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Preliminary Stormwater Management Plan

DUBLIN EMBREE MICRO-HOSPITAL

City of Dublin, Franklin County, Ohio

August 3, 2017

Engineers | Surveyors | Planners | Scientists

EMH&T
Engineers, Surveyors, Planners, Scientists

MEMO

Date: August 3, 2017

To: City of Dublin

From: Jessica Chouteau, PE

Subject: Dublin Embree Micro Hospital – Preliminary Stormwater Management Plan

Copies: Steve Nixon, PE, Kyle Kungle, EI, Doug Turney, PE, CFM

1.0 INTRODUCTION

The following memo summarizes the preliminary stormwater management plan for the Embree Micro Hospital Development in the City of Dublin, Franklin County, Ohio. The proposed site is located south of W Dublin Granville Road (SR-161) between Shamrock Boulevard and Dublin Center Drive. The proposed site involves the development of existing open space into a proposed hospital facility. The following memo provides the pre-developed and post-developed site details as well as all assumptions made to complete the preliminary stormwater analysis.

2.0 HYDROLOGIC ANALYSIS

Hydrologic parameters such as Runoff Curve Number (RCN) and Time of Concentration were determined using standard Natural Resources Conservation Service (NRCS) methodology. The 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storm event discharge amounts were calculated using the NRCS TR-55 method. This analysis reflects the NRCS Type II distribution, 24-hour storm duration. Rainfall depths were obtained from NOAA Atlas 14. The peak flow rates were computed using the HydroCAD 10.0 computer program.

3.0 EXISTING CONDITIONS ANALYSIS

The existing site condition, as seen in Exhibit 1 at the end of this memo, consists of existing open space in Type "C/D" soils (Crosby silt loam and Kokomo silty clay loam). Existing Subarea 01 naturally drains to the west, discharging into existing storm sewers and eventually the Scioto River. Subarea 01 falls within subarea 200 of the Northeast Watershed and 2650 and 2660 of the East Unconsolidated Watershed per the City of Dublin's Stormwater Master Plan. The Northeast Watershed subarea 200 allowable release rates were used in the calculations since the proposed site will drain to the existing storm pipe to the south. Existing subarea characteristics are detailed in Table 1. Table 2 shows the existing peak flow rates for each subarea. HydroCAD output has been provided at the end of this memo.

Table 1: Existing Subarea Characteristics

Subarea	Tributary Area (acres)	Runoff Curve Number	Time of Concentration (minutes)
Pre Subarea 01	1.27	74	12.7

The 1-year runoff volume for the Northeast Watershed existing condition is 0.047 ac-ft.

Table 2: Pre-developed Peak Flow Rates

Storm Event (year)	Pre Subarea 01 Peak Flow Rates (cfs)
1	0.68
2	1.12
5	1.82
10	2.45
25	3.38
50	4.19
100	5.07

4.0 PROPOSED DEVELOPMENT ANALYSIS

The proposed condition, as seen in Exhibit 2 at the end of this memo, consists of commercial development. The stormwater management system will direct site runoff to the south into the existing on-site storm sewer system which is within subarea 200 of the Northeast Watershed. The stormwater management system will utilize a stormtech chamber system for water quality and quantity control. The system will be further designed during final engineering. Proposed subarea characteristics are shown in Table 3. Tributary maps are included at the end of this memo.

Table 3: Proposed Subarea Characteristics

Subarea	Tributary Area (acres)	Runoff Curve Number	Time of Concentration (minutes)
Post Subarea 01	2.42	90	5

The 1-year runoff volume for the Northeast Watershed increases from 0.047 ac-ft to 0.255 ac-ft, an increase of 443% from the existing condition, which results in a 50-year critical storm event.

$$\% \text{ Increase} = [(0.255 - 0.047)/0.047] \times 100 = 443\%$$
50-year Critical Storm

Table 4 shows the allowable release rates per acre to the Northeast Watershed per the Dublin Master Plan. Table 5 shows the total allowable release rates for the proposed development.

Table 4: Allowable Release Rates/Acre (Dublin Master Plan)

Allowable Release Rates per Acre *Northeast Area Watershed*

Sub-Basin	1-year	2-year	5-year	10-year	25-year	50-year	100-year
200	0.1	0.1	0.1	1.2	2.9	4.3	5.5

Post-Developed Area per Sub-Basin

Sub-Basin	Onsite Area (Acres)
200	1.27

Allowable Release Rates per Acre *Northeast Area Watershed*

Sub-Basin	1-year	2-year	5-year	10-year	25-year	50-year	100-year
200	0.13	0.13	0.13	1.52	3.68	5.46	6.99
Total	0.13	0.13	0.13	1.52	3.68	5.46	6.99

Table 5: Allowable and Proposed Release Rates

Storm Event (year)	Allowable Release Rates* [A] (cfs)	Proposed Release Rates (cfs)	Storage Volume Utilized (ac-ft)
1	0.13	0.07	0.187
2	0.13	0.08	0.251
5	0.13	0.09	0.346
10	0.13	0.10	0.427
25	0.13	0.12	0.545
50	0.13	0.13	0.644
100	6.99	0.42	0.672

*From Table 4 and a calculated 5-year critical storm

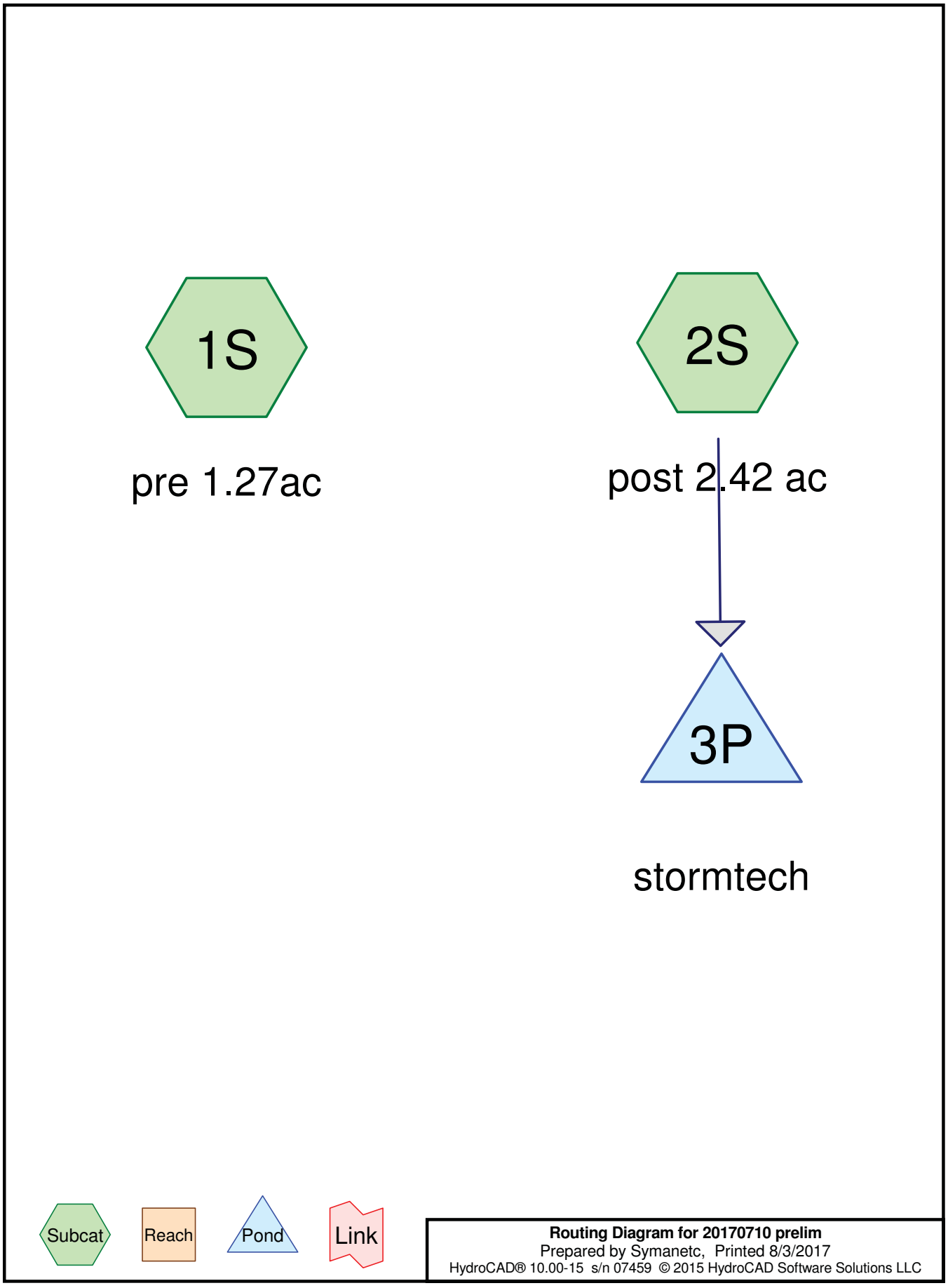
Proposed Detention Storage Required: 0.672 ac-ft

5.0 POST-CONSTRUCTION WATER QUALITY

The Ohio EPA requires that the water quality volume for underground systems be detained for a period of 24 hours while releasing less than half of that volume in the first 8 hours. The stormtech system will treat a water quality volume of 0.075 acre-feet, which corresponds to a water quality volume elevation of 100.88 feet (assume bottom at 100). The minimum 24-hour drawdown of the water quality volume will be accomplished by the 1.5-inch orifice. Water quality calculations and a drawdown graph are included at the end of this memo.

6.0 CONCLUSION

The proposed preliminary stormwater management plan for the Embree Micro Hospital Development meets all requirements for detention as set forth by the City of Dublin and the Ohio EPA. The stormwater management calculations summarized in this memo are preliminary and subject to change upon final engineering.



Routing Diagram for 20170710 prelim
Prepared by Symanetc, Printed 8/3/2017

Summary for Subcatchment 1S: pre 1.27ac

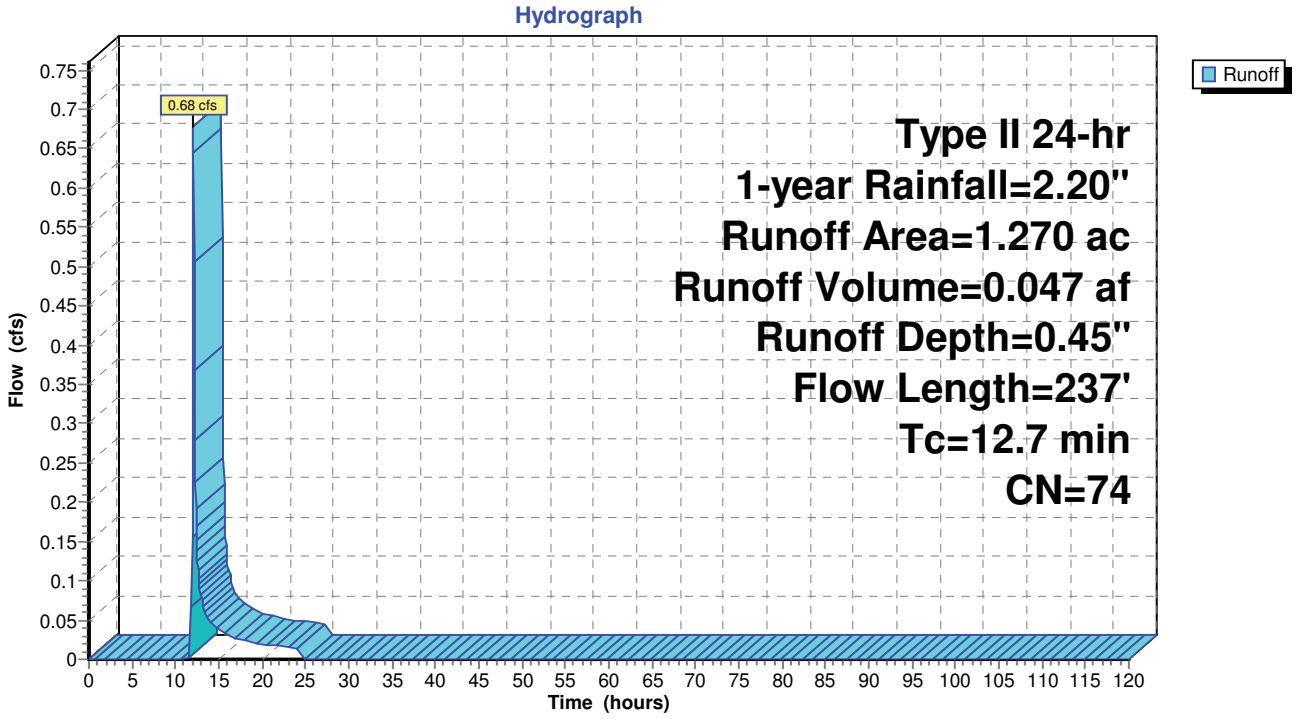
Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.047 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.20"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

