

MERIDIAN

LAND SERVICES, INC.

CIVIL ENGINEERING | LAND SURVEYING | PERMITTING | SOIL & WETLAND MAPPING | SEPTIC DESIGN | ENVIRONMENTAL

Office: 31 Old Nashua Road, Suite 2, Amherst, NH 03031

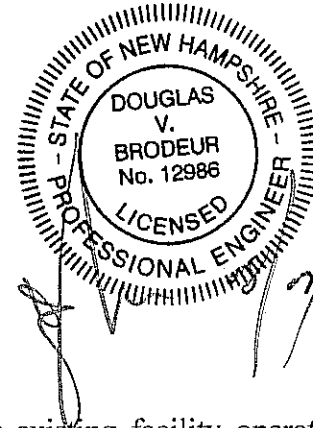
Mailing: PO Box 118, Milford, NH 03055

Phone: 603-673-1441 * Fax 603-673-1584

www.MeridianLandServices.com

Storm Water Management Memorandum
LTD 34 Comm, LLC
(Superior Steel)
Map J Lot 19
46 NH Route 13
Brookline, New Hampshire

August 03, 2022



I) Introduction

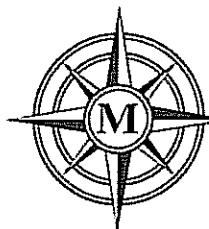
LTD 34 Comm, LLC (Owner) is proposing to expand their existing facility operating as Superior Steel. The project is located on the westerly side of NH Route 13 adjacent to the South Main Street intersection and is identified as Map J Lot 19 on the Brookline Tax Assessors maps (Site). The project proposes to expand the existing storage building in the southwesterly corner of the site, by adding a 36.5' x 49.5' addition along the eastern face of structure.

II) Site Description

The existing site is developed as a steel fabrication operation with three buildings, an office building, a fabrication building, and a storage building, with paved and gravel areas for storage of steel and vehicle a parking. The site is serviced by a private onsite potable water well and sanitary disposal system (septic system). The onsite soils are clean well drained gravelly sands with a seasonal high water table depths between 8 to 5 feet. The soils are indicated as Hinckley Loamy Sand (Hs) on the NRCS Web Soil Survey. Environmental resources consist of Stickney Brook on the northern limits of the site with periphery wetlands as indicated on the site plan.

III) Drainage Design

As the site is located in the Town of Brookline's Aquifer Protection District, the intent of the stormwater management design, is to mitigate all runoff from the proposed impervious surfaces including reduction of volume. The design threshold is above the Brookline Site Plan regulation requirements of a 10-year design storm (\$3.1.02d) and infiltrates the proposed roof area as well as a portion of the existing roof, for a 50-year storm event. As such, there is a net reduction of flow and volume of runoff to Stickney Brook, as indicated in the table below.



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Storm Water Management Report
Savage Farms, LLC – 475 Elm Street

April 8, 2020
Page 2 of 2

Summary of Results (Drywell)

Storm Event (year)	Runoff Reduction (cfs)	Volume Reduction (acre-ft)	Peak Elevation Drywells (ft)	*Free Board (ft)
2	0.12	0.009	254.6	5.6
10	0.18	0.014	255.5	4.7
25	0.22	0.018	256.2	4.0
50	0.26	0.022	256.8	3.4

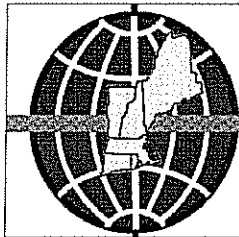
*Overflow elevation is the lowest rim elevation=260.2

IV) Methodology

The quantity of runoff and the conveyance of that flow through the site are determined using the software package HydroCAD 10.0 by HydroCAD Software Solutions LLC. HydroCAD is a computer aided design program for modeling storm water hydrology based on the Soil Conservation Service (SCS) TR-55 method combined with standard hydraulics calculations.

V) Summary

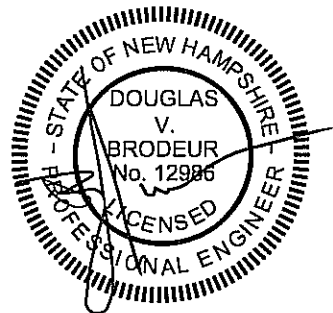
The proposed stormwater system adequately mitigates the increased impervious areas created by the proposed improvements, beyond the Brookline Site Plan Regulation requirements.



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PO BOX 118, MILFORD, NH 03055-0118 TEL. 603-673-1441 FAX 603-673-1584



PAGE: 1
FILE: 00650.07

TITLE: Superior Steel
TOWN: Brookline

TEST PIT NO.: 1

DATE: 07/27/2022

~ DEPTH ~	~ DESCRIPTION ~
0 -12"	5Y 5/2 Olive Gray, Loamy Sand, Gravelly, Granular, Friable
12 -27"	5Y 5/3 Olive, Loamy Sand, Granular, Very Friable
27 -96"	2.5Y 6/2 Light Brownish Gray, Coarse Sand and Gravel, Single Grain Loose

Infiltration Rate Calculation

Perc Rate = 2 min/in = 1 in/2 min x 60 min/hour
= 30 in/hour x 25% (safety factor)
= 7.5 in/hour (design rate)

WATER: 86" S.H.W.: 84" ROOTS: None
LEDGE: >96" HARDPAN: None
PERCOLATION RATE: <2 MIN./IN. AT 80" DEPTH
DATE: 07/27/2022
INSPECTED BY: SCT WITNESSED BY:

TEST PIT NO.: 2

DATE: 07/27/2022

~ DEPTH ~	~ DESCRIPTION ~
0 -18"	5Y 5/2 Olive Gray, Loamy Sand, Gravelly, Granular, Single Grain Loose
18-104'	2.5Y 6/2 Light Brownish Gray, Loamy Sand, Gravelly, Single Grain Loose

WATER: 90" S.H.W.: 82" ROOTS: None
LEDGE: >104" HARDPAN: None
PERCOLATION RATE: <2 MIN./IN. AT 85" DEPTH
DATE: 07/27/2022
INSPECTED BY: SCT WITNESSED BY:

TEST PIT NO.: 3

DATE: 07/27/2022

~ DEPTH ~	~ DESCRIPTION ~
0 -32"	10YR 3/3 Dark Brown, Loamy Fill
32 -50"	10YR 5/4 Yellowish Brown, Loamy Fine Sand, Granular, Very Friable
50 -90"	2.5Y 6/3 Light Yellowish Brown, Medium to Fine Sand, Single Grain Loose

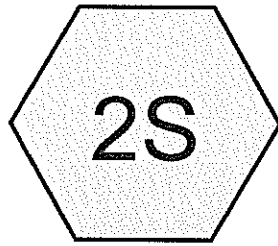
WATER: 84" S.H.W.: 84" ROOTS: None
LEDGE: >90" HARDPAN: None
PERCOLATION RATE: <2 MIN./IN. AT 80" DEPTH
DATE: 07/27/2022
INSPECTED BY: SCT WITNESSED BY:

