HANCOCK
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April 29, 2022

Mr. Edward L. Pesce, PE, LEED AP
Pesce Engineering & Associates, Inc
43 West Porter Lane
Dennis, MA 02670

RE: Comprehensive Permit Application – Mill Creek Marshfield
Commerce Way, Marshfield
Stormwater Capacity Narrative

Dear Mr. Pesce:

In response to Mr. Pat Brennan's Comprehensive Permit review letter dated April 15, 2022, we have prepared the following summary of our drainage design.

The record drainage study for the Enterprise Park Subdivision dated December 8, 2003 (prepared by Stenbeck & Taylor, Inc.) depicts the subject parcel (Lot 6r) as the furthest point east of the watershed contributing to the detention pond constructed within Drainage Lot A. Lot 6r is shown within the report discharging to a 30-inch drainage pipe (Reach 9) at 1% slope within Commerce Way.

The table below shows stormwater rates for various storm intervals as noted within the 2003 Stenbeck & Taylor Drainage Report. As noted below, the stormwater rate and volume, post construction is substantially less than the design flow noted within the record drainage report. This can be attributed to the overall greater open space depicted on the permit plans than the allowed under Zoning and proposed groundwater recharge.

Storm Event	S&T 2003 Drainage Study	Mill Creek Marshfield	Delta	Percent Decrease
2 Year Rate	11.6 CFS	5.6 CFS	6.0	52%
10 Year Rate	20.3 CFS	13.0 CFS	7.4	36%
25 Year Rate	26.7 CFS	17.1 CFS	9.6	36%
100 Year Rate	36.8 CFS	22.6 CFS	14.2	39%
2 Year Volume	0.9 A.F.	0.4 A.F.	0.5	56%
10 Year Volume	1.5 A.F.	1.0 A.F.	0.5	30%
25 Year Volume	1.9 A.F	1.6 A.F.	0.3	18%
100 Year Volume	2.7 A.F.	2.6 A.F.	0.1	4%

Overall stormwater management for the site includes catch basins with deeps sumps and oil trap hoods. Runoff from buildings will be collected in gutters, downspouts, and interior roof drains and then be recharged into the ground on the site. Distribution piping from the roof water collection system will be perforated to further promote additional groundwater recharge and a reduction in runoff rates.

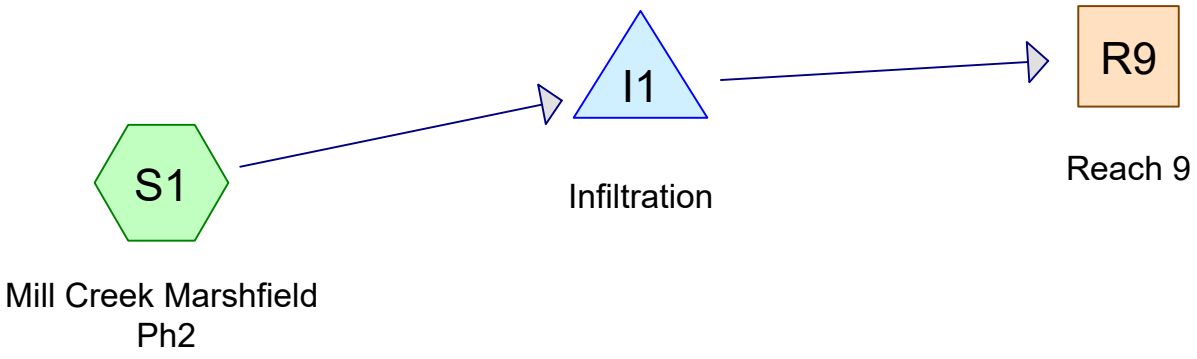
We have been advised that run-off from the Town soccer fields off Rockwood Road will be mitigated through the construction of a separate stormwater basin capable of storing the 100-year storm event and does not impact the capacity of the existing basin with Drainage Lot A.

Given the above, please do not hesitate to contact me with any questions or comments.

Best regards,

Anthony Donato, PE, LEED AP
Senior Project manager/Boston Regional Office Manager

Proposed Runoff Calculations



Subcat Reach Pond Link

Routing Diagram for 24693 - Marshfield - Preliminary Calcs
Prepared by Hancock Associates, Printed 5/11/2022

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1: Mill Creek Marshfield Runoff Area=12.686 ac 62.55% Impervious Runoff Depth>1.19"
Tc=6.0 min CN=76 Runoff=18.41 cfs 1.255 af

Reach R9: Reach 9 Inflow=5.56 cfs 0.381 af
Outflow=5.56 cfs 0.381 af

Pond I1: Infiltration Peak Elev=171.17' Storage=0.287 af Inflow=18.41 cfs 1.255 af
Discarded=2.07 cfs 0.872 af Primary=5.56 cfs 0.381 af Outflow=7.63 cfs 1.253 af

Summary for Subcatchment S1: Mill Creek Marshfield Ph2

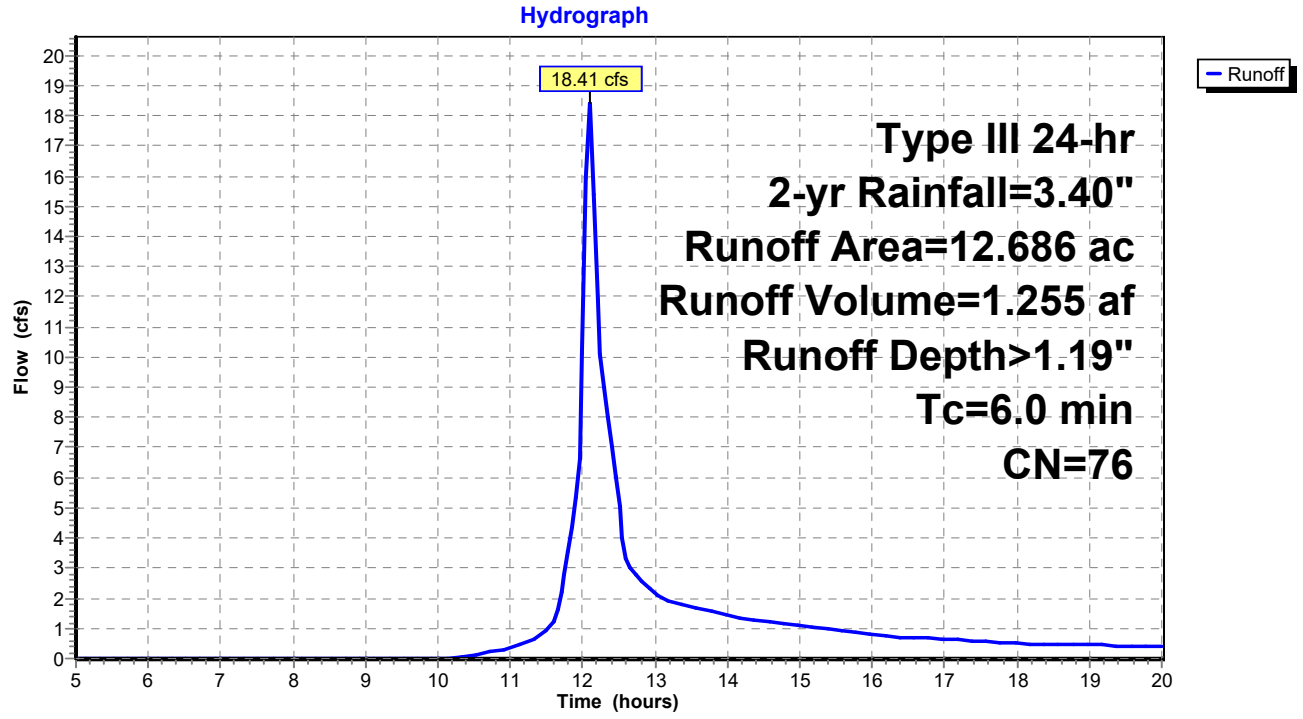
Runoff = 18.41 cfs @ 12.10 hrs, Volume= 1.255 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.40"