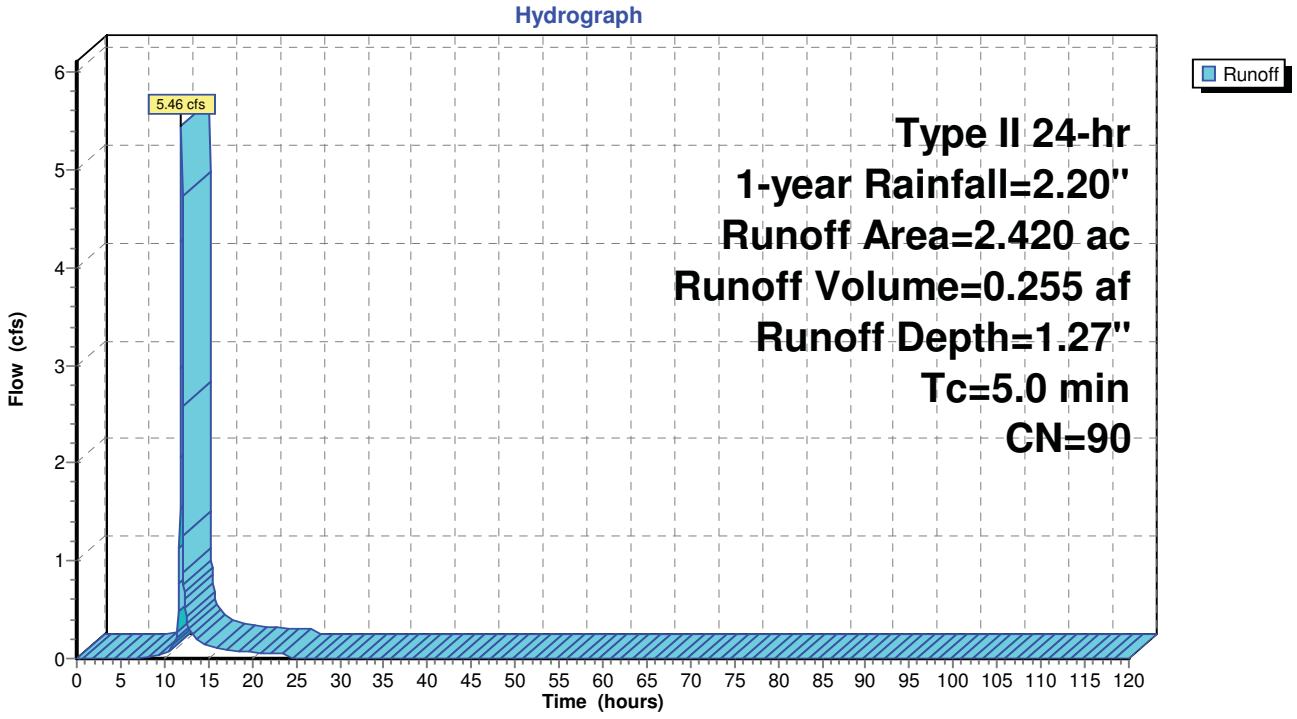
Runoff = 5.46 cfs @ 11.96 hrs, Volume= 0.255 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.20"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 1.27" for 1-year event
Inflow = 5.46 cfs @ 11.96 hrs, Volume= 0.255 af
Outflow = 0.07 cfs @ 18.97 hrs, Volume= 0.255 af, Atten= 99%, Lag= 420.7 min
Primary = 0.07 cfs @ 18.97 hrs, Volume= 0.255 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 101.57' @ 18.97 hrs Surf.Area= 0.185 ac Storage= 0.187 af

Plug-Flow detention time= 1,324.4 min calculated for 0.255 af (100% of inflow)
Center-of-Mass det. time= 1,324.3 min (2,142.5 - 818.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.07 cfs @ 18.97 hrs HW=101.57' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.92 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

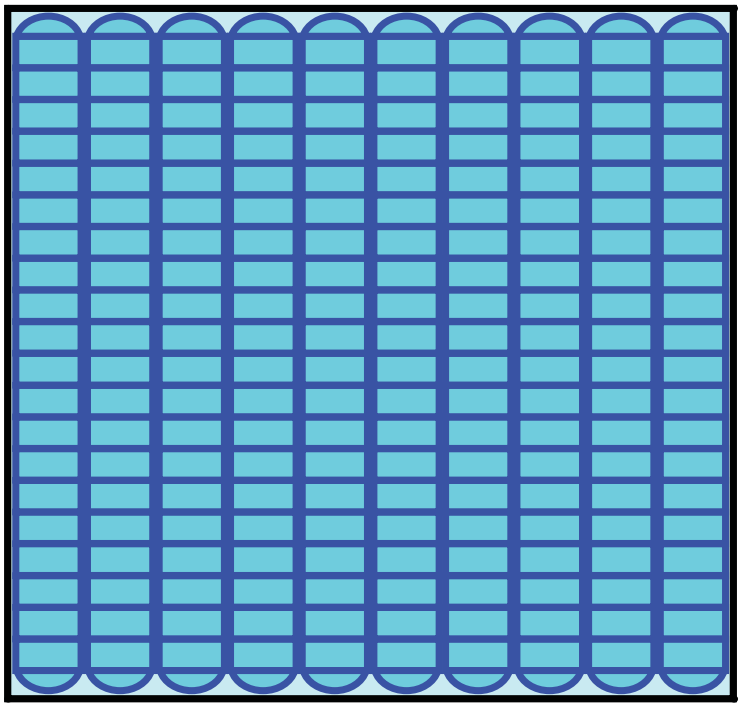
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

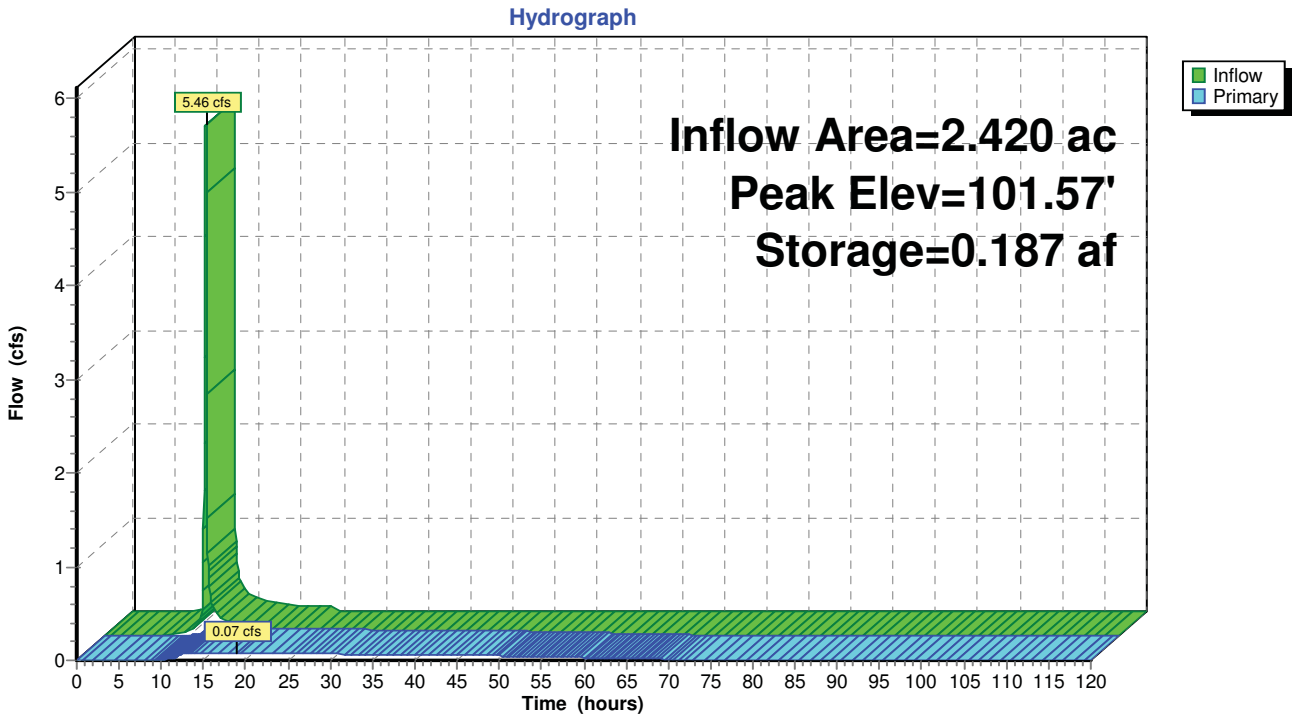
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Summary for Subcatchment 1S: pre 1.27ac

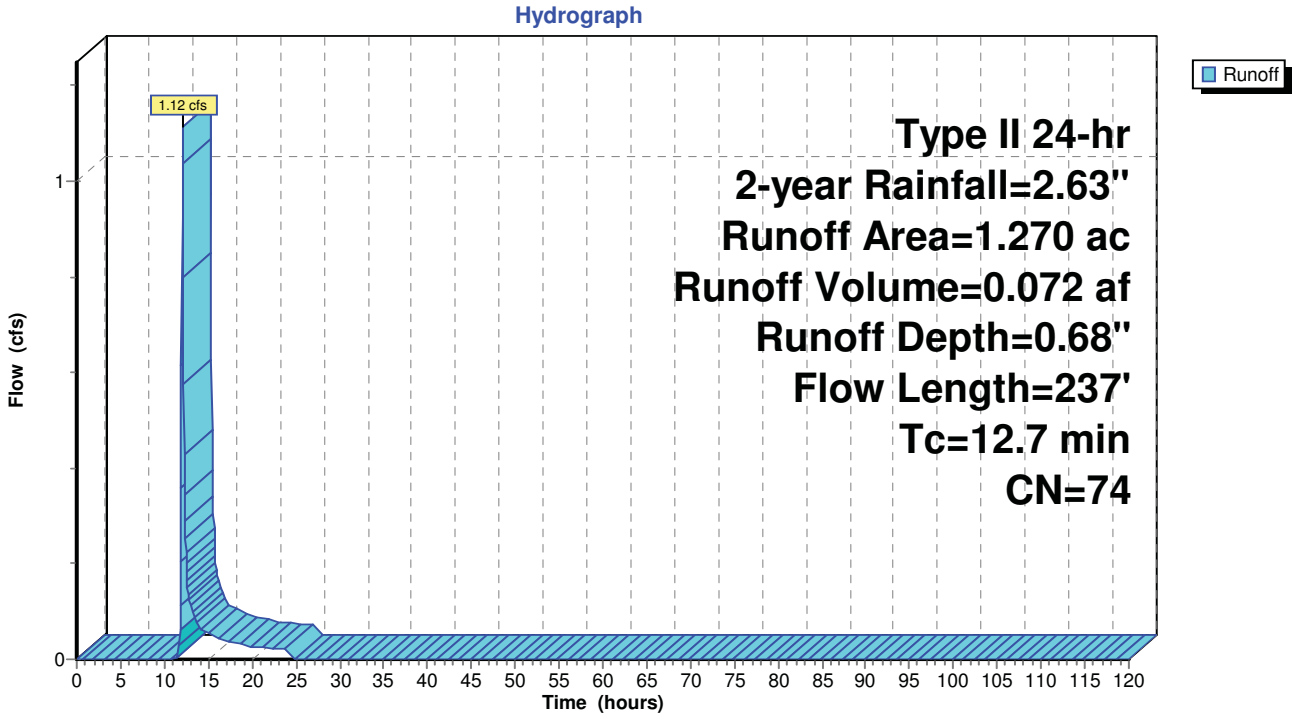
Runoff = 1.12 cfs @ 12.06 hrs, Volume= 0.072 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.63"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

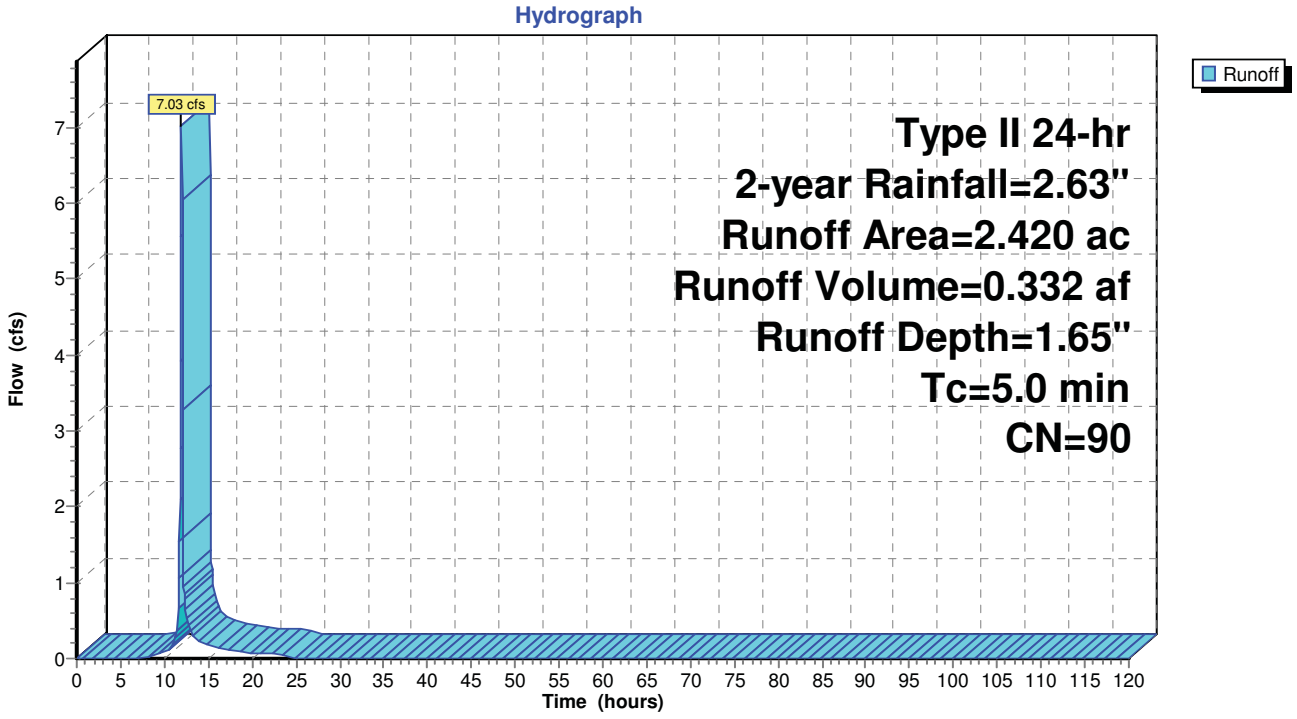
Runoff = 7.03 cfs @ 11.95 hrs, Volume= 0.332 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.63"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 1.65" for 2-year event
Inflow = 7.03 cfs @ 11.95 hrs, Volume= 0.332 af
Outflow = 0.08 cfs @ 19.55 hrs, Volume= 0.332 af, Atten= 99%, Lag= 455.5 min
Primary = 0.08 cfs @ 19.55 hrs, Volume= 0.332 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 101.99' @ 19.55 hrs Surf.Area= 0.185 ac Storage= 0.251 af

