Silver Creek

Drainage Study

Bristol, RI

Prepared for:

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Silver Creek Drainage Study

Table of Contents

Description	Page
Introduction and Project Scope……	1
Data Collection and Field Observations……...	3
Watershed Analysis……..	5
Problem Areas……...	14
Proposed Improvements……	21
Recommendations…….	23
Cost Estimates……	24

Appendix

Appendix A	Watershed Analysis
Appendix B	Silver Creek Analysis
Appendix C	Problem Area Analysis
Appendix D	Estimates
Appendix E	Map of Study Area

Introduction and Project Scope

The Town of Bristol retained the services of BETA Group, Inc. to complete a drainage study of the Silver Creek watershed. The 2-square mile watershed extends from Tupelo Street near the Town's northerly border discharging into Bristol Harbor under Route 114 and the East Bay Bicycle Path. The study is one of several projects currently underway to identify existing drainage facilities within the Town and to improve the storm water infrastructure. The primary objective of the study was to determine the causes of flooding within the watershed, and to identify remedial projects which the Town may advance as money becomes available either through grants or bonds.

The Silver Creek watershed contains at least 66 subwatershed areas in 1,250 acres, and contains approximately 170 acres of regulated freshwater and saltwater wetlands. Runoff from approximately 60% of the watershed enters the creek and associated wetlands via closed drainage systems (i.e. pipes and drainage structures), while the runoff from the remaining 40% flows overland to the wetlands and stream channels. Silver Creek begins as two (2) separate channels, identified as the East Branch and the West Branch, which merge into one creek south of Chestnut Street in the large marshy area north of the Guitaris School. The boundaries of the watershed were determined through the use of GIS, dry-weather opening of the drainage structures, and field observations of the wet-condition overland flows. The watershed is identified in Figure No. 1. The Silver Creek watershed falls under the jurisdiction of both the Coastal Resources Management Council (CRMC) and the Rhode Island Department of Environmental Management Freshwater Wetlands Section (RIDEM). The RIDEM regulates the wetlands within the watershed north of Chestnut Street and east of Sherry Avenue. Figure No. 2 illustrates the boundaries of the two (2) regulatory agencies.

There are numerous man-made ponds or detention basins which were built to contain or mitigate storm water flows to the receiving wetlands. Some of these have been modified by property owners over the years to improve local conditions, or not properly maintained, resulting in flooding downstream.

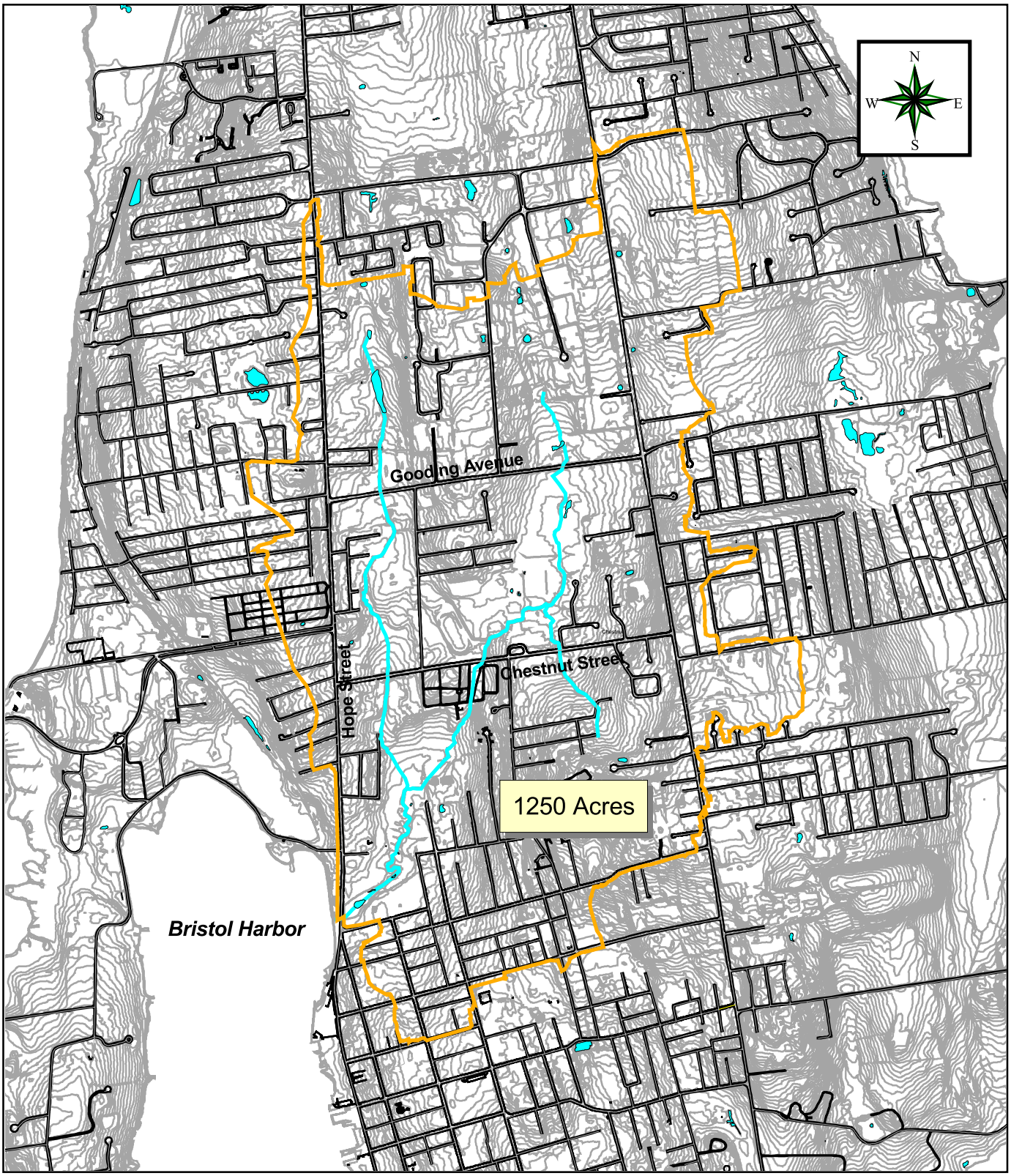
In addition to the flow of freshwater runoff via overland and piped flows, the Silver Creek is tidally influenced at the outfall at Bristol Harbor. High tides during storm events reduces the discharge capacity of Silver Creek at Route 114 preventing the upper watershed from draining, resulting in flooding at the fringes of the wetland areas and at the restrictions of piped sections under roadways and through private property. Displaced riprap under the Silver Creek bridge further restricts the flow of saltwater into and out of the salt marsh area adjacent to the Guitarius School and the recreation fields, resulting in insufficient salt water to maintain the marsh characteristics. Sediments have allowed phragmites to invade the area, reducing available flood storage. This is described in much greater detail in the discussion on sediments.

Coordination with Other Projects

The Natural Resources Conservation Services (NRCS) has conducted a study of the lower portion of the watershed including the restrictions under the Silver Creek Bridge No. 153 and the East Bay Bikepath Bridge, developing a HEC-RAS model of the marsh. This model was used in the development of the overall model for the Silver Creek watershed, described in the Methodology section of this report. The NRCS project looked at the effects of removing the rocks to allow for salt water intrusion into the lower creek area to kill off the freshwater invasive plants, and to re-establish the marsh characteristics south of the footbridge. This project is currently in the permitting stage, with construction expected in 2008.

The Town has several smaller projects either in the conceptual design stage, or under construction in 2007 which have either a direct or indirect impact on the study, as well as our recommendations. Chestnut Street, which runs in an east-west direction from Metacom Avenue (Route 136) to Hope Street (Route 114) is a major route within the watershed providing access to the Mount Hope High School, the Benjamin Church Manor, Naomi Street and the St. Mary Cemetery. The east and west branches of the Silver Creek pass under Chestnut Street, and there is an older closed drainage system within the roadway. The Town is currently constructing "1R Improvements" to Chestnut Street including new sidewalks, pavement overly, etc. No work to the drainage system is being done under this contract.

Elbow Street is an extension of Waterman Street, and is the location of chronic flooding problems. Caputo and Wick has designed and permitted a project which will replace the existing 12" CMP with



Legend

Silver Creek Model Reaches

Silver Creek Watershed

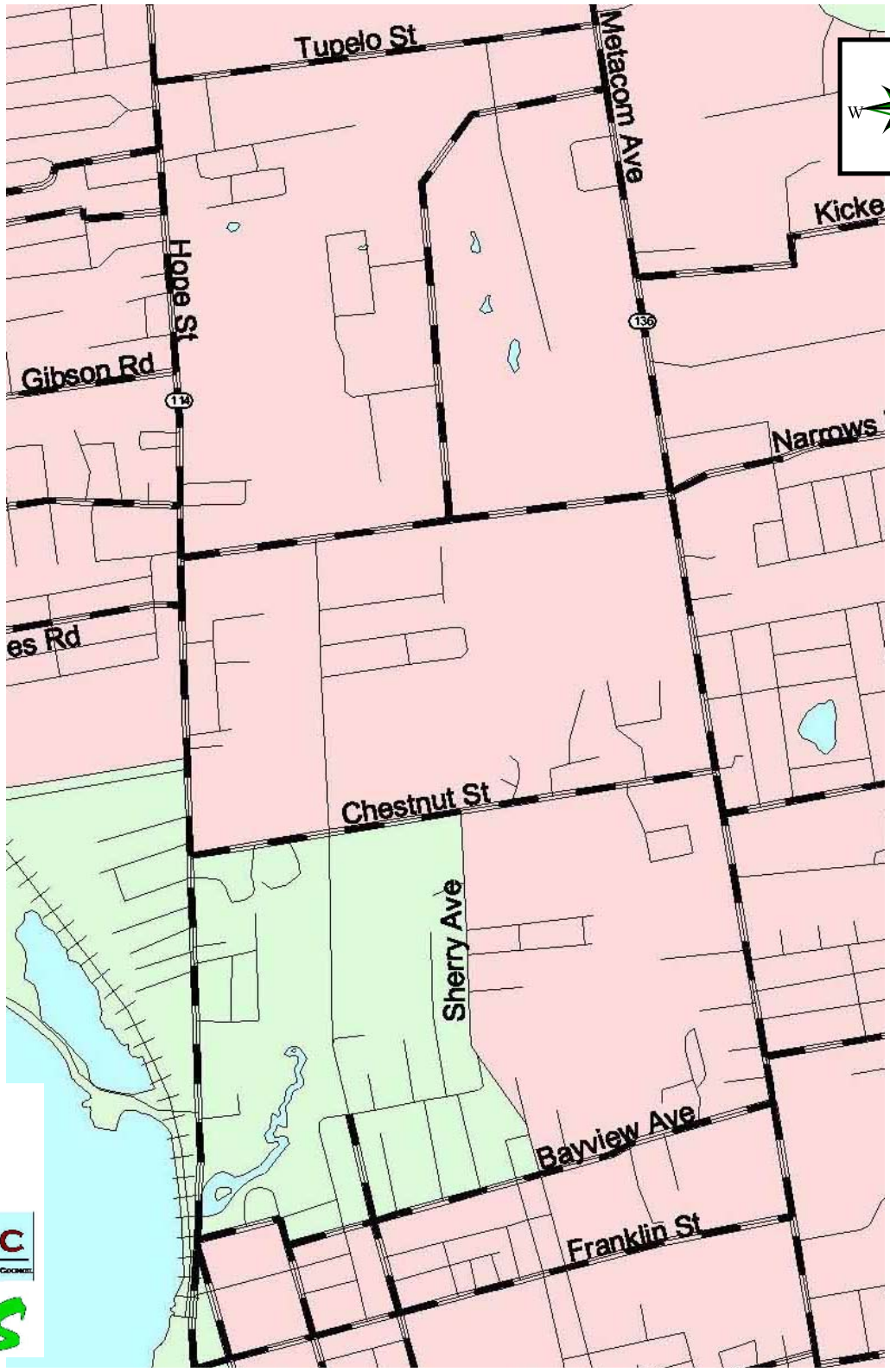
Town of Bristol
Rhode Island

Silver Creek

NOT TO SCALE

Figure 1

Silver Creek Watershed



Legend	Town of Bristol Rhode Island	Figure 2
CRMC RIDEM	Silver Creek *NOT TO SCALE*	Jurisdictional Boundary

new pipes including an increase in the pipe conveying the flow under the road with an 18" HDPE. Construction on this project is schedules for Fall 2007. This project is discussed in greater detail later in the report, as this area of Elbow Street has been identified as one of the problematic areas.

Also discussed in the report is Sherry Avenue. New sidewalks will be constructed in 2007. Caputo and Wick developed a Conceptual Plan for new drainage within the existing Right-of-Way, utilizing 48" pipes to provide storage. This plan would change the drainage patterns by conveying all the stormwater toward Chestnut Street, as opposed to the current route through private property toward Varnum Avenue. This project is also discussed in further detail.

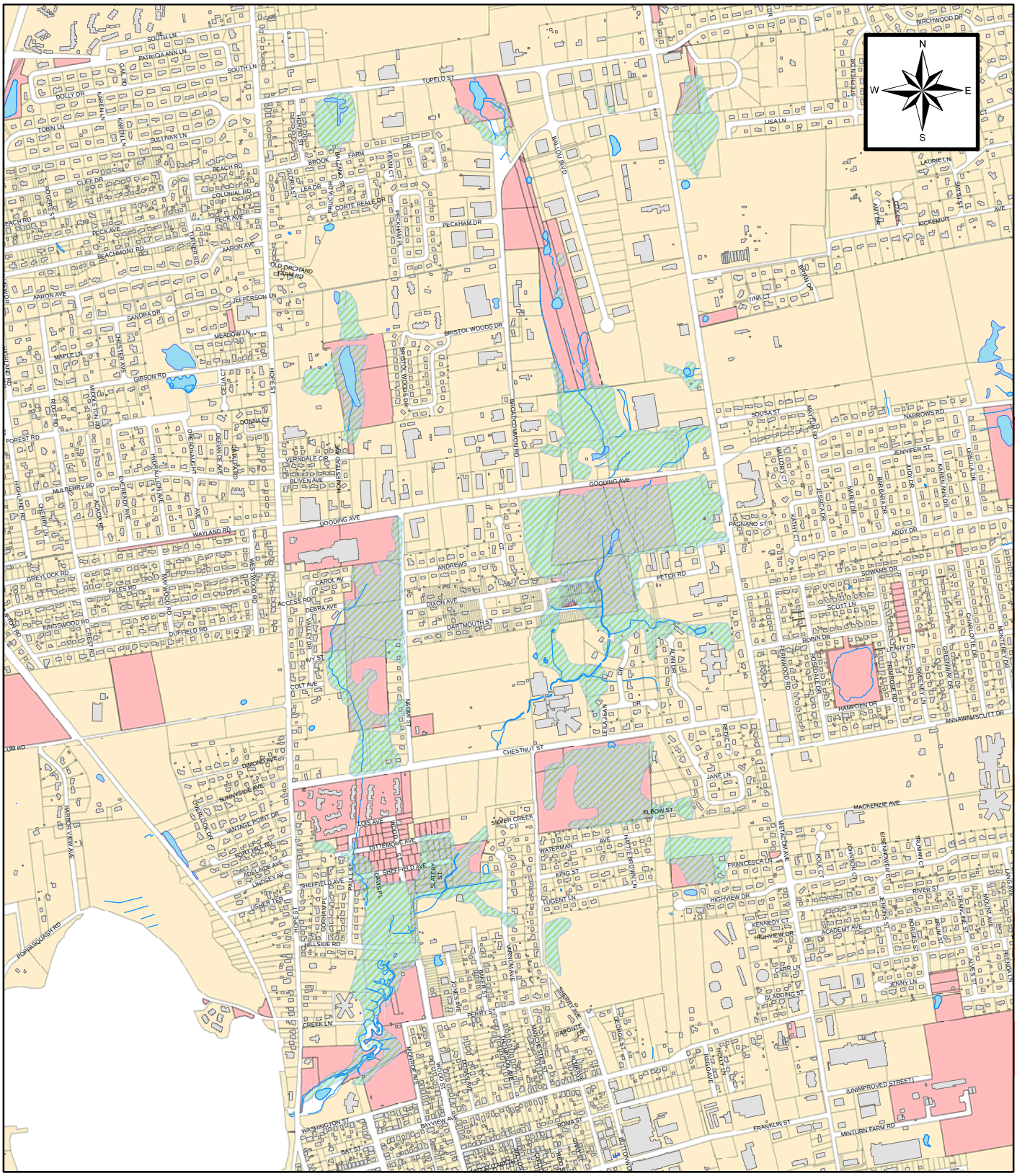
Data Collection and Field Observations

Data Collection

As part of the study and to determine accurate limits of the watershed, BETA completed an inventory of the existing drainage catch basins and manholes, as well as all outfalls and detention facilities within the 1,250 acre watershed. Catch basins were located using GPS equipment and opened to identify structure and pipe materials, pipe inverts and sizes, condition and the presence of silt or standing water. Approximately 1,000 catch basins were opened along with 250 drain manholes. Information collected regarding pipe size and invert elevations allows us to identify closed drainage systems which in turn can be used calculate the system capacity.