TEST PIT NO.: 4

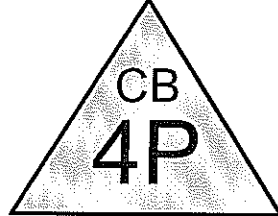
DATE: 07/27/2022

~ DEPTH ~	~ DESCRIPTION ~
0 -24"	5Y 5/2 Olive Gray, Gravelly Loam, Fill
24- 72'	2.5Y 6/2 Light Olive Gray, Loamy Fine Sand (Fill), Granular Single Grain Loose
72 -90'	2.5Y 6/3 Light Yellowish Brown, Coarse Sand, Single Grain Loose
90-104'	2.5Y 5/2 Light Brownish Gray, Fine Sand, Single Grain Loose

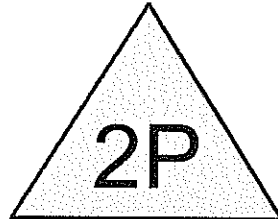
WATER: None S.H.W.: 96" ROOTS: None
LEDGE: >104" HARDPAN: None
PERCOLATION RATE: <2 MIN./IN. AT 90" DEPTH
DATE: 07/27/2022
INSPECTED BY: SCT WITNESSED BY:



Roof



8" CULVERT



Drywell



00650.07 DRAIN ANALYSIS

Type III 24-hr 2 Year Storm Rainfall=2.97"

Prepared by Meridian Land Services, Inc.

Printed 8/3/2022

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Page 2

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

Subcatchment 2S: Roof

Runoff Area=1,809 sf 100.00% Impervious Runoff Depth=2.74"

Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

Pond 2P: Drywell

Peak Elev=254.63' Storage=57 cf Inflow=0.12 cfs 0.009 af

Outflow=0.04 cfs 0.009 af

Pond 4P: 8" CULVERT

Peak Elev=256.89' Inflow=0.12 cfs 0.009 af

8.0" Round Culvert n=0.010 L=16.0' S=0.0200 ' Outflow=0.12 cfs 0.009 af

Total Runoff Area = 0.042 ac Runoff Volume = 0.009 af Average Runoff Depth = 2.74"

0.00% Pervious = 0.000 ac 100.00% Impervious = 0.042 ac

00650.07 DRAIN ANALYSIS

Prepared by Meridian Land Services, Inc.

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Type III 24-hr 2 Year Storm Rainfall=2.97"

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Page 3

Summary for Subcatchment 2S: Roof

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 2.74"
Routed to Pond 4P : 8" CULVERT

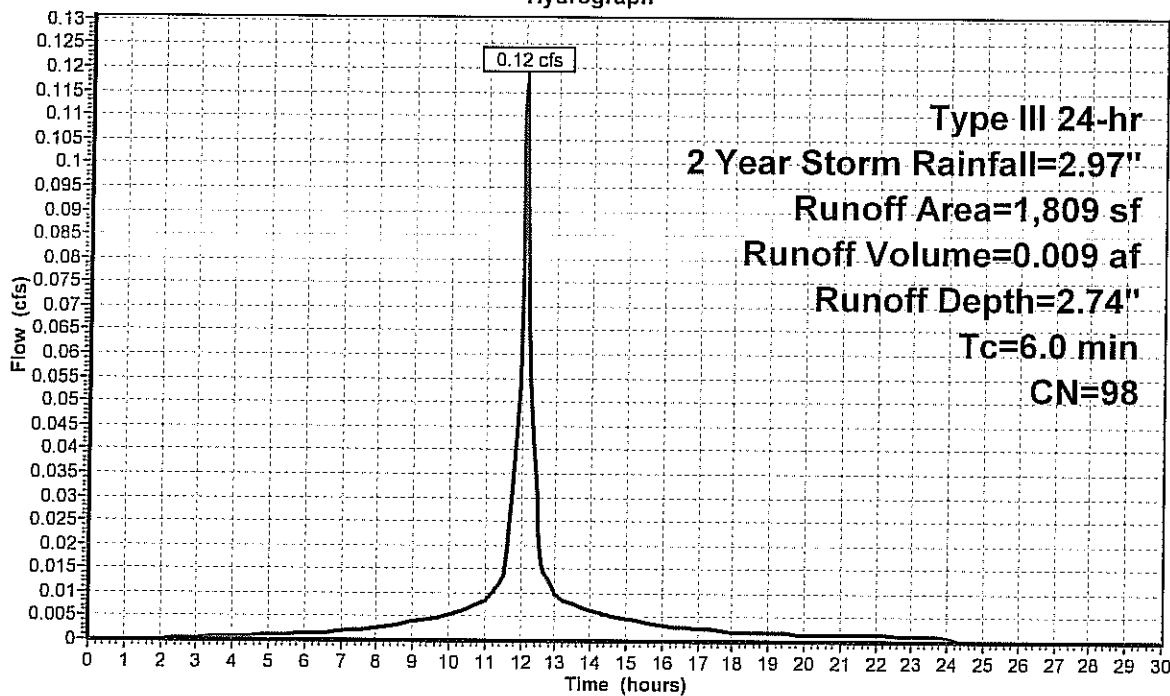
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.97"

Area (sf)	CN	Description
* 1,809	98	Roofs, Proposed
1,809		100.00% Impervious Area

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

Subcatchment 2S: Roof

Hydrograph



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Type III 24-hr 2 Year Storm Rainfall=2.97"

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Page 4

Summary for Pond 2P: Drywell

Drywell No. 1
 ESHWT=253.0
 Rim=260.2
 Top of Structure=259.5
 Top of Stone=258.8
 Bottom Stone=255.1
 Inv In=256.4

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 2.74" for 2 Year Storm event
 Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af
 Outflow = 0.04 cfs @ 12.00 hrs, Volume= 0.009 af, Atten= 67%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 12.00 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 254.63' @ 12.37 hrs Surf.Area= 224 sf Storage= 57 cf
 Flood Elev= 260.20' Surf.Area= 240 sf Storage= 459 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 6.2 min (764.2 - 758.0)

Volume	Invert	Avail.Storage	Storage Description
#1	255.50'	41 cf	4.00'D x 3.30'H Drywell 1 Inside #2
			61 cf Overall - 5.0" Wall Thickness = 41 cf
#2	254.00'	406 cf	Stone Bed (Prismatic) Listed below (Recalc)
			1,075 cf Overall - 61 cf Embedded = 1,015 cf x 40.0% Voids
#3	259.50'	164 cf	Custom Stage Data (Prismatic) Listed below
		611 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.00	224	0	0
258.80	224	1,075	1,075