Plug-Flow detention time= 1,555.7 min calculated for 0.332 af (100% of inflow)
Center-of-Mass det. time= 1,555.4 min (2,366.1 - 810.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.08 cfs @ 19.55 hrs HW=101.99' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 6.68 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

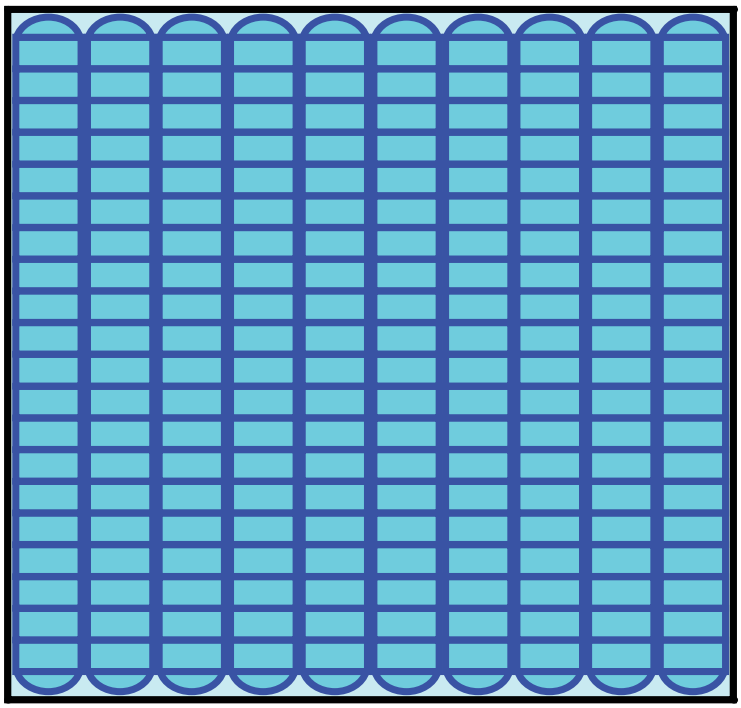
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

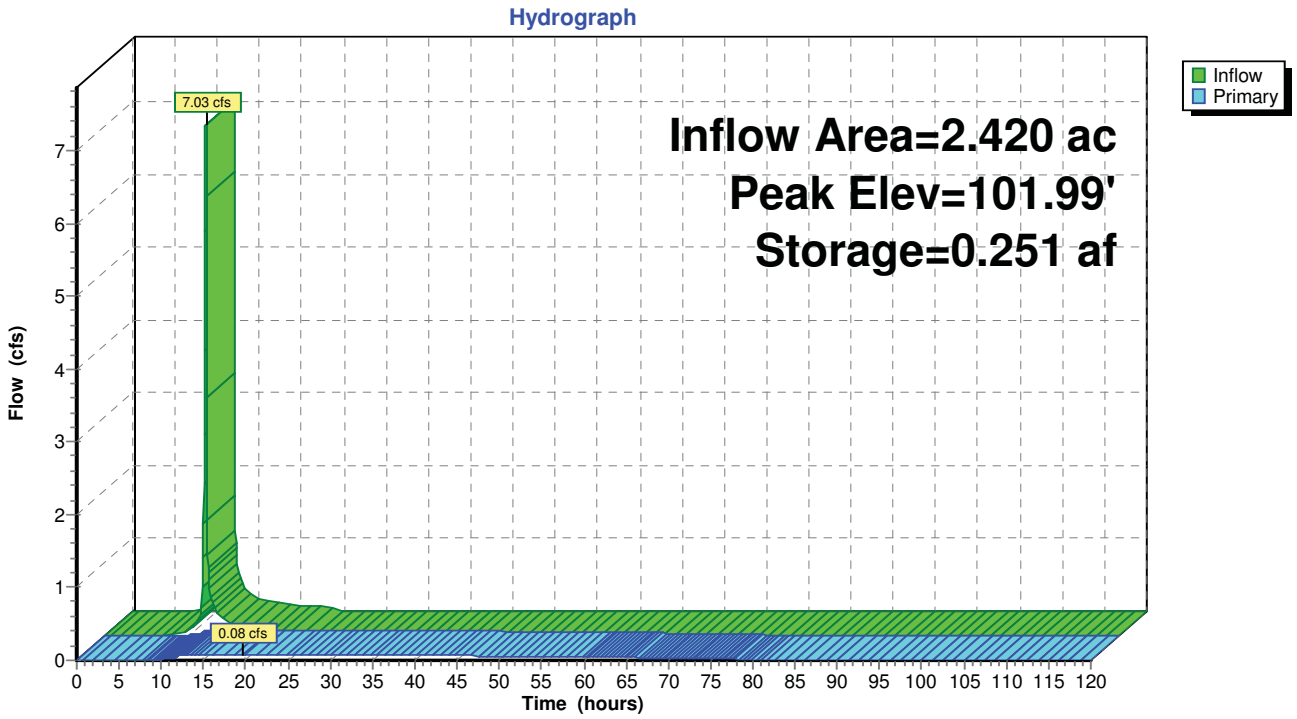
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Summary for Subcatchment 1S: pre 1.27ac

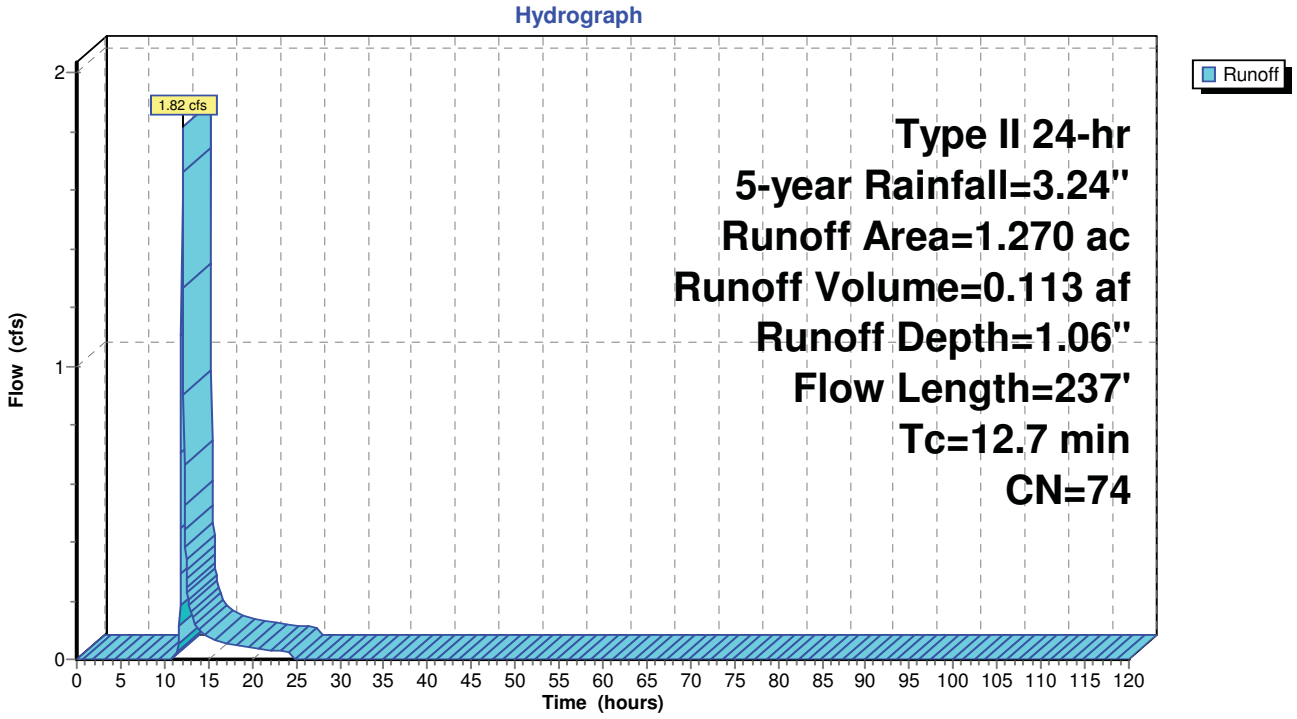
Runoff = 1.82 cfs @ 12.06 hrs, Volume= 0.113 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.24"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

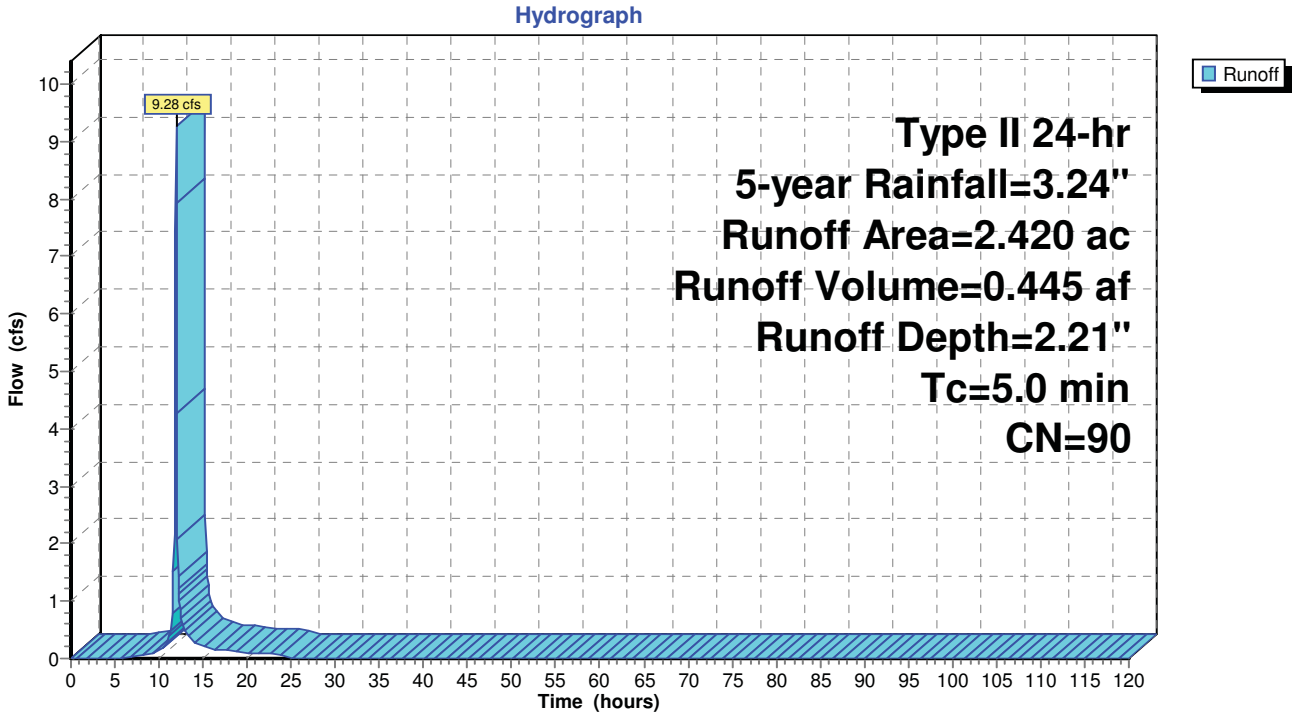
Runoff = 9.28 cfs @ 11.95 hrs, Volume= 0.445 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.24"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 2.21" for 5-year event
Inflow = 9.28 cfs @ 11.95 hrs, Volume= 0.445 af
Outflow = 0.09 cfs @ 20.18 hrs, Volume= 0.444 af, Atten= 99%, Lag= 493.7 min
Primary = 0.09 cfs @ 20.18 hrs, Volume= 0.444 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 102.61' @ 20.18 hrs Surf.Area= 0.185 ac Storage= 0.346 af

Plug-Flow detention time= 1,846.4 min calculated for 0.444 af (100% of inflow)
Center-of-Mass det. time= 1,845.7 min (2,648.1 - 802.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.09 cfs @ 20.18 hrs HW=102.61' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.69 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

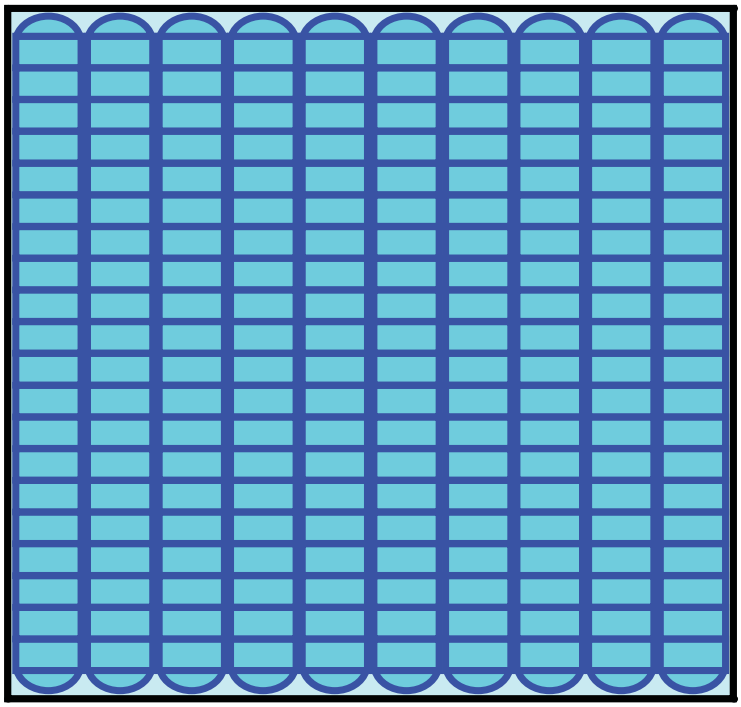
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

