcatchment E: Watershed E**

Runoff = 9.76 cfs @ 12.50 hrs, Volume= 1.490 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
24,174	98	Paved parking, HSG B
26,254	69	Pasture/grassland/range, Fair, HSG B
306,402	60	Woods, Fair, HSG B
356,830	63	Weighted Average
332,656		93.23% Pervious Area
24,174		6.77% Impervious Area

**ExistingConditions\_2011.08**

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	125	0.0560	0.12		<b>Sheet Flow, E1-E2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
3.7	135	0.0150	0.61		<b>Shallow Concentrated Flow, E2-E3</b> Woodland Kv= 5.0 fps
1.6	131	0.0760	1.38		<b>Shallow Concentrated Flow, E3-E4</b> Woodland Kv= 5.0 fps
0.6	64	0.0630	1.76		<b>Shallow Concentrated Flow, E4-E5</b> Short Grass Pasture Kv= 7.0 fps
3.2	195	0.0410	1.01		<b>Shallow Concentrated Flow, E5-E6</b> Woodland Kv= 5.0 fps
5.2	213	0.0190	0.69		<b>Shallow Concentrated Flow, E6-E7</b> Woodland Kv= 5.0 fps
0.0	15	0.1330	7.40		<b>Shallow Concentrated Flow, E7-E8</b> Paved Kv= 20.3 fps
2.3	195	0.0770	1.39		<b>Shallow Concentrated Flow, E8-E9</b> Woodland Kv= 5.0 fps
33.8	1,073	Total			

**Summary for Subcatchment F: Watershed F**

Runoff = 24.15 cfs @ 12.38 hrs, Volume= 3.079 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
87,211	98	Paved parking, HSG B
105,010	69	Pasture/grassland/range, Fair, HSG B
390,867	60	Woods, Fair, HSG B
29,235	73	Woods, Fair, HSG C
612,323	68	Weighted Average
525,112		85.76% Pervious Area
87,211		14.24% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	100	0.0400	0.10		<b>Sheet Flow, F1-F2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
1.9	108	0.0370	0.96		<b>Shallow Concentrated Flow, F2-F3</b> Woodland Kv= 5.0 fps
0.9	93	0.1080	1.64		<b>Shallow Concentrated Flow, F3-F4</b> Woodland Kv= 5.0 fps
0.6	70	0.1710	2.07		<b>Shallow Concentrated Flow, F4-F5</b> Woodland Kv= 5.0 fps
0.9	102	0.1370	1.85		<b>Shallow Concentrated Flow, F5-F6</b> Woodland Kv= 5.0 fps
2.9	180	0.0220	1.04		<b>Shallow Concentrated Flow, F6-F7</b> Short Grass Pasture Kv= 7.0 fps
1.9	160	0.0750	1.37		<b>Shallow Concentrated Flow, F7-F8</b> Woodland Kv= 5.0 fps
25.5	813	Total			

**Summary for Subcatchment G: Watershed G**

Runoff = 4.75 cfs @ 12.36 hrs, Volume= 0.609 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
11,559	98	Paved parking, HSG B
6,733	69	Pasture/grassland/range, Fair, HSG B
121,845	60	Woods, Fair, HSG B
140,137	64	Weighted Average
128,578		91.75% Pervious Area
11,559		8.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8	120	0.0750	0.14		<b>Sheet Flow, G1-G2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
1.6	134	0.0750	1.37		<b>Shallow Concentrated Flow, G2-G3</b> Woodland Kv= 5.0 fps
1.9	88	0.0230	0.76		<b>Shallow Concentrated Flow, G3-G4</b> Woodland Kv= 5.0 fps
0.6	56	0.1070	1.64		<b>Shallow Concentrated Flow, G4-G5</b> Woodland Kv= 5.0 fps
0.5	63	0.1590	1.99		<b>Shallow Concentrated Flow, G5-G6</b> Woodland Kv= 5.0 fps
1.2	92	0.0650	1.27		<b>Shallow Concentrated Flow, G6-G7</b> Woodland Kv= 5.0 fps
4.4	150	0.0130	0.57		<b>Shallow Concentrated Flow, G7-G8</b> Woodland Kv= 5.0 fps
25.0	703	Total			

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**Summary for Subcatchment H: Watershed H**

Runoff = 12.72 cfs @ 12.18 hrs, Volume= 1.050 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
40,910	98	Paved parking, HSG B
46,113	69	Pasture/grassland/range, Fair, HSG B
91,099	60	Woods, Fair, HSG B
10,764	73	Woods, Fair, HSG C
188,886	71	Weighted Average
147,976		78.34% Pervious Area
40,910		21.66% Impervious Area

  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	62	0.0480	0.22		<b>Sheet Flow, H1-H2</b>
					Grass: Short n= 0.150 P2= 3.14"
0.8	84	0.1190	1.72		<b>Shallow Concentrated Flow, H2-H3</b>
					Woodland Kv= 5.0 fps
0.1	20	0.0250	3.21		<b>Shallow Concentrated Flow, H3-H4</b>
					Paved Kv= 20.3 fps
3.6	217	0.0207	1.01		<b>Shallow Concentrated Flow, H4-H5</b>
					Short Grass Pasture Kv= 7.0 fps
0.7	168	0.0417	4.15		<b>Shallow Concentrated Flow, H5-H6</b>
					Paved Kv= 20.3 fps
10.0	551	Total			

**Summary for Subcatchment I: Watershed I**

Runoff = 24.85 cfs @ 12.45 hrs, Volume= 3.555 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
60,334	98	Paved parking, HSG B
38,418	69	Pasture/grassland/range, Fair, HSG B
472,684	60	Woods, Fair, HSG B
23,830	98	Paved parking, HSG C
4,949	79	Pasture/grassland/range, Fair, HSG C
132,110	73	Woods, Fair, HSG C
732,325	67	Weighted Average
648,161		88.51% Pervious Area
84,164		11.49% Impervious Area



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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	108	0.0650	0.13		<b>Sheet Flow, I1-I2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
0.6	80	0.2000	2.24		<b>Shallow Concentrated Flow, I2-I3</b> Woodland Kv= 5.0 fps
10.8	434	0.0180	0.67		<b>Shallow Concentrated Flow, I3-I4</b> Woodland Kv= 5.0 fps
4.5	310	0.0516	1.14		<b>Shallow Concentrated Flow, I4-I5</b> Woodland Kv= 5.0 fps
1.0	100	0.1100	1.66		<b>Shallow Concentrated Flow, I5-I6</b> Woodland Kv= 5.0 fps
31.3	1,032	Total			

**Summary for Subcatchment JK: Watershed JK**

Runoff = 23.38 cfs @ 12.28 hrs, Volume= 2.556 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
85,695	98	Paved parking, HSG B
69,911	69	Pasture/grassland/range, Fair, HSG B
313,369	60	Woods, Fair, HSG B
4,648	98	Paved parking, HSG C
1,789	79	Pasture/grassland/range, Fair, HSG C
15,812	73	Woods, Fair, HSG C
491,224	69	Weighted Average
400,881		81.61% Pervious Area
90,343		18.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	75	0.1200	0.15		<b>Sheet Flow, JK1-JK2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
0.3	40	0.1500	1.94		<b>Shallow Concentrated Flow, JK2-JK3</b> Woodland Kv= 5.0 fps
0.2	35	0.5710	3.78		<b>Shallow Concentrated Flow, JK3-JK4</b> Woodland Kv= 5.0 fps
1.3	84	0.0476	1.09		<b>Shallow Concentrated Flow, JK4-JK5</b> Woodland Kv= 5.0 fps
4.2	200	0.0250	0.79		<b>Shallow Concentrated Flow, JK5-JK6</b> Woodland Kv= 5.0 fps
3.0	245	0.0367	1.34		<b>Shallow Concentrated Flow, JK6-JK7</b> Short Grass Pasture Kv= 7.0 fps
1.5	95	0.0421	1.03		<b>Shallow Concentrated Flow, JK7-JK8</b> Woodland Kv= 5.0 fps
18.9	774	Total			

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**Summary for Subcatchment L: Watershed L**

Runoff = 7.73 cfs @ 12.26 hrs, Volume= 0.814 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
22,555	98	Paved parking, HSG B
38,954	69	Pasture/grassland/range, Fair, HSG B
93,482	60	Woods, Fair, HSG B
6,905	79	Pasture/grassland/range, Fair, HSG C
161,896	68	Weighted Average
139,341		86.07% Pervious Area
22,555		13.93% Impervious Area

  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	105	0.0857	0.14		<b>Sheet Flow, L1-L2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
0.7	92	0.2170	2.33		<b>Shallow Concentrated Flow, L2-L3</b> Woodland Kv= 5.0 fps
1.2	105	0.0857	1.46		<b>Shallow Concentrated Flow, L3-L4</b> Woodland Kv= 5.0 fps
2.8	110	0.0090	0.66		<b>Shallow Concentrated Flow, L4-L5</b> Short Grass Pasture Kv= 7.0 fps
17.3	412	Total			