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.50	16	0	0
260.20	16	11	11
260.50	1,000	152	164

Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	7.500 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 12.00 hrs HW=254.09' (Free Discharge)
 ↑ 1=Exfiltration (Exfiltration Controls 0.04 cfs)

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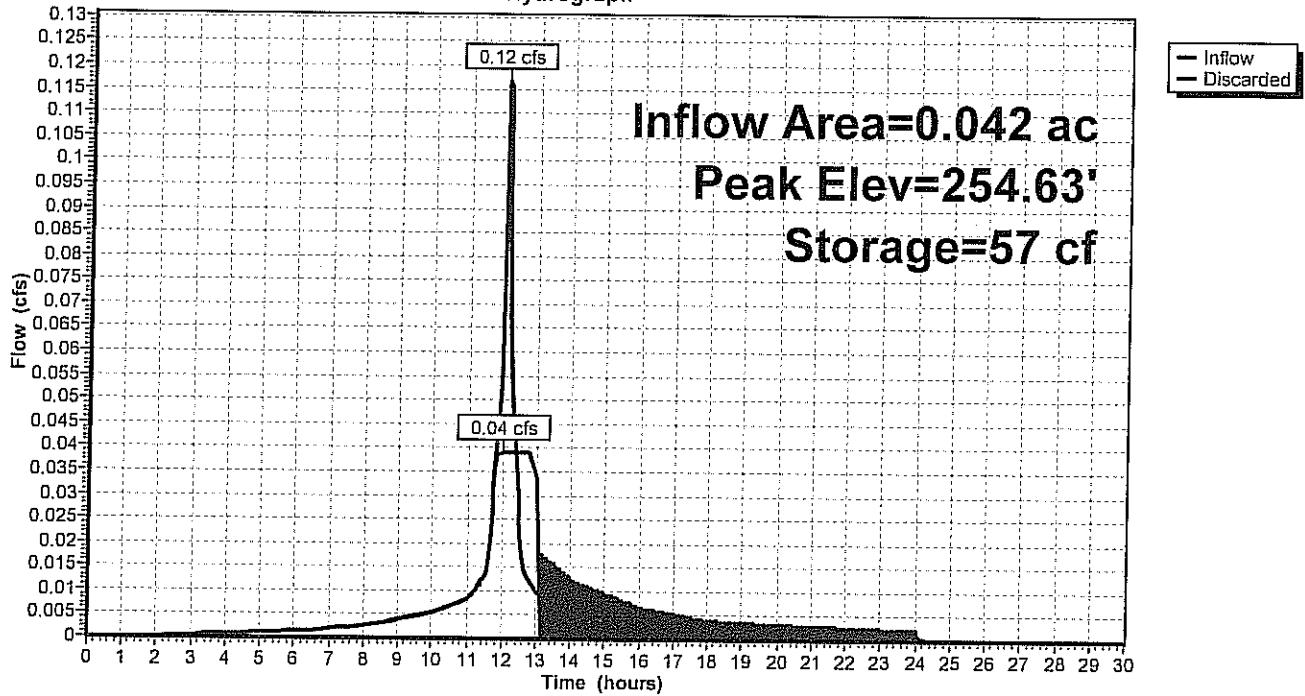
Type III 24-hr 2 Year Storm Rainfall=2.97"

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Pond 2P: Drywell

Hydrograph



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Type III 24-hr 2 Year Storm Rainfall=2.97"

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Summary for Pond 4P: 8" CULVERT

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 2.74" for 2 Year Storm event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af
Routed to Pond 2P : Drywell

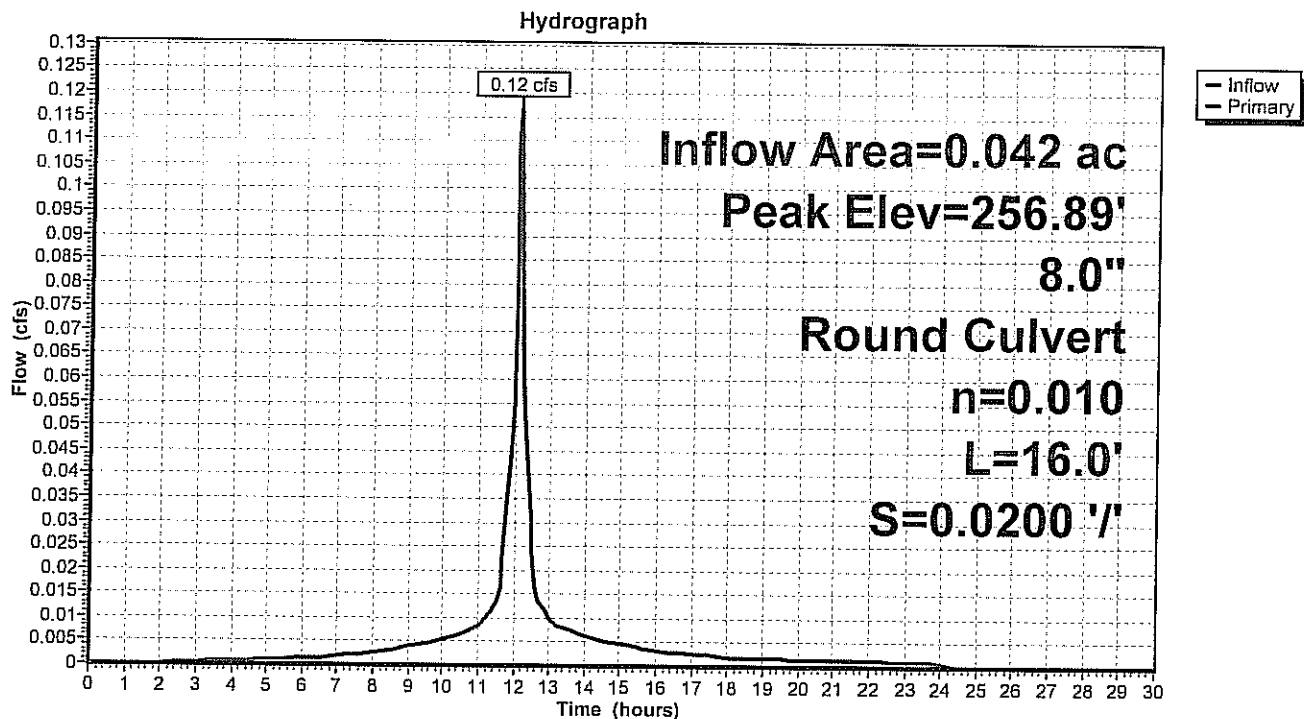
Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 256.89' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	256.70'	8.0" Round Culvert L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 256.70' / 256.38' S= 0.0200 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.11 cfs @ 12.09 hrs HW=256.88' TW=254.31' (Dynamic Tailwater)
↑1=Culvert (Inlet Controls 0.11 cfs @ 1.46 fps)