	Area (ac)	CN	Description
*	7.935	98	Paved parking, walks, drives HSG A
	4.751	39	>75% Grass cover, Good, HSG A
	12.686	76	Weighted Average
	4.751		37.45% Pervious Area
	7.935		62.55% Impervious Area

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

Subcatchment S1: Mill Creek Marshfield Ph2

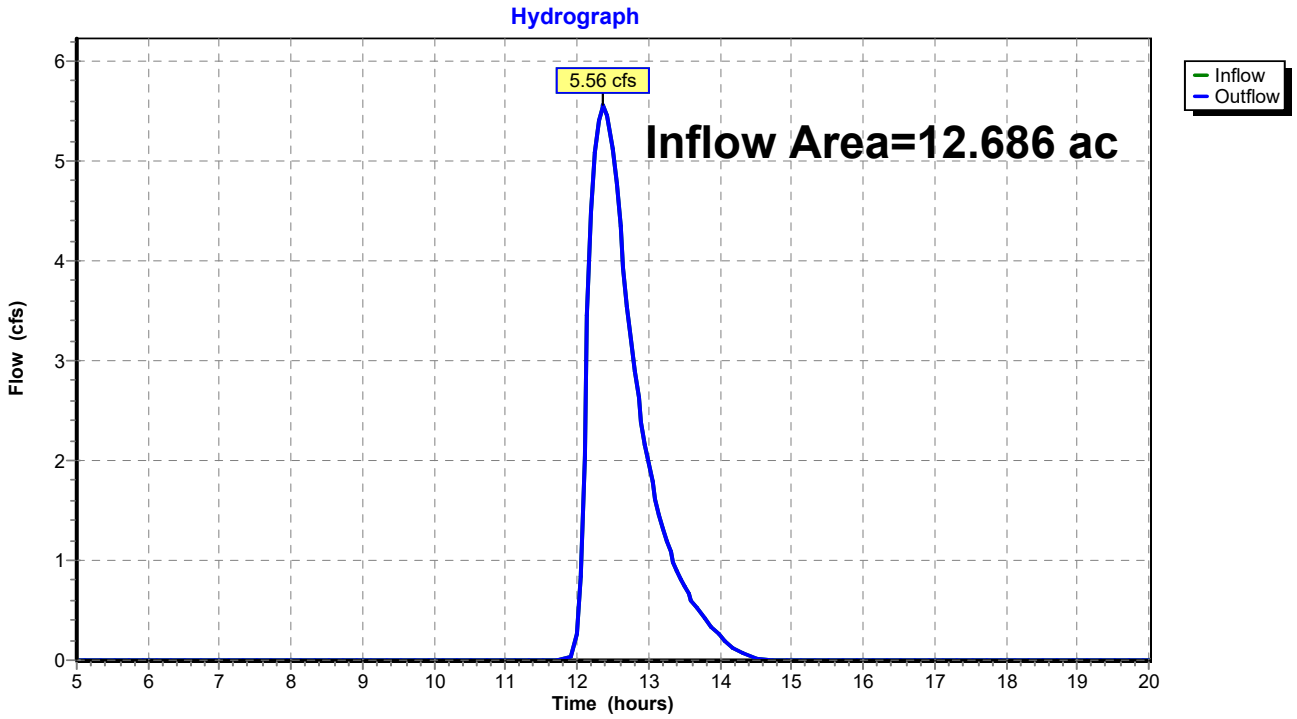


Summary for Reach R9: Reach 9

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth = 0.36" for 2-yr event
Inflow = 5.56 cfs @ 12.37 hrs, Volume= 0.381 af
Outflow = 5.56 cfs @ 12.37 hrs, Volume= 0.381 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R9: Reach 9



Summary for Pond I1: Infiltration

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth > 1.19" for 2-yr event
Inflow = 18.41 cfs @ 12.10 hrs, Volume= 1.255 af
Outflow = 7.63 cfs @ 12.37 hrs, Volume= 1.253 af, Atten= 59%, Lag= 16.4 min
Discarded = 2.07 cfs @ 11.75 hrs, Volume= 0.872 af
Primary = 5.56 cfs @ 12.37 hrs, Volume= 0.381 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 171.17' @ 12.37 hrs Surf.Area= 0.249 ac Storage= 0.287 af

Plug-Flow detention time= 19.6 min calculated for 1.249 af (100% of inflow)
Center-of-Mass det. time= 19.0 min (829.8 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	169.75'	0.187 af	**56.49'W x 191.66'L x 8.21'H Field A** 2.040 af Overall - 1.573 af Embedded = 0.467 af x 40.0% Voids
#2A	170.00'	1.494 af	**ACF R-Tank HD 5** x 3200 Inside #1 Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf 3200 Chambers in 40 Rows
		1.681 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**24.0" Round Culvert** L= 500.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 170.00' / 158.00' S= 0.0240 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#2	Primary	180.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	169.75'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=2.07 cfs @ 11.75 hrs HW=169.86' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 2.07 cfs)

Primary OutFlow Max=5.54 cfs @ 12.37 hrs HW=171.17' (Free Discharge)
├**1=Culvert** (Inlet Controls 5.54 cfs @ 2.91 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond I1: Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 5 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf
Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf

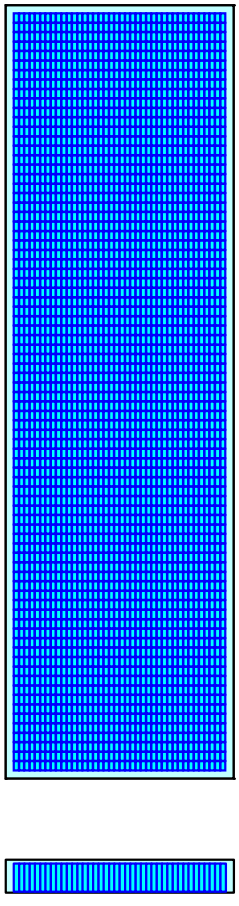
80 Chambers/Row x 2.35' Long = 187.66' Row Length +24.0" End Stone x 2 = 191.66' Base Length
40 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 56.49' Base Width
3.0" Base + 83.5" Chamber Height + 12.0" Cover = 8.21' Field Height