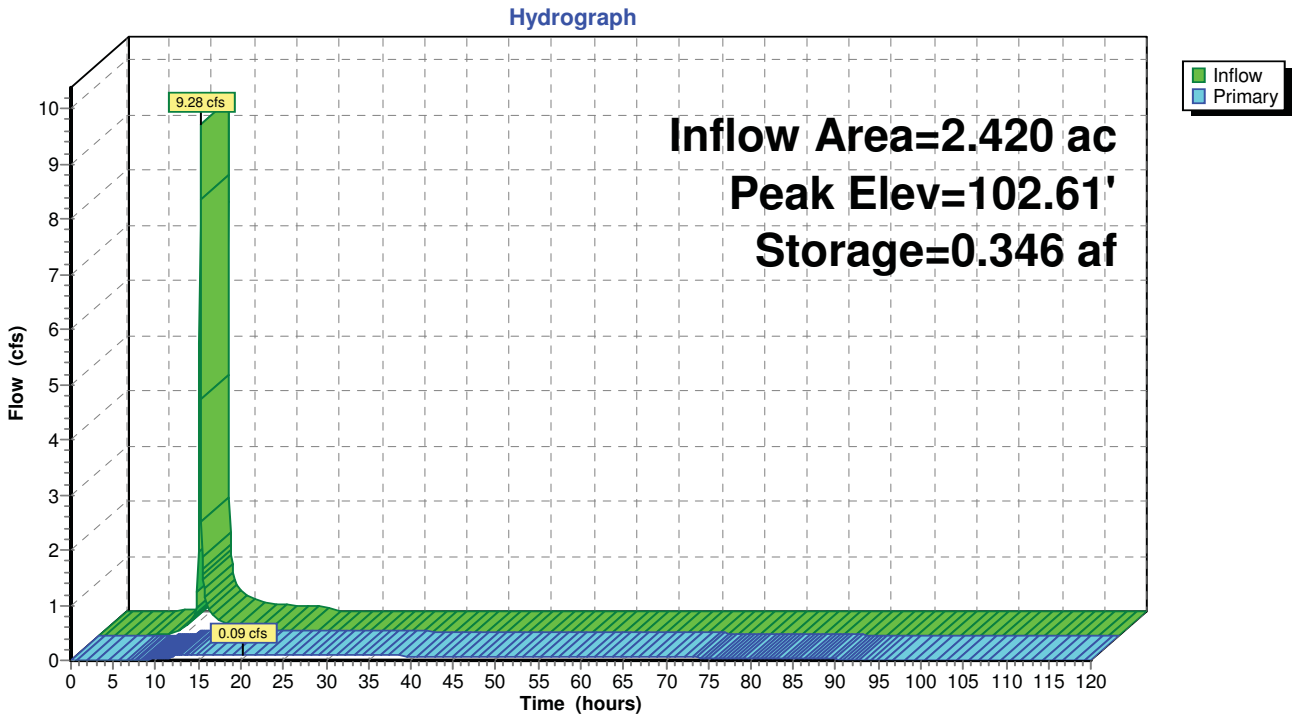
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Summary for Subcatchment 1S: pre 1.27ac

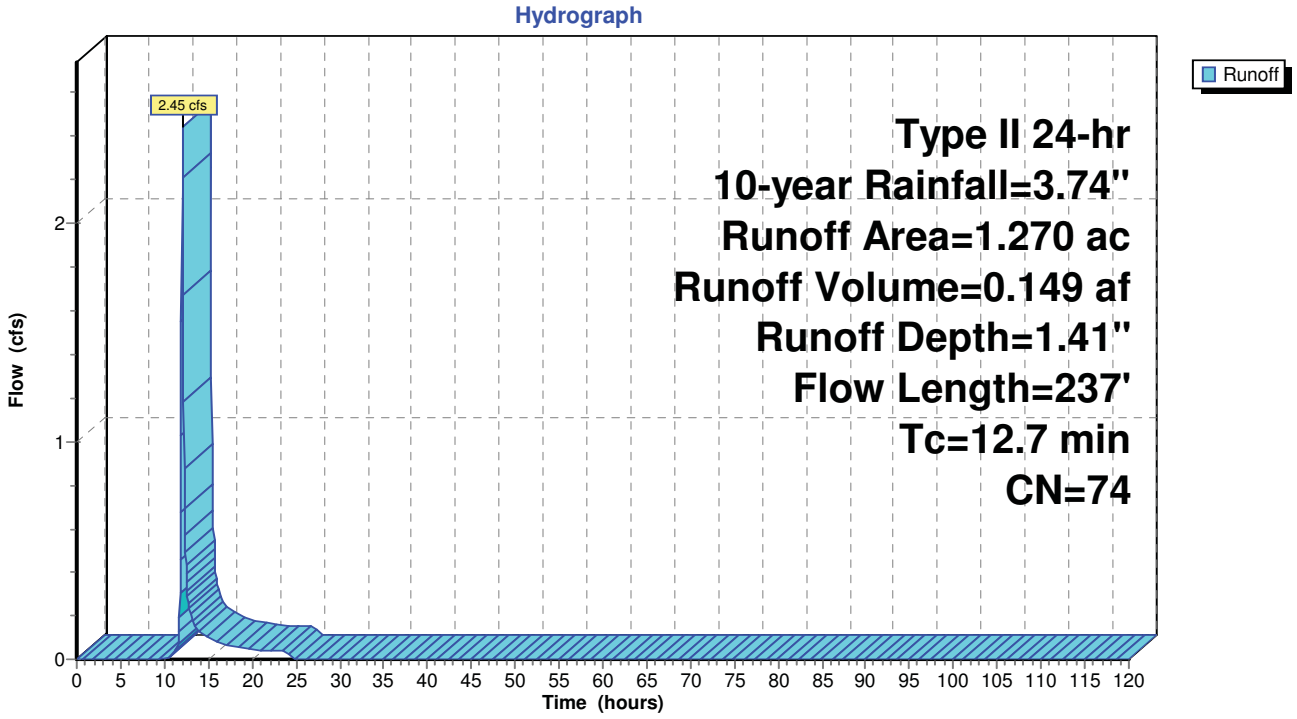
Runoff = 2.45 cfs @ 12.05 hrs, Volume= 0.149 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.74"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

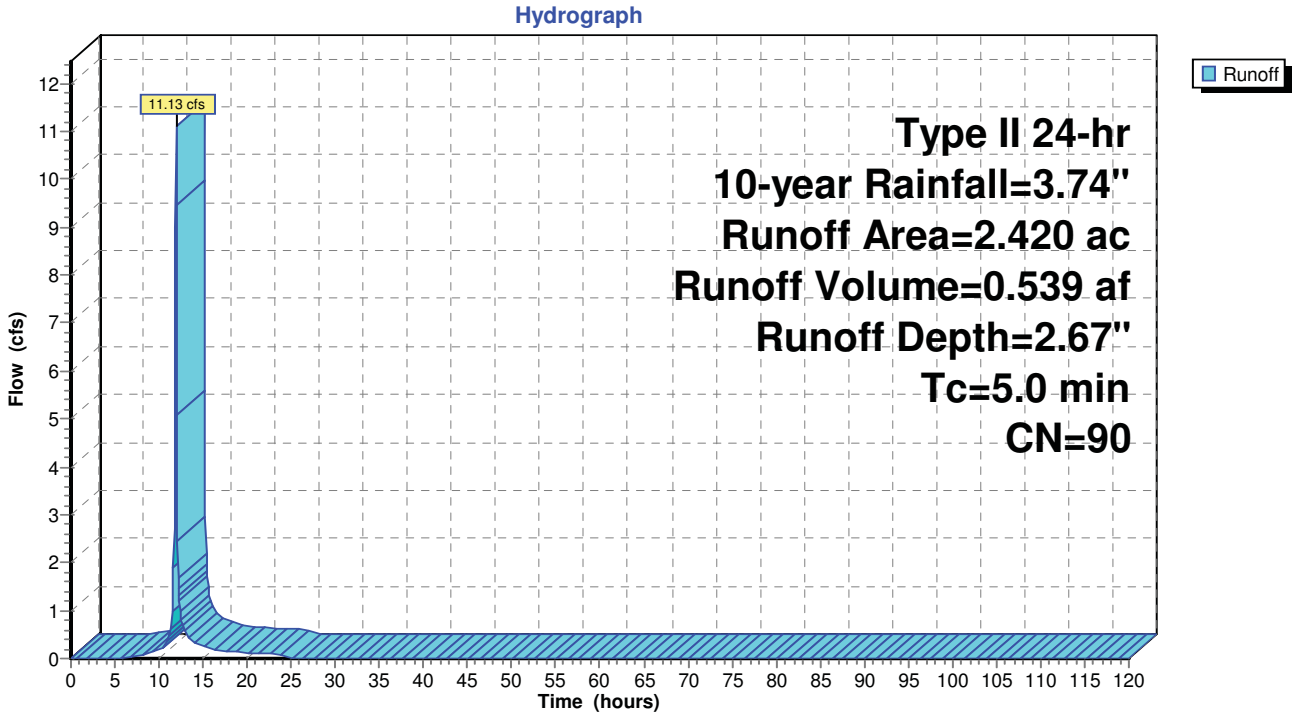
Runoff = 11.13 cfs @ 11.95 hrs, Volume= 0.539 af, Depth= 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.74"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 2.67" for 10-year event
Inflow = 11.13 cfs @ 11.95 hrs, Volume= 0.539 af
Outflow = 0.10 cfs @ 21.80 hrs, Volume= 0.538 af, Atten= 99%, Lag= 590.7 min
Primary = 0.10 cfs @ 21.80 hrs, Volume= 0.538 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 103.17' @ 21.80 hrs Surf.Area= 0.185 ac Storage= 0.427 af

Plug-Flow detention time= 2,056.2 min calculated for 0.538 af (100% of inflow)
Center-of-Mass det. time= 2,054.7 min (2,851.7 - 797.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.10 cfs @ 21.80 hrs HW=103.17' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.48 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

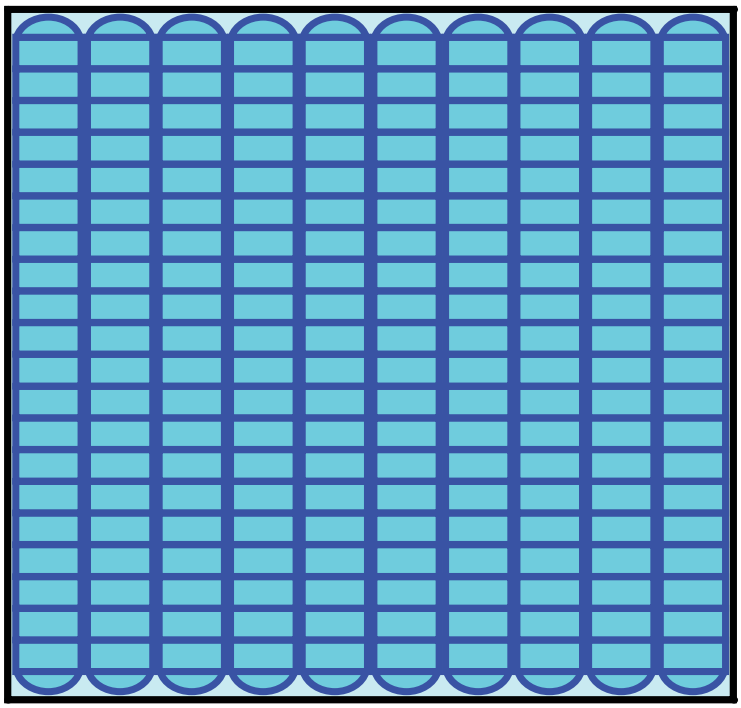
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

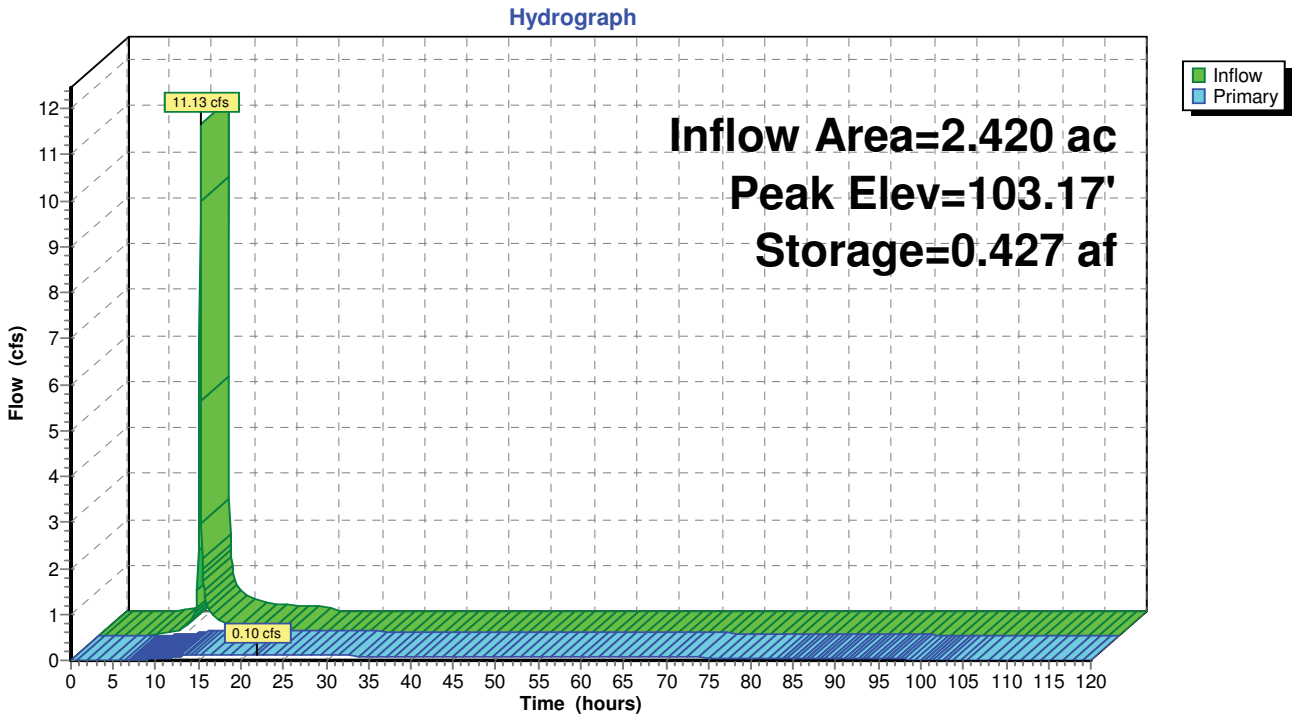
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Summary for Subcatchment 1S: pre 1.27ac