Pond 4P: 8" CULVERT



00650.07 DRAIN ANALYSIS

Type III 24-hr 10 Year Storm Rainfall=4.42"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

Subcatchment 2S: Roof

Runoff Area=1,809 sf 100.00% Impervious Runoff Depth=4.18"

Tc=6.0 min CN=98 Runoff=0.18 cfs 0.014 af

Pond 2P: Drywell

Peak Elev=255.47' Storage=132 cf Inflow=0.18 cfs 0.014 af

Outflow=0.04 cfs 0.014 af

Pond 4P: 8" CULVERT

Peak Elev=256.93' Inflow=0.18 cfs 0.014 af

8.0" Round Culvert n=0.010 L=16.0' S=0.0200 ' Outflow=0.18 cfs 0.014 af

Total Runoff Area = 0.042 ac Runoff Volume = 0.014 af Average Runoff Depth = 4.18"

0.00% Pervious = 0.000 ac 100.00% Impervious = 0.042 ac

00650.07 DRAIN ANALYSIS

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Type III 24-hr 10 Year Storm Rainfall=4.42"

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Summary for Subcatchment 2S: Roof

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 4.18"
Routed to Pond 4P : 8" CULVERT

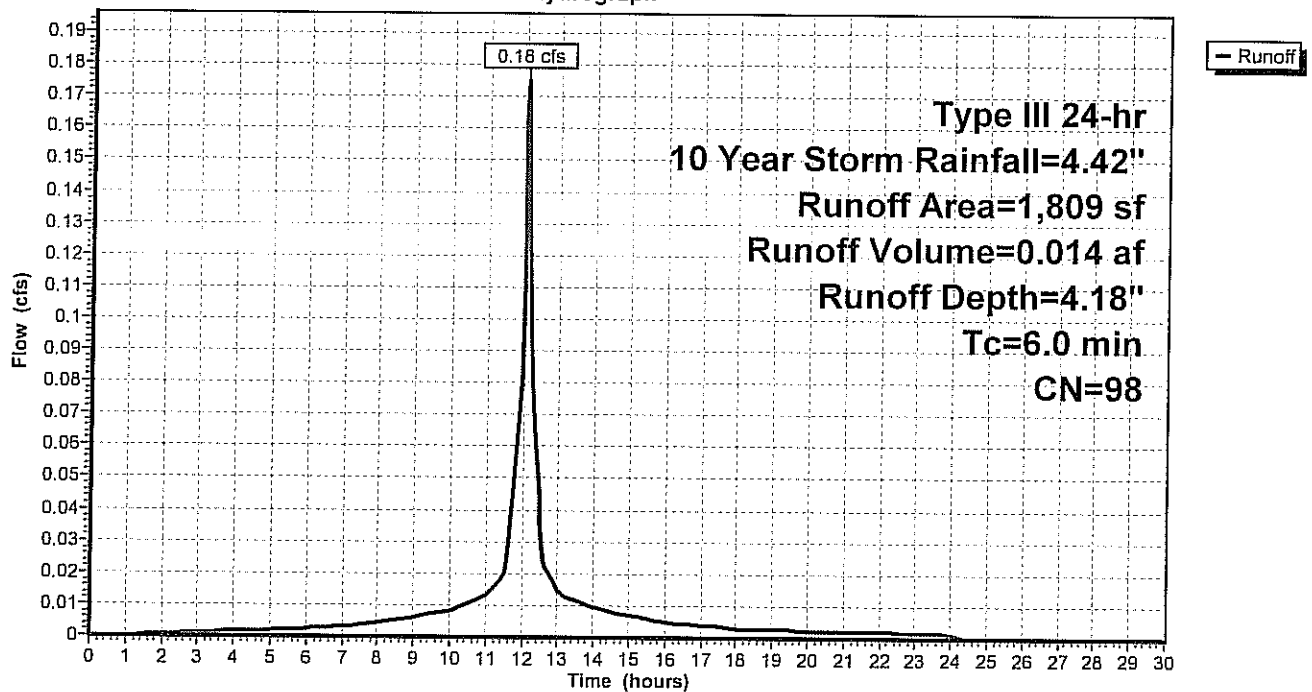
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.42"

Area (sf)	CN	Description
* 1,809	98	Roofs, Proposed
1,809		100.00% Impervious Area

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

Subcatchment 2S: Roof

Hydrograph



00650.07 DRAIN ANALYSIS

Type III 24-hr 10 Year Storm Rainfall=4.42"

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Summary for Pond 2P: Drywell

Drywell No. 1
 ESHWT=253.0
 Rim=260.2
 Top of Structure=259.5
 Top of Stone=258.8
 Bottom Stone=255.1
 Inv In=256.4

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 4.18" for 10 Year Storm event
 Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af
 Outflow = 0.04 cfs @ 11.85 hrs, Volume= 0.014 af, Atten= 78%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 11.85 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 255.47' @ 12.49 hrs Surf.Area= 224 sf Storage= 132 cf
 Flood Elev= 260.20' Surf.Area= 240 sf Storage= 459 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 16.1 min (766.2 - 750.1)

Volume	Invert	Avail.Storage	Storage Description
#1	255.50'	41 cf	4.00'D x 3.30'H Drywell 1 Inside #2 61 cf Overall - 5.0" Wall Thickness = 41 cf
#2	254.00'	406 cf	Stone Bed (Prismatic) Listed below (Recalc) 1,075 cf Overall - 61 cf Embedded = 1,015 cf x 40.0% Voids
#3	259.50'	164 cf	Custom Stage Data (Prismatic) Listed below
		611 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.00	224	0	0
258.80	224	1,075	1,075

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.50	16	0	0
260.20	16	11	11
260.50	1,000	152	164

Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	7.500 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.85 hrs HW=254.08' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