As previously stated, it was determined that there are 66 separate drainage systems which collect runoff on local streets and developments, and then discharge to the Silver Creek. BETA used contour information provided by aerial mapping to determine the limits or reach of each individual subwatershed area. These subwatersheds have been compiled on a large scale map which is included in the report Appendix. Once the contributing areas are determined from this map, a hydrologic analysis was completed using Hydrocad software. The program calculates the watershed yield, or the rate of runoff directed to each individual closed drainage system. By comparing the capacity of each system with the calculated yield, we can determine those subsystems that are over-capacity and thus theoretically in a flooded state for storms of varying frequency (i.e. 2-year, 10-year, 100 year frequencies).

Figure 3 illustrates the town-owned parcels within the study area. This map is important in that it provides potential areas where improvements can be made without the acquisition of private property.



Legend

- Town-Owned Parcel
- Wetland
- River or Stream
- Lake or Pond

Town of Bristol Rhode Island

Silver Creek

NOT TO SCALE

Figure 3

Town-Owned Property

Field Observations

In addition to the catch basin data and the plan development, BETA on several occasions inventoried much of the upland areas and the wetland conditions. It was observed that filling in of fringe areas or buffers was prevalent in several locations, including grass clippings, leaves, and small tree branches. Although "No Dumping" signs were observed at the end of several streets, this fill material, even though organic in nature, occupies space that would otherwise be used for flood storage.

Over the study period, the area experienced several measurable storm events, which provided the opportunity to witness the effects of the runoff throughout the watershed. During high-intensity, short duration storms, where the rain falls over a relatively short timeframe (i.e. heavy downpours), localized street flooding occurred on several of the major roadways including Gooding Avenue, Hope Street at the Silver Creek Bridge, Sherry Avenue and Washington Street. This indicated that there was a catchment problem on several of the streets. During long duration storms, where the rain continued to fall over a 24-hour period at a significantly lower rate, the flooding was confined to the lower watershed area, and the upper watershed and wetland areas were capable of containing the volume of water. This photo shows the water level approximately 2-3 feet above ground, with the bikepath and Route 114 completely covered.

During the period of high tide on March 3, 2007, the water level in Bristol Harbor was estimated to be approximately 4 feet above mean high tide level, and the entire area from Washington Street to the Topside Restaurant was flooded. RIDOT's efforts to pump the area were futile until the tide subsided. Also, during these storm events, sediments were observed in the open channels leading to the creek and associated wetlands. These included runoff from soil stockpiles with incorrect erosion controls, parking lots, and other paved areas.

Public Meetings

In addition to the field data collections and observations, BETA attended a Public Meeting with residents to hear first-hand of their perceived drainage problems, and the historical nature of the flooding. During

this meeting, the residents identified several areas where chronic flooding occurs and affects their private property and commercial businesses. In addition to the Public Meeting, BETA attended a meeting of the storm water committee to determine which projects currently under consideration fall within the Silver Creek watershed, and to gain insight into the problems which have been identified by the Town's engineer and planning department.

The Draft Report was presented to the Bristol Town Council on October 17, 2007. BETA summarized the findings and recommendations for members of the Town Council and local residents at this workshop, and answered questions from the audience. Input from this meeting has been used to modify the recommendations, emphasizing the improvements which can be done without extensive environmental permitting, and for relatively low costs.

Watershed Analysis

Hydrocad Analysis

The 1,250 acre watershed was separated into 66 subwatershed areas to review the capacity of each individual drainage system, and the actual rate of stormwater runoff flowing to each area. These subwatershed areas were analyzed using the Hydrocad software, which utilizes TR-20 technology to determine yield for storms of varying intensities, which can then be compared with the capacity of the existing pipe. As previously indicated, the pipe capacities were calculated based on the existing system characteristics (i.e. size, slope, inverts, etc.). The systems were analyzed for the 2-year and 10-year storms. In the 2-year storm, with 3.4 inches of rainfall in a 24-hour period, it was found that 32 of the 66 areas did not have sufficient capacity to handle the runoff. This included 5 areas where the capacity deficit exceeded 20 cubic feet per second (cfs), and 13 areas where the deficit was greater than 10 cfs.

The 10-year analysis (4.9 inches of rainfall in a 24-hour period) showed that an additional 12 watershed areas do not have existing capacity to handle the rate of runoff. The storms and watershed areas are summarized in Table 1. The figure demonstrating the watershed areas for the closed drainage systems can be found in the appendix.

HEC-RAS

The Hydraulic Engineering Centers River Analysis System (HEC-RAS) program was used to analyze the river and floodplain portions of the watershed. This program allows for both open-channel analysis of

Silver Creek Drainage Study
Pipe Capacity vs. Watershed Yield
Table 1

Watershed	Pipe Size (in.)	Pipe Capacity	Watershed Yield (cfs)			
			2 Year	10 Year	25 Year	100 Year
1	24	31	38	58	38	85
2	15	9	9	13	15	19
3	24	20	27	48	59	79
4	36	68	40	64	77	99
5	12	7	5	8	10	13
6	36*	67	23	36	44	57
6d	12*	5	2	3	4	4
6e	12	7	2	2	3	4
8	12	2	3	6	7	10
9	12	7	7	11	13	17
10	24	24	12	22	27	35
11	15	17	39	62	74	96
12	12	8	6	10	12	15
13	12	6	13	24	30	40
15	12	32	28	50	61	81
16	24	6	4	8	9	13
14 & 17	18	6	18	34	42	58
18	18	83	21	38	48	65
19	36*	4	17	33	42	58
20	12*	2	15	27	34	46
21	36*	67	8	12	14	18
22	18	8	18	28	33	41
23	12*	5	3	4	5	6
24	12*	4	12	19	23	29
25	18*	11	11	21	26	35
26	4	1	0.5	0.5	0.5	0.5
27	6*	1	0.5	0.5	0.5	0.5
28	12	12	5	9	12	16
29	18	14	17	29	36	48
30	10*	1	3	5	6	8
31	12*	4	25	48	61	84
32	18*	17	35	71	92	130
33	18*	6	44	79	99	133
34	12	2	8	14	17	23
35	15*	6	4	7	8	11
36	30*	41	136	235	290	386
37	18*	11	9	14	17	23
38	18*	8	4	7	8	11
39	15*	4	16	29	36	48
40	6*	1	0.5	0.5	1	1
41	8*	2	0.5	1	1	2
42	6*	1	0.5	0.5	0.5	0.5
43	24	20	5	8	11	14
44	6*	1	2	3	4	6
45	12*	2	3	6	8	12

* Due to limited information about these systems, the slope was assumed to be 1%.

Silver Creek Drainage Study
Pipe Capacity vs. Watershed Yield
Table 1

Watershed	Pipe Size (in.)	Pipe Capacity	Watershed Yield (cfs)			
			2 Year	10 Year	25 Year	100 Year
46	12*	2	1	2	3	4
47	18*	6	13	23	30	40
48	12*	2	3	4	5	7
50	4*	0.50	3	5	6	9
51	18*	11	11	17	21	26
52	12*	2	9	14	17	22
53	12	4	12	19	22	28
54	12	4	1	2	3	4
55	8	2	4	6	7	9
56	24	36	11	20	25	33
57	12*	2	4	7	8	11
58	12*	2	5	8	10	14
59 & 60	54/36	240	72	124	152	203
61	24	20	27	48	60	80
62	12*	2	11	20	25	34
63	15*	4	15	27	34	46
64	12*	4	2	3	3	4
65	18*	11	6	10	13	18
66	18	7	6	10	13	17
67	18	5	4	7	8	11
68	12	2	26	48	60	81

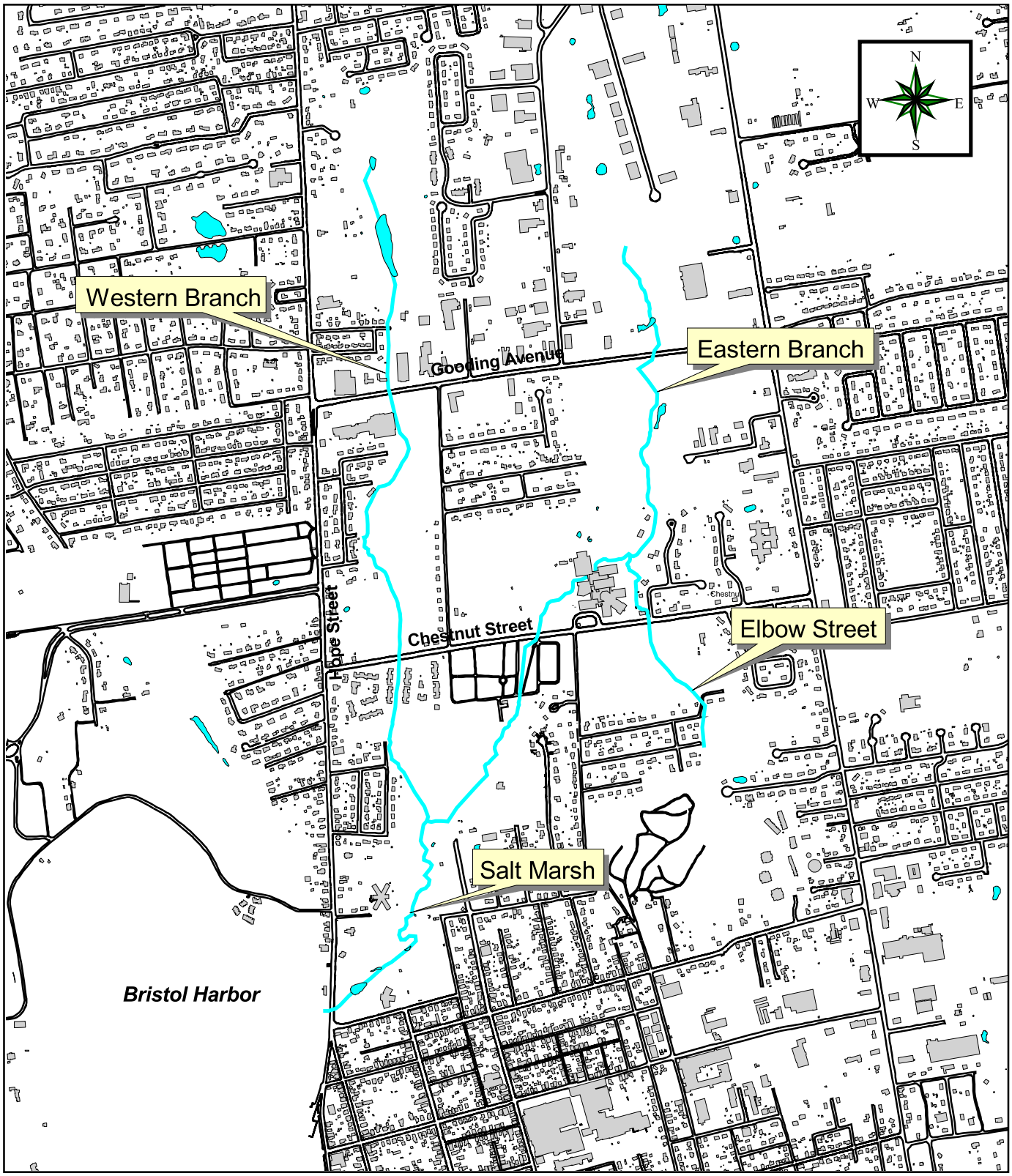
* Due to limited information about these systems, the slope was assumed to be 1%.

the river portions of the east and west branches (northern reaches), and the pond areas of the lower watershed as well as those areas where flows back up as a result of restrictions from piped sections. In order to calculate the input runoff at key locations, the total watershed area was broken down into 45 subwatershed areas, each with a discharge point and volume of stormwater runoff. It should be noted that these 45 subwatershed areas are different from the 66 subwatershed areas identified in the pipe-flow analysis as they have different discharge points and characteristics. The figure illustrating the subwatershed areas for the Silver Creek analysis can be found in the appendix.

To determine the open channel characteristics of the channel, the creek was analyzed from upstream of Gooding Avenue to the discharge point west of Hope Street. The creek was divided into four reaches: the Eastern Branch, Western Branch, Salt Marsh and Elbow Street. These reaches can be seen in Figure 4. The Eastern and Western Branches extend from north of Gooding Avenue to south of Chestnut Street where they converge in the salt marsh and continue to the outfall. The Elbow Street reach was modeled because many of the previously discussed problem areas discharge to the wetland north of Elbow Street. This wetland area flows to a culvert which crosses Chestnut Street and discharges on the northern side. The Elbow Street reach then converges with the Eastern Branch before flowing to the culverts under the high school. The model would help to determine if the problems in these areas were due to the hydraulic characteristics of the creek or the inadequate capacity of the individual drainage systems.

Methodology

The hydrologic and hydraulic analysis for this project was completed using HydroCad and HEC-RAS computer software. The overall watershed was divided into approximately 45 subwatersheds. HydroCAD was utilized to determine the watershed yield for each of the subwatersheds. The watershed yield assumes that the peak flow reaches the creek regardless of the restrictions the closed drainage systems may create. HydroCAD utilizes the Soil Conservation Services Technical Release 55 (TR-55). Additionally, the Rhode Island Intensity-Duration-Frequency (IDF) curve was used to determine intensity values based on the time of concentration. A lag time, ranging anywhere from 20 to 60 minutes, was calculated for each subwatershed based on the amount of time it would take to travel in the creek from the discharge point of one subwatershed to the next. The peak discharge for each subwatershed was determined for the 2, 10 and 100 year design storm events. The results of the HydroCad analysis for each storm event are included in the Appendix.



Legend	Town of Bristol Rhode Island	Figure 4
Silver Creek Model Reaches	Silver Creek *NOT TO SCALE*	Silver Creek Model Reaches

The hydraulic conditions in the creek were computed by a steady flow simulation in HEC-RAS using the derived peak flows for the 2, 10, and 100 year design storms obtained from HydroCad. The hydraulic analysis was completed for the existing condition and several alternatives to mitigate flooding during various design storm events.

Existing Condition

DESCRIPTION

The existing condition is defined as the existing creek channel, assuming that the rock sill upstream of the bike path has been lowered by the ongoing project. The alignment of the river channel and the cross sections were defined using the 2-foot contour intervals obtained from the Town's GIS. The geometry of the bridge crossings or hydraulic opening and cross culverts were defined and quantified using information obtained from the Town's GIS, the Natural Resources Conservation Service (NRCS) Silver Creek Study and Model, and field data obtained during this study. It is assumed that these culverts are not damaged or collapsed and able to convey flow at full capacity. For analysis purposes, if required information was not available, the characteristics of the system were assumed using the best available information and the topography of the area.

The river bed and wetland elevations were derived from the 2-foot contours except in the Salt Marsh reach. NRCS had performed a more detailed survey of the salt marsh area for their study of Silver Creek. The cross-sections from their HEC-RAS model through the salt marsh area were incorporated into our model. The hydraulic openings for the pedestrian, Hope Street and the bike path bridges were also taken from the NRCS model.

The outfall downstream of the bike path is tidally influenced. The tailwater only affects the creek from the outfall to just upstream of where the eastern and the western branches converge (approximately 3,000 feet), mostly through the marsh area. Upstream of this point, the elevation of the creek is higher than the tailwater elevation. The HEC-RAS simulation was performed for four different tailwater scenarios. The first scenario assumed the bike path culvert had no tailwater (empty), the second scenario assumed the culvert was half full, the third scenario assumed the culvert was fully submerged but not overtopping the bike path, and the last scenario assumed the culvert was fully submerged and overtopping the bike path by six inches. Each of these conditions was used as the boundary condition downstream for the

simulation. The only tailwater condition that affected the water surface elevation (more than 0.05 feet) or the discharging flow at Hope Street or the bike path was the last scenario representing the fully submerged culvert and overtopping of the bike path by six inches. The discharging flow from Hope Street causes the bike path to act as a weir which overtops and discharges to the harbor. Until the tailwater elevation is above the bike path, the weir flow from the bike path is able to discharge sufficient flow without increasing the water surface elevation upstream of Hope Street. Therefore, only the two extreme tailwater scenarios were used in the simulation: no tailwater and a tailwater elevation which overtops the bike path by six inches (referred to as the tailwater condition throughout the rest of this study).