3,200 Chambers x 20.3 cf = 65,092.4 cf Chamber Storage
3,200 Chambers x 21.4 cf = 68,518.4 cf Displacement

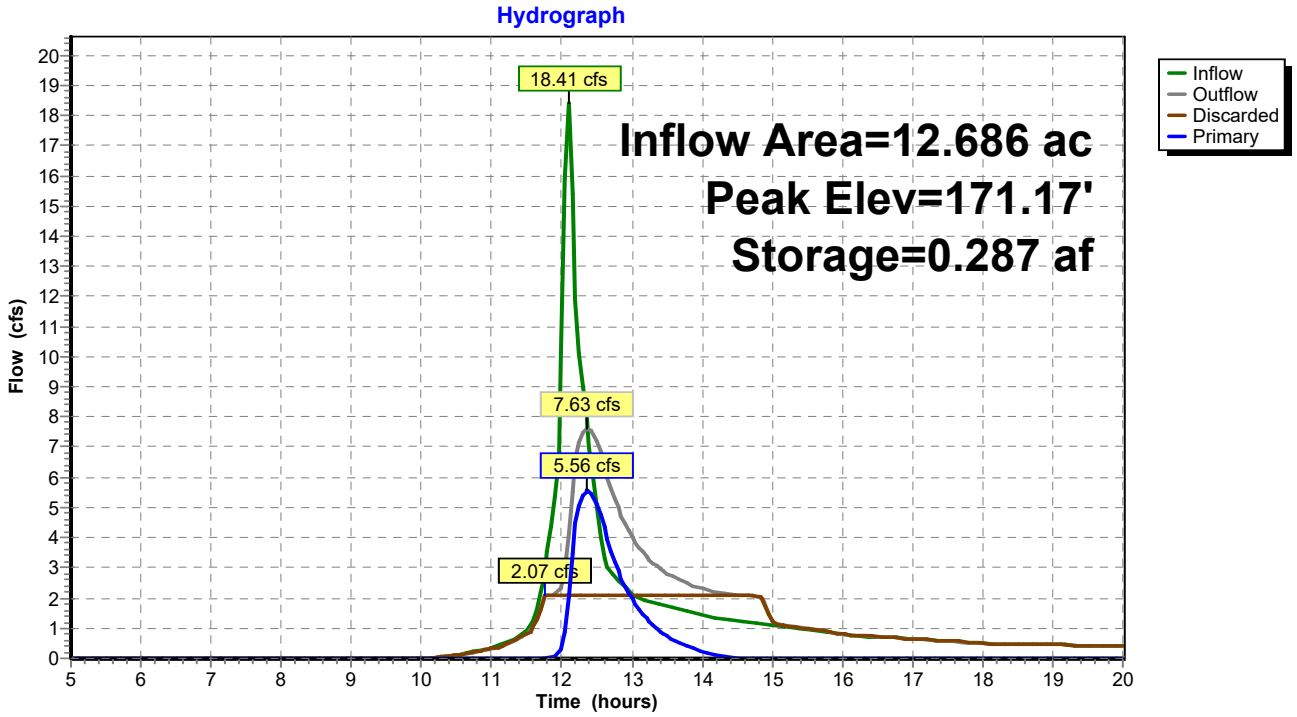
88,845.9 cf Field - 68,518.4 cf Chambers = 20,327.5 cf Stone x 40.0% Voids = 8,131.0 cf Stone Storage

Chamber Storage + Stone Storage = 73,223.5 cf = 1.681 af
Overall Storage Efficiency = 82.4%
Overall System Size = 191.66' x 56.49' x 8.21'

3,200 Chambers
3,290.6 cy Field
752.9 cy Stone



Pond I1: Infiltration



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1: Mill Creek Marshfield Runoff Area=12.686 ac 62.55% Impervious Runoff Depth>2.12"
Tc=6.0 min CN=76 Runoff=33.33 cfs 2.246 af

Reach R9: Reach 9 Inflow=12.96 cfs 1.037 af
Outflow=12.96 cfs 1.037 af

Pond I1: Infiltration Peak Elev=172.18' Storage=0.513 af Inflow=33.33 cfs 2.246 af
Discarded=2.07 cfs 1.206 af Primary=12.96 cfs 1.037 af Outflow=15.04 cfs 2.243 af

Summary for Subcatchment S1: Mill Creek Marshfield Ph2

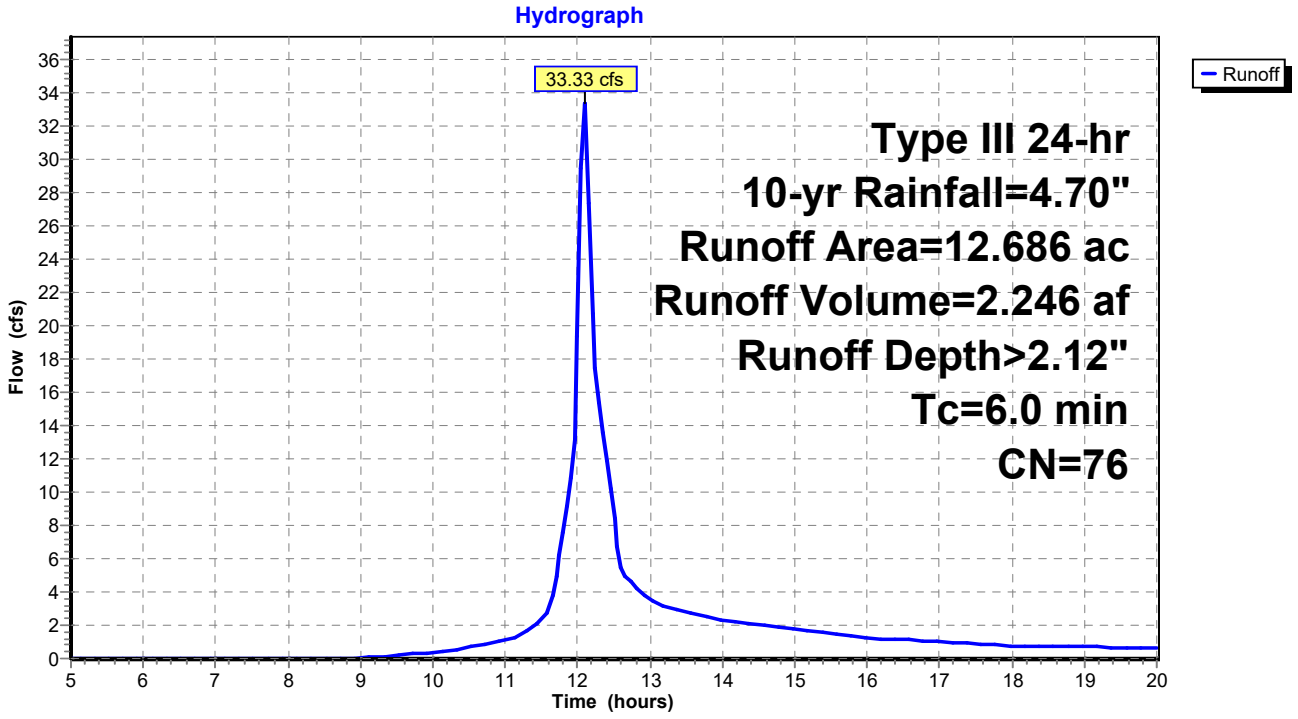
Runoff = 33.33 cfs @ 12.09 hrs, Volume= 2.246 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (ac)	CN	Description
*	7.935	98	Paved parking, walks, drives HSG A
	4.751	39	>75% Grass cover, Good, HSG A
	12.686	76	Weighted Average
	4.751		37.45% Pervious Area
	7.935		62.55% Impervious Area