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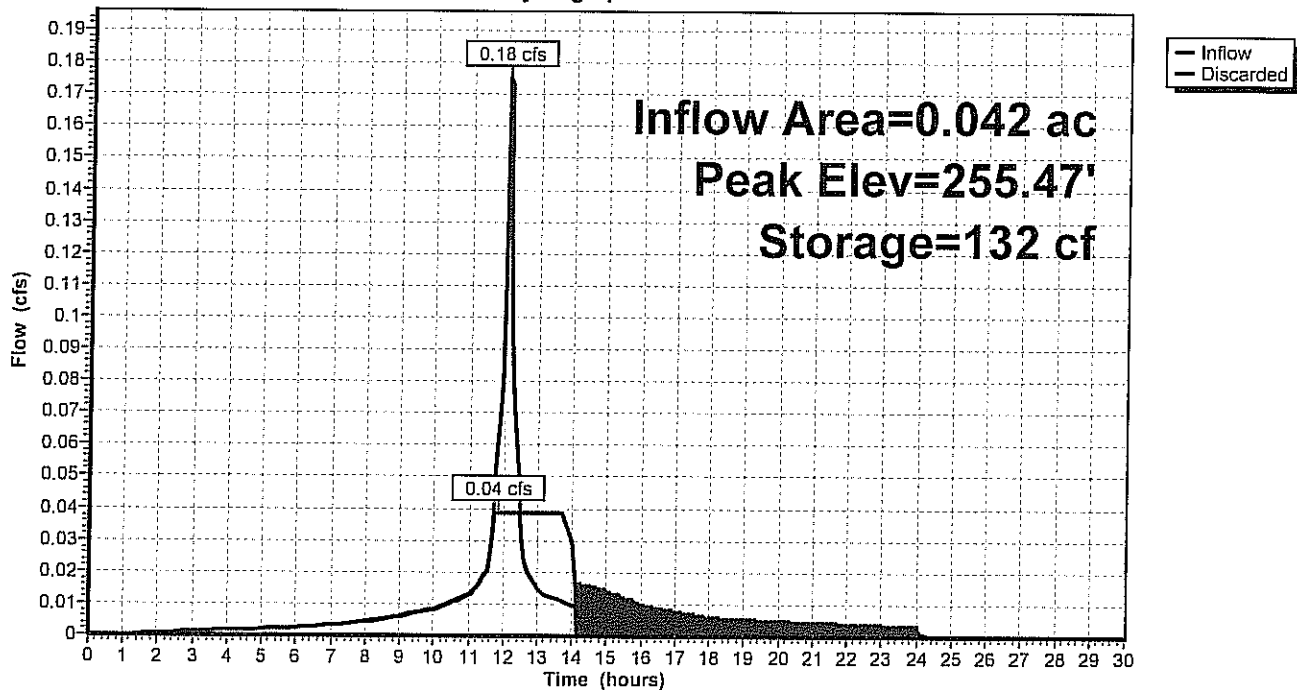
Type III 24-hr 10 Year Storm Rainfall=4.42"

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Pond 2P: Drywell

Hydrograph



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Type III 24-hr 10 Year Storm Rainfall=4.42"

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Summary for Pond 4P: 8" CULVERT

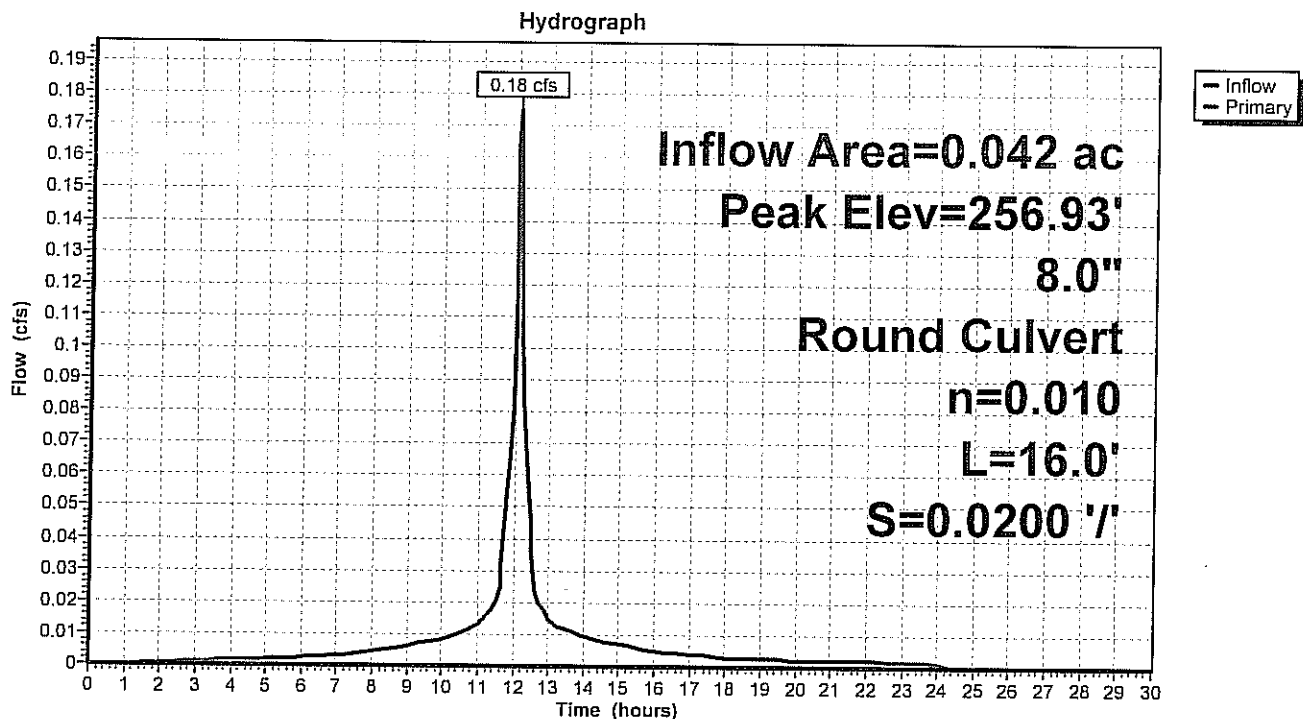
Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 4.18" for 10 Year Storm event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af
Routed to Pond 2P : Drywell

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 256.93' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	256.70'	8.0" Round Culvert L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 256.70' / 256.38' S= 0.0200 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.17 cfs @ 12.09 hrs HW=256.93' TW=254.71' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.17 cfs @ 1.62 fps)

Pond 4P: 8" CULVERT



00650.07 DRAIN ANALYSIS

Type III 24-hr 25 Year Storm Rainfall=5.54"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

Subcatchment 2S: Roof

Runoff Area=1,809 sf 100.00% Impervious Runoff Depth=5.30"

Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Pond 2P: Drywell

Peak Elev=256.15' Storage=196 cf Inflow=0.22 cfs 0.018 af

Outflow=0.04 cfs 0.018 af

Pond 4P: 8" CULVERT

Peak Elev=256.96' Inflow=0.22 cfs 0.018 af

8.0" Round Culvert n=0.010 L=16.0' S=0.0200 ' Outflow=0.22 cfs 0.018 af

Total Runoff Area = 0.042 ac Runoff Volume = 0.018 af Average Runoff Depth = 5.30"

0.00% Pervious = 0.000 ac 100.00% Impervious = 0.042 ac

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Type III 24-hr 25 Year Storm Rainfall=5.54"

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Summary for Subcatchment 2S: Roof

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 5.30"
Routed to Pond 4P : 8" CULVERT