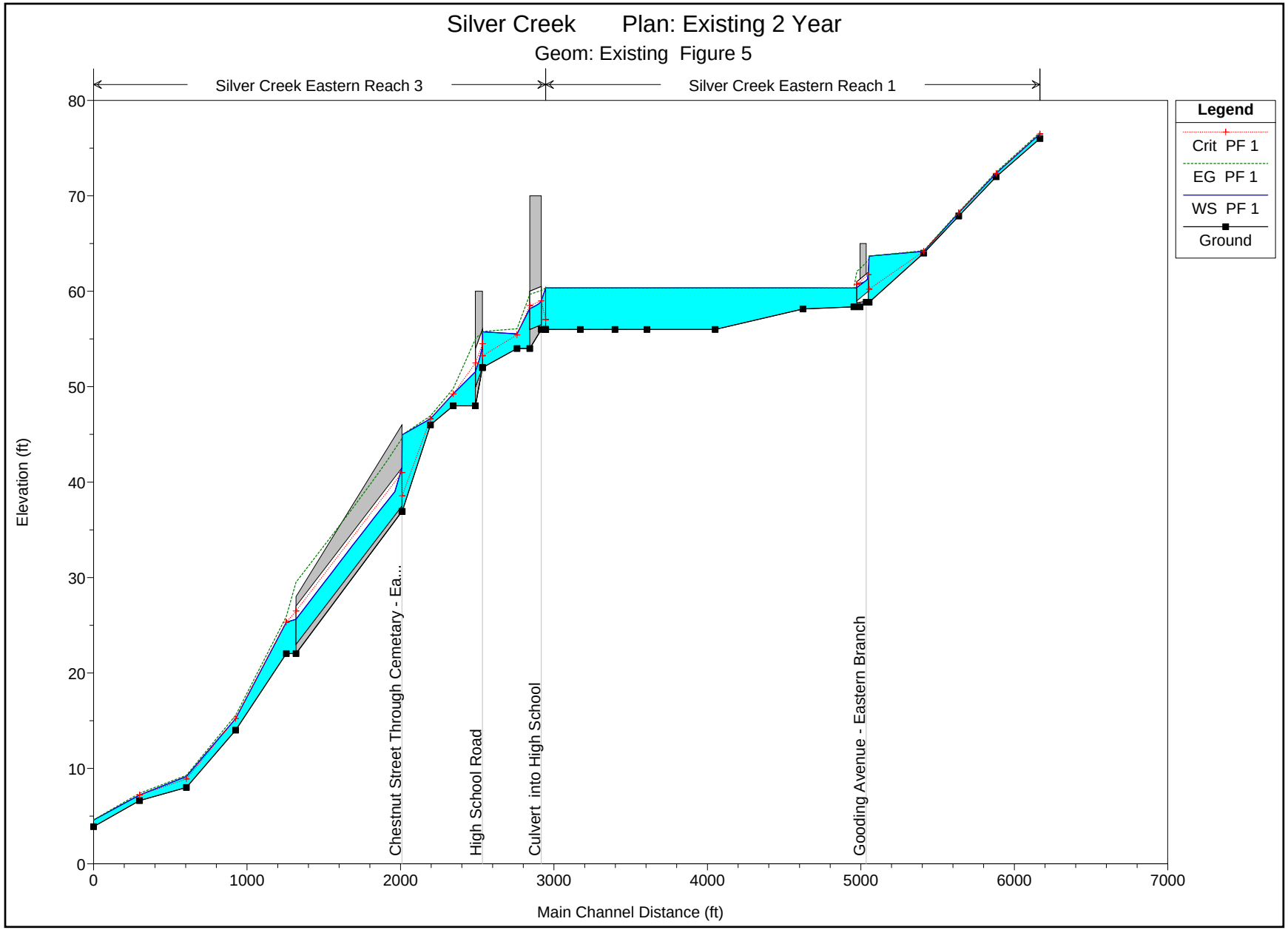
The pedestrian bridge located upstream of Hope Street in the marsh is flooded for the 2, 10 and 100-year storm events. In agreement with the previous NRCS Study, it was determined that this bridge does not change the characteristics of the flow through this area and therefore will not be discussed further as part of the following results.

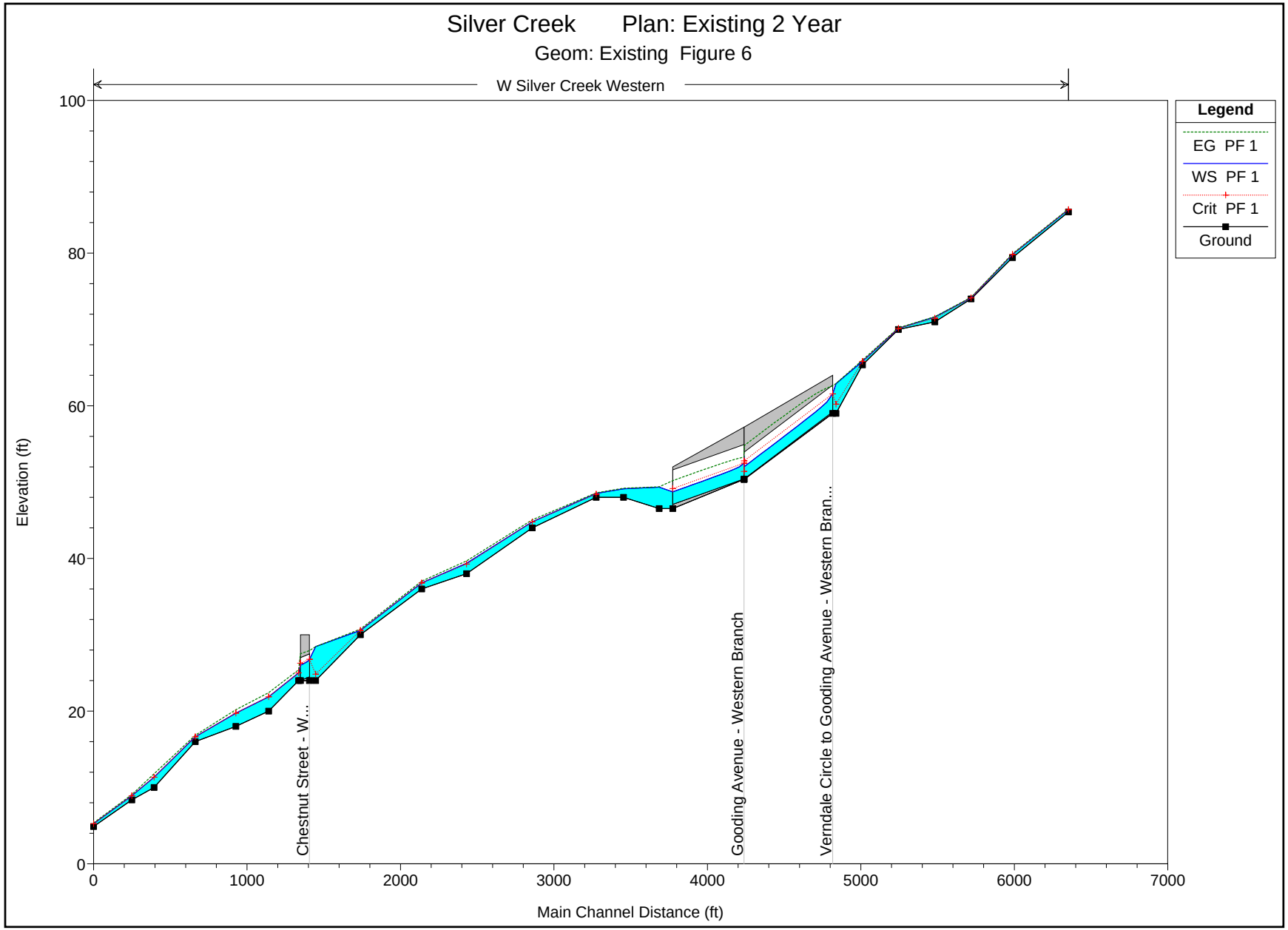
RESULTS

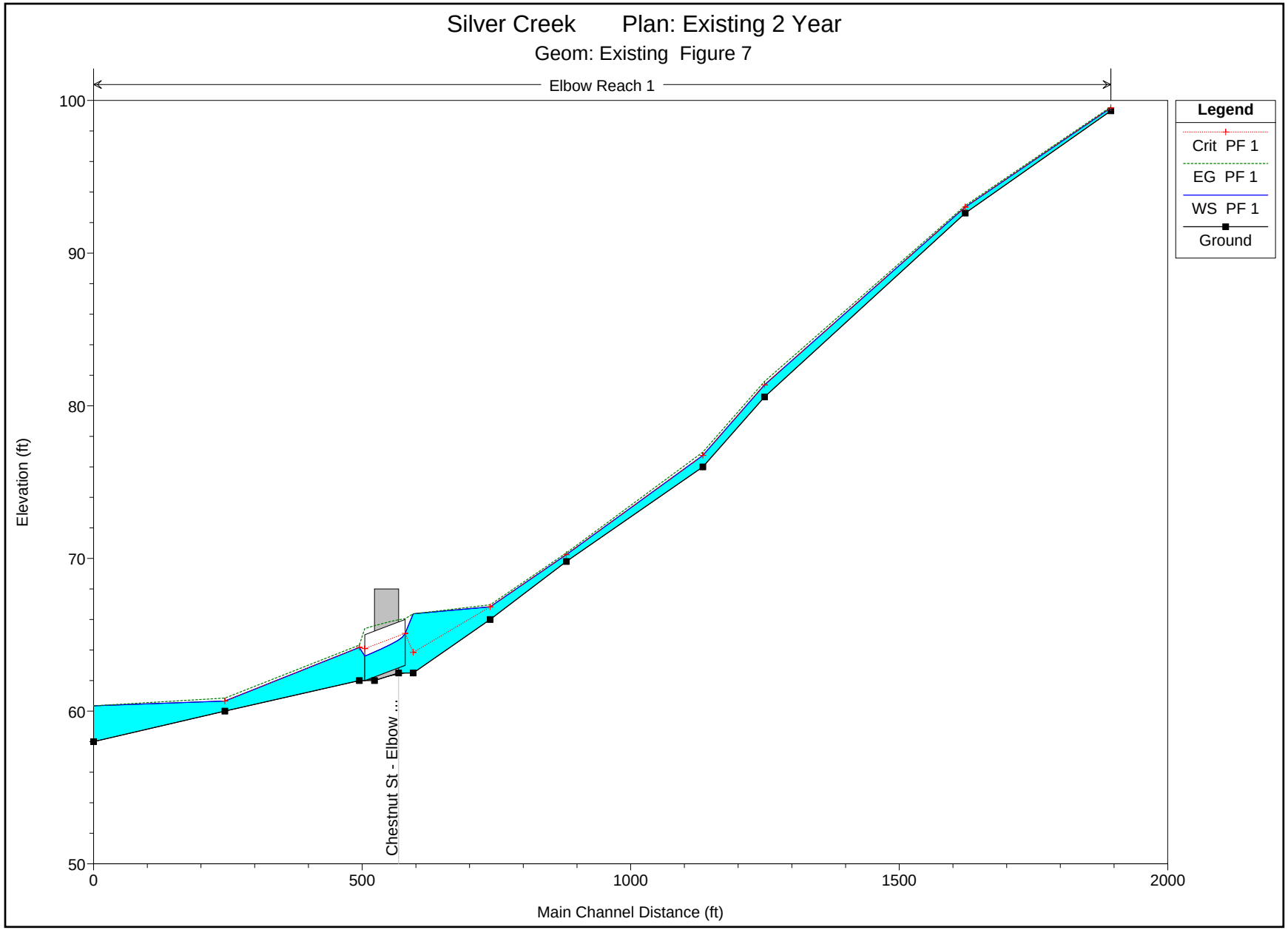
Based on the model, there are two areas throughout the watershed that seem to flood periodically. These areas are the marsh upstream of Hope Street and the area from the eastern branch between Gooding Ave and the high school. The topography is very flat in these areas and the creek is restricted downstream by culverts at Hope Street and the high school. The bike path bridge and the tidal influence at the outfall also impede the flow. Table 2 summarizes the elevations at the bike path, Hope Street, the marsh and the area between Gooding Avenue and Chestnut Street for the eastern branch for all three of the design storms with the tailwater condition and without. Each storm will have profiles to represent the eastern branch, western branch and Elbow Street and the marsh will have a profile with the tailwater condition and without if necessary. The results will also be presented in a summary table which can be found in the appendix with the output of the model.