**Summary for Subcatchment M: Watershed M**

Runoff = 25.27 cfs @ 12.28 hrs, Volume= 2.767 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
69,739	98	Paved parking, HSG B
59,451	69	Pasture/grassland/range, Fair, HSG B
266,741	60	Woods, Fair, HSG B
29,290	98	Paved parking, HSG C
45,220	79	Pasture/grassland/range, Fair, HSG C
27,084	73	Woods, Fair, HSG C
497,525	71	Weighted Average
398,496		80.10% Pervious Area
99,029		19.90% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	108	0.1390	0.17		<b>Sheet Flow, M1-M2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
4.5	153	0.0065	0.56		<b>Shallow Concentrated Flow, M2-M3</b> Short Grass Pasture Kv= 7.0 fps
0.2	38	0.0263	3.29		<b>Shallow Concentrated Flow, M3-M4</b> Paved Kv= 20.3 fps
0.0	16	0.7500	6.06		<b>Shallow Concentrated Flow, M4-M5</b> Short Grass Pasture Kv= 7.0 fps
0.9	90	0.1111	1.67		<b>Shallow Concentrated Flow, M5-M6</b> Woodland Kv= 5.0 fps
1.3	120	0.1000	1.58		<b>Shallow Concentrated Flow, M6-M7</b> Woodland Kv= 5.0 fps
0.3	55	0.1818	2.98		<b>Shallow Concentrated Flow, M7-M8</b> Short Grass Pasture Kv= 7.0 fps
0.9	85	0.0941	1.53		<b>Shallow Concentrated Flow, M8-M9</b> Woodland Kv= 5.0 fps
0.3	65	0.0385	3.98		<b>Shallow Concentrated Flow, M9-M10</b> Paved Kv= 20.3 fps
19.0	730	Total			

**Summary for Subcatchment N: Watershed N**

Runoff = 20.18 cfs @ 12.40 hrs, Volume= 2.691 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
50,524	98	Paved parking, HSG B
74,493	69	Pasture/grassland/range, Fair, HSG B
159,352	60	Woods, Fair, HSG B
16,590	98	Paved parking, HSG C
79,249	79	Pasture/grassland/range, Fair, HSG C
70,883	73	Woods, Fair, HSG C
3,053	79	Woods, Fair, HSG D
454,144	73	Weighted Average
387,030		85.22% Pervious Area
67,114		14.78% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	85	0.2000	0.19		<b>Sheet Flow, N1-N2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
2.5	178	0.0562	1.19		<b>Shallow Concentrated Flow, N2-N3</b> Woodland Kv= 5.0 fps
17.8	385	0.0052	0.36		<b>Shallow Concentrated Flow, N3-N4</b> Woodland Kv= 5.0 fps
0.5	35	0.0571	1.19		<b>Shallow Concentrated Flow, N4-N5</b> Woodland Kv= 5.0 fps
28.4	683	Total			

**Summary for Subcatchment O: Watershed O**

Runoff = 33.20 cfs @ 12.33 hrs, Volume= 3.951 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
61,705	98	Paved parking, HSG B
41,698	69	Pasture/grassland/range, Fair, HSG B
303,848	60	Woods, Fair, HSG B
30,239	98	Paved parking, HSG C
51,677	79	Pasture/grassland/range, Fair, HSG C
46,566	73	Woods, Fair, HSG C
14,920	98	Paved parking, HSG D
47,553	84	Pasture/grassland/range, Fair, HSG D
68,649	79	Woods, Fair, HSG D
666,855	73	Weighted Average
559,991		83.97% Pervious Area
106,864		16.03% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	110	0.1909	0.19		<b>Sheet Flow, O1-O2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
0.8	115	0.2435	2.47		<b>Shallow Concentrated Flow, O2-O3</b> Woodland Kv= 5.0 fps
2.1	115	0.0348	0.93		<b>Shallow Concentrated Flow, O3-O4</b> Woodland Kv= 5.0 fps
1.6	145	0.0966	1.55		<b>Shallow Concentrated Flow, O4-O5</b> Woodland Kv= 5.0 fps
1.4	148	0.1216	1.74		<b>Shallow Concentrated Flow, O5-O6</b> Woodland Kv= 5.0 fps
1.5	93	0.0430	1.04		<b>Shallow Concentrated Flow, O6-O7</b> Woodland Kv= 5.0 fps
0.3	35	0.0857	2.05		<b>Shallow Concentrated Flow, O7-O8</b> Short Grass Pasture Kv= 7.0 fps
0.9	195	0.0308	3.56		<b>Shallow Concentrated Flow, O8-O9</b> Paved Kv= 20.3 fps
3.2	208	0.0240	1.08		<b>Shallow Concentrated Flow, O9-O10</b> Short Grass Pasture Kv= 7.0 fps
1.5	60	0.0167	0.65		<b>Shallow Concentrated Flow, O10-O11</b> Woodland Kv= 5.0 fps
22.8	1,224	Total			

**Summary for Subcatchment P: Watershed P**

Runoff = 54.68 cfs @ 12.56 hrs, Volume= 8.891 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
263,886	98	Paved parking, HSG B
439,344	69	Pasture/grassland/range, Fair, HSG B
975,191	60	Woods, Fair, HSG B
6,076	98	Paved parking, HSG D
5,373	84	Pasture/grassland/range, Fair, HSG D
18,585	79	Woods, Fair, HSG D
1,708,455	69	Weighted Average
1,438,493		84.20% Pervious Area
269,962		15.80% Impervious Area

**ExistingConditions\_2011.08**

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	75	0.2667	0.20		<b>Sheet Flow, P1-P2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
1.1	102	0.0980	1.57		<b>Shallow Concentrated Flow, P2-P3</b> Woodland Kv= 5.0 fps
2.2	95	0.0211	0.73		<b>Shallow Concentrated Flow, P3-P4</b> Woodland Kv= 5.0 fps
2.5	167	0.0479	1.09		<b>Shallow Concentrated Flow, P4-P5</b> Woodland Kv= 5.0 fps
1.1	130	0.1539	1.96		<b>Shallow Concentrated Flow, P5-P6</b> Woodland Kv= 5.0 fps
2.6	108	0.0185	0.68		<b>Shallow Concentrated Flow, P6-P7</b> Woodland Kv= 5.0 fps
2.2	75	0.0067	0.57		<b>Shallow Concentrated Flow, P7-P8</b> Short Grass Pasture Kv= 7.0 fps
6.9	185	0.0081	0.45		<b>Shallow Concentrated Flow, P8-P9</b> Woodland Kv= 5.0 fps
12.6	140	0.0007	0.19		<b>Shallow Concentrated Flow, P9-P10</b> Short Grass Pasture Kv= 7.0 fps
1.1	95	0.0053	1.48		<b>Shallow Concentrated Flow, P10-P11</b> Paved Kv= 20.3 fps
0.4	180	0.0128	7.06	22.18	<b>Pipe Channel, P11-P12</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
1.0	260	0.0050	4.41	13.86	<b>Pipe Channel, P12-P13</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
39.8	1,612	Total			

**Summary for Subcatchment Q: Watershed Q**

Runoff = 106.04 cfs @ 13.64 hrs, Volume= 33.698 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
66,187	98	Paved parking, HSG B
125,128	61	>75% Grass cover, Good, HSG B
5,010,911	55	Woods, Good, HSG B
189,152	98	Paved parking, HSG C
190,279	74	>75% Grass cover, Good, HSG C
2,566,623	70	Woods, Good, HSG C
250,390	77	Woods, Good, HSG D
8,398,670	62	Weighted Average
8,143,331		96.96% Pervious Area
255,339		3.04% Impervious Area

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
78.6	250	0.0200	0.05		<b>Sheet Flow, TC1-TC2</b> Woods: Dense underbrush n= 0.800 P2= 3.14"
7.5	413	0.0339	0.92		<b>Shallow Concentrated Flow, TC2-TC3</b> Woodland Kv= 5.0 fps
9.8	814	0.0762	1.38		<b>Shallow Concentrated Flow, TC3-TC4</b> Woodland Kv= 5.0 fps
5.3	1,107	0.0127	3.51	21.04	<b>Trap/Vee/Rect Channel Flow, TC4-TC5</b> Bot.W=5.00' D=1.00' Z= 1.0 '/' Top.W=7.00' n= 0.040 Mountain streams
0.4	168	0.0595	6.60	19.79	<b>Trap/Vee/Rect Channel Flow, TC5-TC6</b> Bot.W=2.00' D=1.00' Z= 1.0 '/' Top.W=4.00' n= 0.040 Mountain streams
3.7	465	0.0043	2.10	21.02	<b>Trap/Vee/Rect Channel Flow, TC6-TC7</b> Bot.W=8.00' D=1.00' Z= 2.0 '/' Top.W=12.00' n= 0.040 Mountain streams
0.4	175	0.0686	8.10	24.29	<b>Trap/Vee/Rect Channel Flow, TC7-TC8</b> Bot.W=2.00' D=1.00' Z= 1.0 '/' Top.W=4.00' n= 0.035 Earth, dense weeds
2.2	605	0.0198	4.57	22.85	<b>Trap/Vee/Rect Channel Flow, TC8-TC9</b> Bot.W=3.00' D=1.00' Z= 2.0 '/' Top.W=7.00' n= 0.035 Earth, dense weeds
2.7	734	0.0163	4.54	27.24	<b>Trap/Vee/Rect Channel Flow, TC9-TC10</b> Bot.W=5.00' D=1.00' Z= 1.0 '/' Top.W=7.00' n= 0.035 Earth, dense weeds
110.6	4,731	Total			

**Summary for Subcatchment R1: Watershed R1**

Runoff = 281.66 cfs @ 12.90 hrs, Volume= 60.953 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
478,047	98	Paved parking, HSG B
741,943	61	>75% Grass cover, Good, HSG B
3,820,532	55	Woods, Good, HSG B
1,415,952	98	Paved parking, HSG C
1,843,006	74	>75% Grass cover, Good, HSG C
2,753,062	70	Woods, Good, HSG C
273,311	77	Woods, Good, HSG D
11,325,853	70	Weighted Average
9,431,854		83.28% Pervious Area
1,893,999		16.72% Impervious Area