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

Subcatchment S1: Mill Creek Marshfield Ph2

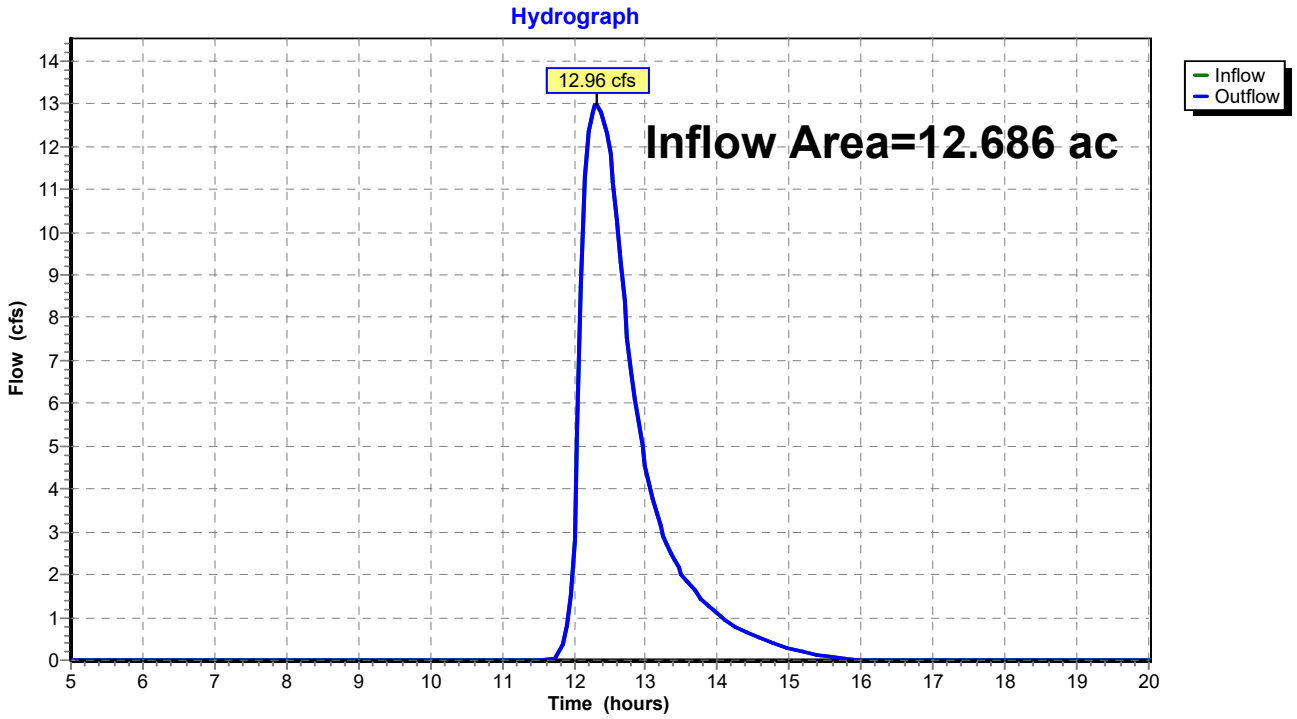


Summary for Reach R9: Reach 9

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth = 0.98" for 10-yr event
Inflow = 12.96 cfs @ 12.31 hrs, Volume= 1.037 af
Outflow = 12.96 cfs @ 12.31 hrs, Volume= 1.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R9: Reach 9



Summary for Pond I1: Infiltration

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth > 2.12" for 10-yr event
Inflow = 33.33 cfs @ 12.09 hrs, Volume= 2.246 af
Outflow = 15.04 cfs @ 12.31 hrs, Volume= 2.243 af, Atten= 55%, Lag= 13.0 min
Discarded = 2.07 cfs @ 11.55 hrs, Volume= 1.206 af
Primary = 12.96 cfs @ 12.31 hrs, Volume= 1.037 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 172.18' @ 12.31 hrs Surf.Area= 0.249 ac Storage= 0.513 af

Plug-Flow detention time= 21.2 min calculated for 2.243 af (100% of inflow)
Center-of-Mass det. time= 20.6 min (818.4 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	169.75'	0.187 af	**56.49'W x 191.66'L x 8.21'H Field A** 2.040 af Overall - 1.573 af Embedded = 0.467 af x 40.0% Voids
#2A	170.00'	1.494 af	**ACF R-Tank HD 5** x 3200 Inside #1 Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf 3200 Chambers in 40 Rows
		1.681 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**24.0" Round Culvert** L= 500.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 170.00' / 158.00' S= 0.0240 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#2	Primary	180.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	169.75'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=2.07 cfs @ 11.55 hrs HW=169.86' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 2.07 cfs)

Primary OutFlow Max=12.95 cfs @ 12.31 hrs HW=172.18' (Free Discharge)
├**1=Culvert** (Inlet Controls 12.95 cfs @ 4.12 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond I1: Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 5 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf
Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf

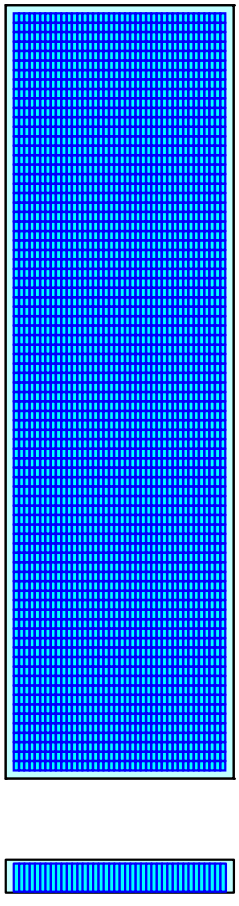
80 Chambers/Row x 2.35' Long = 187.66' Row Length +24.0" End Stone x 2 = 191.66' Base Length
40 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 56.49' Base Width
3.0" Base + 83.5" Chamber Height + 12.0" Cover = 8.21' Field Height

3,200 Chambers x 20.3 cf = 65,092.4 cf Chamber Storage
3,200 Chambers x 21.4 cf = 68,518.4 cf Displacement