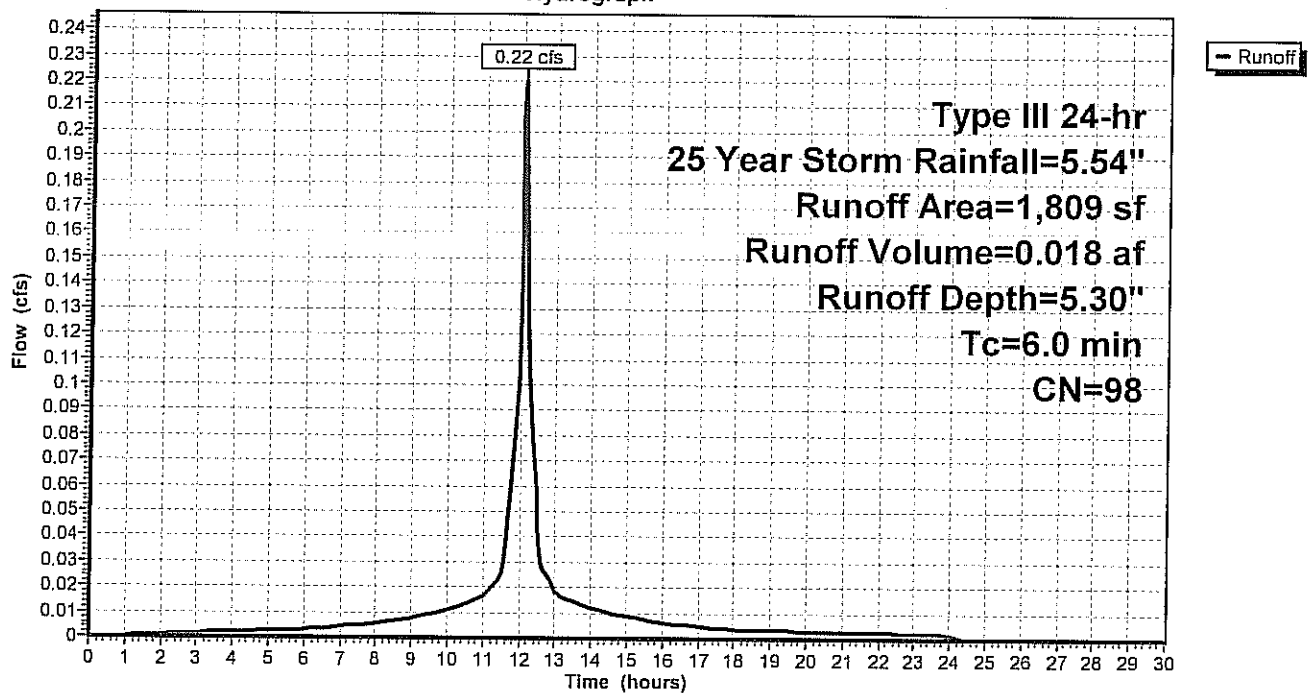
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.54"

Area (sf)	CN	Description
* 1,809	98	Roofs, Proposed
1,809		100.00% Impervious Area

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

Subcatchment 2S: Roof

Hydrograph



00650.07 DRAIN ANALYSIS

Type III 24-hr 25 Year Storm Rainfall=5.54"

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Summary for Pond 2P: Drywell

Drywell No. 1
 ESHWT=253.0
 Rim=260.2
 Top of Structure=259.5
 Top of Stone=258.8
 Bottom Stone=255.1
 Inv In=256.4

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 5.30" for 25 Year Storm event
 Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af
 Outflow = 0.04 cfs @ 11.80 hrs, Volume= 0.018 af, Atten= 82%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 11.80 hrs, Volume= 0.018 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 256.15' @ 12.54 hrs Surf.Area= 224 sf Storage= 196 cf
 Flood Elev= 260.20' Surf.Area= 240 sf Storage= 459 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 26.1 min (772.5 - 746.4)

Volume	Invert	Avail.Storage	Storage Description
#1	255.50'	41 cf	4.00'D x 3.30'H Drywell 1 Inside #2
			61 cf Overall - 5.0" Wall Thickness = 41 cf
#2	254.00'	406 cf	Stone Bed (Prismatic) Listed below (Recalc)
			1,075 cf Overall - 61 cf Embedded = 1,015 cf x 40.0% Voids
#3	259.50'	164 cf	Custom Stage Data (Prismatic) Listed below
		611 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.00	224	0	0
258.80	224	1,075	1,075

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.50	16	0	0
260.20	16	11	11
260.50	1,000	152	164

Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	7.500 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.80 hrs HW=254.09' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

00650.07 DRAIN ANALYSIS

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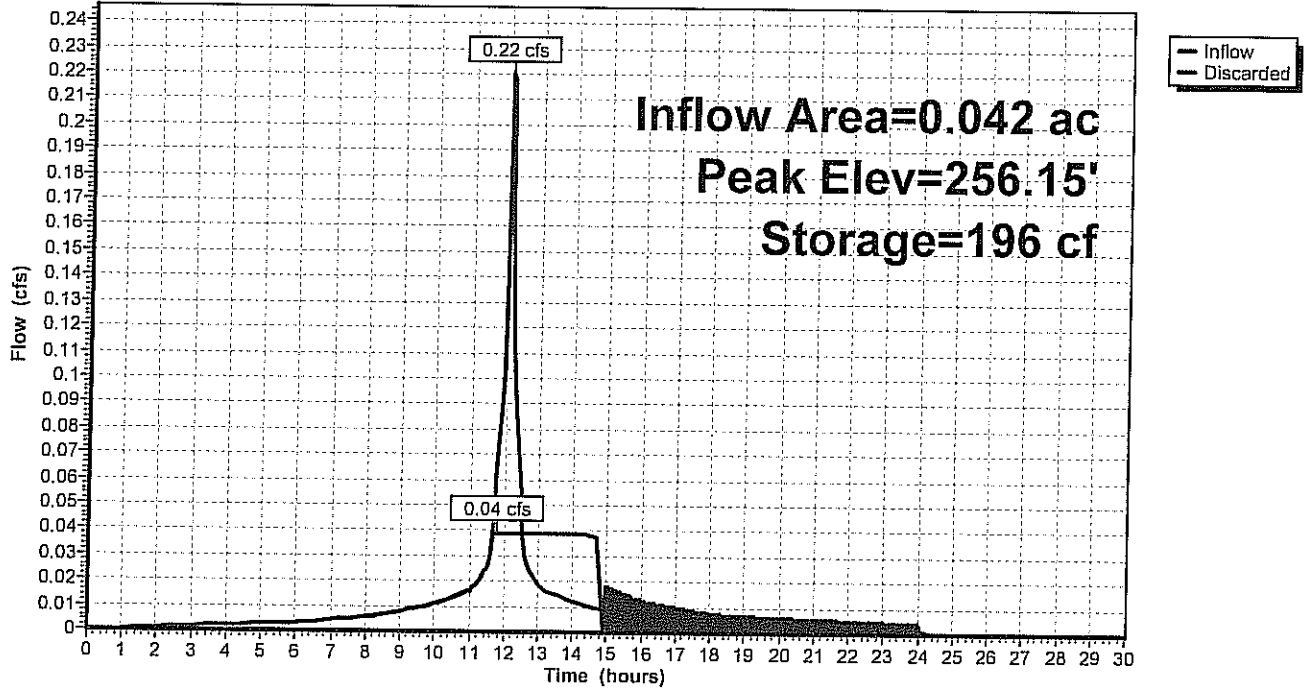
Type III 24-hr 25 Year Storm Rainfall=5.54"