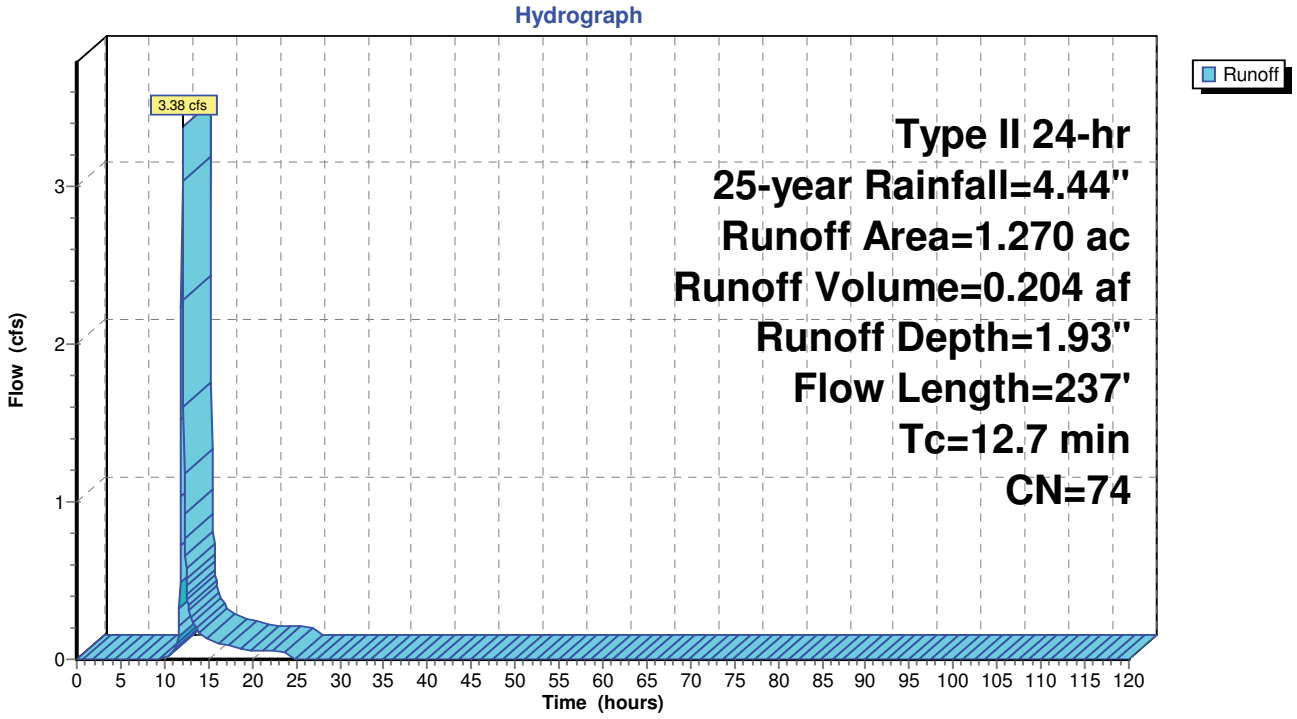
Runoff = 3.38 cfs @ 12.05 hrs, Volume= 0.204 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.44"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

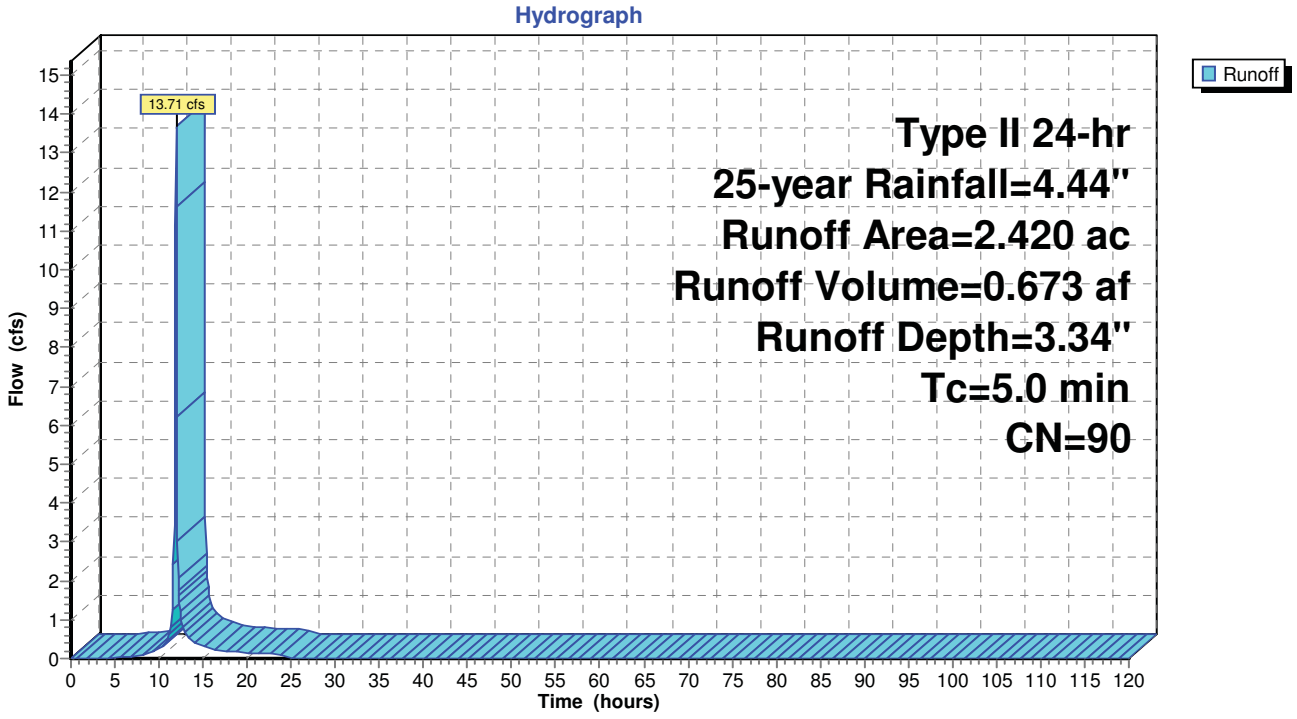
Runoff = 13.71 cfs @ 11.95 hrs, Volume= 0.673 af, Depth= 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.44"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 3.34" for 25-year event
Inflow = 13.71 cfs @ 11.95 hrs, Volume= 0.673 af
Outflow = 0.12 cfs @ 23.39 hrs, Volume= 0.669 af, Atten= 99%, Lag= 686.1 min
Primary = 0.12 cfs @ 23.39 hrs, Volume= 0.669 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 104.02' @ 23.39 hrs Surf.Area= 0.185 ac Storage= 0.545 af

Plug-Flow detention time= 2,307.0 min calculated for 0.668 af (99% of inflow)
Center-of-Mass det. time= 2,304.1 min (3,094.8 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.12 cfs @ 23.39 hrs HW=104.02' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 9.57 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

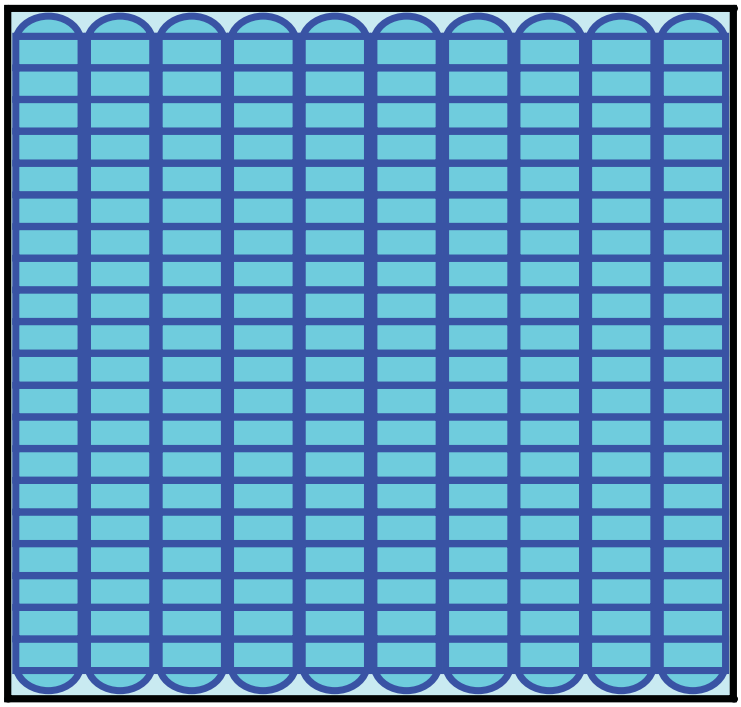
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

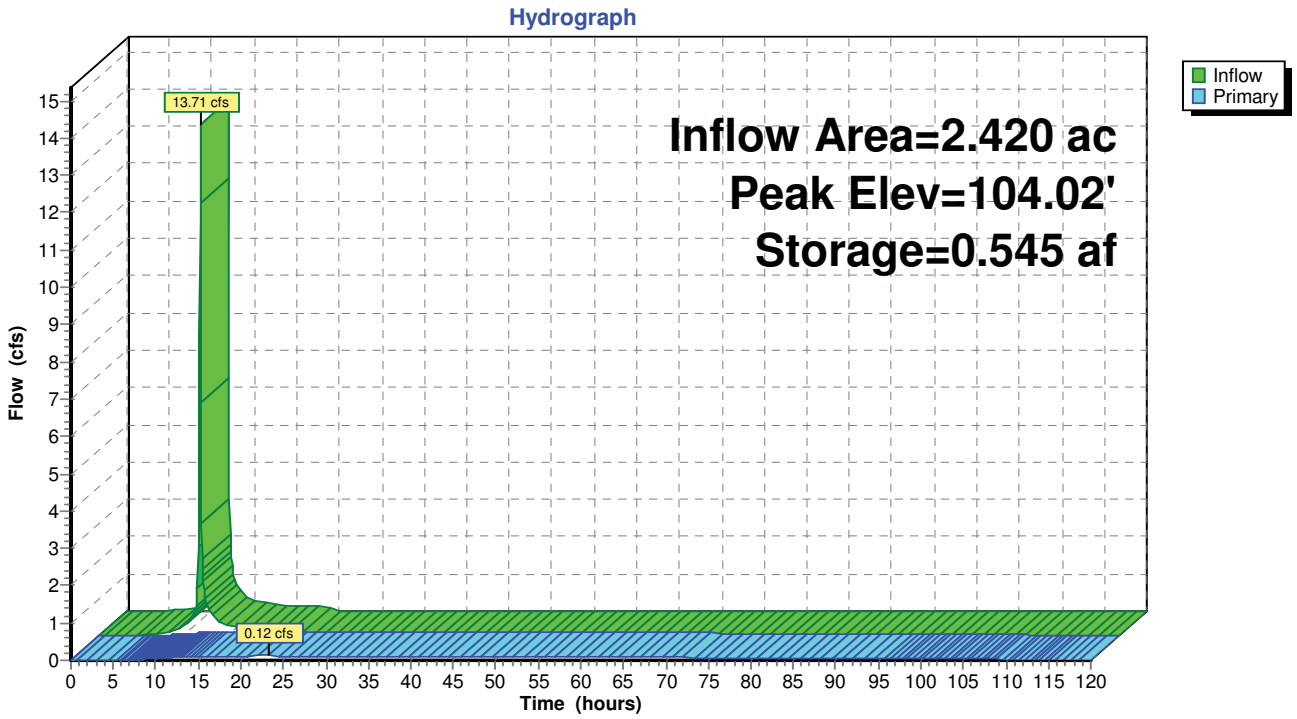
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Summary for Subcatchment 1S: pre 1.27ac