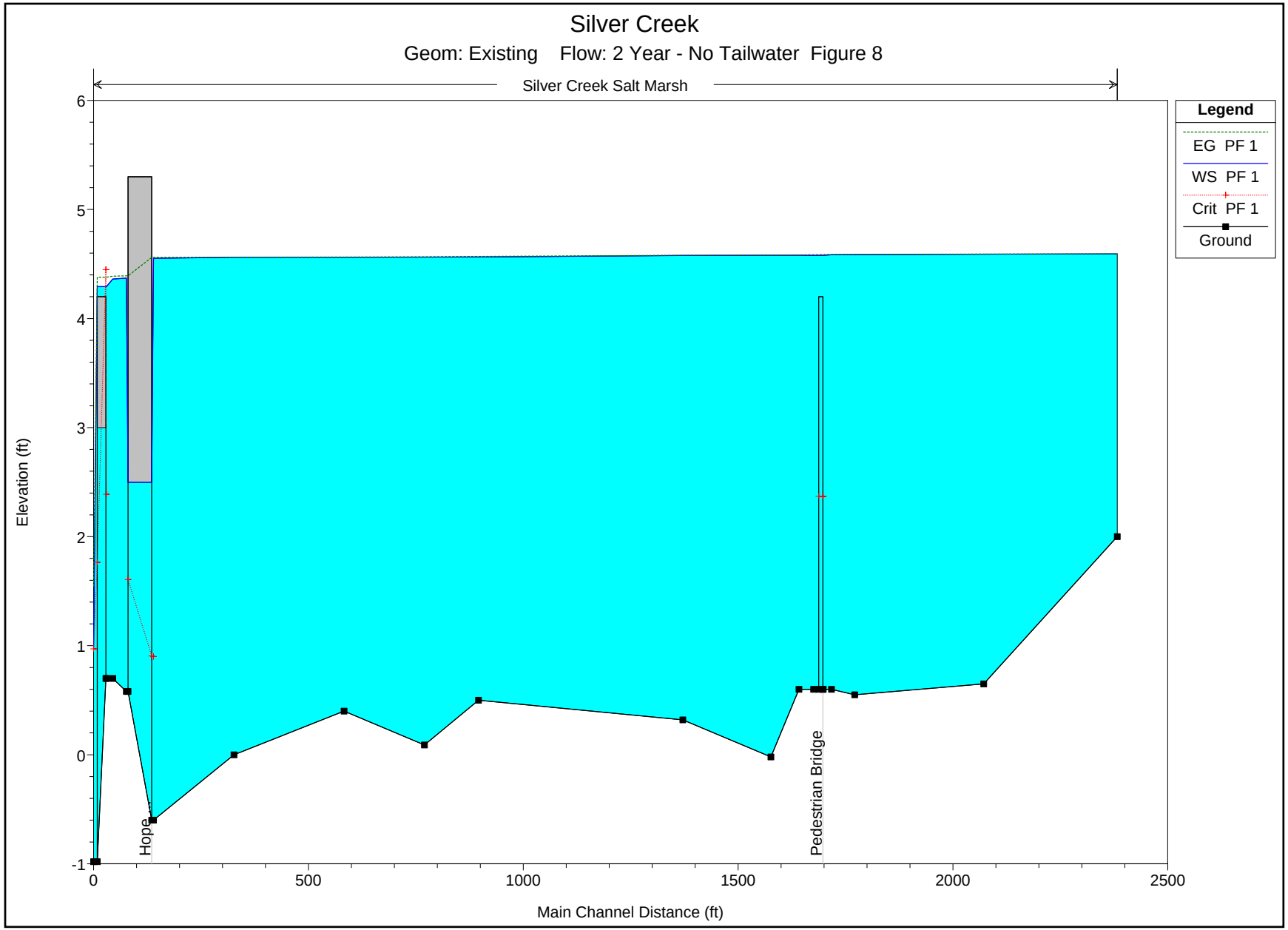
Two-Year Design Storm

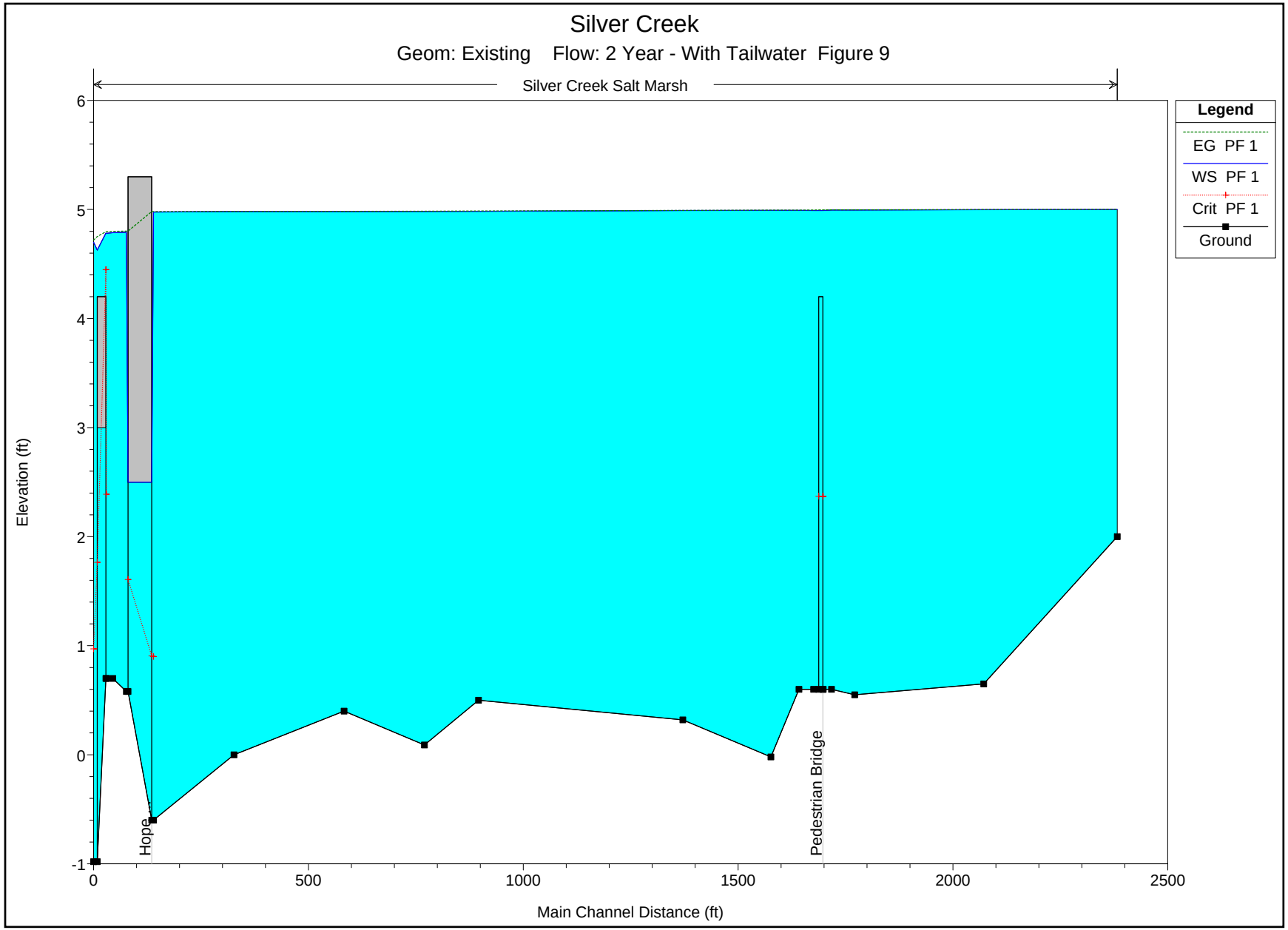
As previously mentioned, the creek was divided into four reaches: Eastern Branch, Western Branch, Salt Marsh and Elbow Street. The creek has the available capacity to convey the peak discharge of 210 cfs associated with a 2-year storm event. The culverts and hydraulic openings of the bridges are sufficient (see Figures 5-9). The only bridge that overtops is the bike path. The approximate elevations of the bike


Silver Creek Plan: Existing 2 Year
Geom: Existing Figure 5
Silver Creek Eastern Reach 3
Silver Creek Eastern Reach 1
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Chestnut Street Through Cemetary - Ea...
High School Road
Culvert into High School
Gooding Avenue - Eastern Branch
Elevation (ft)
Main Channel Distance (ft)
0
10
20
30
40
50
60
70
80
0
1000
2000
3000
4000
5000
6000
7000


Silver Creek Plan: Existing 2 Year
Geom: Existing Figure 6
W Silver Creek Western
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Chestnut Street - W...
Gooding Avenue - Western Branch
Verndale Circle to Gooding Avenue - Western Bran...
0
20
40
60
80
100
0
1000
2000
3000
4000
5000
6000
7000


Silver Creek Plan: Existing 2 Year
Geom: Existing Figure 7
Elbow Reach 1
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Elevation (ft)
100
90
80
70
60
50
0
500
1000
1500
2000
Main Channel Distance (ft)
Chestnut St - Elbow ...


Silver Creek
Geom: Existing Flow: 2 Year - No Tailwater Figure 8
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Hopa
Pedestrian Bridge
6
5
4
3
2
1
0
-1
0
500
1000
1500
2000
2500


Silver Creek
Geom: Existing Flow: 2 Year - With Tailwater Figure 9
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Hopa
Pedestrian Bridge
Elevation (ft)
Main Channel Distance (ft)
6
5
4
3
2
1
0
-1
0
500
1000
1500
2000
2500

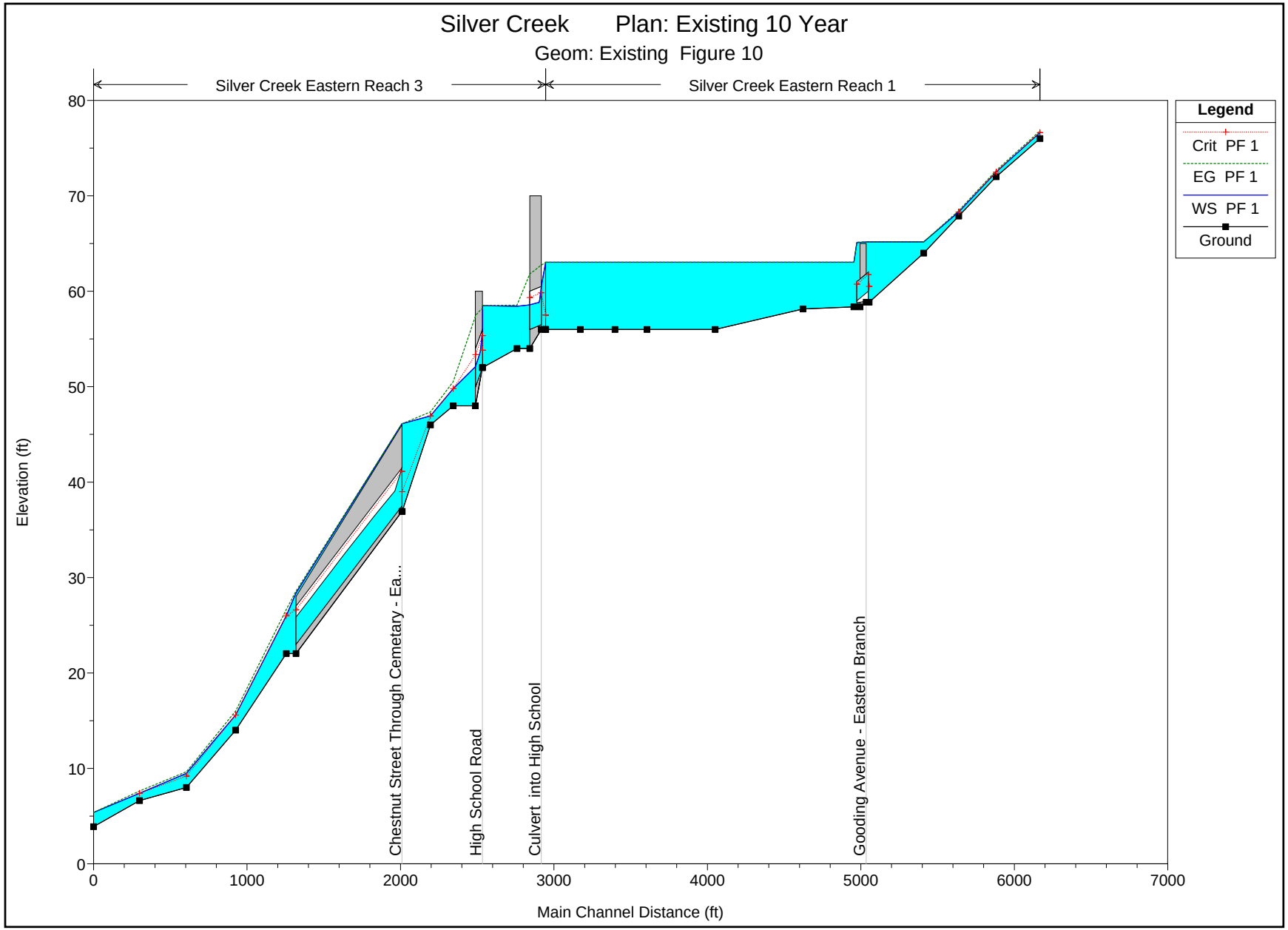
path and Hope Street are 4.2 feet and 5.3 feet, respectively. The water surface elevation is 0.10 feet above the bike path elevation with no tailwater and 0.5 feet above with the tailwater condition. Hope Street is not flooded by this design storm whether a tailwater condition is applied or not. The water surface elevation increases throughout the marsh to just upstream of Hope Street by 0.5 feet, bringing it to approximately 5.0 feet, when the tailwater condition is applied. As shown in Figure 5, the water surface elevation in the area between Gooding Avenue and the high school is approximately 60.4 feet. As previously mentioned, the tailwater does not affect the creek this far upstream.

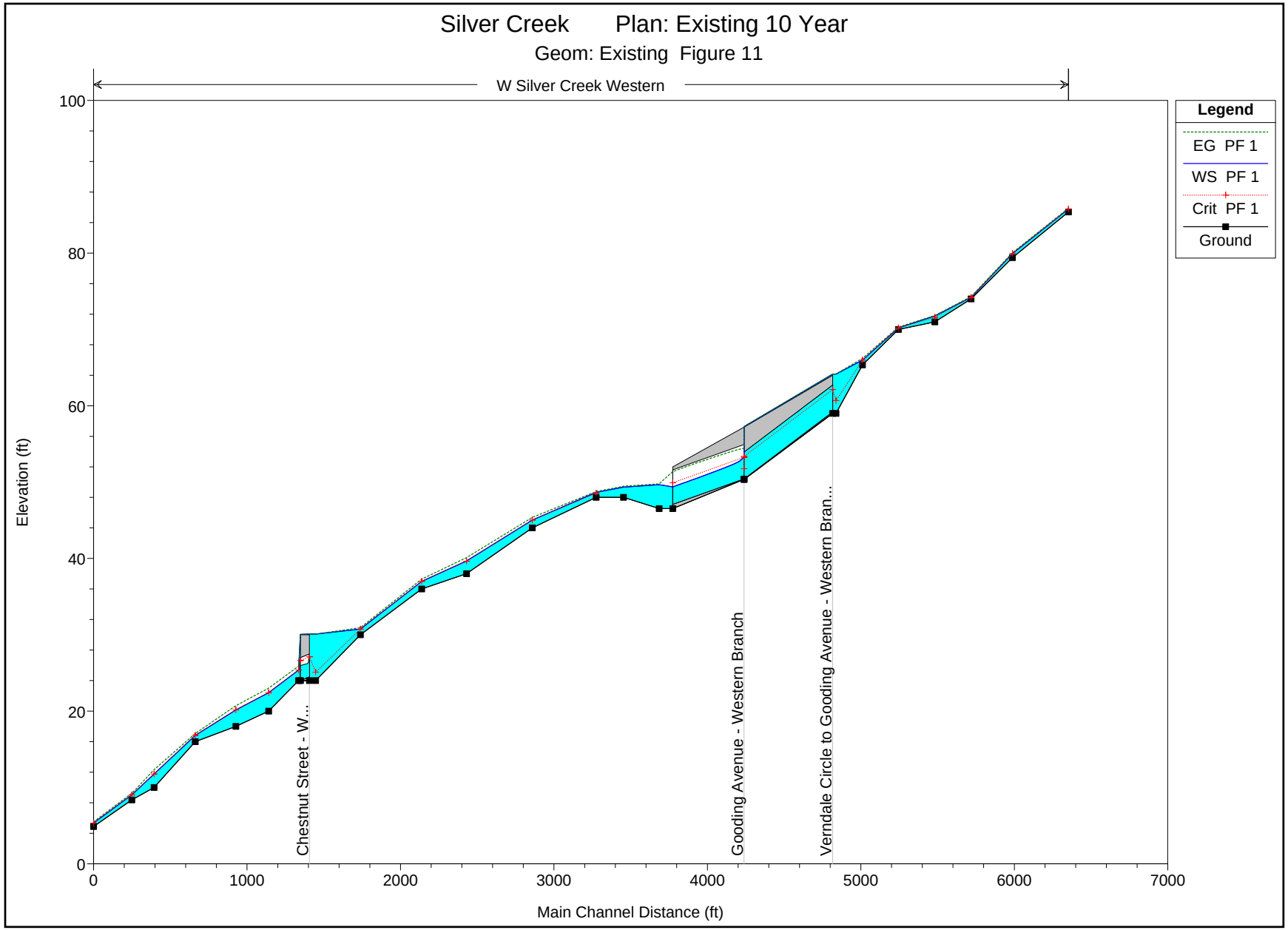
Ten-Year Design Storm

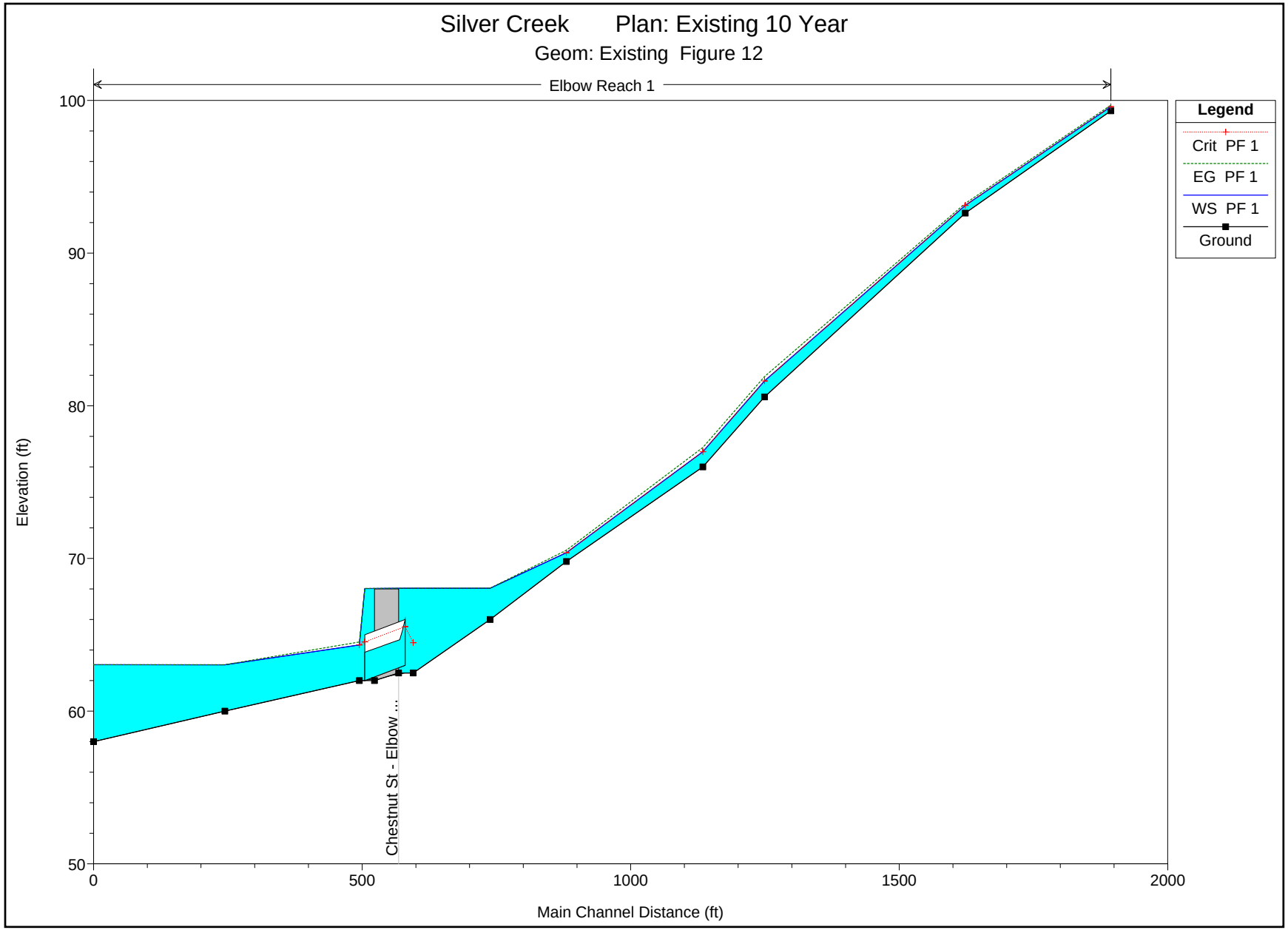
The ten-year storm, which produces a peak discharge of 377 cfs, overtops Gooding Avenue and Chestnut Street in the eastern branch (See Figure 10) and Verndale Circle (upstream of Gooding Avenue) and Chestnut Street in the western branch (See Figure 11) by approximately 0.10 feet. As shown in Figure 12, the flow from the Elbow Street area overtops Chestnut by less than 0.10 feet. These structures may not actually flood or overtop during this design storm. More detailed survey information would be needed to determine the exact elevations of the culverts and hydraulic openings in these areas. As shown in Table 2, the water surface elevation at the bike path with no tailwater condition is 4.4 feet and 4.7 feet with a tailwater condition (see Figures 13-14). Hope Street does not overtop until a tailwater (high tide) condition is applied with the ten-year design storm. Hope Street barely floods with the tailwater condition and the corresponding elevation in the marsh rises to 5.32 feet, which is 0.02 feet above the street's normal grade. The flood elevation between Gooding Avenue and the high school is approximately 63 feet.