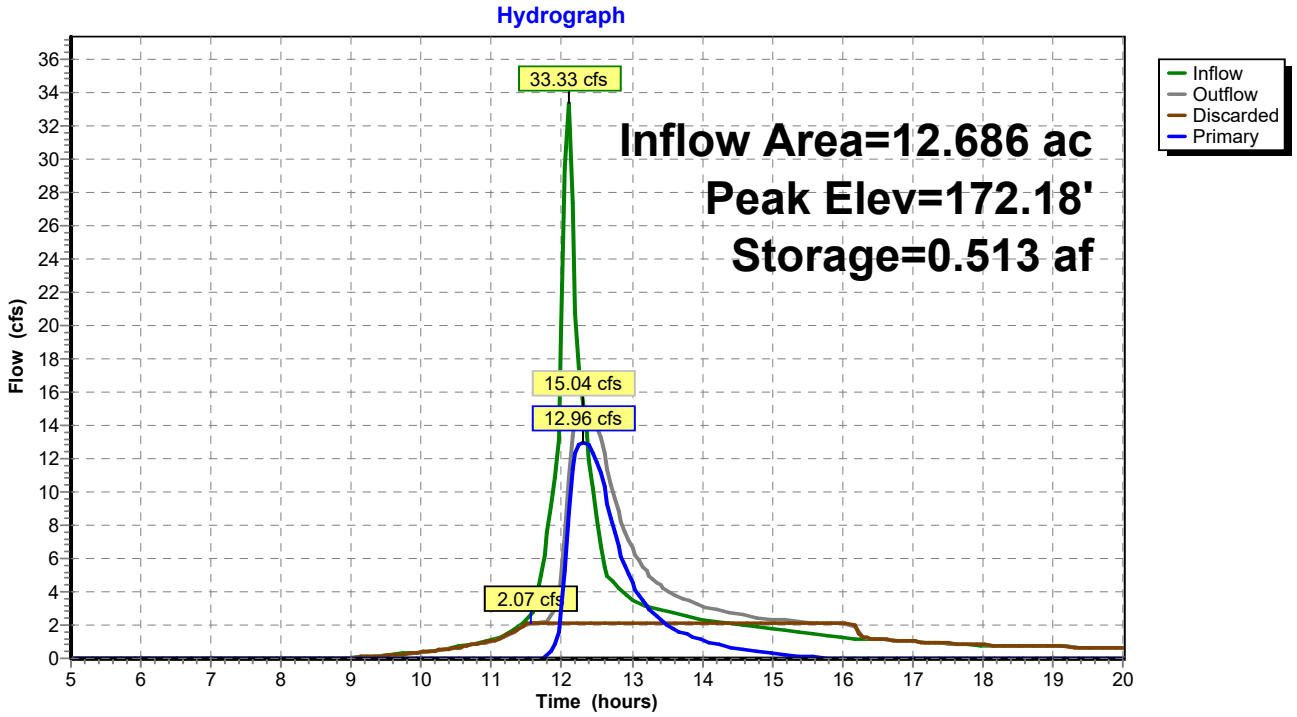
88,845.9 cf Field - 68,518.4 cf Chambers = 20,327.5 cf Stone x 40.0% Voids = 8,131.0 cf Stone Storage

Chamber Storage + Stone Storage = 73,223.5 cf = 1.681 af
Overall Storage Efficiency = 82.4%
Overall System Size = 191.66' x 56.49' x 8.21'

3,200 Chambers
3,290.6 cy Field
752.9 cy Stone



Pond I1: Infiltration



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1: Mill Creek Marshfield Runoff Area=12.686 ac 62.55% Impervious Runoff Depth>2.83"
Tc=6.0 min CN=76 Runoff=44.30 cfs 2.992 af

Reach R9: Reach 9 Inflow=17.08 cfs 1.585 af
Outflow=17.08 cfs 1.585 af

Pond I1: Infiltration Peak Elev=173.05' Storage=0.707 af Inflow=44.30 cfs 2.992 af
Discarded=2.07 cfs 1.403 af Primary=17.08 cfs 1.585 af Outflow=19.15 cfs 2.988 af

Summary for Subcatchment S1: Mill Creek Marshfield Ph2

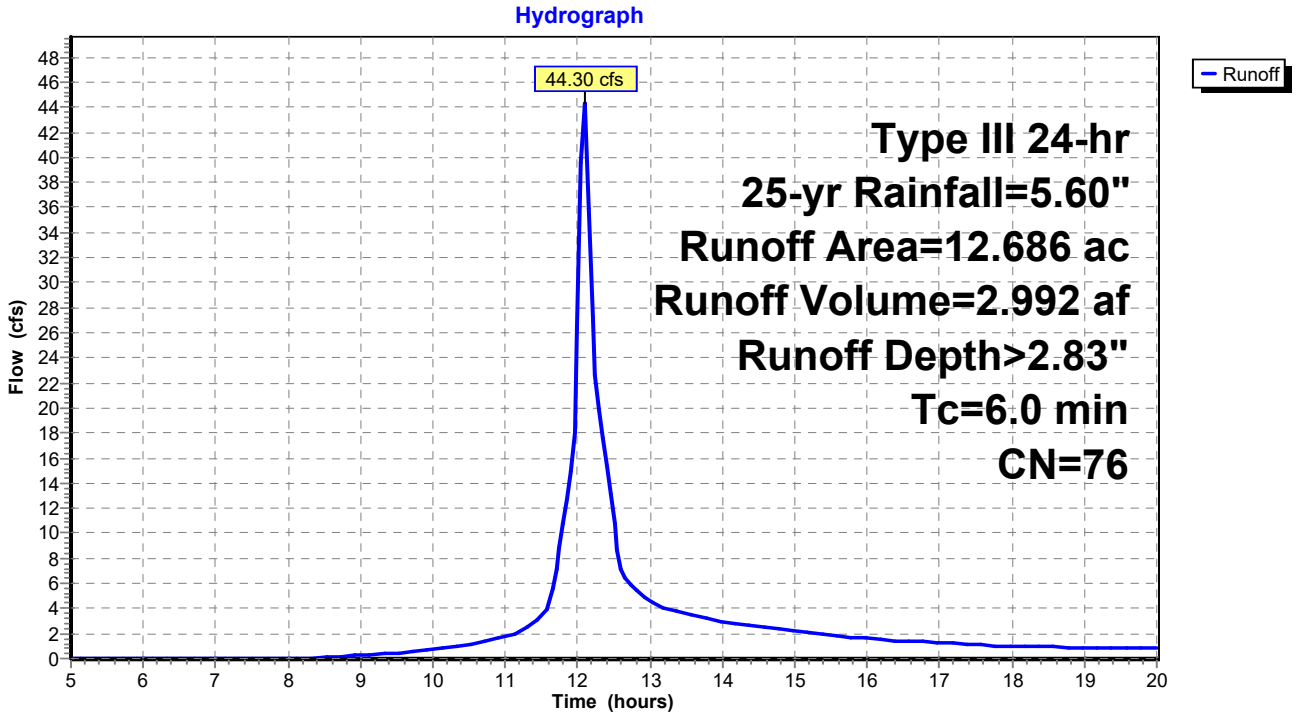
Runoff = 44.30 cfs @ 12.09 hrs, Volume= 2.992 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=5.60"