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	107	0.2243	0.12		<b>Sheet Flow, TC1-TC2</b> Woods: Dense underbrush n= 0.800 P2= 3.14"
0.8	118	0.2712	2.60		<b>Shallow Concentrated Flow, TC2-TC3</b> Woodland Kv= 5.0 fps
2.1	116	0.0345	0.93		<b>Shallow Concentrated Flow, TC3-TC4</b> Woodland Kv= 5.0 fps
0.3	34	0.1618	2.01		<b>Shallow Concentrated Flow, TC4-TC5</b> Woodland Kv= 5.0 fps
31.7	356	0.0014	0.19		<b>Shallow Concentrated Flow, TC5-TC6</b> Woodland Kv= 5.0 fps
1.8	414	0.0060	3.90	70.18	<b>Trap/Vee/Rect Channel Flow, TC6-TC7</b> Bot.W=5.00' D=2.00' Z= 2.0 '/' Top.W=13.00' n= 0.035 Earth, dense weeds
1.6	455	0.0077	4.80	71.37	<b>Trap/Vee/Rect Channel Flow, TC7-TC8</b> Bot.W=5.00' D=1.75' Z= 2.0 '/' Top.W=12.00' n= 0.030 Earth, grassed & winding
1.0	250	0.0080	4.38	73.24	<b>Trap/Vee/Rect Channel Flow, TC8=TC9</b> Bot.W=5.00' D=1.90' Z= 2.0 '/' Top.W=12.60' n= 0.035 Earth, dense weeds
4.0	1,300	0.0142	5.41	4.25	<b>Pipe Channel, TC9-TC10</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.8	572	0.0140	5.37	73.59	<b>Trap/Vee/Rect Channel Flow, TC10-TC11</b> Bot.W=5.00' D=1.65' Z= 2.0 '/' Top.W=11.60' n= 0.035 Earth, dense weeds
0.4	132	0.0050	5.91	29.00	<b>Pipe Channel, TC11-TC12</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Corrugated PE, smooth interior
0.6	133	0.0050	3.70	73.98	<b>Trap/Vee/Rect Channel Flow, TC12-TC13</b> Bot.W=5.00' D=2.15' Z= 2.0 '/' Top.W=13.60' n= 0.035 Earth, dense weeds
0.1	46	0.0050	5.91	29.00	<b>Pipe Channel, TC13-TC14</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Corrugated PE, smooth interior
3.0	660	0.0050	3.65	72.92	<b>Trap/Vee/Rect Channel Flow, TC14-TC15</b> Bot.W=6.00' D=2.00' Z= 2.0 '/' Top.W=14.00' n= 0.035 Earth, dense weeds
0.1	42	0.0050	8.08	101.57	<b>Pipe Channel, TC15-TC16</b> 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013 Corrugated PE, smooth interior
64.5	4,735	Total			

**Summary for Subcatchment R2: Watershed R2**

Runoff = 94.12 cfs @ 12.35 hrs, Volume= 11.759 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"



**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Area (sf)	CN	Description
139,906	98	Paved parking, HSG B
318,568	61	>75% Grass cover, Good, HSG B
1,024,097	55	Woods, Good, HSG B
275,540	98	Paved parking, HSG C
157,252	74	>75% Grass cover, Good, HSG C
255,015	70	Woods, Good, HSG C
168,016	77	Woods, Good, HSG D
2,338,394	68	Weighted Average
1,922,948		82.23% Pervious Area
415,446		17.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4	151	0.0795	0.14		<b>Sheet Flow, TC1-TC2</b> Woods: Light underbrush n= 0.400 P2= 3.14"
1.6	112	0.0536	1.16		<b>Shallow Concentrated Flow, TC2-TC3</b> Woodland Kv= 5.0 fps
0.6	245	0.0735	6.93	21.61	<b>Trap/Vee/Rect Channel Flow, TC3-TC4</b> Bot.W=4.00' D=0.60' Z= 2.0 '/' Top.W=6.40' n= 0.035 Earth, dense weeds
0.2	147	0.2177	10.77	26.93	<b>Trap/Vee/Rect Channel Flow, TC4-TC5</b> Bot.W=4.00' D=0.50' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
0.3	130	0.1231	8.54	23.96	<b>Trap/Vee/Rect Channel Flow, TC5-TC6</b> Bot.W=4.00' D=0.55' Z= 2.0 '/' Top.W=6.20' n= 0.035 Earth, dense weeds
0.3	125	0.0800	7.05	23.65	<b>Trap/Vee/Rect Channel Flow, TC6-TC7</b> Bot.W=5.00' D=0.55' Z= 2.0 '/' Top.W=7.20' n= 0.035 Earth, dense weeds
0.3	100	0.0400	5.71	25.57	<b>Trap/Vee/Rect Channel Flow, TC7-TC8</b> Bot.W=5.00' D=0.70' Z= 2.0 '/' Top.W=7.80' n= 0.035 Earth, dense weeds
0.3	142	0.1127	8.17	22.93	<b>Trap/Vee/Rect Channel Flow, TC8-TC9</b> Bot.W=4.00' D=0.55' Z= 2.0 '/' Top.W=6.20' n= 0.035 Earth, dense weeds
3.4	505	0.0040	2.48	23.21	<b>Trap/Vee/Rect Channel Flow, TC8-TC9</b> Bot.W=5.00' D=1.25' Z= 2.0 '/' Top.W=10.00' n= 0.035 Earth, dense weeds
24.4	1,657	Total			

**Summary for Subcatchment S: Watershed S**

Runoff = 46.65 cfs @ 12.16 hrs, Volume= 3.569 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

**ExistingConditions\_2011.08**

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Area (sf)	CN	Description
58,493	98	Paved parking, HSG B
68,580	61	>75% Grass cover, Good, HSG B
240,872	55	Woods, Good, HSG B
120,657	98	Paved parking, HSG C
153,250	70	Woods, Good, HSG C
641,852	71	Weighted Average
462,702		72.09% Pervious Area
179,150		27.91% Impervious Area

  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	70	0.0857	0.19		<b>Sheet Flow, TC1-TC2</b> Grass: Dense n= 0.240 P2= 3.14"
0.9	113	0.0885	2.08		<b>Shallow Concentrated Flow, TC2-TC3</b> Short Grass Pasture Kv= 7.0 fps
0.3	77	0.0520	4.63		<b>Shallow Concentrated Flow, TC3-TC4</b> Paved Kv= 20.3 fps
0.9	340	0.0822	6.62	16.55	<b>Trap/Vee/Rect Channel Flow, TC4-TC5</b> Bot.W=4.00' D=0.50' Z= 2.0 ' / Top.W=6.00' n= 0.035 Earth, dense weeds
8.2	600	Total			

**Summary for Subcatchment T: Watershed T**

Runoff = 67.43 cfs @ 12.74 hrs, Volume= 12.925 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

Area (sf)	CN	Description
148,223	98	Paved parking, HSG B
1,498,782	61	>75% Grass cover, Good, HSG B
786,957	55	Woods, Good, HSG B
326,289	98	Paved parking, HSG C
2,760,251	66	Weighted Average
2,285,739		82.81% Pervious Area
474,512		17.19% Impervious Area

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	150	0.0533	0.07		<b>Sheet Flow, TC1-TC2</b> Woods: Dense underbrush n= 0.800 P2= 3.14"
2.8	160	0.0375	0.97		<b>Shallow Concentrated Flow, TC2-TC3</b> Woodland Kv= 5.0 fps
0.2	84	0.1667	8.31	15.95	<b>Trap/Vee/Rect Channel Flow, TC3-TC4</b> Bot.W=4.00' D=0.40' Z= 2.0 '/' Top.W=5.60' n= 0.035 Earth, dense weeds
1.5	337	0.0178	3.65	14.96	<b>Trap/Vee/Rect Channel Flow, TC4-TC5</b> Bot.W=5.00' D=0.65' Z= 2.0 '/' Top.W=7.60' n= 0.035 Earth, dense weeds
0.2	95	0.0842	6.70	16.75	<b>Trap/Vee/Rect Channel Flow, TC5-TC6</b> Bot.W=4.00' D=0.50' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
0.1	63	0.2222	10.02	15.03	<b>Trap/Vee/Rect Channel Flow, TC6-TC7</b> Bot.W=2.00' D=0.50' Z= 2.0 '/' Top.W=4.00' n= 0.035 Earth, dense weeds
1.4	278	0.0144	3.42	15.34	<b>Trap/Vee/Rect Channel Flow, TC7-TC8</b> Bot.W=5.00' D=0.70' Z= 2.0 '/' Top.W=7.80' n= 0.035 Earth, dense weeds
0.2	86	0.0698	6.10	15.25	<b>Trap/Vee/Rect Channel Flow, TC8-TC9</b> Bot.W=4.00' D=0.50' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
0.5	170	0.0588	5.90	16.56	<b>Trap/Vee/Rect Channel Flow, TC9-TC10</b> Bot.W=4.00' D=0.55' Z= 2.0 '/' Top.W=6.20' n= 0.035 Earth, dense weeds
1.0	279	0.0287	4.43	16.50	<b>Trap/Vee/Rect Channel Flow, TC10-TC11</b> Bot.W=5.00' D=0.60' Z= 2.0 '/' Top.W=7.40' n= 0.035 Earth, dense weeds
7.3	522	0.0010	1.18	14.22	<b>Trap/Vee/Rect Channel Flow, TC11-TC12</b> Bot.W=10.00' D=1.00' Z= 2.0 '/' Top.W=14.00' n= 0.035 Earth, dense weeds
1.4	435	0.0287	5.05	15.76	<b>Trap/Vee/Rect Channel Flow, TC12-TC13</b> Bot.W=4.00' D=0.60' Z= 2.0 '/' Top.W=6.40' n= 0.030 Earth, grassed & winding
51.9	2,659	Total			