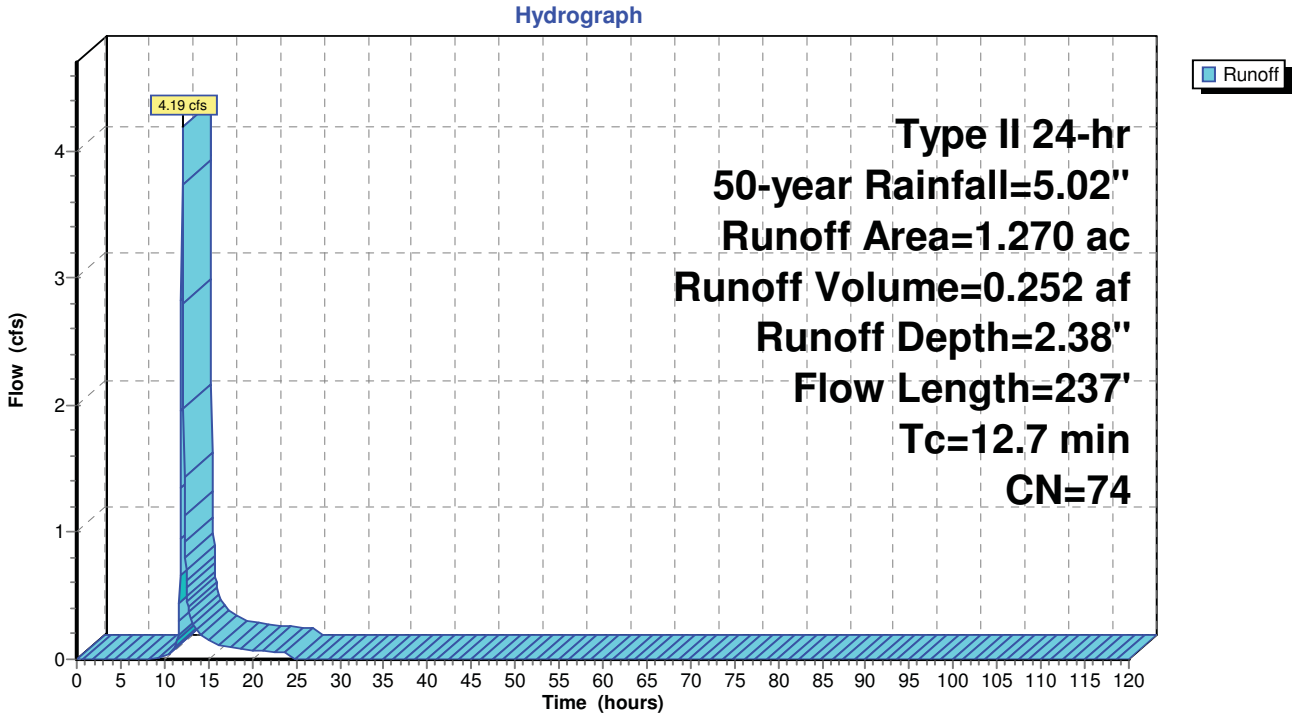
Runoff = 4.19 cfs @ 12.05 hrs, Volume= 0.252 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.02"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

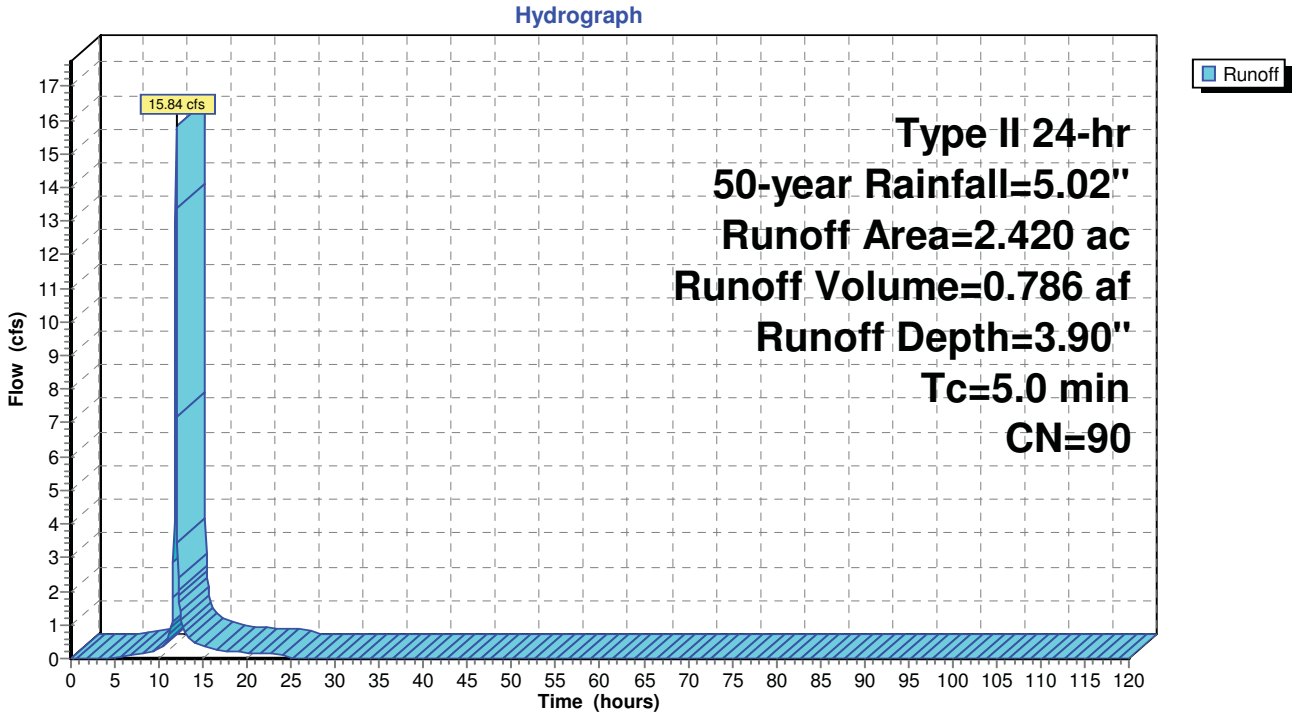
Runoff = 15.84 cfs @ 11.95 hrs, Volume= 0.786 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.02"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 3.90" for 50-year event
Inflow = 15.84 cfs @ 11.95 hrs, Volume= 0.786 af
Outflow = 0.13 cfs @ 24.00 hrs, Volume= 0.771 af, Atten= 99%, Lag= 722.9 min
Primary = 0.13 cfs @ 24.00 hrs, Volume= 0.771 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 104.82' @ 24.00 hrs Surf.Area= 0.185 ac Storage= 0.644 af

Plug-Flow detention time= 2,463.0 min calculated for 0.771 af (98% of inflow)
Center-of-Mass det. time= 2,451.6 min (3,238.0 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.13 cfs @ 24.00 hrs HW=104.82' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.13 cfs @ 10.50 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

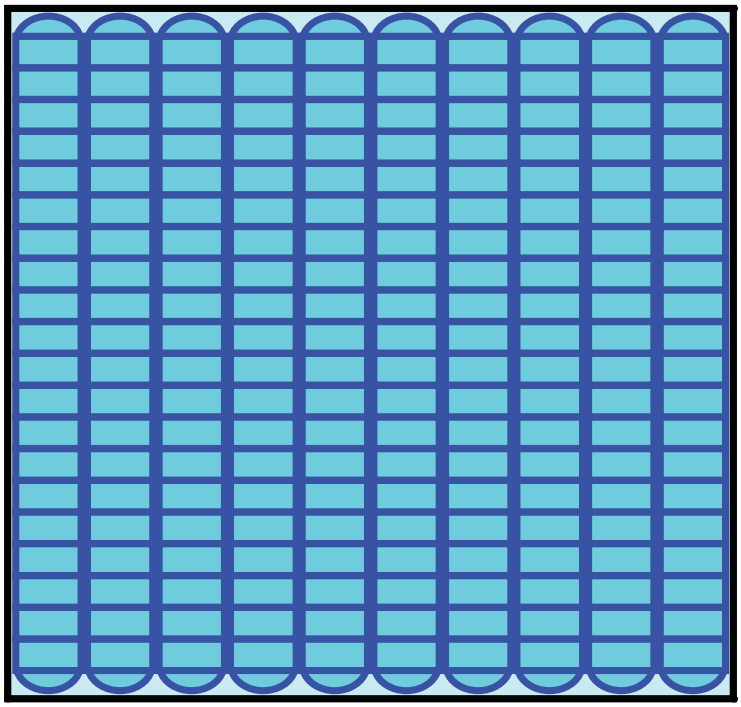
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

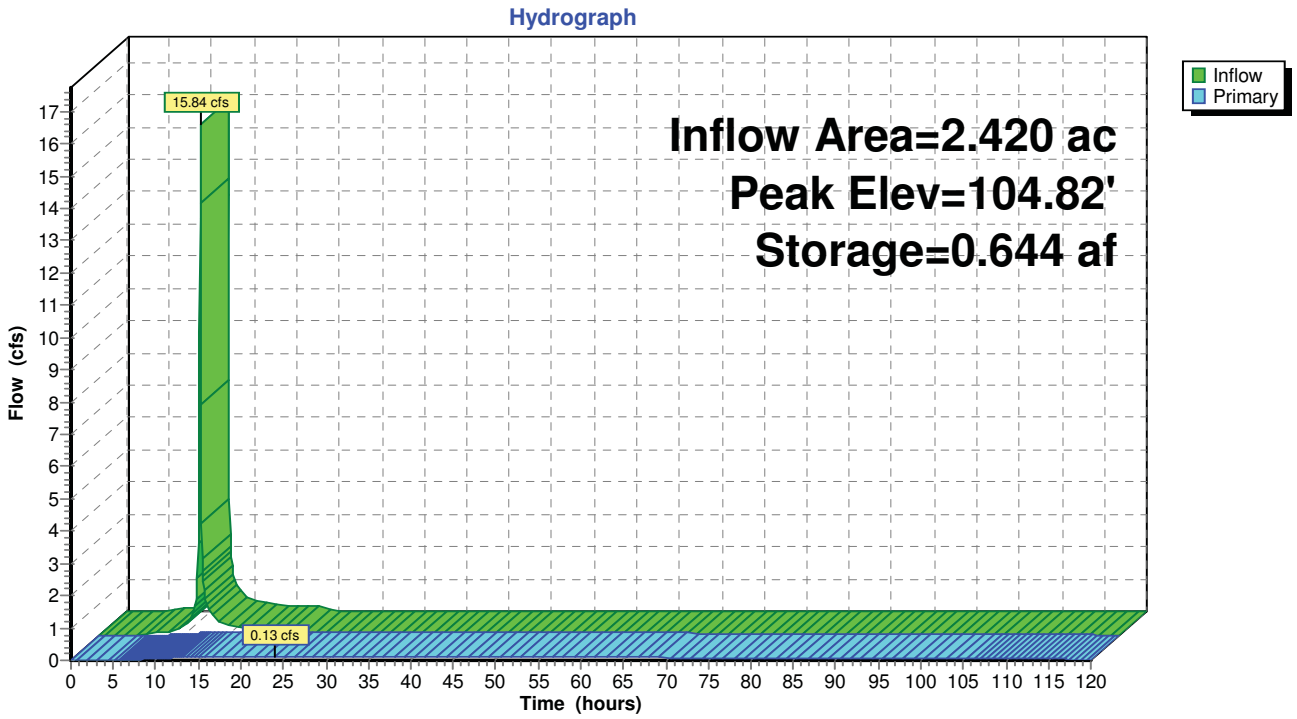
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Summary for Subcatchment 1S: pre 1.27ac

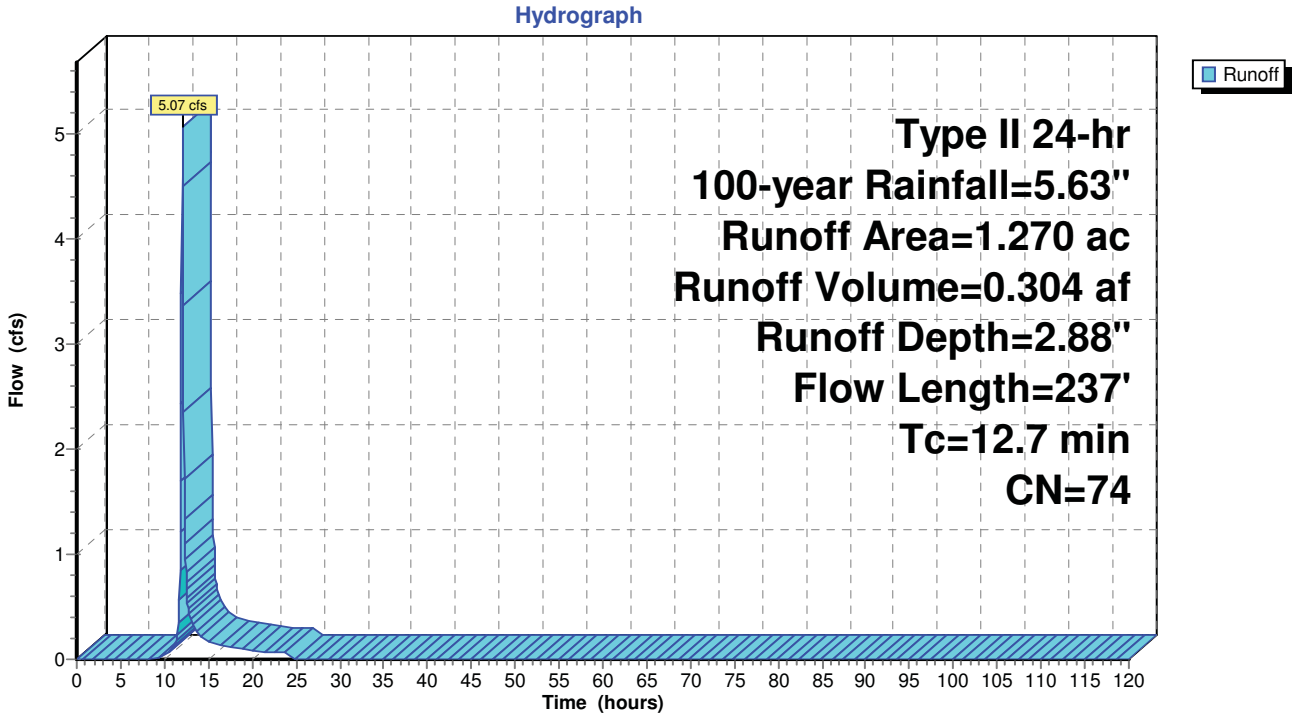
Runoff = 5.07 cfs @ 12.05 hrs, Volume= 0.304 af, Depth= 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.63"