	Area (ac)	CN	Description
*	7.935	98	Paved parking, walks, drives HSG A
	4.751	39	>75% Grass cover, Good, HSG A
	12.686	76	Weighted Average
	4.751		37.45% Pervious Area
	7.935		62.55% Impervious Area

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

Subcatchment S1: Mill Creek Marshfield Ph2

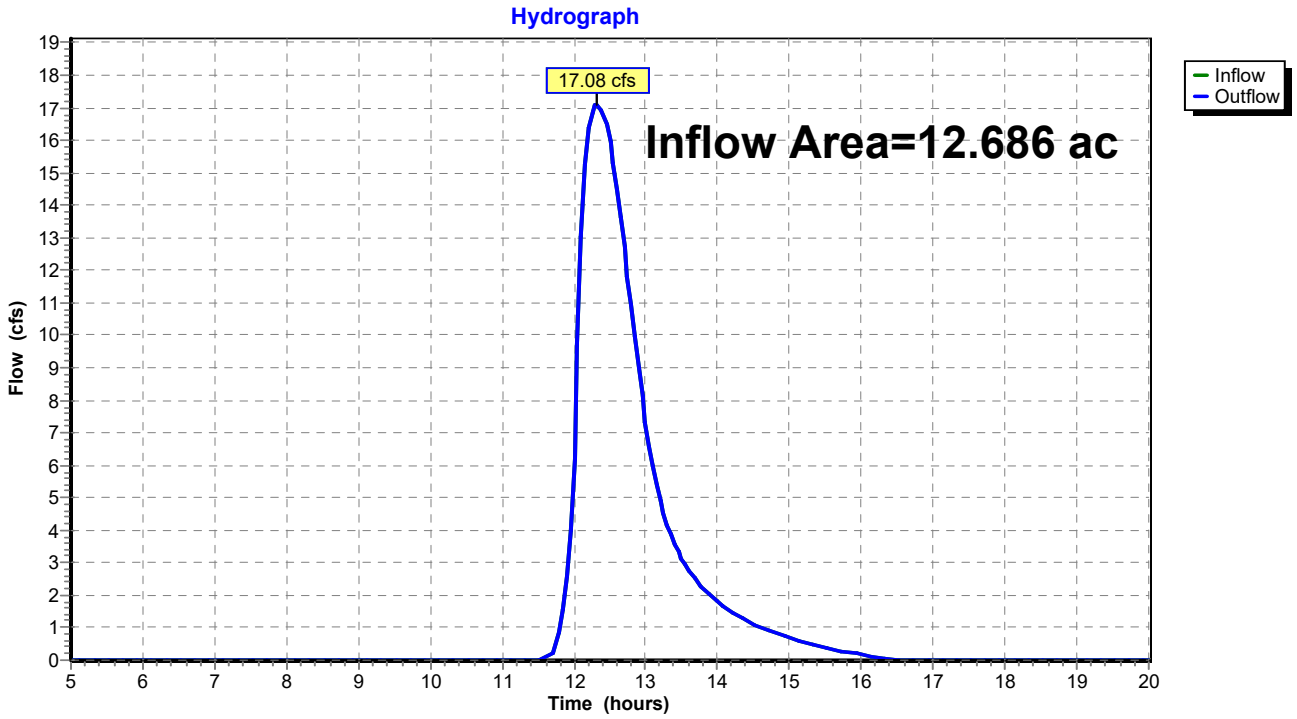


Summary for Reach R9: Reach 9

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth = 1.50" for 25-yr event
Inflow = 17.08 cfs @ 12.32 hrs, Volume= 1.585 af
Outflow = 17.08 cfs @ 12.32 hrs, Volume= 1.585 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R9: Reach 9



Summary for Pond I1: Infiltration

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth > 2.83" for 25-yr event
Inflow = 44.30 cfs @ 12.09 hrs, Volume= 2.992 af
Outflow = 19.15 cfs @ 12.32 hrs, Volume= 2.988 af, Atten= 57%, Lag= 13.5 min
Discarded = 2.07 cfs @ 11.25 hrs, Volume= 1.403 af
Primary = 17.08 cfs @ 12.32 hrs, Volume= 1.585 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 173.05' @ 12.32 hrs Surf.Area= 0.249 ac Storage= 0.707 af

Plug-Flow detention time= 22.4 min calculated for 2.988 af (100% of inflow)
Center-of-Mass det. time= 21.9 min (813.2 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	169.75'	0.187 af	**56.49'W x 191.66'L x 8.21'H Field A** 2.040 af Overall - 1.573 af Embedded = 0.467 af x 40.0% Voids
#2A	170.00'	1.494 af	**ACF R-Tank HD 5** x 3200 Inside #1 Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf 3200 Chambers in 40 Rows
		1.681 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**24.0" Round Culvert** L= 500.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 170.00' / 158.00' S= 0.0240 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#2	Primary	180.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	169.75'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=2.07 cfs @ 11.25 hrs HW=169.86' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 2.07 cfs)

Primary OutFlow Max=17.06 cfs @ 12.32 hrs HW=173.04' (Free Discharge)
├**1=Culvert** (Inlet Controls 17.06 cfs @ 5.43 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond I1: Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 5 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf
Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf

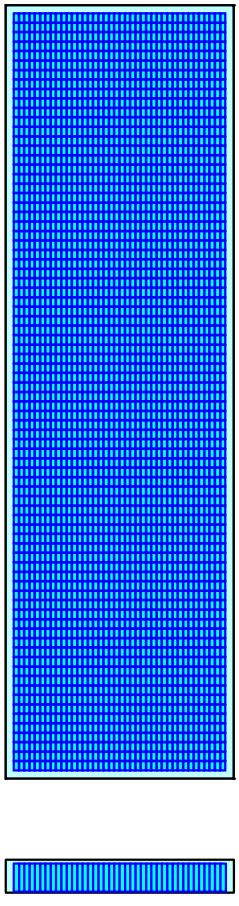
80 Chambers/Row x 2.35' Long = 187.66' Row Length +24.0" End Stone x 2 = 191.66' Base Length
40 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 56.49' Base Width
3.0" Base + 83.5" Chamber Height + 12.0" Cover = 8.21' Field Height

3,200 Chambers x 20.3 cf = 65,092.4 cf Chamber Storage
3,200 Chambers x 21.4 cf = 68,518.4 cf Displacement