**Summary for Subcatchment U: Watershed U**

Runoff = 28.80 cfs @ 13.40 hrs, Volume= 9.166 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

**ExistingConditions\_2011.08**

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Area (sf)	CN	Description
210,933	98	Paved parking, HSG A
345,724	39	>75% Grass cover, Good, HSG A
763,905	30	Woods, Good, HSG A
323,591	98	Paved parking, HSG B
368,499	61	>75% Grass cover, Good, HSG B
1,132,205	55	Woods, Good, HSG B
3,144,857	55	Weighted Average
2,610,333		83.00% Pervious Area
534,524		17.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.2	287	0.0314	0.07		<b>Sheet Flow, TC1-TC2</b> Woods: Dense underbrush n= 0.800 P2= 3.14"
2.2	121	0.0165	0.90		<b>Shallow Concentrated Flow, TC2-TC3</b> Short Grass Pasture Kv= 7.0 fps
0.4	74	0.0270	3.34		<b>Shallow Concentrated Flow, TC3-TC4</b> Paved Kv= 20.3 fps
3.9	587	0.0163	2.52	3.83	<b>Trap/Vee/Rect Channel Flow, TC4-TC5</b> Bot.W=3.00' D=0.40' Z= 2.0 '/' Top.W=4.60' n= 0.035 Earth, dense weeds
4.0	537	0.0130	2.25	3.42	<b>Trap/Vee/Rect Channel Flow, TC5-TC6</b> Bot.W=3.00' D=0.40' Z= 2.0 '/' Top.W=4.60' n= 0.035 Earth, dense weeds
4.0	496	0.0081	2.07	3.15	<b>Trap/Vee/Rect Channel Flow, TC6-TC7</b> Bot.W=3.00' D=0.40' Z= 2.0 '/' Top.W=4.60' n= 0.030 Earth, grassed & winding
3.8	382	0.0052	1.66	2.53	<b>Trap/Vee/Rect Channel Flow, TC7-TC8</b> Bot.W=3.00' D=0.40' Z= 2.0 '/' Top.W=4.60' n= 0.030 Earth, grassed & winding
1.2	195	0.0051	2.62	2.83	<b>Trap/Vee/Rect Channel Flow, TC8-TC9</b> Bot.W=3.00' D=0.30' Z= 2.0 '/' Top.W=4.20' n= 0.016 Asphalt, rough
5.3	590	0.0017	1.87	1.47	<b>Pipe Channel, TC9-TC10</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, bends & connections
98.0	3,269	Total			

**Summary for Subcatchment V: Watershed V**

Runoff = 311.25 cfs @ 12.24 hrs, Volume= 30.895 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

**ExistingConditions\_2011.08**

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Area (sf)	CN	Description
166,132	98	Paved parking, HSG B
650,717	61	>75% Grass cover, Good, HSG B
738,499	55	Woods, Good, HSG B
306,233	98	Paved parking, HSG C
76,039	74	>75% Grass cover, Good, HSG C
1,337,801	70	Woods, Good, HSG C
2,105,272	77	Woods, Good, HSG D
5,380,693	72	Weighted Average
4,908,328		91.22% Pervious Area
472,365		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	75	0.1733	0.10		<b>Sheet Flow, TC1-TC2</b> Woods: Dense underbrush n= 0.800 P2= 3.14"
0.7	83	0.1446	1.90		<b>Shallow Concentrated Flow, TC2-TC3</b> Woodland Kv= 5.0 fps
0.3	165	0.0061	8.58	89.17	<b>Trap/Vee/Rect Channel Flow, TC3-TC4</b> Bot.W=5.00' D=1.35' Z= 2.0 '/' Top.W=10.40' n= 0.013 Asphalt, smooth
0.9	283	0.0106	5.04	84.30	<b>Trap/Vee/Rect Channel Flow, TC4-TC5</b> Bot.W=5.00' D=1.90' Z= 2.0 '/' Top.W=12.60' n= 0.035 Earth, dense weeds
0.7	363	0.0055	8.15	84.67	<b>Trap/Vee/Rect Channel Flow, TC5-TC6</b> Bot.W=5.00' D=1.35' Z= 2.0 '/' Top.W=10.40' n= 0.013 Asphalt, smooth
0.4	178	0.0225	6.70	87.92	<b>Trap/Vee/Rect Channel Flow, TC6-TC7</b> Bot.W=5.00' D=1.60' Z= 2.0 '/' Top.W=11.40' n= 0.035 Earth, dense weeds
15.6	1,147	Total			

**Summary for Reach 1R: Wetland Culvert**

Inflow Area = 998.301 ac, 12.94% Impervious, Inflow Depth > 1.40" for 25yr-NRCC event  
 Inflow = 62.05 cfs @ 19.13 hrs, Volume= 116.475 af  
 Outflow = 62.05 cfs @ 19.14 hrs, Volume= 116.450 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Max. Velocity= 2.45 fps, Min. Travel Time= 0.3 min  
 Avg. Velocity = 2.19 fps, Avg. Travel Time= 0.4 min

Peak Storage= 1,264 cf @ 19.14 hrs, Average Depth at Peak Storage= 2.60'  
 Bank-Full Depth= 3.00', Capacity at Bank-Full= 83.51 cfs

4.50' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 2.0 '/' Top Width= 16.50'  
 Length= 50.0' Slope= 0.0024 '/'  
 Inlet Invert= 181.30', Outlet Invert= 181.18'



**Summary for Reach RQ: Channel Q**

Inflow Area = 192.807 ac, 3.04% Impervious, Inflow Depth > 0.94" for 25yr-NRCC event  
 Inflow = 8.29 cfs @ 25.11 hrs, Volume= 15.093 af  
 Outflow = 8.29 cfs @ 25.33 hrs, Volume= 14.870 af, Atten= 0%, Lag= 12.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Max. Velocity= 1.19 fps, Min. Travel Time= 20.6 min  
 Avg. Velocity = 1.10 fps, Avg. Travel Time= 22.3 min

Peak Storage= 10,234 cf @ 25.33 hrs, Average Depth at Peak Storage= 0.99'  
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.39 cfs

5.00' x 1.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides  
 Side Slope Z-value= 2.0 ' / Top Width= 9.00'  
 Length= 1,475.0' Slope= 0.0016 ' /  
 Inlet Invert= 214.30', Outlet Invert= 212.00'



‡

**Summary for Pond CBC: Pond C**

Inflow Area = 19.009 ac, 11.17% Impervious, Inflow Depth = 2.90" for 25yr-NRCC event  
 Inflow = 41.05 cfs @ 12.35 hrs, Volume= 4.599 af  
 Outflow = 21.66 cfs @ 12.70 hrs, Volume= 4.599 af, Atten= 47%, Lag= 21.1 min  
 Primary = 10.65 cfs @ 12.70 hrs, Volume= 3.870 af  
 Secondary = 11.01 cfs @ 12.70 hrs, Volume= 0.729 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 202.88' @ 12.70 hrs Surf.Area= 29,025 sf Storage= 34,987 cf

Plug-Flow detention time= 15.6 min calculated for 4.598 af (100% of inflow)  
 Center-of-Mass det. time= 15.6 min ( 892.3 - 876.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	199.00'	38,694 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.00	25	0	0
200.00	40	33	33
201.00	6,035	3,038	3,070
202.00	17,260	11,648	14,718
203.00	30,693	23,977	38,694

Device	Routing	Invert	Outlet Devices
#1	Secondary	202.00'	<b>5.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	199.00'	<b>15.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=10.65 cfs @ 12.70 hrs HW=202.88' TW=195.16' (Dynamic Tailwater)  
 ↑**2=Orifice/Grate** (Orifice Controls 10.65 cfs @ 8.68 fps)

**Secondary OutFlow** Max=11.01 cfs @ 12.70 hrs HW=202.88' TW=195.16' (Dynamic Tailwater)  
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 11.01 cfs @ 2.51 fps)

**Summary for Pond CBH: CB Outlet H**

[57] Hint: Peaked at 245.12' (Flood elevation advised)

Inflow Area = 4.336 ac, 21.66% Impervious, Inflow Depth = 2.91" for 25yr-NRCC event  
 Inflow = 12.72 cfs @ 12.18 hrs, Volume= 1.050 af  
 Outflow = 12.72 cfs @ 12.18 hrs, Volume= 1.050 af, Atten= 0%, Lag= 0.0 min  
 Primary = 12.72 cfs @ 12.18 hrs, Volume= 1.050 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 245.12' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	243.84'	<b>12.0" x 36.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=12.70 cfs @ 12.18 hrs HW=245.12' TW=244.34' (Dynamic Tailwater)  
 ↑**1=Orifice/Grate** (Orifice Controls 12.70 cfs @ 4.23 fps)

**Summary for Pond CBL: CB Outlet L**

[57] Hint: Peaked at 245.44' (Flood elevation advised)

Inflow Area = 14.994 ac, 17.29% Impervious, Inflow Depth > 2.43" for 25yr-NRCC event  
 Inflow = 8.56 cfs @ 12.27 hrs, Volume= 3.034 af  
 Outflow = 8.56 cfs @ 12.27 hrs, Volume= 3.034 af, Atten= 0%, Lag= 0.0 min  
 Primary = 8.56 cfs @ 12.27 hrs, Volume= 3.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