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Pond 2P: Drywell

Hydrograph



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Type III 24-hr 25 Year Storm Rainfall=5.54"

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Summary for Pond 4P: 8" CULVERT

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 5.30" for 25 Year Storm event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond 2P : Drywell

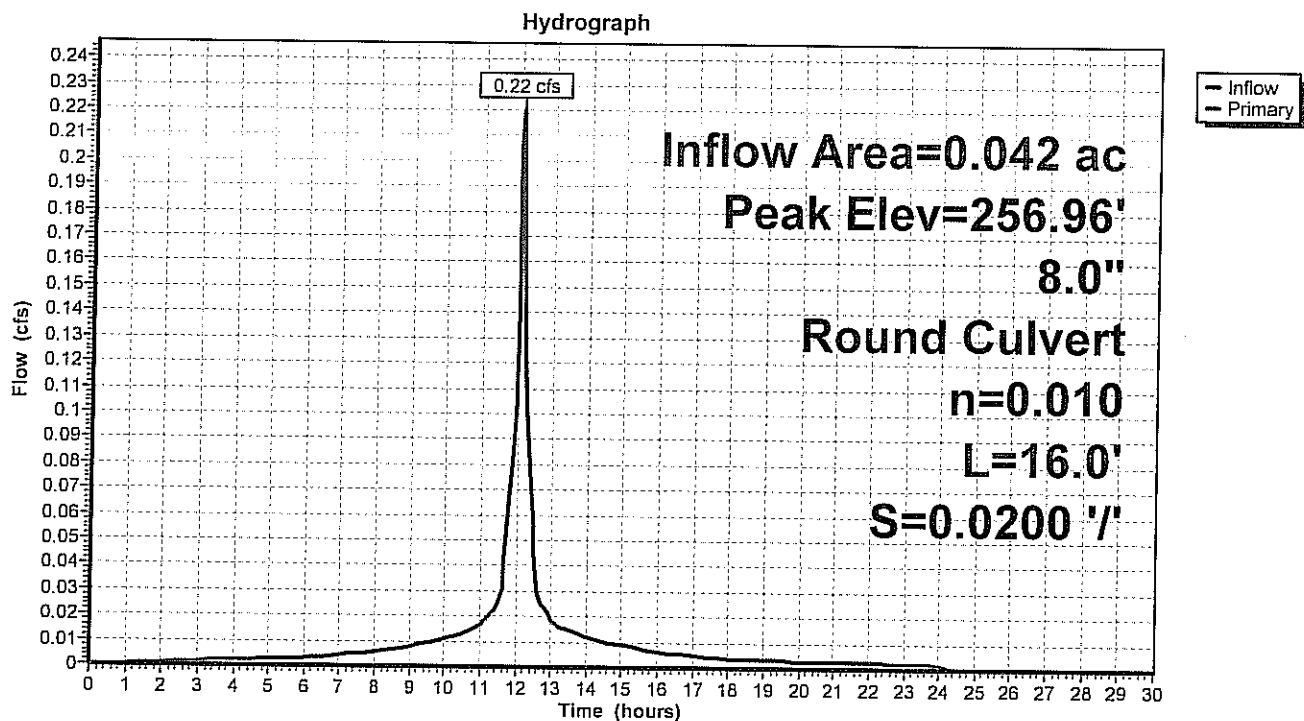
Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 256.96' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	256.70'	8.0" Round Culvert L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 256.70' / 256.38' S= 0.0200 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=256.96' TW=255.07' (Dynamic Tailwater)
←1=Culvert (Inlet Controls 0.21 cfs @ 1.73 fps)

Pond 4P: 8" CULVERT



00650.07 DRAIN ANALYSIS

Type III 24-hr 50 Year Storm Rainfall=6.59"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

Subcatchment 2S: Roof

Runoff Area=1,809 sf 100.00% Impervious Runoff Depth=6.35"

Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Pond 2P: Drywell

Peak Elev=256.81' Storage=259 cf Inflow=0.26 cfs 0.022 af

Outflow=0.04 cfs 0.022 af

Pond 4P: 8" CULVERT

Peak Elev=256.99' Inflow=0.26 cfs 0.022 af

8.0" Round Culvert n=0.010 L=16.0' S=0.0200 '/ Outflow=0.26 cfs 0.022 af

Total Runoff Area = 0.042 ac Runoff Volume = 0.022 af Average Runoff Depth = 6.35"

0.00% Pervious = 0.000 ac 100.00% Impervious = 0.042 ac

00650.07 DRAIN ANALYSIS

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Type III 24-hr 50 Year Storm Rainfall=6.59"

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Summary for Subcatchment 2S: Roof

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 6.35"
Routed to Pond 4P : 8" CULVERT

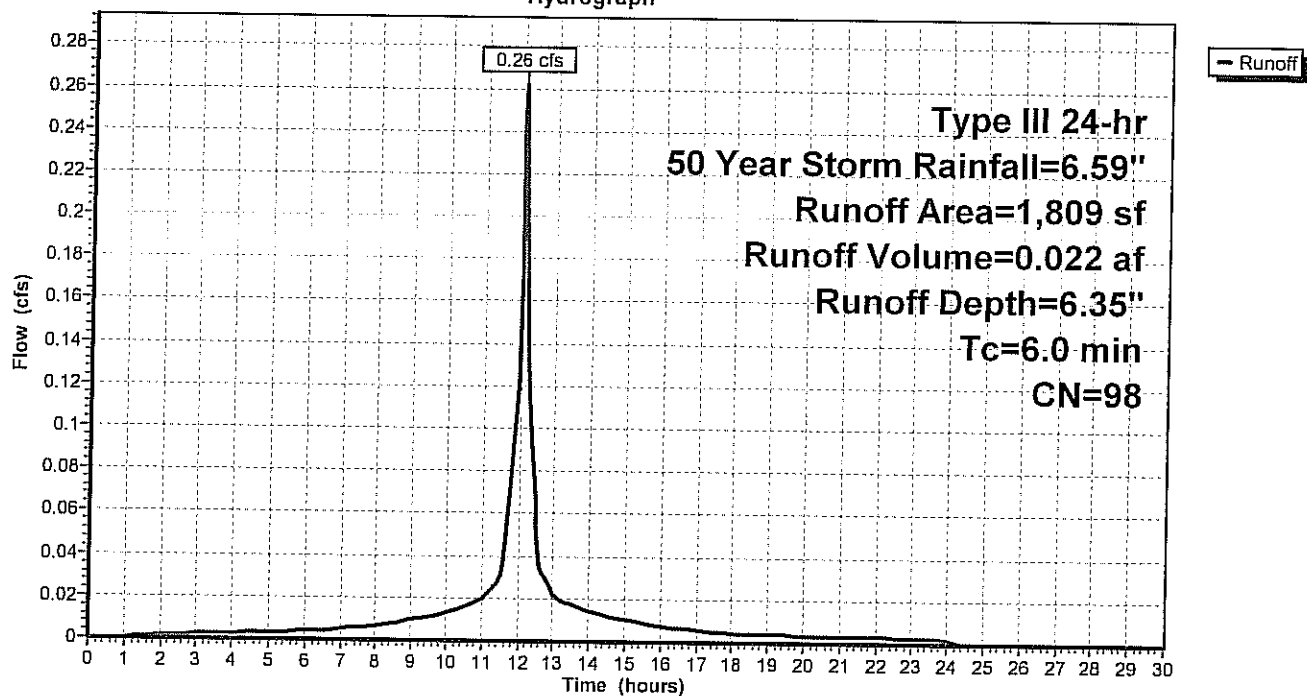
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Year Storm Rainfall=6.59"