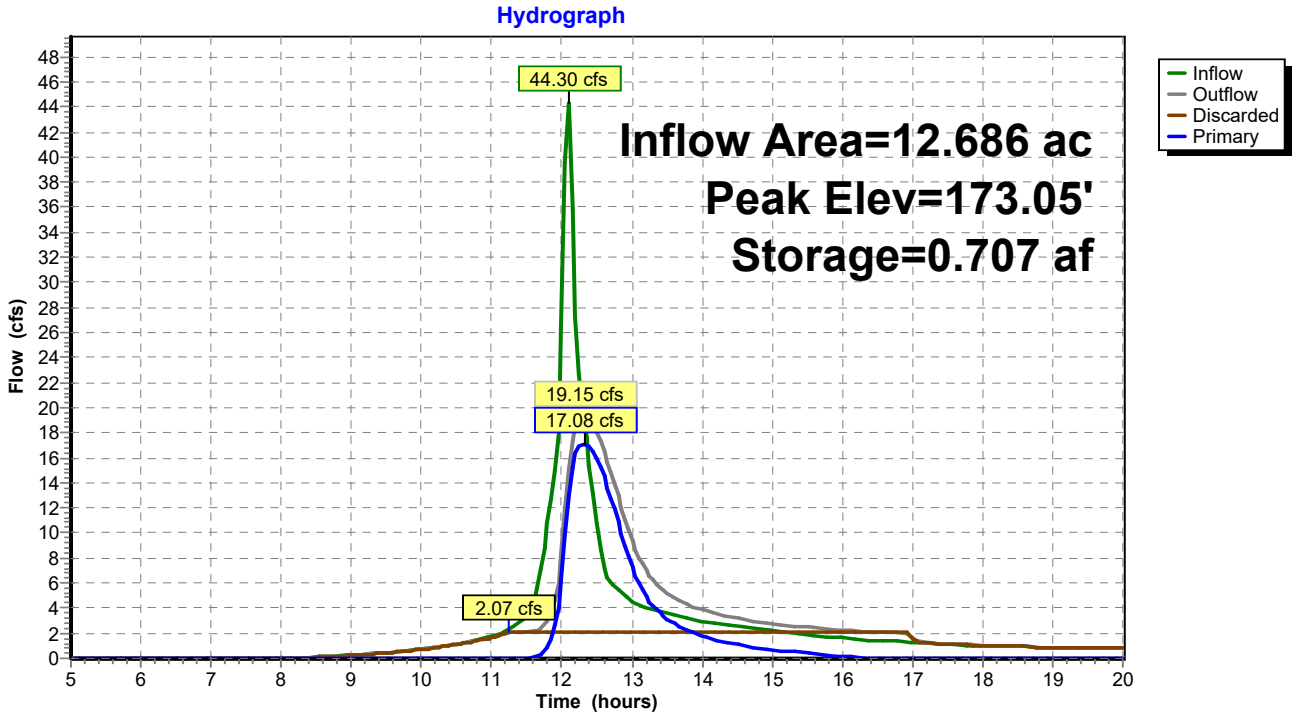
88,845.9 cf Field - 68,518.4 cf Chambers = 20,327.5 cf Stone x 40.0% Voids = 8,131.0 cf Stone Storage

Chamber Storage + Stone Storage = 73,223.5 cf = 1.681 af
Overall Storage Efficiency = 82.4%
Overall System Size = 191.66' x 56.49' x 8.21'

3,200 Chambers
3,290.6 cy Field
752.9 cy Stone



Pond I1: Infiltration



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S1: Mill Creek Marshfield Runoff Area=12.686 ac 62.55% Impervious Runoff Depth>3.99"
Tc=6.0 min CN=76 Runoff=61.90 cfs 4.213 af

Reach R9: Reach 9 Inflow=22.60 cfs 2.548 af
Outflow=22.60 cfs 2.548 af

Pond I1: Infiltration Peak Elev=174.58' Storage=1.050 af Inflow=61.90 cfs 4.213 af
Discarded=2.07 cfs 1.660 af Primary=22.60 cfs 2.548 af Outflow=24.67 cfs 4.208 af

Summary for Subcatchment S1: Mill Creek Marshfield Ph2

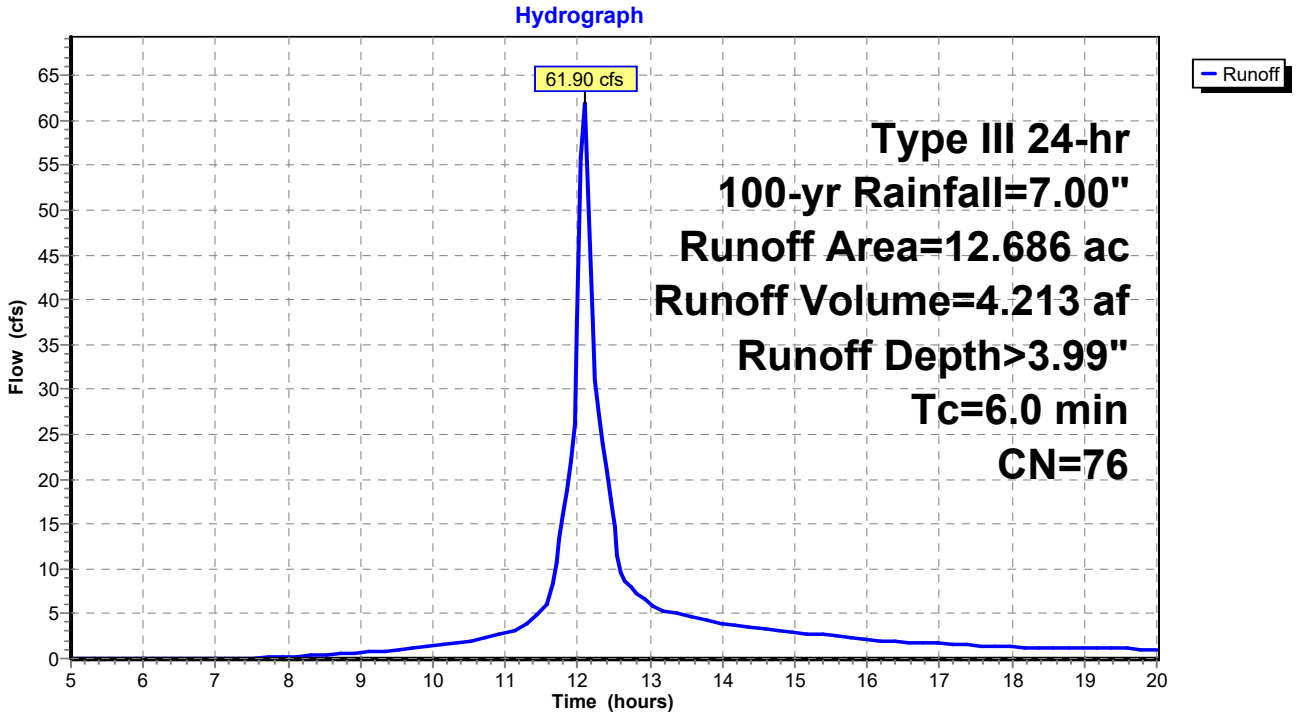
Runoff = 61.90 cfs @ 12.09 hrs, Volume= 4.213 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.00"