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Peak Elev= 245.44' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	232.00'	<b>12.0" Round Culvert</b> L= 150.0' RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 231.25' S= 0.0050 '/' Cc= 0.900 n= 0.013

**Primary OutFlow** Max=8.56 cfs @ 12.27 hrs HW=245.43' TW=233.98' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 8.56 cfs @ 10.90 fps)**Summary for Pond CBM: CB Outlet M**

[57] Hint: Peaked at 233.98' (Flood elevation advised)

Inflow Area = 26.415 ac, 18.42% Impervious, Inflow Depth > 2.64" for 25yr-NRCC event  
 Inflow = 33.83 cfs @ 12.28 hrs, Volume= 5.801 af  
 Outflow = 33.83 cfs @ 12.28 hrs, Volume= 5.801 af, Atten= 0%, Lag= 0.0 min  
 Primary = 8.23 cfs @ 12.28 hrs, Volume= 4.876 af  
 Secondary = 25.60 cfs @ 12.28 hrs, Volume= 0.925 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 233.98' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	<b>15.0" Round Culvert</b> L= 165.0' CMP, square edge headwall, Ke= 0.500 Outlet Invert= 229.00' S= 0.0091 '/' Cc= 0.900 n= 0.013
#2	Secondary	233.00'	<b>10.0' long x 20.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=8.23 cfs @ 12.28 hrs HW=233.98' TW=229.65' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 8.23 cfs @ 6.70 fps)**Secondary OutFlow** Max=25.60 cfs @ 12.28 hrs HW=233.98' TW=229.65' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 25.60 cfs @ 2.61 fps)**Summary for Pond CI: Culvert I**

[57] Hint: Peaked at 252.33' (Flood elevation advised)

Inflow Area = 16.812 ac, 11.49% Impervious, Inflow Depth > 2.52" for 25yr-NRCC event  
 Inflow = 12.46 cfs @ 12.87 hrs, Volume= 3.531 af  
 Outflow = 12.46 cfs @ 12.87 hrs, Volume= 3.531 af, Atten= 0%, Lag= 0.0 min  
 Primary = 7.71 cfs @ 12.87 hrs, Volume= 3.236 af  
 Secondary = 4.75 cfs @ 12.87 hrs, Volume= 0.295 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 252.33' @ 12.87 hrs



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Device	Routing	Invert	Outlet Devices
#1	Primary	250.00'	<b>15.0" Round Culvert</b> L= 70.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 243.90' S= 0.0871 '/' Cc= 0.900 n= 0.013
#2	Secondary	252.00'	<b>10.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

**Primary OutFlow** Max=7.71 cfs @ 12.87 hrs HW=252.33' TW=244.34' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 7.71 cfs @ 6.28 fps)**Secondary OutFlow** Max=4.75 cfs @ 12.87 hrs HW=252.33' TW=244.34' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 4.75 cfs @ 1.45 fps)**Summary for Pond DMHH: DMH**

[57] Hint: Peaked at 244.35' (Flood elevation advised)

Inflow Area = 24.365 ac, 12.87% Impervious, Inflow Depth > 2.55" for 25yr-NRCC event  
 Inflow = 16.67 cfs @ 12.19 hrs, Volume= 5.168 af  
 Outflow = 16.67 cfs @ 12.19 hrs, Volume= 5.168 af, Atten= 0%, Lag= 0.0 min  
 Primary = 10.50 cfs @ 12.19 hrs, Volume= 4.677 af  
 Secondary = 6.17 cfs @ 12.19 hrs, Volume= 0.491 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 244.35' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.00'	<b>15.0" Round Culvert</b> L= 160.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 237.15' S= 0.0053 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections
#2	Secondary	244.11'	<b>20.0' long x 24.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=10.50 cfs @ 12.19 hrs HW=244.35' TW=208.34' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 10.50 cfs @ 8.56 fps)**Secondary OutFlow** Max=6.16 cfs @ 12.19 hrs HW=244.35' TW=208.34' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 6.16 cfs @ 1.30 fps)**Summary for Pond DMHP: DMHP**

[57] Hint: Peaked at 530.84' (Flood elevation advised)

Inflow Area = 39.221 ac, 15.80% Impervious, Inflow Depth = 2.72" for 25yr-NRCC event  
 Inflow = 54.68 cfs @ 12.56 hrs, Volume= 8.891 af  
 Outflow = 54.68 cfs @ 12.56 hrs, Volume= 8.891 af, Atten= 0%, Lag= 0.0 min  
 Primary = 54.68 cfs @ 12.56 hrs, Volume= 8.891 af

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 530.84' @ 12.56 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	186.50'	<b>18.0" Round Culvert</b> L= 1,190.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 183.52' S= 0.0025 '/' Cc= 0.900 n= 0.013

**Primary OutFlow** Max=54.67 cfs @ 12.56 hrs HW=530.71' TW=184.80' (Dynamic Tailwater)  
 ↑**1=Culvert** (Barrel Controls 54.67 cfs @ 30.94 fps)

**Summary for Pond PA: Pond A**

Inflow Area = 178.764 ac, 14.51% Impervious, Inflow Depth > 2.50" for 25yr-NRCC event  
 Inflow = 104.40 cfs @ 12.48 hrs, Volume= 37.280 af  
 Outflow = 54.50 cfs @ 14.22 hrs, Volume= 37.244 af, Atten= 48%, Lag= 104.6 min  
 Primary = 54.50 cfs @ 14.22 hrs, Volume= 37.244 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 188.04' @ 14.22 hrs Surf.Area= 186,524 sf Storage= 197,467 cf

Plug-Flow detention time= 31.6 min calculated for 37.234 af (100% of inflow)  
 Center-of-Mass det. time= 30.5 min ( 1,074.5 - 1,043.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	184.00'	1,084,300 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
184.00	1,000	0	0
186.00	2,043	3,043	3,043
188.00	185,841	187,884	190,927
190.00	224,708	410,549	601,476
192.00	258,116	482,824	1,084,300

Device	Routing	Invert	Outlet Devices
#1	Primary	183.80'	<b>48.0" Round Culvert</b> L= 60.5' CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 183.75' S= 0.0008 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Secondary	189.70'	<b>20.0' long x 24.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=54.50 cfs @ 14.22 hrs HW=188.04' TW=185.37' (Dynamic Tailwater)  
 ↑**1=Culvert** (Barrel Controls 54.50 cfs @ 5.09 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=184.00' TW=181.40' (Dynamic Tailwater)  
 ↑**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Summary for Pond PB: Pond B**

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 135.974 ac, 14.61% Impervious, Inflow Depth > 2.40" for 25yr-NRCC event  
 Inflow = 83.78 cfs @ 12.52 hrs, Volume= 27.145 af  
 Outflow = 76.16 cfs @ 12.80 hrs, Volume= 26.943 af, Atten= 9%, Lag= 16.9 min  
 Primary = 37.42 cfs @ 12.80 hrs, Volume= 23.155 af  
 Secondary = 38.75 cfs @ 12.80 hrs, Volume= 3.788 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 195.16' @ 12.81 hrs Surf.Area= 56,059 sf Storage= 64,442 cf

Plug-Flow detention time= 23.0 min calculated for 26.935 af (99% of inflow)  
 Center-of-Mass det. time= 15.1 min ( 1,097.1 - 1,082.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	193.50'	119,684 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
193.50	27,968	0	0
194.00	30,233	14,550	14,550
196.00	74,901	105,134	119,684

Device	Routing	Invert	Outlet Devices
#1	Primary	193.50'	<b>10.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Secondary	194.50'	<b>30.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

**Primary OutFlow** Max=35.99 cfs @ 12.80 hrs HW=195.16' TW=194.79' (Dynamic Tailwater)  
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 35.99 cfs @ 2.17 fps)

**Secondary OutFlow** Max=37.52 cfs @ 12.80 hrs HW=195.16' TW=194.79' (Dynamic Tailwater)  
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 37.52 cfs @ 1.91 fps)

**Summary for Pond PBa: PBa**

[57] Hint: Peaked at 194.84' (Flood elevation advised)

Inflow Area = 135.974 ac, 14.61% Impervious, Inflow Depth > 2.38" for 25yr-NRCC event  
 Inflow = 76.16 cfs @ 12.80 hrs, Volume= 26.943 af  
 Outflow = 76.16 cfs @ 12.80 hrs, Volume= 26.943 af, Atten= 0%, Lag= 0.0 min  
 Primary = 29.64 cfs @ 12.83 hrs, Volume= 22.509 af  
 Secondary = 46.71 cfs @ 12.80 hrs, Volume= 4.448 af

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 194.84' @ 12.83 hrs

Device	Routing	Invert	Outlet Devices
#1	Secondary	194.00'	<b>25.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	190.00'	<b>24.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=29.64 cfs @ 12.83 hrs HW=194.84' TW=190.75' (Dynamic Tailwater)  
 ↳ **2=Orifice/Grate** (Orifice Controls 29.64 cfs @ 9.43 fps)

**Secondary OutFlow** Max=45.62 cfs @ 12.80 hrs HW=194.79' TW=194.17' (Dynamic Tailwater)  
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 45.62 cfs @ 2.30 fps)

**Summary for Pond PBb: PBb**

[93] Warning: Storage range exceeded by 0.39'