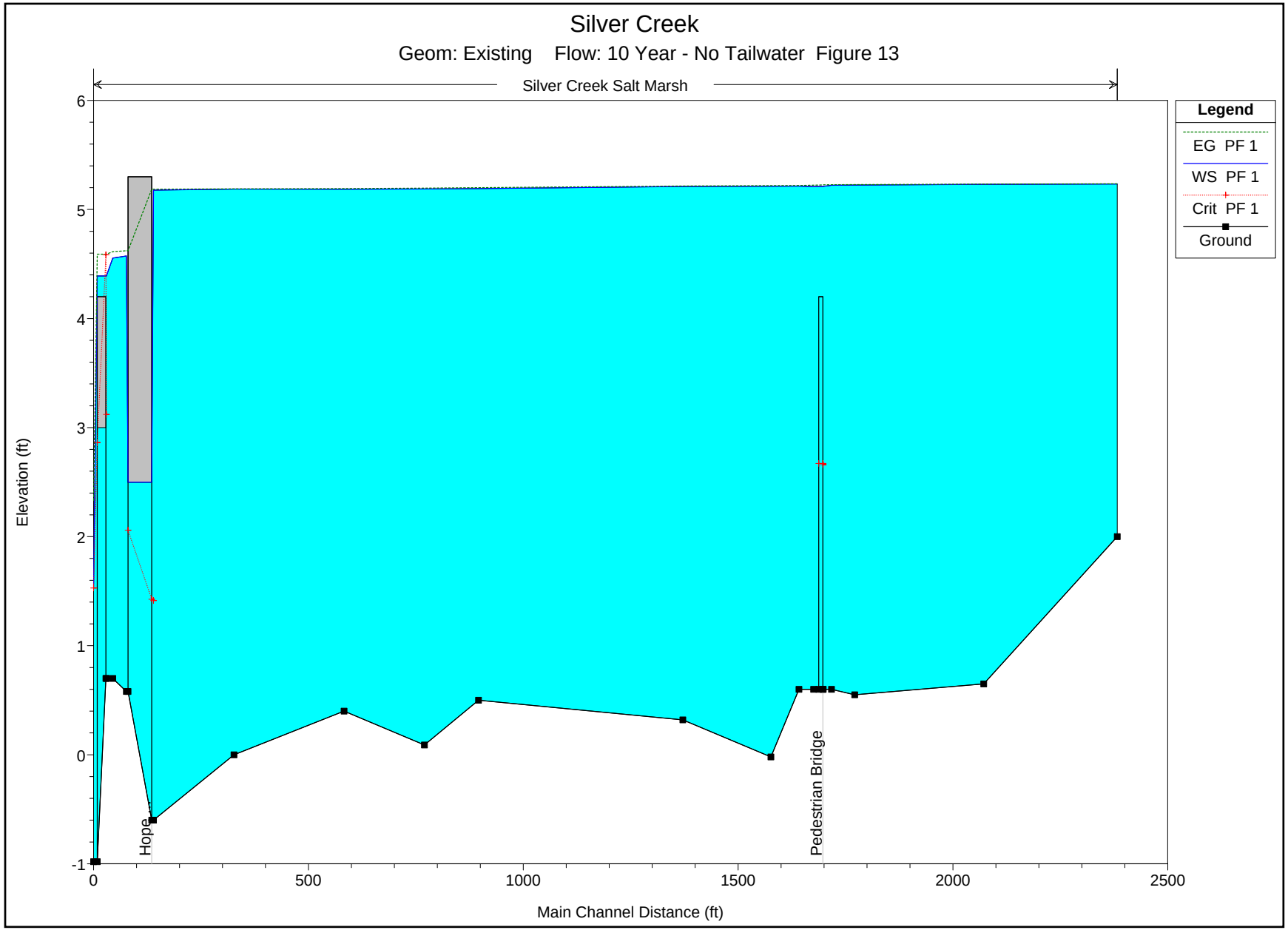
One Hundred-Year Design Storm

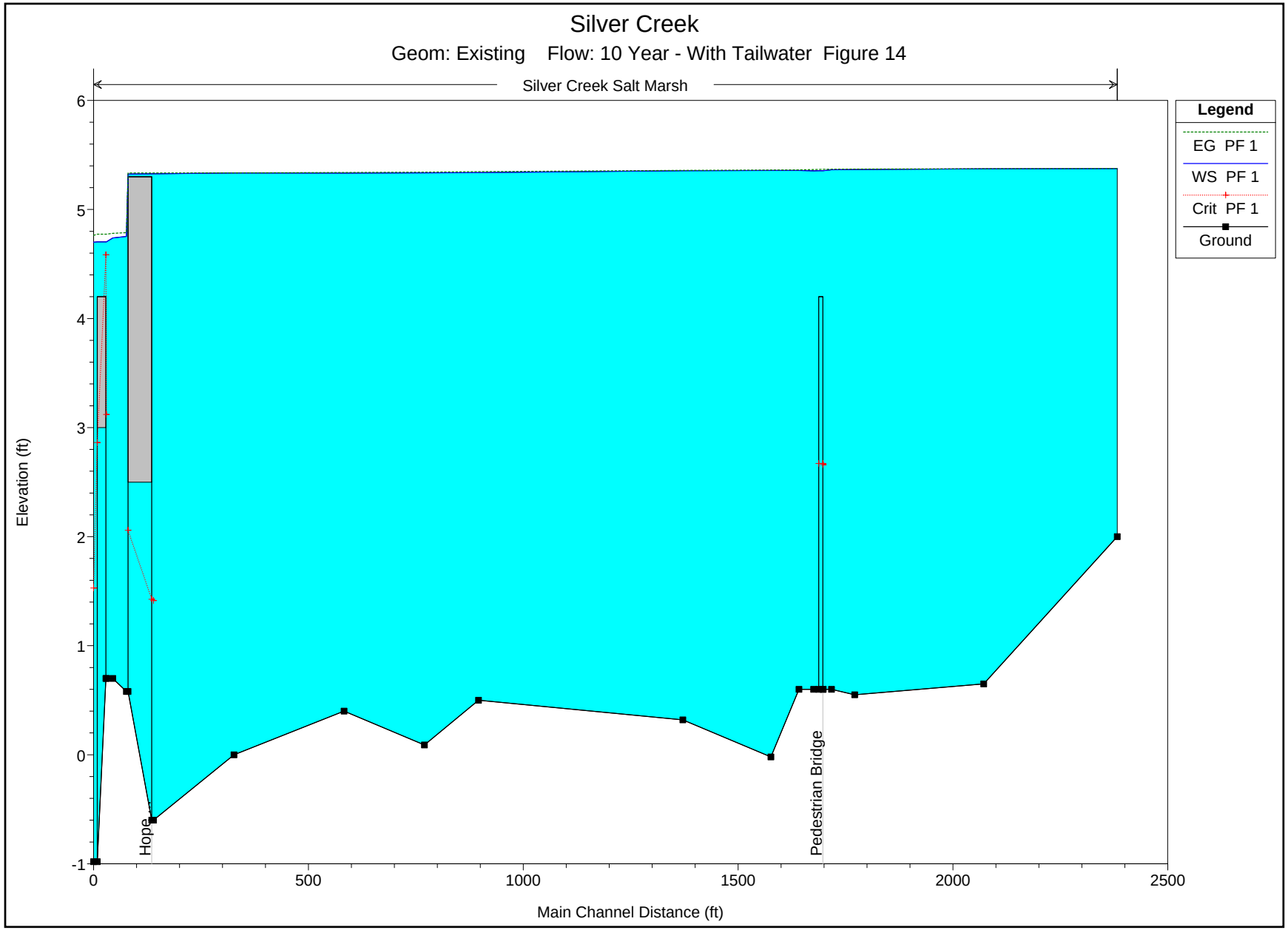
As shown in Figures 15-18, the peak flow of 639 cfs from the one hundred-year design storm overtops all of the bridges and culverts except the high school. The water surface elevations are the same regardless of whether a tailwater condition was simulated. The water surface elevation at the bike path is 5.1 feet and 5.6 feet at Hope Street. The elevation throughout the marsh is 5.7 feet and 67.0 feet between Gooding Avenue and the high school for the eastern branch.

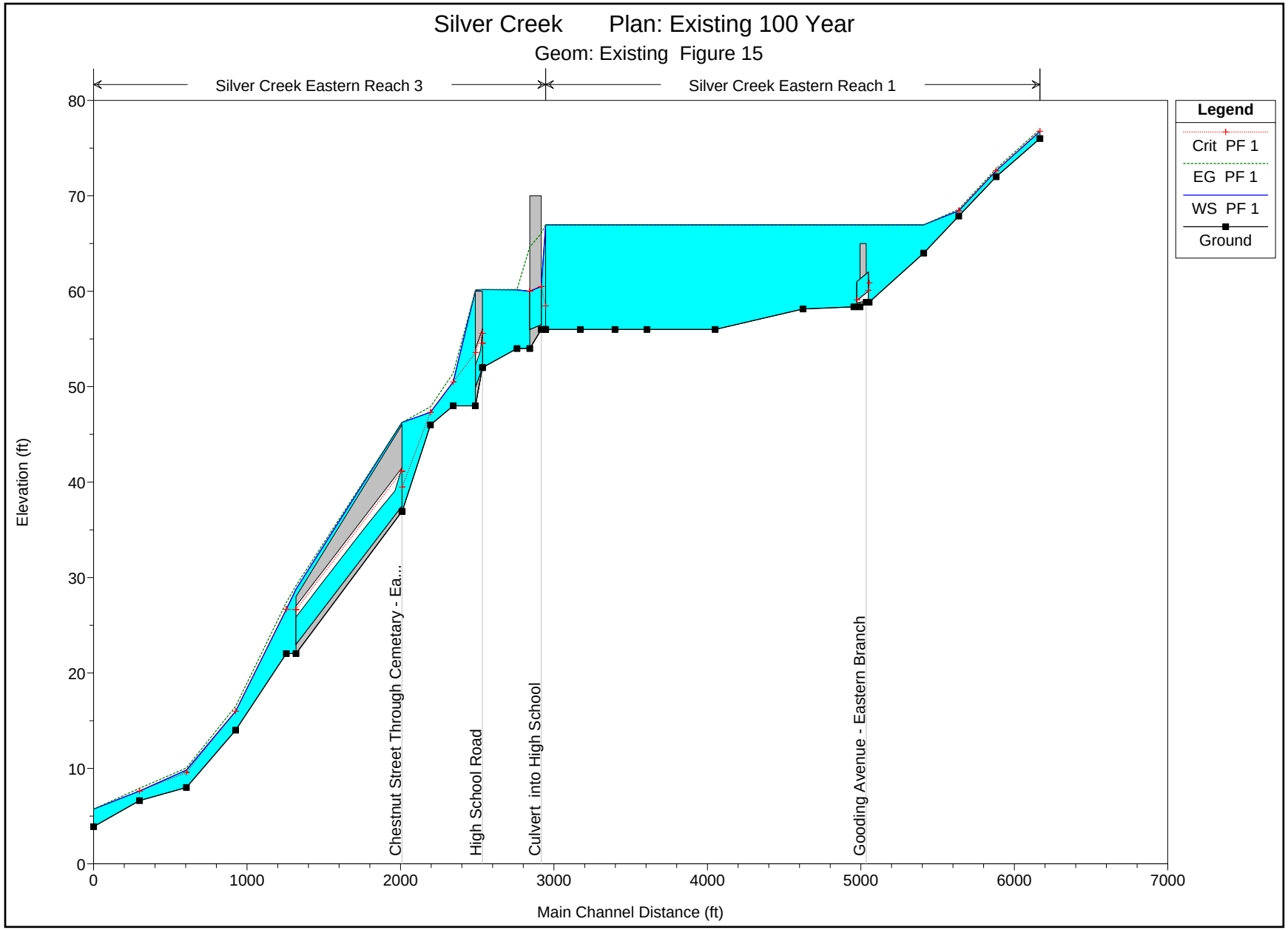

Silver Creek Plan: Existing 10 Year
Geom: Existing Figure 10
Silver Creek Eastern Reach 3
Silver Creek Eastern Reach 1
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Chestnut Street Through Cemetary - Ea...
High School Road
Culvert into High School
Gooding Avenue - Eastern Branch
0
10
20
30
40
50
60
70
80
0
1000
2000
3000
4000
5000
6000
7000

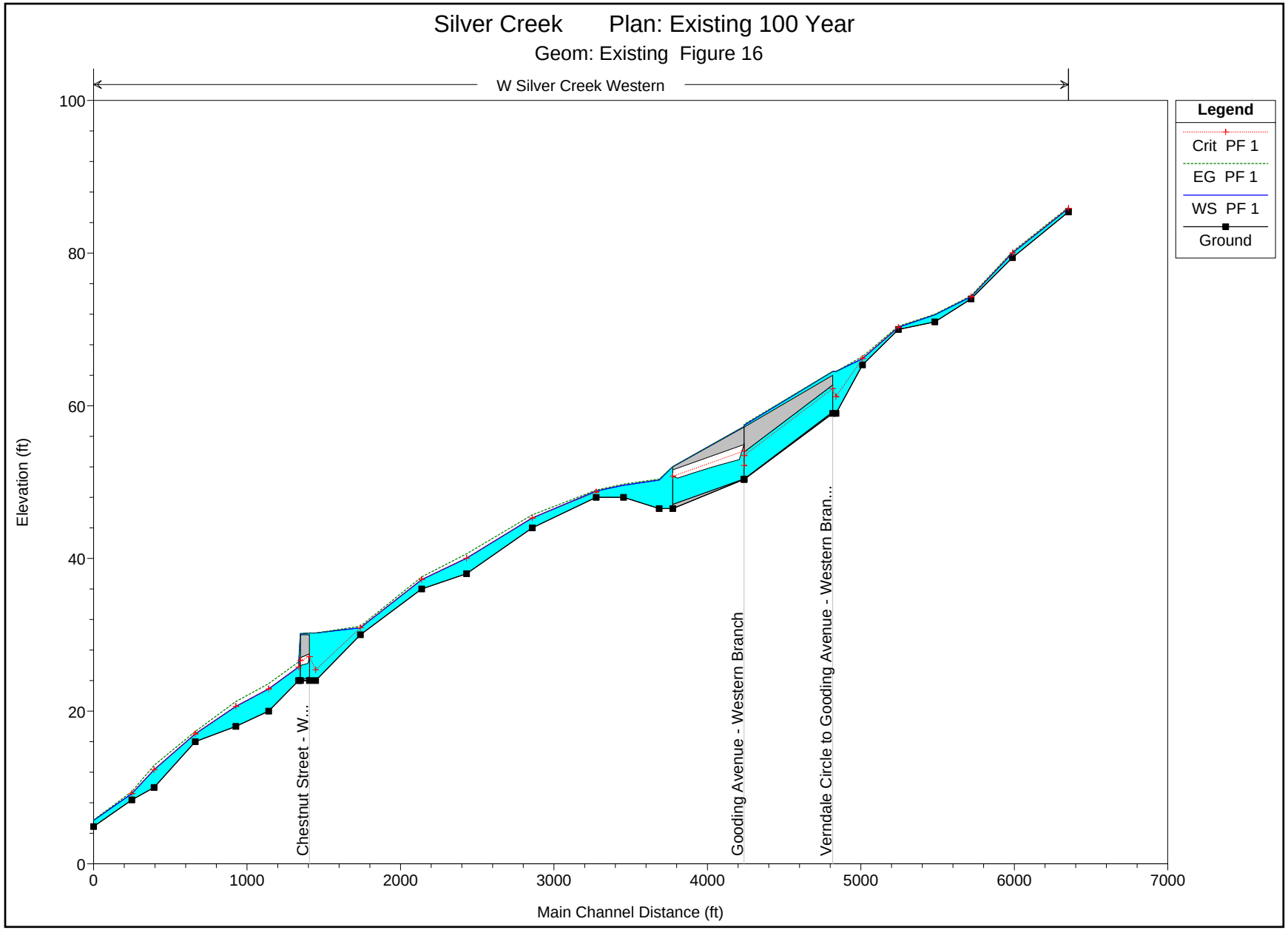

Silver Creek Plan: Existing 10 Year
Geom: Existing Figure 11
W Silver Creek Western
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Chestnut Street - W...
Gooding Avenue - Western Branch
Verndale Circle to Gooding Avenue - Western Bran...
0
20
40
60
80
100
0
1000
2000
3000
4000
5000
6000
7000