	Area (ac)	CN	Description
*	7.935	98	Paved parking, walks, drives HSG A
	4.751	39	>75% Grass cover, Good, HSG A
	12.686	76	Weighted Average
	4.751		37.45% Pervious Area
	7.935		62.55% Impervious Area

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

Subcatchment S1: Mill Creek Marshfield Ph2

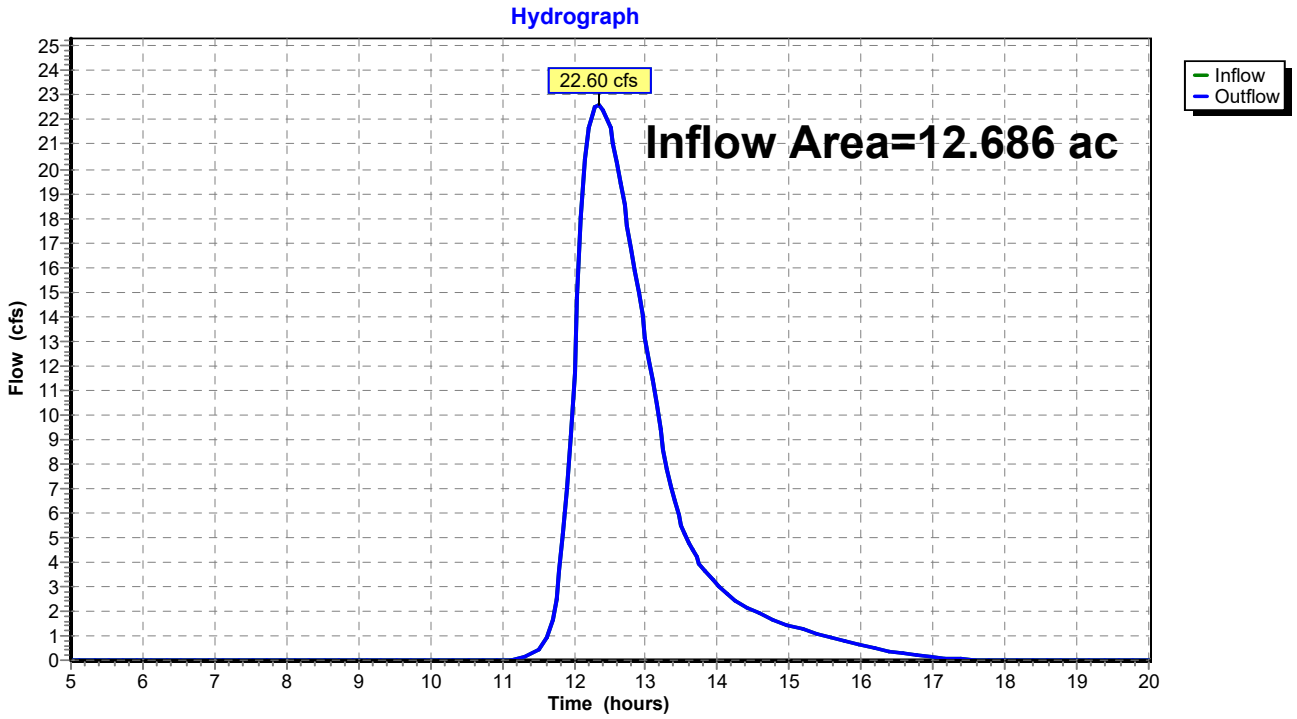


Summary for Reach R9: Reach 9

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth = 2.41" for 100-yr event
Inflow = 22.60 cfs @ 12.34 hrs, Volume= 2.548 af
Outflow = 22.60 cfs @ 12.34 hrs, Volume= 2.548 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach R9: Reach 9



Summary for Pond I1: Infiltration

Inflow Area = 12.686 ac, 62.55% Impervious, Inflow Depth > 3.99" for 100-yr event
Inflow = 61.90 cfs @ 12.09 hrs, Volume= 4.213 af
Outflow = 24.67 cfs @ 12.34 hrs, Volume= 4.208 af, Atten= 60%, Lag= 14.8 min
Discarded = 2.07 cfs @ 10.65 hrs, Volume= 1.660 af
Primary = 22.60 cfs @ 12.34 hrs, Volume= 2.548 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.58' @ 12.34 hrs Surf.Area= 0.249 ac Storage= 1.050 af

Plug-Flow detention time= 24.7 min calculated for 4.194 af (100% of inflow)
Center-of-Mass det. time= 24.1 min (807.5 - 783.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	169.75'	0.187 af	**56.49'W x 191.66'L x 8.21'H Field A** 2.040 af Overall - 1.573 af Embedded = 0.467 af x 40.0% Voids
#2A	170.00'	1.494 af	**ACF R-Tank HD 5** x 3200 Inside #1 Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf 3200 Chambers in 40 Rows
		1.681 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**24.0" Round Culvert** L= 500.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 170.00' / 158.00' S= 0.0240 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 3.14 sf
#2	Primary	180.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Discarded	169.75'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=2.07 cfs @ 10.65 hrs HW=169.86' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 2.07 cfs)

Primary OutFlow Max=22.59 cfs @ 12.34 hrs HW=174.58' (Free Discharge)
├**1=Culvert** (Inlet Controls 22.59 cfs @ 7.19 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond I1: Infiltration - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 5 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf
Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf

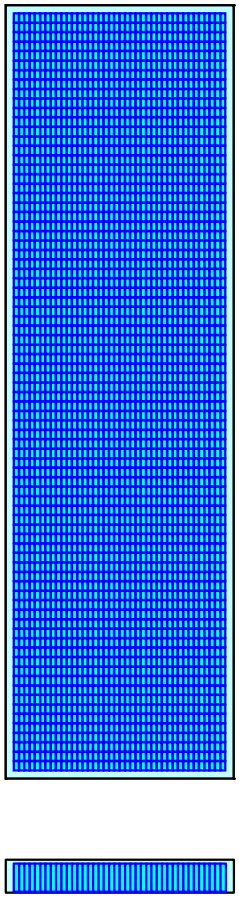
80 Chambers/Row x 2.35' Long = 187.66' Row Length +24.0" End Stone x 2 = 191.66' Base Length
40 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 56.49' Base Width
3.0" Base + 83.5" Chamber Height + 12.0" Cover = 8.21' Field Height

3,200 Chambers x 20.3 cf = 65,092.4 cf Chamber Storage
3,200 Chambers x 21.4 cf = 68,518.4 cf Displacement

88,845.9 cf Field - 68,518.4 cf Chambers = 20,327.5 cf Stone x 40.0% Voids = 8,131.0 cf Stone Storage

Chamber Storage + Stone Storage = 73,223.5 cf = 1.681 af
Overall Storage Efficiency = 82.4%
Overall System Size = 191.66' x 56.49' x 8.21'

3,200 Chambers
3,290.6 cy Field
752.9 cy Stone



Pond I1: Infiltration