	Area (ac)	CN	Description
*	1.270	74	
	1.270		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.63"
1.9	137	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.7	237	Total			

Subcatchment 1S: pre 1.27ac



Summary for Subcatchment 2S: post 2.42 ac

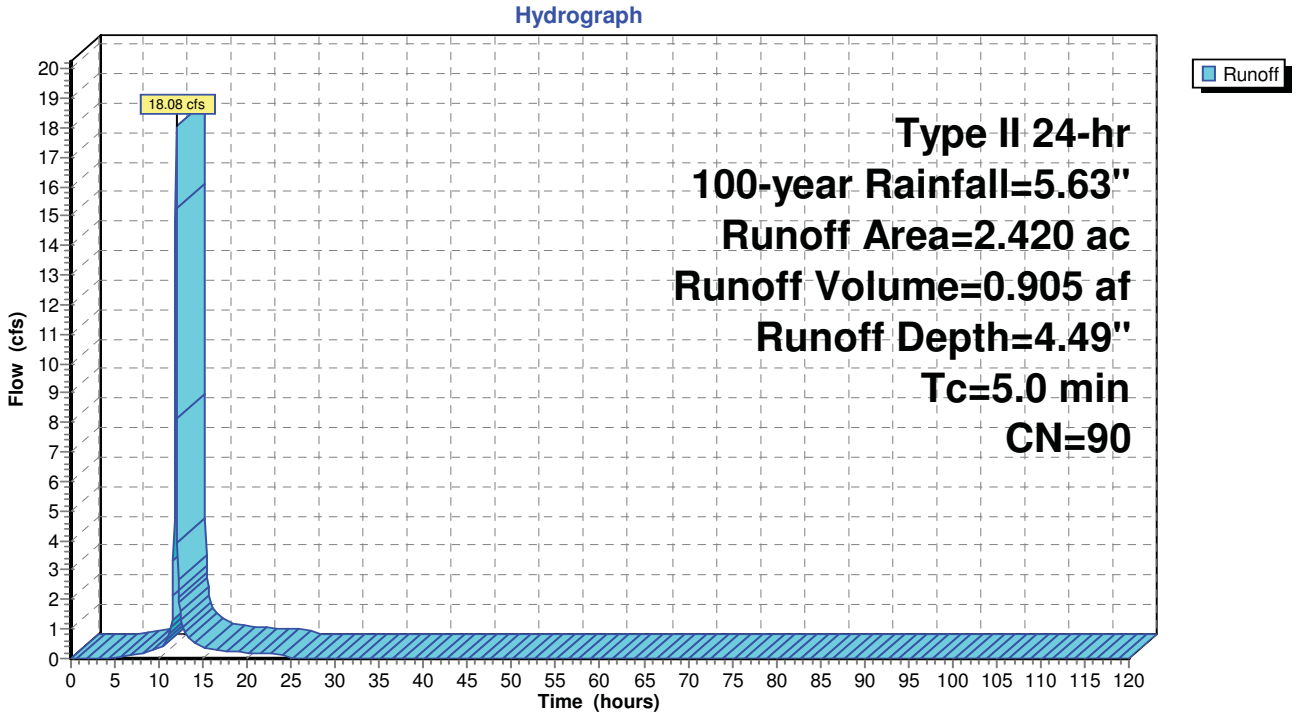
Runoff = 18.08 cfs @ 11.95 hrs, Volume= 0.905 af, Depth= 4.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.63"

	Area (ac)	CN	Description
*	1.620	98	
*	0.800	74	
	2.420	90	Weighted Average
	0.800		33.06% Pervious Area
	1.620		66.94% Impervious Area

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

Subcatchment 2S: post 2.42 ac



Summary for Pond 3P: stormtech

Inflow Area = 2.420 ac, 66.94% Impervious, Inflow Depth = 4.49" for 100-year event
Inflow = 18.08 cfs @ 11.95 hrs, Volume= 0.905 af
Outflow = 0.42 cfs @ 14.80 hrs, Volume= 0.887 af, Atten= 98%, Lag= 171.0 min
Primary = 0.42 cfs @ 14.80 hrs, Volume= 0.887 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 105.08' @ 14.80 hrs Surf.Area= 0.185 ac Storage= 0.672 af

Plug-Flow detention time= 2,243.3 min calculated for 0.887 af (98% of inflow)
Center-of-Mass det. time= 2,230.9 min (3,013.5 - 782.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	105.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.42 cfs @ 14.80 hrs HW=105.08' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.13 cfs @ 10.78 fps)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.29 cfs @ 0.92 fps)

Pond 3P: stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with end caps)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

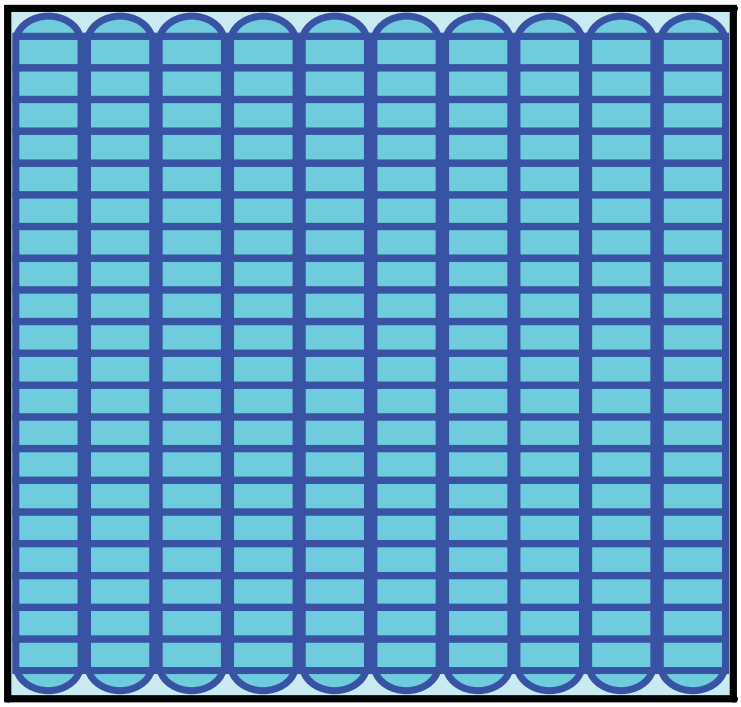
20 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 85.62' Row Length +12.0" End Stone x 2 = 87.62' Base Length
10 Rows x 100.0" Wide + 9.0" Spacing x 9 + 12.0" Side Stone x 2 = 92.08' Base Width
9.0" Base + 60.0" Chamber Height + 12.0" Cover = 6.75' Field Height

200 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 10 Rows = 22,012.1 cf Chamber Storage

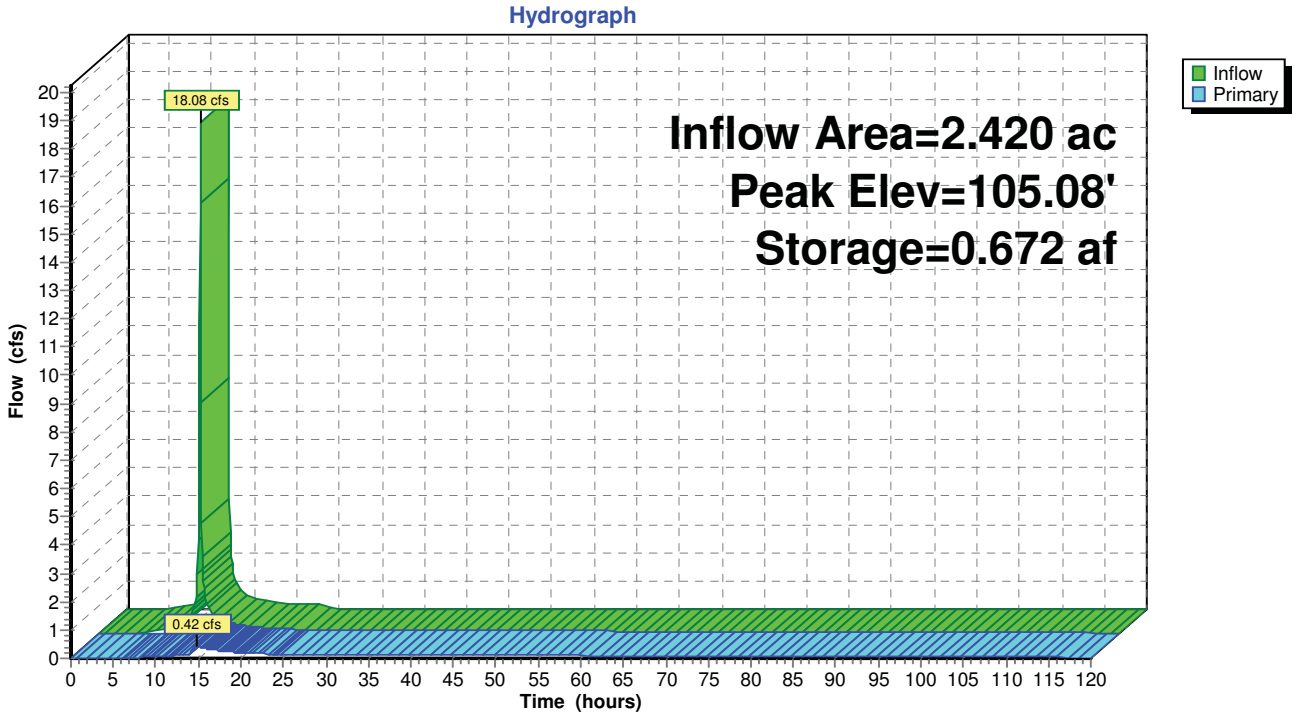
54,459.2 cf Field - 22,012.1 cf Chambers = 32,447.1 cf Stone x 40.0% Voids = 12,978.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,990.9 cf = 0.803 af
Overall Storage Efficiency = 64.3%

200 Chambers
2,017.0 cy Field
1,201.7 cy Stone



Pond 3P: stormtech



Water Quality Volume and Allocation Calculation Spreadsheet

Project Name: Dublin Embree Mircro-Hospital

Stormtech BMP

Area =	2.420	acres
% imp =	0.70	
C =	0.49	
WQv =	0.075	ac-ft

Total	0.075	ac-ft
WQv Elevation=	100.88	feet

Water quality volume calculated using the Ohio EPA formula CPA/12

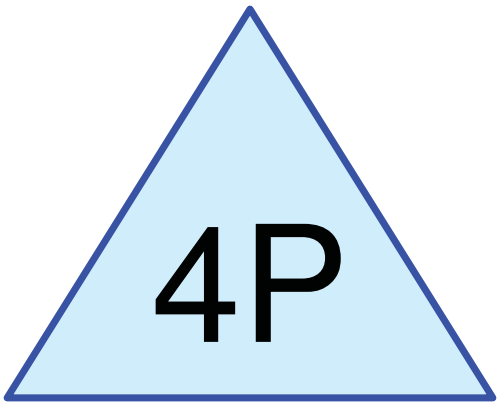
The "C" coefficient was calculated using the ASCE method

C= 0.858i^3 - 0.778i^2 + 0.774i + 0.04

Ohio EPA formula

WQv = CPA/12

A = area (acres)
P = 0.75"
C = (see above)



stormtech WQ 0.075 af

Subcat Reach Pond Link

Routing Diagram for 20170710 prelim
Prepared by Symanetc, Printed 8/3/2017

Summary for Pond 4P: stormtech WQ 0.075 af

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Outflow	=	0.05 cfs @	0.00 hrs,	Volume=	0.077 af, Atten= 0%, Lag= 0.0 min
Primary	=	0.05 cfs @	0.00 hrs,	Volume=	0.077 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 100.88' Surf.Area= 0.185 ac Storage= 0.076 af
Peak Elev= 100.88' @ 0.00 hrs Surf.Area= 0.185 ac Storage= 0.076 af

Plug-Flow detention time= (not calculated: no plugs found)
Center-of-Mass det. time= (not calculated: no inflow)