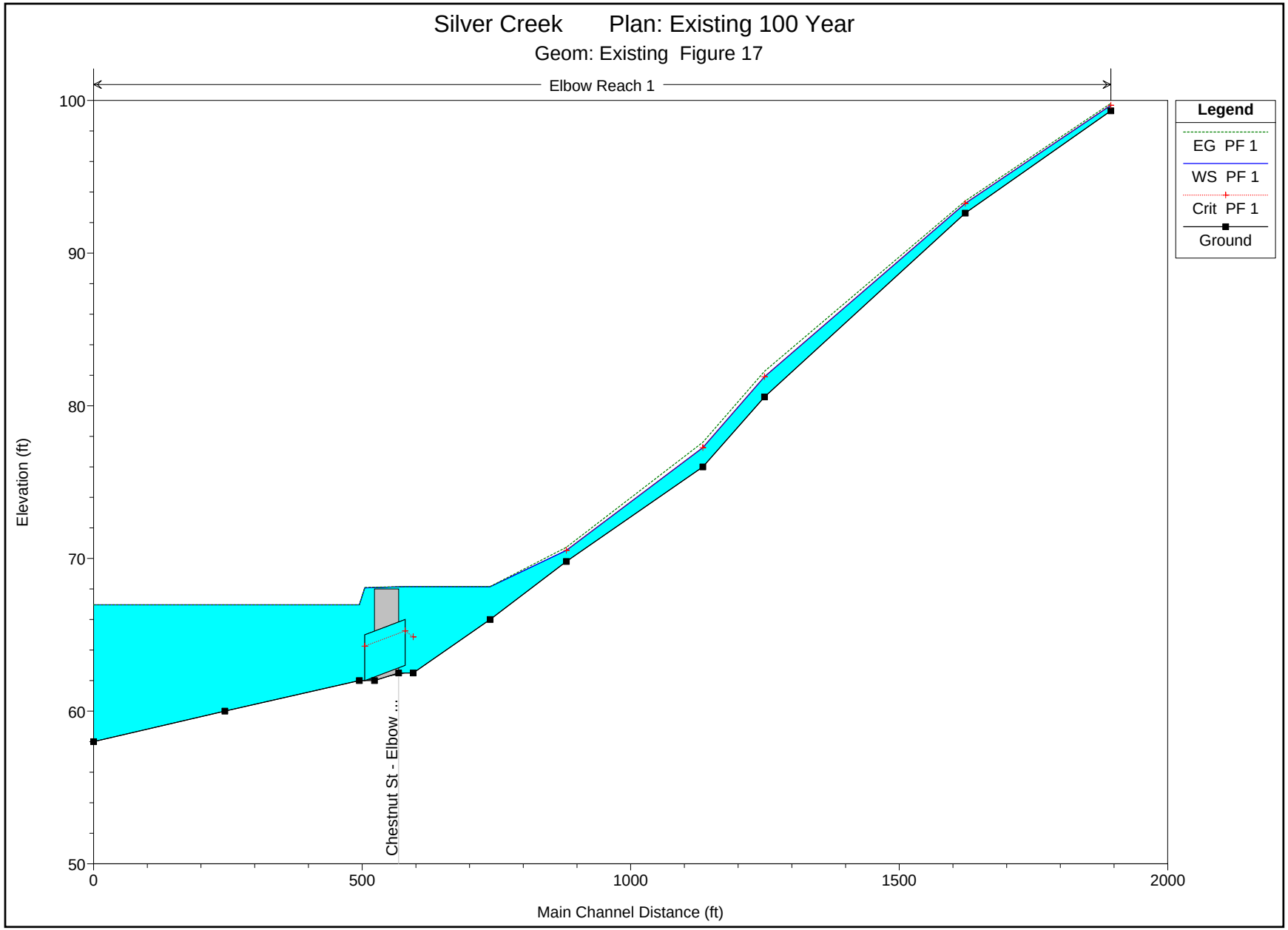

Silver Creek Plan: Existing 10 Year
Geom: Existing Figure 12
Elbow Reach 1
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Elevation (ft)
100
90
80
70
60
50
0
500
1000
1500
2000
Main Channel Distance (ft)
Chestnut St - Elbow ...


Silver Creek
Geom: Existing Flow: 10 Year - No Tailwater Figure 13
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Hopa
Pedestrian Bridge
6
5
4
3
2
1
0
-1
0
500
1000
1500
2000
2500


Silver Creek
Geom: Existing Flow: 10 Year - With Tailwater Figure 14
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Hopa
Pedestrian Bridge
6
5
4
3
2
1
0
-1
0
500
1000
1500
2000
2500


Silver Creek Plan: Existing 100 Year
Geom: Existing Figure 15
Silver Creek Eastern Reach 3
Silver Creek Eastern Reach 1
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Chestnut Street Through Cemetary - Ea...
High School Road
Culvert into High School
Gooding Avenue - Eastern Branch
Elevation (ft)
Main Channel Distance (ft)
0
10
20
30
40
50
60
70
80
0
1000
2000
3000
4000
5000
6000
7000


Silver Creek Plan: Existing 100 Year
Geom: Existing Figure 16
W Silver Creek Western
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Chestnut Street - W...
Gooding Avenue - Western Branch
Verndale Circle to Gooding Avenue - Western Bran...
0
20
40
60
80
100
0
1000
2000
3000
4000
5000
6000
7000


Silver Creek Plan: Existing 100 Year
Geom: Existing Figure 17
Elbow Reach 1
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
100
90
80
70
60
50
0
500
1000
1500
2000
Main Channel Distance (ft)
Chestnut St - Elbow ...

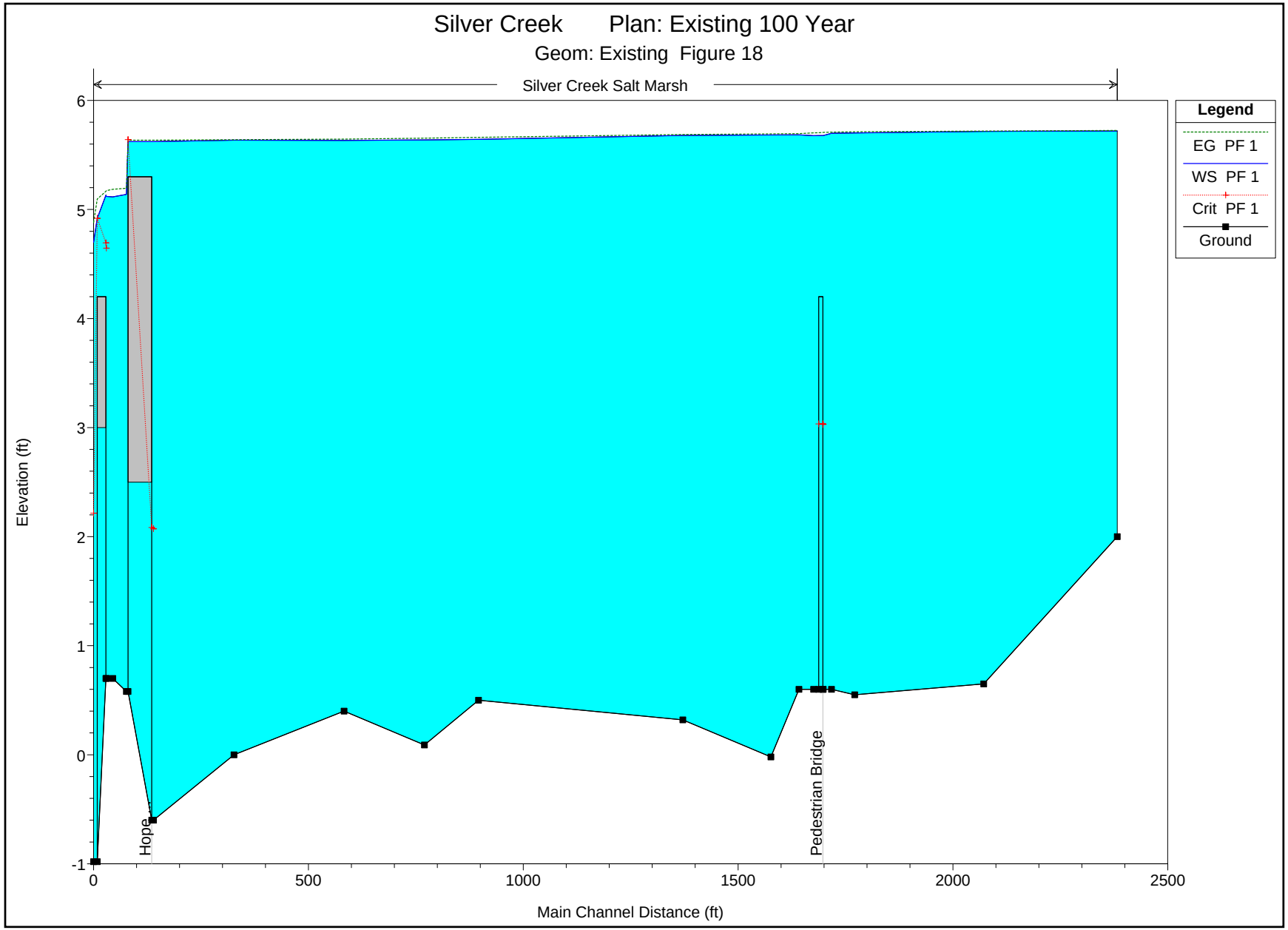

Silver Creek Plan: Existing 100 Year
Geom: Existing Figure 18
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Hopa
Pedestrian Bridge
6
5
4
3
2
1
0
-1
0
500
1000
1500
2000
2500

Table 2 Water Surface Elevations

Design Storm Event	Water Surface Elevations (Feet)			
	Bike Path (EL. 4.2)	**Hope Street (EL. 5.3)**	**Marsh (Tidal)**	**Eastern Branch Between Gooding Ave and High School**
2 Year No Tailwater	4.3	Does Not Overtop	4.6	60.4
2 Year Tailwater Condition	4.7	Does Not Overtop	5.0	60.4
10 Year No Tailwater	4.4	Does Not Overtop	5.2	63.0
10 Year Tailwater Condition	4.7	5.3	5.3	63.0
100 Year No Tailwater	5.1	5.6	5.7	67.0
100 Year Tailwater Condition	5.1	5.6	5.7	67.0

Sediment Removal from Marsh

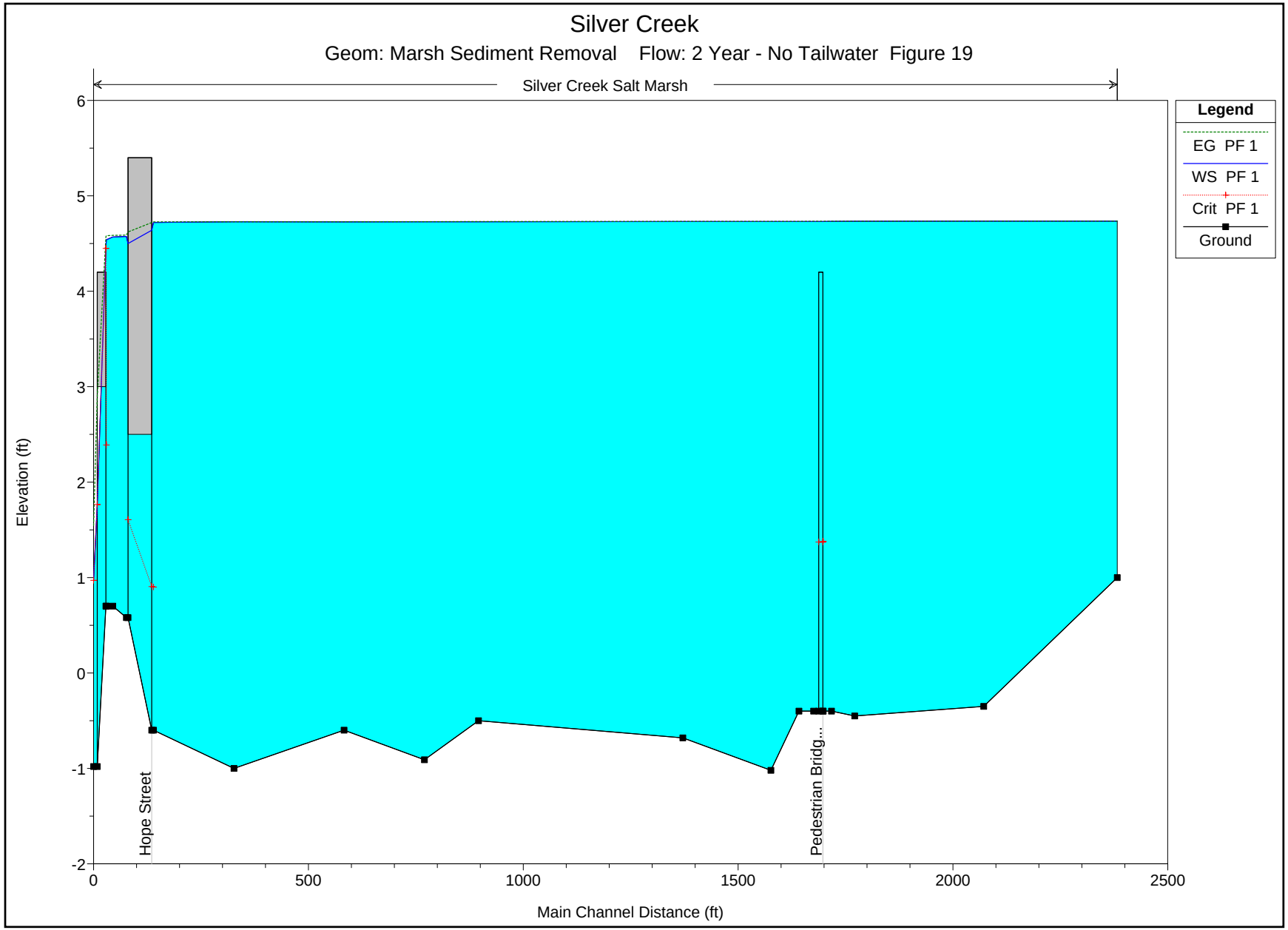
DESCRIPTION

The model was used to determine what effect removing sediment from the marsh would have on the hydraulic capacity of the creek. The cross-sections though the marsh for the existing conditions were altered to represent removing 1 foot of sediment. The three design storms were simulated with a tailwater condition and without.

RESULTS

Two-Year Design Storm

As shown in Figure 19, the two year design storm without a tailwater condition does not overtop the bike path or Hope Street with the sediment removed. The level in the marsh does rise to 4.7 feet which is 0.10 feet above the existing condition elevation. The bike path is not acting as a weir and therefore less flow is being discharged and the elevation in the marsh rises. When the tailwater condition is simulated, the


Silver Creek
Geom: Marsh Sediment Removal Flow: 2 Year - No Tailwater Figure 19
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Hope Street
Pedestrian Bridg...
6
5
4
3
2
1
0
-1
-2
0
500
1000
1500
2000
2500

water surface level in the marsh is 0.10 feet lower than the existing condition, setting the elevation at 4.9 as opposed to 5.0 feet. As shown in Figure 20, the bike path bridge does flood.

Ten-Year Design Storm

As shown in Figure 21, the ten-year design storm without a tailwater condition does not overtop the bike path or Hope Street with the sediment removed. The level in the marsh does rise to 5.25 feet which is 0.05 feet above the existing condition elevation. When the tailwater condition is simulated, neither the bike path nor Hope Street are overtopped and therefore neither structure acts as a weir and the culverts are restrictions. This causes the water surface elevation in the marsh to rise to 5.74 feet which is 0.44 feet higher than the existing conditions. So Hope Street will not flood, but the level in the marsh will rise for a short period of time. This is also illustrated in Figure 22.

