

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	-----	0.003	0.011	-----	-----	0.336	-----	-----	2.438	Ex DA 1
2	SCS Runoff	-----	0.421	0.706	-----	-----	1.729	-----	-----	3.583	Ex DA 2
3	SCS Runoff	-----	1.967	2.946	-----	-----	6.323	-----	-----	12.09	Pr DA 1
4	SCS Runoff	-----	0.383	0.600	-----	-----	1.364	-----	-----	2.727	Pr DA 2
5	Reservoir	3	0.033	0.091	-----	-----	0.650	-----	-----	1.237	Outflow Infiltration
6	Combine	1, 2,	0.421	0.706	-----	-----	2.064	-----	-----	6.022	Total Existing
7	Combine	4, 5,	0.383	0.600	-----	-----	1.923	-----	-----	3.901	Total Proposed

Hydrograph Summary Report

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Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.003	2	1440	73	-----	-----	-----	Ex DA 1
2	SCS Runoff	0.421	2	724	1,537	-----	-----	-----	Ex DA 2
3	SCS Runoff	1.967	2	718	4,172	-----	-----	-----	Pr DA 1
4	SCS Runoff	0.383	2	724	1,282	-----	-----	-----	Pr DA 2
5	Reservoir	0.033	2	1368	804	3	1222.12	3,622	Outflow Infiltration
6	Combine	0.421	2	724	1,610	1, 2,	-----	-----	Total Existing
7	Combine	0.383	2	724	2,086	4, 5,	-----	-----	Total Proposed
Oneonta.gpw					Return Period: 1 Year			Friday, 07 / 24 / 2015	

Hydrograph Summary Report

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Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.011	2	920	370	-----	-----	-----	Ex DA 1
2	SCS Runoff	0.706	2	724	2,290	-----	-----	-----	Ex DA 2
3	SCS Runoff	2.946	2	718	6,024	-----	-----	-----	Pr DA 1
4	SCS Runoff	0.600	2	724	1,861	-----	-----	-----	Pr DA 2
5	Reservoir	0.091	2	932	2,656	3	1222.21	3,828	Outflow Infiltration
6	Combine	0.706	2	724	2,661	1, 2,	-----	-----	Total Existing
7	Combine	0.600	2	724	4,517	4, 5,	-----	-----	Total Proposed
Oneonta.gpw					Return Period: 2 Year			Friday, 07 / 24 / 2015	

Hydrograph Summary Report

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Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	0.336	2	726	2,419	-----	-----	-----	Ex DA 1	
2	SCS Runoff	1.729	2	724	5,056	-----	-----	-----	Ex DA 2	
3	SCS Runoff	6.323	2	718	12,643	-----	-----	-----	Pr DA 1	
4	SCS Runoff	1.364	2	724	3,943	-----	-----	-----	Pr DA 2	
5	Reservoir	0.650	2	746	9,275	3	1222.95	5,489	Outflow Infiltration	
6	Combine	2.064	2	724	7,475	1, 2,	-----	-----	Total Existing	
7	Combine	1.923	2	724	13,218	4, 5,	-----	-----	Total Proposed	
Oneonta.gpw					Return Period: 10 Year			Friday, 07 / 24 / 2015		

Hydrograph Summary Report

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Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	2.438	2	722	7,968	-----	-----	-----	Ex DA 1	
2	SCS Runoff	3.583	2	722	10,109	-----	-----	-----	Ex DA 2	
3	SCS Runoff	12.09	2	716	24,415	-----	-----	-----	Pr DA 1	
4	SCS Runoff	2.727	2	722	7,663	-----	-----	-----	Pr DA 2	
5	Reservoir	1.237	2	744	21,047	3	1224.48	11,425	Outflow Infiltration	
6	Combine	6.022	2	722	18,077	1, 2,	-----	-----	Total Existing	
7	Combine	3.901	2	722	28,711	4, 5,	-----	-----	Total Proposed	
Oneonta.gpw					Return Period: 100 Year			Friday, 07 / 24 / 2015		

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No. 1

Ex DA 1

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.20	0.00	0.00	
Land slope (%)	= 5.00	0.00	0.00	
Travel Time (min)	= 11.92	+ 0.00	+ 0.00	= 11.92
Shallow Concentrated Flow				
Flow length (ft)	= 32.00	0.00	0.00	
Watercourse slope (%)	= 33.30	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=9.31	0.00	0.00	
Travel Time (min)	= 0.06	+ 0.00	+ 0.00	= 0.06
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	(0)0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				12.00 min

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No. 2

Ex DA 2

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.20	0.00	0.00	
Land slope (%)	= 6.67	0.00	0.00	
Travel Time (min)	= 16.00	+ 0.00	+ 0.00	= 16.00
Shallow Concentrated Flow				
Flow length (ft)	= 100.00	0.00	0.00	
Watercourse slope (%)	= 6.67	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.17	0.00	0.00	
Travel Time (min)	= 0.40	+ 0.00	+ 0.00	= 0.40
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	(0)0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				16.40 min

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No. 4

Pr DA 2

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.20	2.80	0.00	
Land slope (%)	= 6.70	0.00	0.00	
Travel Time (min)	= 15.97	+ 0.00	+ 0.00	= 15.97
Shallow Concentrated Flow				
Flow length (ft)	= 100.00	0.00	0.00	
Watercourse slope (%)	= 6.67	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.17	0.00	0.00	
Travel Time (min)	= 0.40	+ 0.00	+ 0.00	= 0.40
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	{0}0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				16.40 min

Pond No. 1 - Infiltration Basin

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 1220.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1220.00	1,678	0	0
1.00	1221.00	1,679	1,678	1,678
2.00	1222.00	1,680	1,680	3,358
3.00	1223.00	2,830	2,255	5,613
4.00	1224.00	4,194	3,512	9,125
5.00	1225.00	5,300	4,747	13,872
6.00	1226.00	6,432	5,866	19,738
7.00	1227.00	7,627	7,030	26,767

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	6.00	0.00	0.00
Span (in)	= 12.00	6.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1222.00	1222.00	0.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	20.00	0.00	0.00
Crest El. (ft)	= 1225.00	1225.50	0.00	0.00
Weir Coeff.	= 3.33	2.70	3.33	3.33
Weir Type	= 1	Ciplti	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