Inflow	=	46.71 cfs @ 12.80 hrs,	Volume=	4.448 af
Outflow	=	43.16 cfs @ 12.81 hrs,	Volume=	4.404 af, Atten= 8%, Lag= 0.6 min
Primary	=	4.40 cfs @ 12.77 hrs,	Volume=	1.370 af
Secondary	=	38.88 cfs @ 12.83 hrs,	Volume=	3.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 194.39' @ 12.83 hrs Surf.Area= 26,000 sf Storage= 44,760 cf

Plug-Flow detention time= 38.2 min calculated for 4.404 af (99% of inflow)  
 Center-of-Mass det. time= 36.9 min ( 828.1 - 791.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	190.20'	44,760 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.20	4,450	0	0
191.00	6,005	4,182	4,182
192.00	7,717	6,861	11,043
194.00	26,000	33,717	44,760

Device	Routing	Invert	Outlet Devices
#1	Device 3	190.60'	<b>12.0" x 18.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Device 3	191.25'	<b>12.0" x 18.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	186.80'	<b>12.0" Round Culvert</b> L= 205.0' CPP, square edge headwall, Ke= 0.500 Outlet Invert= 185.80' S= 0.0049 '/ S Cc= 0.900 n= 0.013
#4	Secondary	193.10'	<b>10.0' long x 24.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=4.40 cfs @ 12.77 hrs HW=194.34' TW=190.48' (Dynamic Tailwater)

↑ **3=Culvert** (Outlet Controls 4.40 cfs @ 5.60 fps)

↑ **1=Orifice/Grate** (Passes < 13.97 cfs potential flow)

↑ **2=Orifice/Grate** (Passes < 12.70 cfs potential flow)

**Secondary OutFlow** Max=38.86 cfs @ 12.83 hrs HW=194.39' TW=190.75' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 38.86 cfs @ 3.00 fps)

### Summary for Pond PBc: PBc

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 135.974 ac, 14.61% Impervious, Inflow Depth > 2.38" for 25yr-NRCC event  
 Inflow = 72.80 cfs @ 12.81 hrs, Volume= 26.913 af  
 Outflow = 45.93 cfs @ 13.57 hrs, Volume= 26.915 af, Atten= 37%, Lag= 45.3 min  
 Primary = 45.93 cfs @ 13.57 hrs, Volume= 26.915 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 191.73' @ 13.67 hrs Surf.Area= 48,911 sf Storage= 47,362 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= 4.1 min ( 1,107.6 - 1,103.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	189.79'	61,695 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
189.79	10	0	0
192.00	55,823	61,695	61,695

Device	Routing	Invert	Outlet Devices
#1	Primary	185.80'	<b>30.0" Round Culvert X 2.00</b> L= 277.0' CMP, square edge headwall, Ke= 0.500 Outlet Invert= 185.00' S= 0.0029 '/ Cc= 0.900 n= 0.025

**Primary OutFlow** Max=45.93 cfs @ 13.57 hrs HW=191.72' TW=187.99' (Dynamic Tailwater)

↑ **1=Culvert** (Outlet Controls 45.93 cfs @ 4.68 fps)

### Summary for Pond PD1: Pond D

[93] Warning: Storage range exceeded by 0.12'  
 [90] Warning: Qout>Qin may require Finer Routing or smaller dt  
 [87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 4.313 ac, 7.47% Impervious, Inflow Depth = 2.27" for 25yr-NRCC event  
 Inflow = 6.62 cfs @ 12.34 hrs, Volume= 0.816 af  
 Outflow = 6.82 cfs @ 12.35 hrs, Volume= 0.799 af, Atten= 0%, Lag= 0.3 min  
 Primary = 6.82 cfs @ 12.35 hrs, Volume= 0.799 af

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 207.62' @ 12.35 hrs Surf.Area= 718 sf Storage= 1,079 cf

Plug-Flow detention time= 18.5 min calculated for 0.799 af (98% of inflow)  
 Center-of-Mass det. time= 6.9 min ( 897.3 - 890.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	205.50'	1,079 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
205.50	374	0	0
206.00	451	206	206
207.00	623	537	743
207.50	718	335	1,079

Device	Routing	Invert	Outlet Devices
#1	Primary	207.00'	<b>5.0' long x 1.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

**Primary OutFlow** Max=6.81 cfs @ 12.35 hrs HW=207.62' TW=202.20' (Dynamic Tailwater)  
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 6.81 cfs @ 2.18 fps)

**Summary for Pond PD2: Pond D2**

Inflow Area = 6.976 ac, 10.68% Impervious, Inflow Depth = 2.72" for 25yr-NRCC event  
 Inflow = 16.70 cfs @ 12.22 hrs, Volume= 1.581 af  
 Outflow = 10.18 cfs @ 12.38 hrs, Volume= 1.337 af, Atten= 39%, Lag= 9.3 min  
 Primary = 10.18 cfs @ 12.38 hrs, Volume= 1.337 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 209.53' @ 12.38 hrs Surf.Area= 18,757 sf Storage= 19,154 cf

Plug-Flow detention time= 129.2 min calculated for 1.337 af (85% of inflow)  
 Center-of-Mass det. time= 56.4 min ( 923.9 - 867.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	207.50'	29,110 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
207.50	2,848	0	0
208.00	4,240	1,772	1,772
209.00	13,488	8,864	10,636
210.00	23,460	18,474	29,110

Device	Routing	Invert	Outlet Devices
#1	Primary	209.00'	<b>10.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b>

Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60  
 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

**Primary OutFlow** Max=10.17 cfs @ 12.38 hrs HW=209.53' TW=202.33' (Dynamic Tailwater)  
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 10.17 cfs @ 1.93 fps)

**Summary for Pond PE: Pond E**

[93] Warning: Storage range exceeded by 0.27'  
 [90] Warning: Qout>Qin may require Finer Routing or smaller dt  
 [87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 8.192 ac, 6.77% Impervious, Inflow Depth = 2.18" for 25yr-NRCC event  
 Inflow = 9.76 cfs @ 12.50 hrs, Volume= 1.490 af  
 Outflow = 10.60 cfs @ 12.49 hrs, Volume= 1.490 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.50 cfs @ 12.49 hrs, Volume= 0.959 af  
 Secondary = 9.10 cfs @ 12.49 hrs, Volume= 0.532 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 248.27' @ 12.49 hrs Surf.Area= 3,010 sf Storage= 3,908 cf

Plug-Flow detention time= 16.0 min calculated for 1.490 af (100% of inflow)  
 Center-of-Mass det. time= 15.9 min ( 919.2 - 903.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	245.50'	3,908 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
245.50	380	0	0
246.00	642	256	256
248.00	3,010	3,652	3,908

Device	Routing	Invert	Outlet Devices
#1	Primary	245.50'	<b>6.0" Round Culvert</b> L= 65.0' Ke= 0.500 Outlet Invert= 235.00' S= 0.1615 '/' Cc= 0.900 n= 0.013 Clay tile
#2	Secondary	247.50'	<b>5.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Primary OutFlow** Max=1.50 cfs @ 12.49 hrs HW=248.27' TW=209.43' (Dynamic Tailwater)  
 ↑1=**Culvert** (Inlet Controls 1.50 cfs @ 7.65 fps)

**Secondary OutFlow** Max=9.09 cfs @ 12.49 hrs HW=248.27' TW=202.69' (Dynamic Tailwater)  
 ↑2=**Broad-Crested Rectangular Weir** (Weir Controls 9.09 cfs @ 2.36 fps)

**Summary for Pond PF: Pond F**

Inflow Area = 98.764 ac, 14.74% Impervious, Inflow Depth > 2.21" for 25yr-NRCC event  
 Inflow = 43.45 cfs @ 12.38 hrs, Volume= 18.158 af  
 Outflow = 38.69 cfs @ 12.56 hrs, Volume= 18.137 af, Atten= 11%, Lag= 11.4 min  
 Primary = 20.66 cfs @ 12.56 hrs, Volume= 17.214 af  
 Secondary = 18.03 cfs @ 12.56 hrs, Volume= 0.923 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 209.45' @ 12.56 hrs Surf.Area= 25,951 sf Storage= 35,158 cf

Plug-Flow detention time= 9.9 min calculated for 18.137 af (100% of inflow)  
 Center-of-Mass det. time= 8.7 min ( 1,181.4 - 1,172.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	206.00'	50,840 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
206.00	0	0	0
208.00	9,173	9,173	9,173
209.00	21,325	15,249	24,422
210.00	31,510	26,418	50,840

Device	Routing	Invert	Outlet Devices
#1	Primary	206.00'	<b>30.0" W x 12.0" H Vert. Orifice/Grate</b> C= 0.600
#2	Secondary	209.25'	<b>80.0' long x 3.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

**Primary OutFlow** Max=20.66 cfs @ 12.56 hrs HW=209.45' TW=195.11' (Dynamic Tailwater)  
 ↑1=Orifice/Grate (Orifice Controls 20.66 cfs @ 8.27 fps)

**Secondary OutFlow** Max=18.02 cfs @ 12.56 hrs HW=209.45' TW=195.11' (Dynamic Tailwater)  
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 18.02 cfs @ 1.10 fps)

**Summary for Pond PG: Pond G**

Inflow Area = 3.217 ac, 8.25% Impervious, Inflow Depth = 2.27" for 25yr-NRCC event  
 Inflow = 4.75 cfs @ 12.36 hrs, Volume= 0.609 af  
 Outflow = 4.65 cfs @ 12.41 hrs, Volume= 0.587 af, Atten= 2%, Lag= 2.7 min  
 Primary = 4.65 cfs @ 12.41 hrs, Volume= 0.587 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 257.93' @ 12.41 hrs Surf.Area= 2,186 sf Storage= 1,771 cf