Area (sf)	CN	Description
* 1,809	98	Roofs, Proposed
1,809		100.00% Impervious Area

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

Subcatchment 2S: Roof

Hydrograph



00650.07 DRAIN ANALYSIS

Type III 24-hr 50 Year Storm Rainfall=6.59"

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Summary for Pond 2P: Drywell

Drywell No. 1
 ESHWT=253.0
 Rim=260.2
 Top of Structure=259.5
 Top of Stone=258.8
 Bottom Stone=255.1
 Inv In=256.4

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 6.35" for 50 Year Storm event
 Inflow = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af
 Outflow = 0.04 cfs @ 11.75 hrs, Volume= 0.022 af, Atten= 85%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 11.75 hrs, Volume= 0.022 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 256.81' @ 12.58 hrs Surf.Area= 224 sf Storage= 259 cf
 Flood Elev= 260.20' Surf.Area= 240 sf Storage= 459 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 36.8 min (780.6 - 743.8)

Volume	Invert	Avail.Storage	Storage Description
#1	255.50'	41 cf	4.00'D x 3.30'H Drywell 1 Inside #2 61 cf Overall - 5.0" Wall Thickness = 41 cf
#2	254.00'	406 cf	Stone Bed (Prismatic) Listed below (Recalc) 1,075 cf Overall - 61 cf Embedded = 1,015 cf x 40.0% Voids
#3	259.50'	164 cf	Custom Stage Data (Prismatic) Listed below
		611 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.00	224	0	0
258.80	224	1,075	1,075

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.50	16	0	0
260.20	16	11	11
260.50	1,000	152	164

Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	7.500 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.75 hrs HW=254.09' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

00650.07 DRAIN ANALYSIS

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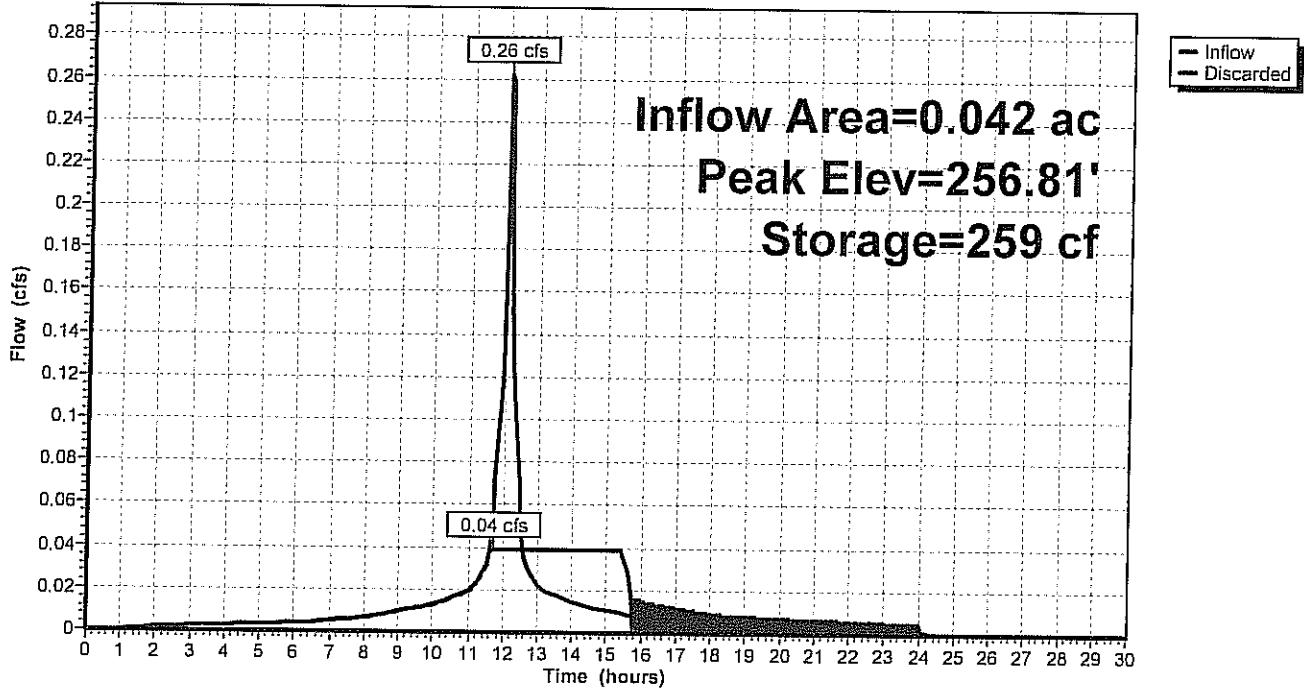
Type III 24-hr 50 Year Storm Rainfall=6.59"

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Pond 2P: Drywell

Hydrograph



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Type III 24-hr 50 Year Storm Rainfall=6.59"

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Summary for Pond 4P: 8" CULVERT

Inflow Area = 0.042 ac, 100.00% Impervious, Inflow Depth = 6.35" for 50 Year Storm event
Inflow = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af
Routed to Pond 2P : Drywell

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 256.99' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	256.70'	8.0" Round Culvert L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 256.70' / 256.38' S= 0.0200 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.25 cfs @ 12.09 hrs HW=256.98' TW=255.41' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.25 cfs @ 1.81 fps)

Pond 4P: 8" CULVERT

Hydrograph