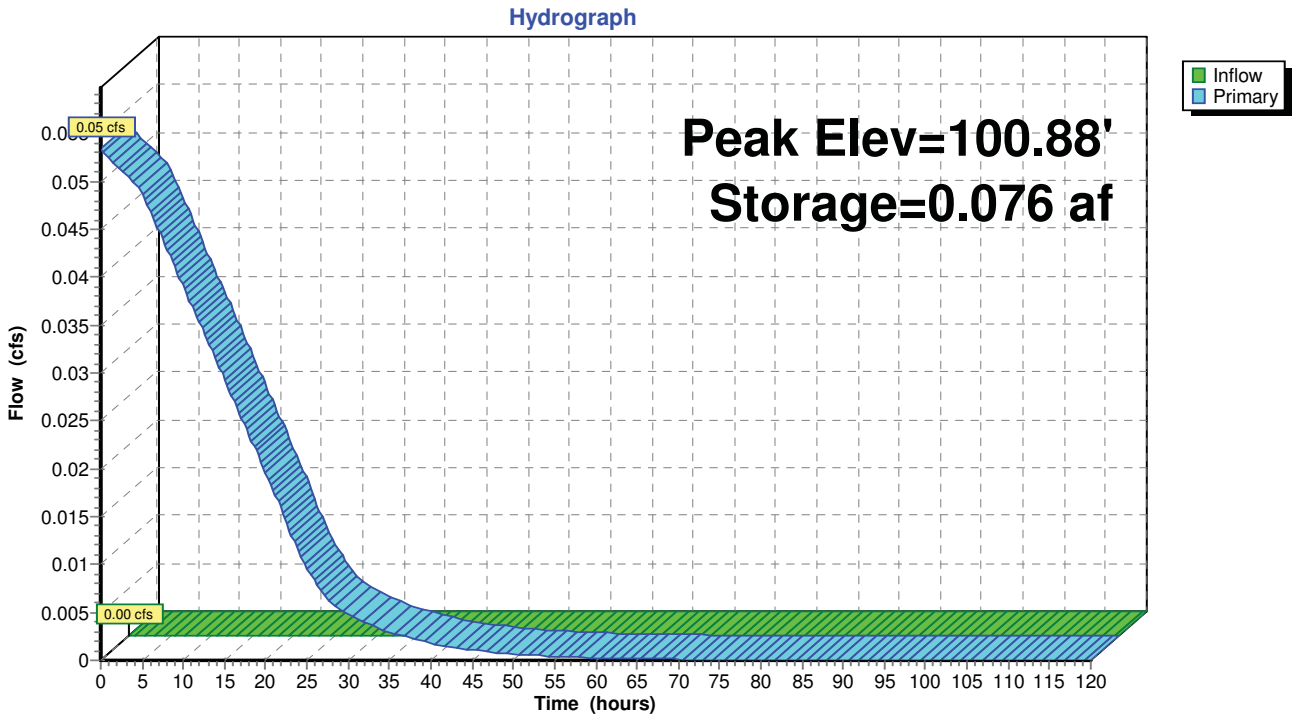
Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.298 af	**92.08'W x 87.62'L x 6.75'H Field A** 1.250 af Overall - 0.505 af Embedded = 0.745 af x 40.0% Voids
#2A	100.75'	0.505 af	**ADS_StormTech MC-4500 +Cap** x 200 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		0.803 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**1.5" Vert. Orifice/Grate** C= 0.600

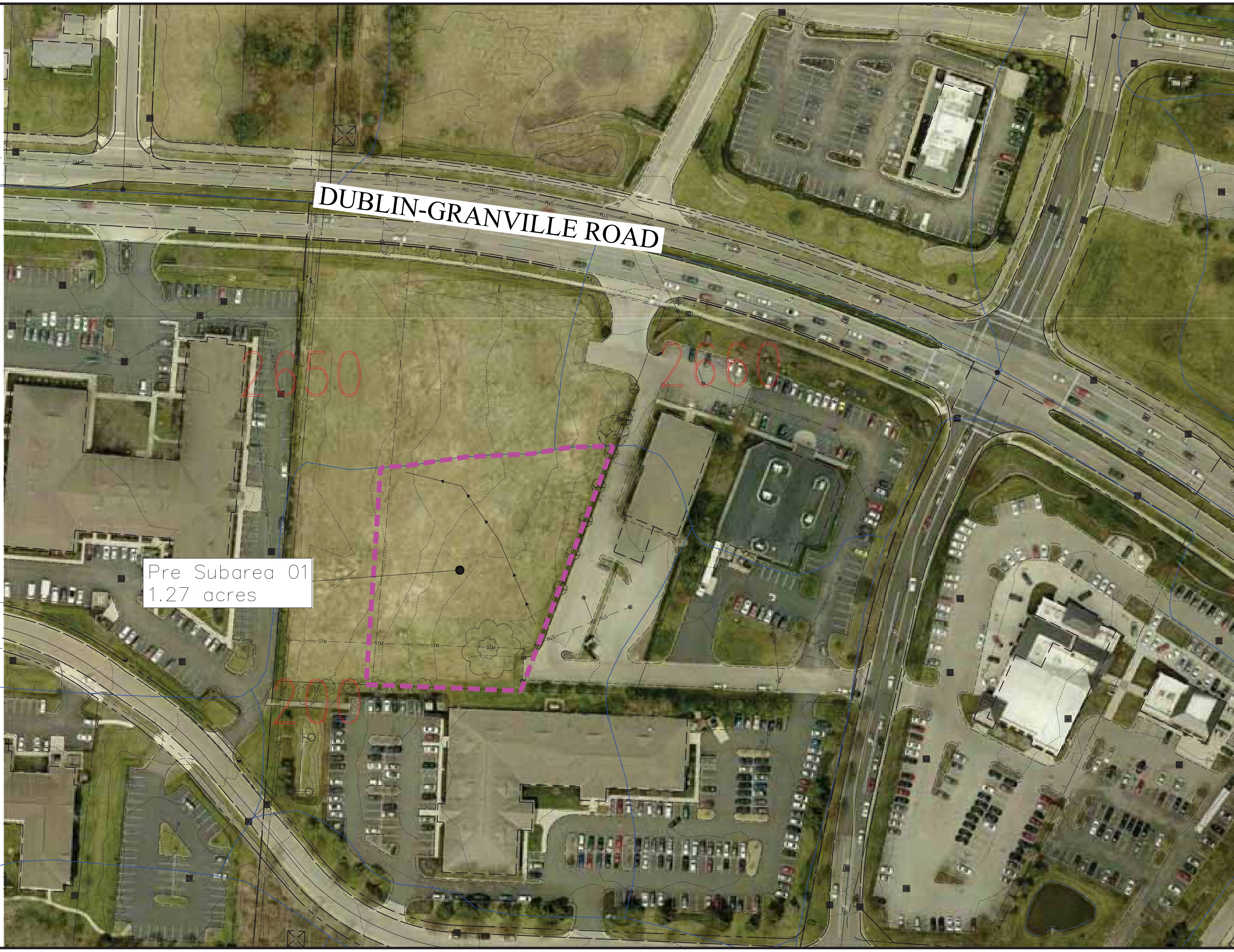
Primary OutFlow Max=0.05 cfs @ 0.00 hrs HW=100.88' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 4.35 fps)

Pond 4P: stormtech WQ 0.075 af



Hydrograph for Pond 4P: stormtech WQ 0.075 af

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**0.076**	**100.88**	**0.05**
2.50	0.00	0.066	100.81	0.05
5.00	0.00	0.055	100.75	0.05
7.50	0.00	0.046	100.62	0.04
10.00	0.00	0.037	100.50	0.04
12.50	0.00	0.030	100.40	0.03
15.00	0.00	0.023	100.31	0.03
17.50	0.00	0.017	100.23	0.02
20.00	0.00	0.013	100.17	0.02
22.50	0.00	0.009	100.13	0.01
25.00	0.00	0.007	100.09	0.01
27.50	0.00	0.005	100.07	0.01
30.00	0.00	0.004	100.05	0.00
32.50	0.00	0.003	100.04	0.00
35.00	0.00	0.002	100.03	0.00
37.50	0.00	0.002	100.03	0.00
40.00	0.00	0.002	100.02	0.00
42.50	0.00	0.001	100.02	0.00
45.00	0.00	0.001	100.01	0.00
47.50	0.00	0.001	100.01	0.00
50.00	0.00	0.001	100.01	0.00
52.50	0.00	0.000	100.01	0.00
55.00	0.00	0.000	100.00	0.00
57.50	0.00	0.000	100.00	0.00
60.00	0.00	0.000	100.00	0.00
62.50	0.00	0.000	100.00	0.00
65.00	0.00	0.000	100.00	0.00
67.50	0.00	0.000	100.00	0.00
70.00	0.00	0.000	100.00	0.00
72.50	0.00	0.000	100.00	0.00
75.00	0.00	0.000	100.00	0.00
77.50	0.00	0.000	100.00	0.00
80.00	0.00	0.000	100.00	0.00
82.50	0.00	0.000	100.00	0.00
85.00	0.00	0.000	100.00	0.00
87.50	0.00	0.000	100.00	0.00
90.00	0.00	0.000	100.00	0.00
92.50	0.00	0.000	100.00	0.00
95.00	0.00	0.000	100.00	0.00
97.50	0.00	0.000	100.00	0.00
100.00	0.00	0.000	100.00	0.00
102.50	0.00	0.000	100.00	0.00
105.00	0.00	0.000	100.00	0.00
107.50	0.00	0.000	100.00	0.00
110.00	0.00	0.000	100.00	0.00
112.50	0.00	0.000	100.00	0.00
115.00	0.00	0.000	100.00	0.00
117.50	0.00	0.000	100.00	0.00
120.00	0.00	0.000	100.00	0.00



GRAPHIC SCALE
0 25 50 100
1 inch = 50 feet

EXISTING CONDITIONS

SUBAREA 01
TRIBUTARY AREA = 1.27 ACRES
RCN=74
TC=12.7 MIN

LEGEND

TC PATH
TRIBUTARY BOUNDARY
2650 / 200 DUBLIN MASTER PLAN WATERSHED BOUNDARIES

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

PLAN SET DATE
August 3, 2107

MARK	DATE	DESCRIPTION

REVISIONS

EMBREE ASSET GROUP, INC.

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
STORMWATER MANAGEMENT PLAN
FOR
EMBREE MICRO-HOSPITAL
PRE-TRIBUTARY MAP

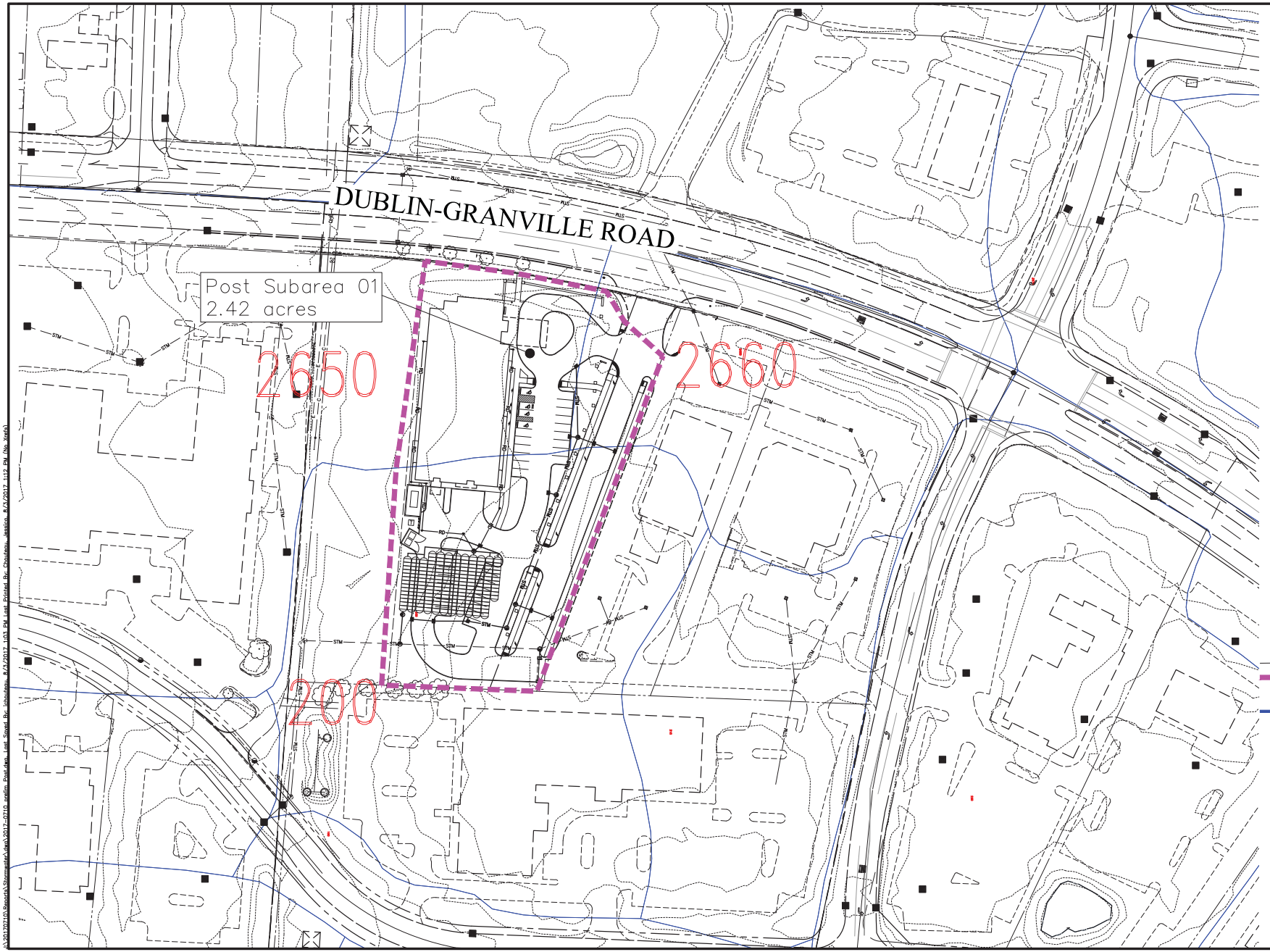
EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

DATE
August 3, 2017

SCALE
1" = 50'

JOB NO.
2017-0710

SHEET
1/2



GRAPHIC SCALE

0 25 50 100

1 inch = 50 feet

PROPOSED CONDITIONS

SUBAREA 01
TRIBUTARY AREA= 2.42 ACRES
RCN=90
TC=5.0 MIN

LEGEND

TC PATH

TRIBUTARY BOUNDARY

2650

DUBLIN MASTER PLAN WATERSHED BOUNDARIES

200

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

PLAN SET DATE
August 3, 2017

REVISIONS

MARK	DATE	DESCRIPTION

EMBREE ASSET GROUP, INC.

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
STORMWATER MANAGEMENT PLAN
FOR
EMBREE MICRO-HOSPITAL
POST-TRIBUTARY MAP

EMH&T

DATE
August 3, 2017

SCALE
1"=50'

JOB NO.
2017-0710

SHEET
2/2