Plug-Flow detention time= 32.6 min calculated for 0.587 af (96% of inflow)  
 Center-of-Mass det. time= 13.0 min ( 905.2 - 892.2 )



**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Volume	Invert	Avail.Storage	Storage Description
#1	256.50'	14,292 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.50	287	0	0
258.00	2,275	1,922	1,922
260.00	10,095	12,370	14,292

Device	Routing	Invert	Outlet Devices
#1	Device 2	257.50'	<b>12.0" x 18.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	254.50'	<b>12.0" Round Culvert</b> L= 25.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 254.20' S= 0.0120 '/' Cc= 0.900 n= 0.013

**Primary OutFlow** Max=4.65 cfs @ 12.41 hrs HW=257.93' TW=244.27' (Dynamic Tailwater)  
 ↑ **2=Culvert** (Passes 4.65 cfs of 6.48 cfs potential flow)  
 ↑ **1=Orifice/Grate** (Weir Controls 4.65 cfs @ 2.15 fps)

**Summary for Pond PI: Pond I**

Inflow Area = 16.812 ac, 11.49% Impervious, Inflow Depth = 2.54" for 25yr-NRCC event  
 Inflow = 24.85 cfs @ 12.45 hrs, Volume= 3.555 af  
 Outflow = 12.46 cfs @ 12.87 hrs, Volume= 3.531 af, Atten= 50%, Lag= 25.3 min  
 Primary = 9.03 cfs @ 12.87 hrs, Volume= 3.278 af  
 Secondary = 3.43 cfs @ 12.87 hrs, Volume= 0.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 253.33' @ 12.87 hrs Surf.Area= 42,861 sf Storage= 43,690 cf

Plug-Flow detention time= 106.5 min calculated for 3.530 af (99% of inflow)  
 Center-of-Mass det. time= 102.6 min ( 992.0 - 889.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	252.25'	178,555 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.25	37,725	0	0
254.00	46,014	73,272	73,272
256.00	59,269	105,283	178,555

Device	Routing	Invert	Outlet Devices
#1	Primary	252.25'	<b>3.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	253.00'	<b>7.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Secondary	253.50'	<b>10.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b>

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60  
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

**Primary OutFlow** Max=9.02 cfs @ 12.87 hrs HW=253.33' TW=252.33' (Dynamic Tailwater)  
↑1=**Broad-Crested Rectangular Weir** (Weir Controls 9.02 cfs @ 2.77 fps)

**Secondary OutFlow** Max=3.43 cfs @ 12.87 hrs HW=253.33' TW=252.33' (Dynamic Tailwater)  
↑2=**Broad-Crested Rectangular Weir** (Weir Controls 3.43 cfs @ 1.47 fps)  
↑3=**Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Summary for Pond PJK: Pond JK**

Inflow Area = 11.277 ac, 18.39% Impervious, Inflow Depth = 2.72" for 25yr-NRCC event  
Inflow = 23.38 cfs @ 12.28 hrs, Volume= 2.556 af  
Outflow = 1.52 cfs @ 15.53 hrs, Volume= 2.220 af, Atten= 94%, Lag= 194.6 min  
Primary = 1.52 cfs @ 15.53 hrs, Volume= 2.220 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
Peak Elev= 261.34' @ 15.53 hrs Surf.Area= 31,222 sf Storage= 63,490 cf

Plug-Flow detention time= 508.8 min calculated for 2.220 af (87% of inflow)  
Center-of-Mass det. time= 444.4 min ( 1,316.6 - 872.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	258.50'	85,278 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
258.50	13,037	0	0
260.00	23,014	27,038	27,038
262.00	35,226	58,240	85,278

Device	Routing	Invert	Outlet Devices
#1	Primary	258.00'	<b>10.0" Round Culvert</b> L= 385.0' RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 232.00' S= 0.0675 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean
#2	Device 1	259.00'	<b>4.0" W x 8.0" H Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=1.52 cfs @ 15.53 hrs HW=261.34' TW=232.92' (Dynamic Tailwater)  
↑1=**Culvert** (Passes 1.52 cfs of 4.49 cfs potential flow)  
↑2=**Orifice/Grate** (Orifice Controls 1.52 cfs @ 6.82 fps)

**Summary for Pond PN: Pond N**

[80] Warning: Exceeded Pond PO by 0.22' @ 13.23 hrs (0.08 cfs 0.024 af)  
[80] Warning: Exceeded Pond PO by 0.22' @ 13.23 hrs (30.02 cfs 9.953 af)

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Inflow Area = 52.150 ac, 16.99% Impervious, Inflow Depth > 2.51" for 25yr-NRCC event  
 Inflow = 54.45 cfs @ 12.30 hrs, Volume= 10.893 af  
 Outflow = 4.57 cfs @ 20.93 hrs, Volume= 8.952 af, Atten= 92%, Lag= 517.8 min  
 Primary = 4.57 cfs @ 20.93 hrs, Volume= 8.952 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 231.00' @ 20.93 hrs Surf.Area= 108,989 sf Storage= 164,533 cf

Plug-Flow detention time= 450.4 min calculated for 8.952 af (82% of inflow)  
 Center-of-Mass det. time= 291.2 min ( 1,417.0 - 1,125.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	294,424 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	7,200	0	0
230.00	68,850	76,050	76,050
232.00	149,524	218,374	294,424

Device	Routing	Invert	Outlet Devices
#1	Device 2	228.50'	<b>18.0" x 12.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	226.00'	<b>12.0" Round Culvert</b> L= 200.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 225.90' S= 0.0005 '/ Cc= 0.900 n= 0.013

**Primary OutFlow** Max=4.57 cfs @ 20.93 hrs HW=231.00' TW=207.01' (Dynamic Tailwater)  
 ↑ **2=Culvert** (Barrel Controls 4.57 cfs @ 5.82 fps)  
 ↑ **1=Orifice/Grate** (Passes 4.57 cfs of 11.41 cfs potential flow)

**Summary for Pond PO: Pond O**

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 15.309 ac, 16.03% Impervious, Inflow Depth = 3.10" for 25yr-NRCC event  
 Inflow = 33.20 cfs @ 12.33 hrs, Volume= 3.951 af  
 Outflow = 3.13 cfs @ 12.28 hrs, Volume= 2.400 af, Atten= 91%, Lag= 0.0 min  
 Primary = 0.11 cfs @ 11.95 hrs, Volume= 0.030 af  
 Secondary = 3.09 cfs @ 12.28 hrs, Volume= 2.372 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 231.00' @ 20.94 hrs Surf.Area= 87,083 sf Storage= 139,270 cf

Plug-Flow detention time= 883.8 min calculated for 2.400 af (61% of inflow)  
 Center-of-Mass det. time= 756.3 min ( 1,620.8 - 864.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	229.00'	232,675 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

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MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
229.00	41,330	0	0
230.00	75,460	58,395	58,395
232.00	98,820	174,280	232,675

Device	Routing	Invert	Outlet Devices
#1	Primary	228.50'	<b>6.0" Round Culvert</b> L= 400.0' Ke= 0.100 Inlet Invert= 228.50' S= 0.0000 '/' Cc= 0.900 n= 0.020
#2	Secondary	229.50'	<b>15.0' long x 30.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=0.11 cfs @ 11.95 hrs HW=229.39' TW=229.00' (Dynamic Tailwater)  
 ↑**1=Culvert** (Outlet Controls 0.11 cfs @ 0.58 fps)

**Secondary OutFlow** Max=3.09 cfs @ 12.28 hrs HW=229.73' TW=229.66' (Dynamic Tailwater)  
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 3.09 cfs @ 0.91 fps)

**Summary for Pond PQ: Pond Q**

Inflow Area = 192.807 ac, 3.04% Impervious, Inflow Depth = 2.10" for 25yr-NRCC event  
 Inflow = 106.04 cfs @ 13.64 hrs, Volume= 33.698 af  
 Outflow = 8.29 cfs @ 25.11 hrs, Volume= 15.093 af, Atten= 92%, Lag= 688.4 min  
 Primary = 8.29 cfs @ 25.11 hrs, Volume= 15.093 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Starting Elev= 216.00' Surf.Area= 76,540 sf Storage= 66,888 cf  
 Peak Elev= 222.23' @ 25.11 hrs Surf.Area= 322,755 sf Storage= 1,165,853 cf (1,098,965 cf above start)

Plug-Flow detention time= 740.6 min calculated for 13.557 af (40% of inflow)  
 Center-of-Mass det. time= 499.1 min ( 1,476.7 - 977.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	1,423,701 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
215.00	57,235	0	0
216.00	76,540	66,888	66,888
218.00	126,659	203,199	270,087
220.00	190,103	316,762	586,849
222.00	315,198	505,301	1,092,150
223.00	347,905	331,552	1,423,701

Device	Routing	Invert	Outlet Devices
#1	Primary	216.00'	<b>15.0" Round Culvert</b> L= 340.0' CMP, square edge headwall, Ke= 0.500 Outlet Invert= 214.30' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections

**Primary OutFlow** Max=8.29 cfs @ 25.11 hrs HW=222.23' TW=215.29' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 8.29 cfs @ 6.76 fps)