One Hundred-Year Design Storm

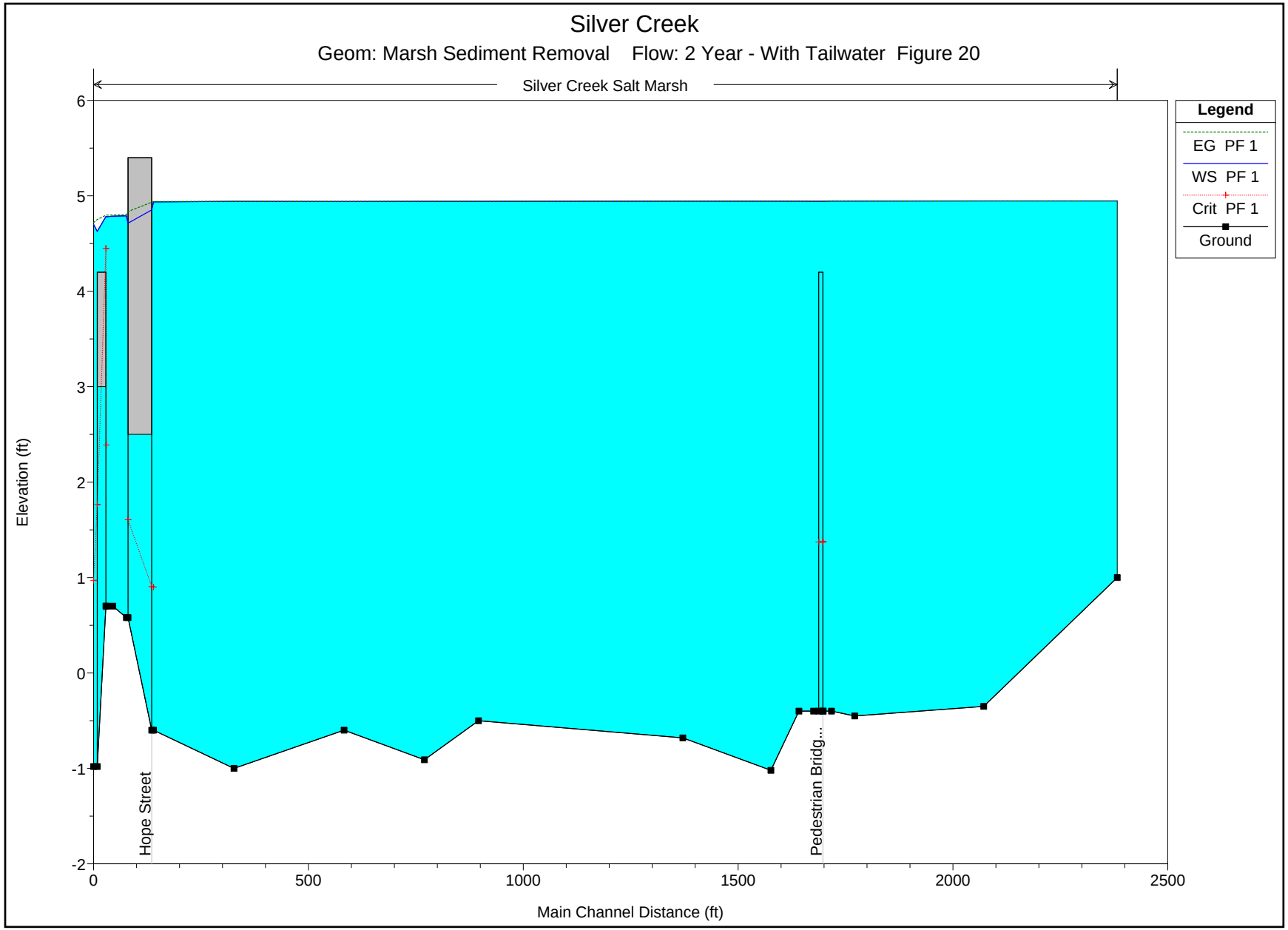
As shown in Figure 23, the flow from the one hundred-year design storm overtops the bike path and Hope Street. The water surface elevations are the same regardless of whether a tailwater condition was simulated. The elevation throughout the marsh is 6.07 feet which is 0.37 feet above the existing condition

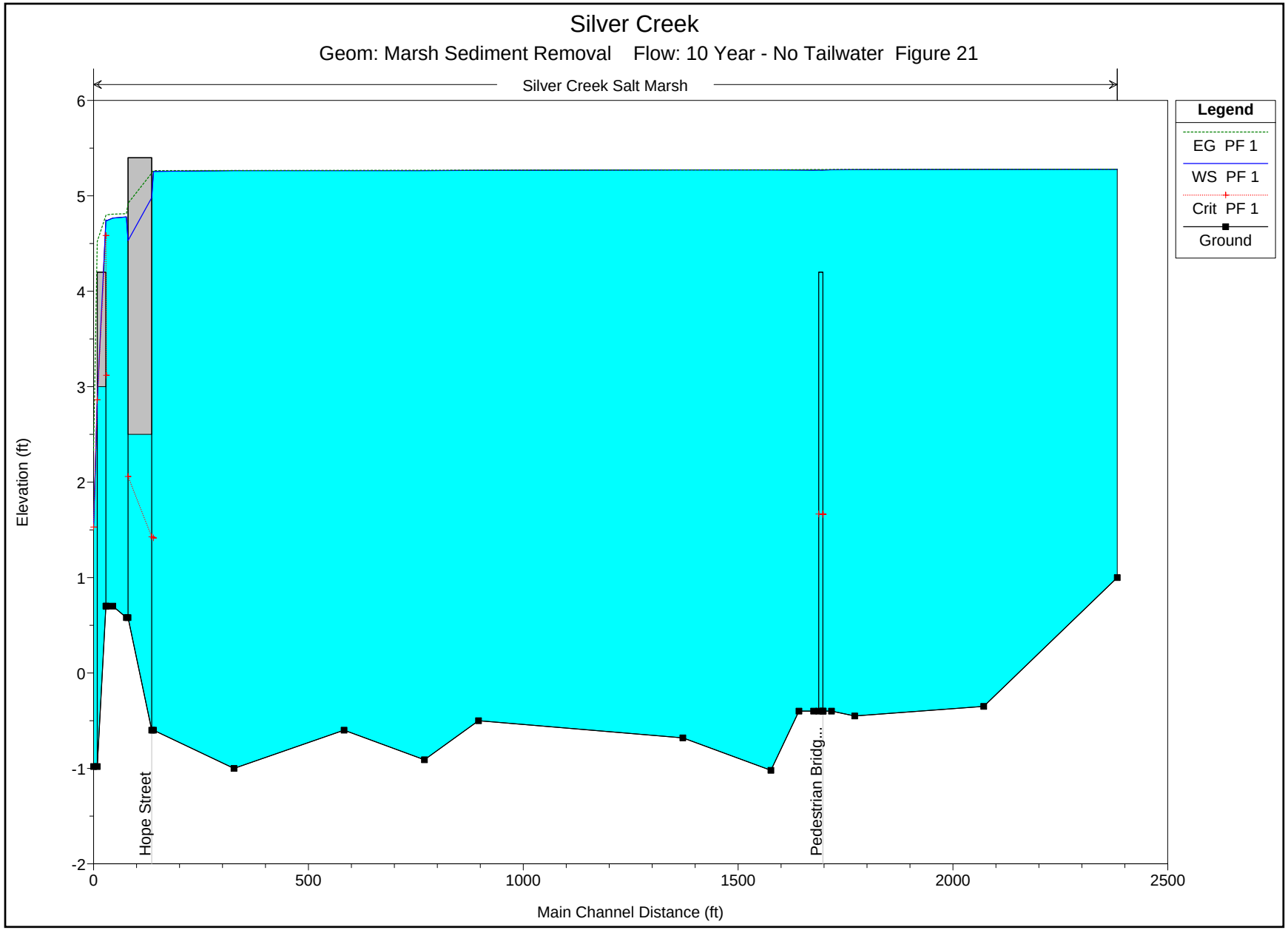
Removing 1 foot of sediment from the marsh relieves the flooding at the bike path and Hope Street for the ten-year storm event. Hope Street floods under the existing condition for a ten-year design storm with the tailwater condition. Dredging the marsh allows for more storage and Hope Street does not appear to flood for these same conditions.

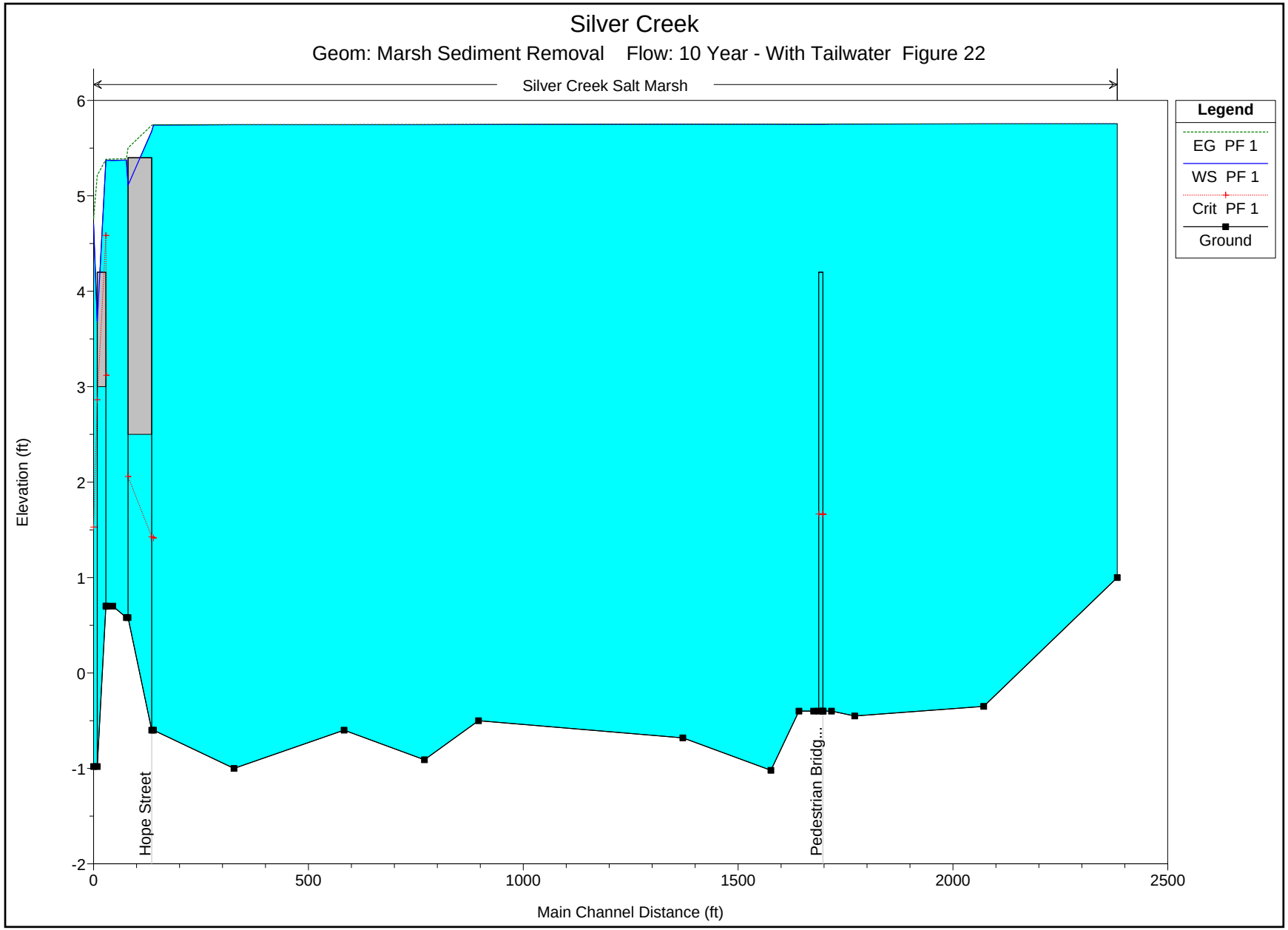
Increase Capacity of High School Culverts

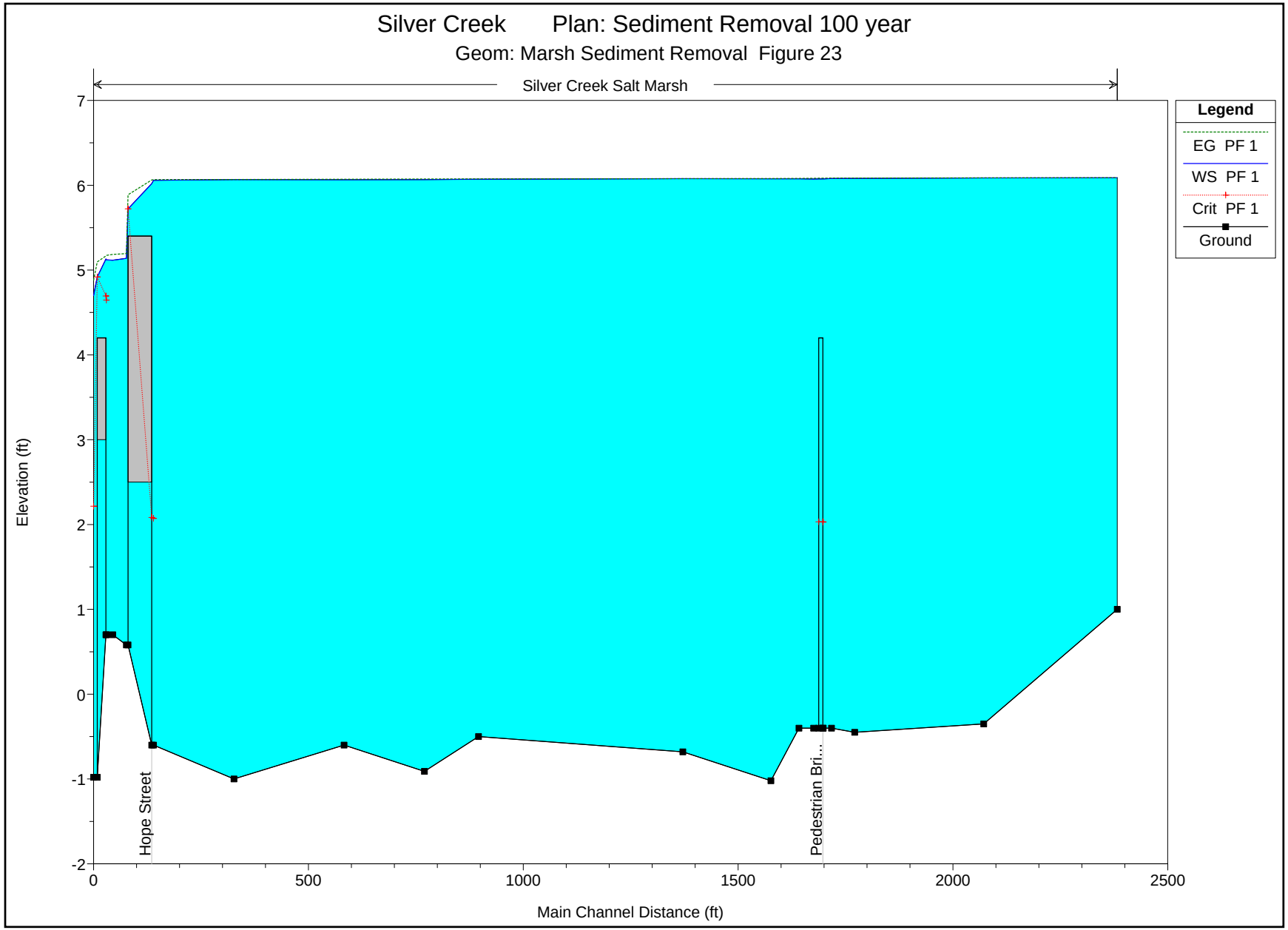
DESCRIPTION

The model was used to determine what effect increasing the capacity of the culverts through the high school would have on the hydraulic characteristics of the creek in this area. Only the size of the twin 48" culverts was altered from the existing condition model. The model shows that the existing culverts are the restriction in the upstream portion of the eastern branch of the creek. Some of the flooding between Gooding Avenue and the high school could be relieved by increasing the size of the existing culverts. Once the size was increased, the impacts downstream were examined. Residents from the Town have stated that there is a flooding problem through the cemetery south of the high school and Chestnut Street.