**Summary for Pond PR1: Pond R1**

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 452.813 ac, 10.90% Impervious, Inflow Depth > 2.01" for 25yr-NRCC event  
 Inflow = 282.66 cfs @ 12.90 hrs, Volume= 75.823 af  
 Outflow = 142.11 cfs @ 13.16 hrs, Volume= 54.757 af, Atten= 50%, Lag= 15.5 min  
 Primary = 65.55 cfs @ 13.14 hrs, Volume= 36.893 af  
 Secondary = 76.74 cfs @ 13.18 hrs, Volume= 17.874 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 204.95' @ 24.48 hrs Surf.Area= 479,044 sf Storage= 1,212,085 cf

Plug-Flow detention time= 371.1 min calculated for 54.757 af (72% of inflow)  
 Center-of-Mass det. time= 192.2 min ( 1,216.8 - 1,024.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	199.00'	1,234,558 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.00	41,566	0	0
200.00	65,868	53,717	53,717
201.00	97,889	81,879	135,596
202.00	139,381	118,635	254,231
203.00	299,803	219,592	473,823
204.00	368,610	334,207	808,029
205.00	484,448	426,529	1,234,558

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	<b>48.0" Round Culvert</b> L= 210.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 198.00' S= 0.0048 '/ Cc= 0.900 n= 0.013 Concrete pipe, bends & connections
#2	Secondary	202.00'	<b>30.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

**Primary OutFlow** Max=65.55 cfs @ 13.14 hrs HW=203.55' TW=202.37' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 65.55 cfs @ 5.74 fps)

**Secondary OutFlow** Max=76.74 cfs @ 13.18 hrs HW=203.59' TW=203.43' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 76.74 cfs @ 1.61 fps)

**Summary for Pond PR2: Pond R2**

[80] Warning: Exceeded Pond PR1 by 0.81' @ 12.24 hrs (0.21 cfs 10.323 af)

Inflow Area = 53.682 ac, 17.77% Impervious, Inflow Depth > 6.62" for 25yr-NRCC event  
 Inflow = 99.48 cfs @ 13.14 hrs, Volume= 29.632 af  
 Outflow = 24.26 cfs @ 13.53 hrs, Volume= 18.479 af, Atten= 76%, Lag= 23.1 min  
 Primary = 24.26 cfs @ 13.53 hrs, Volume= 18.479 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 204.95' @ 24.46 hrs Surf.Area= 302,368 sf Storage= 670,706 cf

Plug-Flow detention time= 509.6 min calculated for 18.479 af (62% of inflow)  
 Center-of-Mass det. time= 312.9 min ( 1,320.6 - 1,007.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	684,868 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	43,903	0	0
202.00	108,026	75,965	75,965
203.00	174,489	141,258	217,222
204.00	227,387	200,938	418,160
205.00	306,029	266,708	684,868

Device	Routing	Invert	Outlet Devices
#1	Primary	201.00'	<b>36.0" Round Culvert</b> L= 200.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 200.00' S= 0.0050 '/ Cc= 0.900 n= 0.013 Concrete pipe, bends & connections

**Primary OutFlow** Max=24.26 cfs @ 13.53 hrs HW=203.82' TW=202.97' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 24.26 cfs @ 4.55 fps)

**Summary for Pond PS: Pond S**

[80] Warning: Exceeded Pond PR1 by 0.03' @ 9.09 hrs (0.00 cfs 0.000 af)

Inflow Area = 521.230 ac, 12.09% Impervious, Inflow Depth > 1.36" for 25yr-NRCC event  
 Inflow = 92.22 cfs @ 13.16 hrs, Volume= 58.941 af  
 Outflow = 23.70 cfs @ 26.02 hrs, Volume= 44.806 af, Atten= 74%, Lag= 771.9 min  
 Primary = 23.70 cfs @ 26.02 hrs, Volume= 44.806 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 204.89' @ 24.68 hrs Surf.Area= 196,630 sf Storage= 741,271 cf

Plug-Flow detention time= 398.4 min calculated for 44.793 af (76% of inflow)  
 Center-of-Mass det. time= 197.9 min ( 1,463.5 - 1,265.5 )

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Volume	Invert	Avail.Storage	Storage Description
#1	199.00'	966,146 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.00	11,091	0	0
200.00	58,493	34,792	34,792
201.00	92,889	75,691	110,483
202.00	150,848	121,869	232,352
204.00	187,376	338,224	570,576
206.00	208,194	395,570	966,146

Device	Routing	Invert	Outlet Devices
#1	Primary	200.00'	<b>24.0" W x 24.0" H Box Culvert</b> L= 50.0' Box, headwall w/3 square edges, Ke= 0.500 Outlet Invert= 199.00' S= 0.0200 '/' Cc= 0.900 n= 0.030 Rubble masonry, cemented
#2	Secondary	206.00'	<b>150.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Primary OutFlow** Max=23.70 cfs @ 26.02 hrs HW=204.85' TW=202.22' (Dynamic Tailwater)  
 ↑**1=Culvert** (Outlet Controls 23.70 cfs @ 5.92 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=199.00' TW=197.50' (Dynamic Tailwater)  
 ↑**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Summary for Pond PT: Pond T**

Inflow Area = 584.596 ac, 12.64% Impervious, Inflow Depth > 1.19" for 25yr-NRCC event  
 Inflow = 78.97 cfs @ 12.75 hrs, Volume= 57.731 af  
 Outflow = 26.79 cfs @ 24.45 hrs, Volume= 49.112 af, Atten= 66%, Lag= 701.9 min  
 Primary = 26.79 cfs @ 24.45 hrs, Volume= 49.112 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 202.28' @ 24.45 hrs Surf.Area= 186,899 sf Storage= 459,346 cf

Plug-Flow detention time= 242.1 min calculated for 49.112 af (85% of inflow)  
 Center-of-Mass det. time= 122.1 min ( 1,461.9 - 1,339.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	197.50'	599,722 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
197.50	0	0	0
198.00	9,060	2,265	2,265
199.00	58,085	33,573	35,838
200.00	108,460	83,273	119,110
202.00	179,859	288,319	407,429
203.00	204,727	192,293	599,722

Device	Routing	Invert	Outlet Devices
#1	Primary	197.50'	<b>24.0" W x 30.0" H Box Culvert</b> L= 78.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 197.11' S= 0.0050 '/ Cc= 0.900 n= 0.030 Rubble masonry, cemented
#2	Secondary	202.50'	<b>75.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

**Primary OutFlow** Max=26.79 cfs @ 24.45 hrs HW=202.28' TW=185.72' (Dynamic Tailwater)  
 ↑**1=Culvert** (Barrel Controls 26.79 cfs @ 5.36 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=197.50' TW=181.40' (Dynamic Tailwater)  
 ↑**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Summary for Pond PU: Pond U**

Inflow Area = 72.196 ac, 17.00% Impervious, Inflow Depth = 1.52" for 25yr-NRCC event  
 Inflow = 28.80 cfs @ 13.40 hrs, Volume= 9.166 af  
 Outflow = 26.75 cfs @ 13.79 hrs, Volume= 9.165 af, Atten= 7%, Lag= 23.7 min  
 Primary = 26.75 cfs @ 13.79 hrs, Volume= 9.165 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
 Peak Elev= 194.13' @ 13.79 hrs Surf.Area= 24,229 sf Storage= 28,222 cf

Plug-Flow detention time= 18.6 min calculated for 9.163 af (100% of inflow)  
 Center-of-Mass det. time= 18.5 min ( 1,007.3 - 988.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	482,547 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
192.00	3,018	0	0
194.00	22,099	25,117	25,117
196.00	53,876	75,975	101,092
198.00	89,534	143,410	244,502
200.00	148,511	238,045	482,547

Device	Routing	Invert	Outlet Devices
#1	Primary	192.00'	<b>36.0" Round Culvert</b> L= 220.0' RCP, square edge headwall, Ke= 0.500



**ExistingConditions\_2011.08**

MA\_Weston\_25yr24hr 25yr-NRCC Rainfall=6.01"

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Outlet Invert= 188.00' S= 0.0182 '/ Cc= 0.900  
n= 0.013 Concrete pipe, bends & connections

**Primary OutFlow** Max=26.75 cfs @ 13.79 hrs HW=194.13' TW=185.28' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 26.75 cfs @ 4.97 fps)

**Summary for Pond PV: Pond V**

Inflow Area = 998.301 ac, 12.94% Impervious, Inflow Depth > 1.63" for 25yr-NRCC event  
Inflow = 375.91 cfs @ 12.25 hrs, Volume= 135.308 af  
Outflow = 62.05 cfs @ 19.13 hrs, Volume= 116.475 af, Atten= 83%, Lag= 412.9 min  
Primary = 62.05 cfs @ 19.13 hrs, Volume= 116.475 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs / 3  
Peak Elev= 185.78' @ 19.13 hrs Surf.Area= 1,748,412 sf Storage= 1,981,952 cf

Plug-Flow detention time= 395.1 min calculated for 116.475 af (86% of inflow)  
Center-of-Mass det. time= 269.6 min ( 1,419.3 - 1,149.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	181.40'	6,964,726 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.40	0	0	0
184.00	193,262	251,241	251,241
186.00	1,937,976	2,131,238	2,382,479
187.00	2,326,423	2,132,200	4,514,678
188.00	2,573,672	2,450,048	6,964,726

Device	Routing	Invert	Outlet Devices
#1	Primary	181.40'	<b>57.0" W x 38.0" H, R=31.0"/100.0" Arch Culvert</b> L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 181.30' S= 0.0020 '/ Cc= 0.900 n= 0.025 Corrugated metal

**Primary OutFlow** Max=62.05 cfs @ 19.13 hrs HW=185.78' TW=183.90' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 62.05 cfs @ 5.16 fps)