Silver Creek
Geom: Marsh Sediment Removal Flow: 2 Year - With Tailwater Figure 20
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Hope Street
Pedestrian Bridg...
Elevation (ft)
Main Channel Distance (ft)
6
5
4
3
2
1
0
-1
-2
0
500
1000
1500
2000
2500


Silver Creek
Geom: Marsh Sediment Removal Flow: 10 Year - No Tailwater Figure 21
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Hope Street
Pedestrian Bridg...
Elevation (ft)
Main Channel Distance (ft)
6
5
4
3
2
1
0
-1
-2
0
500
1000
1500
2000
2500


Silver Creek
Geom: Marsh Sediment Removal Flow: 10 Year - With Tailwater Figure 22
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Hope Street
Pedestrian Bridg...
Elevation (ft)
Main Channel Distance (ft)
6
5
4
3
2
1
0
-1
-2
0
500
1000
1500
2000
2500


Silver Creek Plan: Sediment Removal 100 year
Geom: Marsh Sediment Removal Figure 23
Silver Creek Salt Marsh
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Hope Street
Pedestrian Bri...
7
6
5
4
3
2
1
0
-1
-2
0
500
1000
1500
2000
2500

Since the existing creek has the capacity to convey the two-year design storm, and this culvert would not be designed to convey the one hundred-year design storm, only the ten-year design storm was considered for this alternative. As previously stated, the tailwater condition at the outfall at Hope Street does not affect the creek this far upstream, and therefore was not taken into consideration.

RESULTS

Ten-Year Design Storm

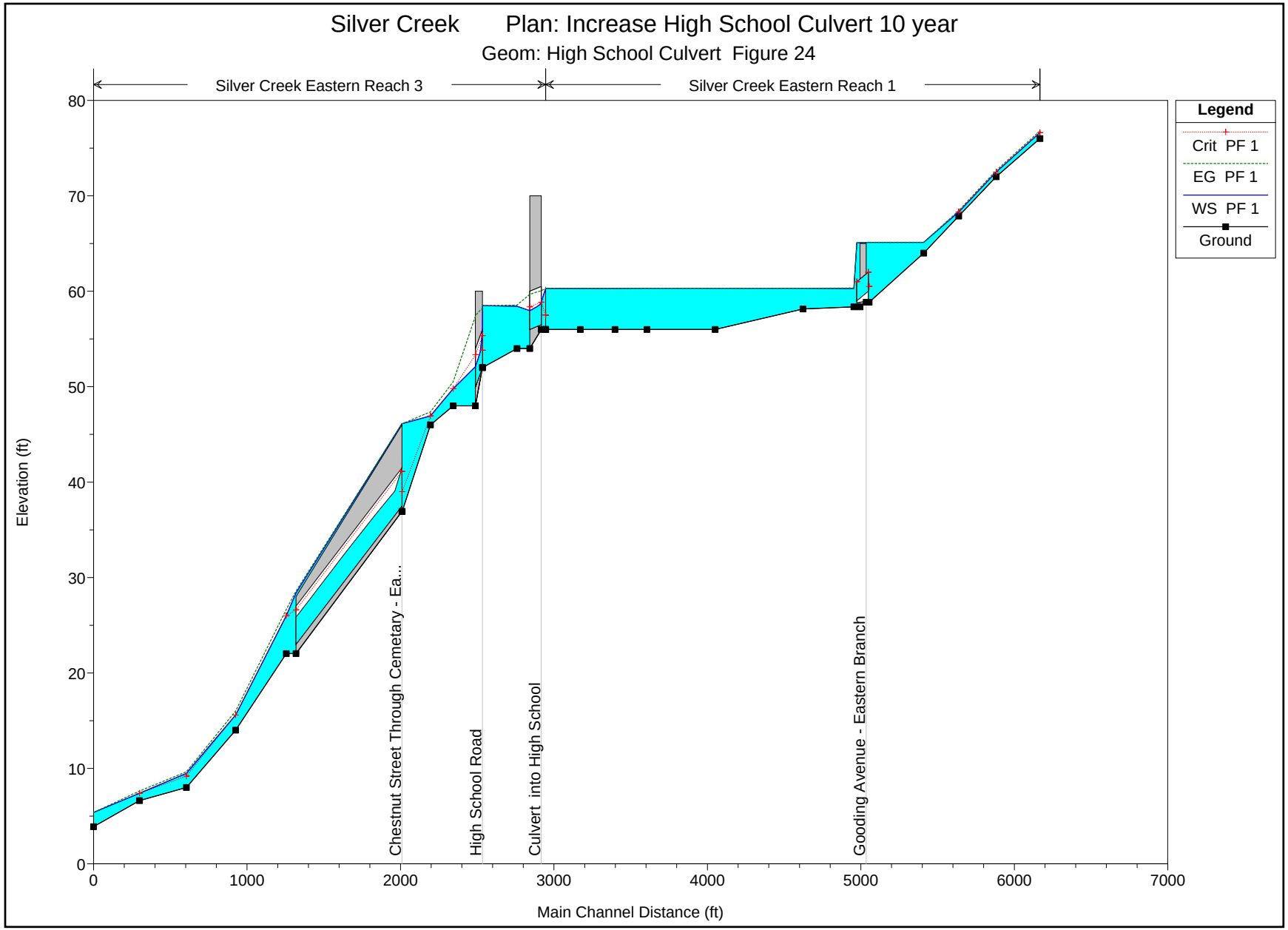
The model was run while replacing the existing culverts with twin 6-feet wide by 4-feet deep box culverts. The feasibility of this option would have to be investigated in greater detail. As shown in Figure 24, increasing the culverts would decrease the water surface elevation between Gooding Avenue and the high school from 63.0 feet (existing) to 60.3 feet. This does not impact the creek downstream. The culvert through the cemetery south of Chestnut Street, assuming it is not damaged or collapsed, has an adequate capacity to the increased peak flow. The water surface continues to overtop Chestnut Street by 0.10 feet as it does in the existing model.

Diminished Capacity at Chestnut Street/Cemetery due to deteriorated pipe

DESCRIPTION

There is a flooding problem along the Eastern branch of the creek downstream of Chestnut Street through the cemetery. There are many possible factors in this area to account for the flooding problems. Two 48-inch culverts flow from the northern side of Chestnut Street and discharge to one 48-inch pipe which then conveys flow through the cemetery. This area is a low point for about a 17 acre watershed that flows overland to the creek and is conveyed by a closed drainage system from Chestnut Street and Sherry Avenue. When the creek is surcharged the systems from Chestnut Street and Sherry Avenue can not discharge, so this area will flood and flow overland through the cemetery to the open channel portion of the creek south of the cemetery. Even if the creek is not surcharged, based on the topography of the area, if the basins on Sherry Avenue do not intercept all of the runoff generated in that area this runoff will continue to flow overland through the cemetery.

As stated previously, the HEC-RAS model is based on the assumption that the pipes and culverts are not damaged or collapsed and can physically convey their full capacity. Concerns about the condition of the 48-inch pipe which flows through the cemetery prompted the use of a camera to determine the condition


Silver Creek Plan: Increase High School Culvert 10 year
Geom: High School Culvert Figure 24
Silver Creek Eastern Reach 3
Silver Creek Eastern Reach 1
Legend
Crit PF 1
EG PF 1
WS PF 1
Ground
Elevation (ft)
Main Channel Distance (ft)
Chestnut Street Through Cemetary - Ea...
High School Road
Culvert into High School
Gooding Avenue - Eastern Branch
0
10
20
30
40
50
60
70
80
0
1000
2000
3000
4000
5000
6000
7000

of the pipe. The results of the television inspection revealed that the two-48″ RCP culverts under Chestnut Street are at least one third full of debris and sediment, including large stones, and the bottom of the 48″ corrugated metal pipe which runs through the cemetery pipe is extremely deteriorated, with the entire bottom of the pipe rotted away. The model was run with the 48-inch pipe being replaced with a 32-inch pipe to simulate the existing pipe being one third full of debris. Examination of the structure where the pipes are reduced from 2 -48″ RCP to 1-48″ CMP revealed that the brick cap originally constructed is intact despite the velocities through the drainage structure. Also noted by the Truax video inspection, there is a very large pile of sediment at the outfall south of the cemetery, as well as several trees which have fallen into the channel, indicating a lack of maintenance of the pipe and open channel.

RESULTS

Ten-Year Design Storm

The diminished capacity of the pipe due to the debris results in an increase in water surface elevation north of Chestnut Street of 0.10 feet. As shown in Table 3 and 4, the 48-inch culvert could convey approximately 154 cfs. When the pipe size is decreased to 32 inches, the conveyed flow is decreased to approximately 68 cfs. The condition of this pipe is a contributing factor to the flooding in this area.

HEC-RAS Plan: Existing 10 Yr River: Silver Creek Reach: Eastern Reach 3 Profile: PF 1 Table 3 48" Culvert Capacity 4947 Culvert 1

Reach	River Sta		Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Eastern Reach 3	5881	Culvert #1	PF 1	63.04	63.04	63.04	62.12	70.01	123.93		4.60	9.86	14.45
Eastern Reach 3	5881	Culvert #2	PF 1	63.04	63.04	63.04	62.12	70.01	123.93		4.60	9.86	14.45
Eastern Reach 3	5497	Culvert #1	PF 1	58.50	58.49	58.50	57.64	60.01	124.50		8.69	9.91	18.51
Eastern Reach 3	5497	Culvert #2	PF 1	58.50	58.49	58.50	57.64	60.01	124.50		8.69	9.91	18.51
Eastern Reach 3	4947	Culvert #1	PF 1	46.13	46.13	46.13	44.21	46.01	154.16	97.35	20.13	12.27	16.11

HEC-RAS Plan: Existing 10 Yr River: Silver Creek Reach: Eastern Reach 3 Profile: PF 1 Table 4 32" Culvert Capacity 4947 Culvert 1

Reach	River Sta		Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Eastern Reach 3	5881	Culvert #1	PF 1	63.04	63.04	63.04	62.12	70.01	123.93		4.60	9.86	14.45
Eastern Reach 3	5881	Culvert #2	PF 1	63.04	63.04	63.04	62.12	70.01	123.93		4.60	9.86	14.45
Eastern Reach 3	5497	Culvert #1	PF 1	58.50	58.49	58.50	57.64	60.01	124.50		8.69	9.91	18.51
Eastern Reach 3	5497	Culvert #2	PF 1	58.50	58.49	58.50	57.64	60.01	124.50		8.69	9.91	18.51
Eastern Reach 3	4947	Culvert #1	PF 1	46.19	46.19	46.19	46.19	46.01	67.45	182.04	20.19	12.05	12.05

Problem Areas

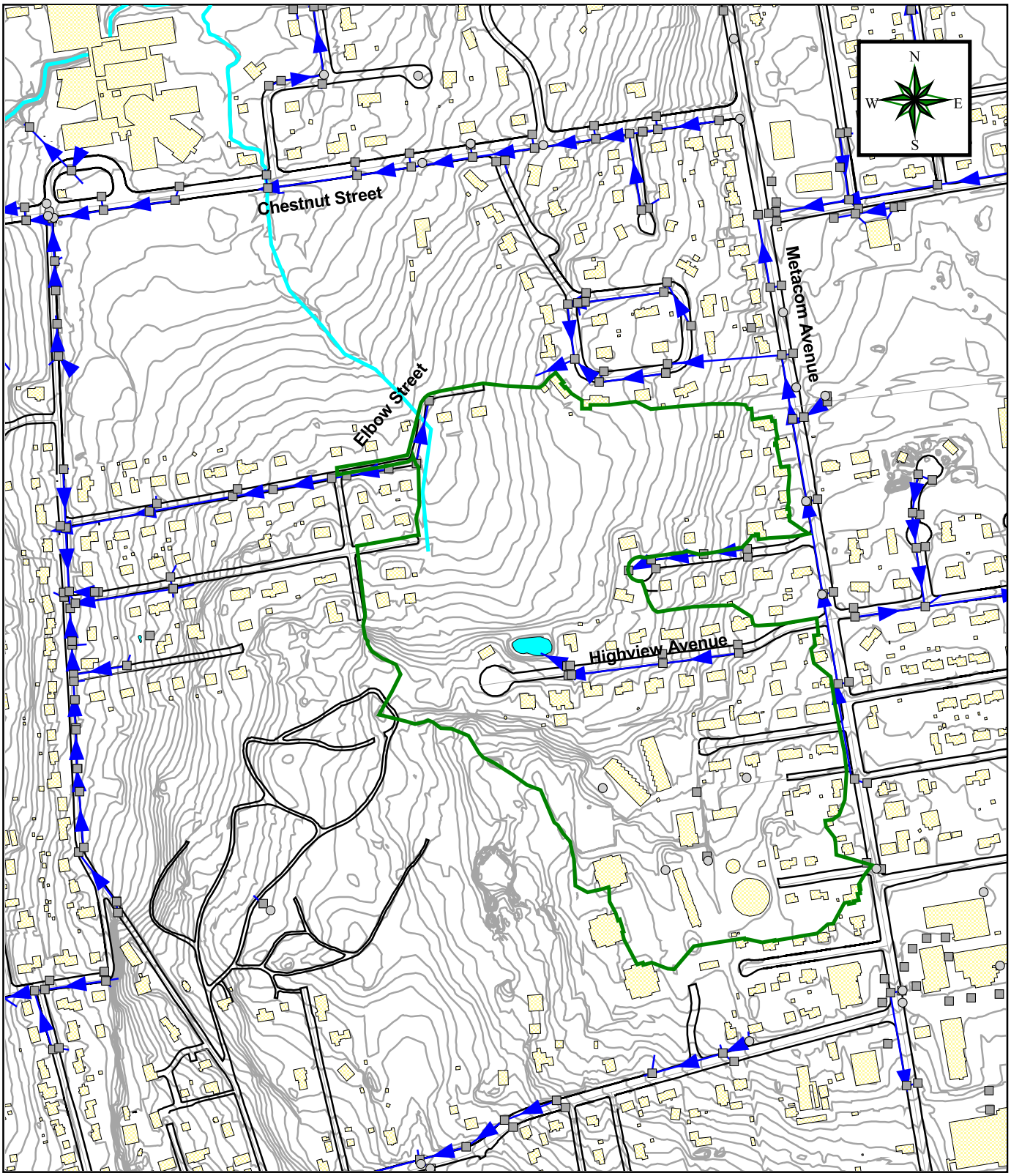
Both the Hydrocad analysis and the HEC-RAS model identified several areas of particular concern, where the yields exceeded the existing pipe capacities and the areas require extensive attention. While these six (6) areas are by no means the only areas with flooding problems within the watershed, they have been identified as those most problematic, both from an analytical point as well as what was discussed at the Public Meeting.

Area 1 – Elbow Street/Waterman Avenue

Existing Conditions

Elbow Street is an extension of Waterman Avenue, located east of Sherry Avenue. As shown in Figure 25, this 44-acre subwatershed area receives runoff from the south and east of Elbow Street, from Jane Lane, Highview Drive, Francesca Lane, Kennedy Court, Carr Lane and a portion of Hattie Brown Lane and King Street. A small detention pond was constructed at the end of Highview Drive. The pond was originally designed to retain the increase in runoff from the new subdivision only, and was not designed to detain the flows it is receiving from other areas upstream. This detention pond is discussed further in Area 4 – Highview Drive.

That issue aside, the runoff from the pond and other overland flow is directed to Elbow Street in a drainage channel, or as an intermittent stream, where it was designed to flow under Elbow Street to a wetland area north and west of the roadway. However, the existing 12" CMP under Elbow Street is crushed or collapsed, according to a report by Caputo and Wick, further reducing the capacity. The roadway is flat in this area, with a low point near the culvert. The stormwater runoff tops the roadway and flows across the pavement, as shown in the photographs.



Legend

Existing Drain Pipes

Problem Area Watershed

Town of Bristol
Rhode Island

Silver Creek

NOT TO SCALE

Figure 25

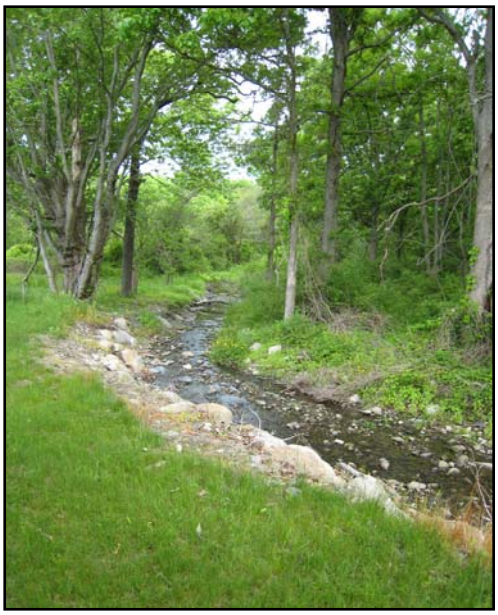
Elbow Street/
Waterman Avenue

Inspection of the basins on Elbow Street revealed that there was silt and water in most of the structures. Our calculations show that the flow to this area in the 2-year storm is approximately 30 cfs, and 60 cfs for the 10-year storm. The collapsed pipe results in the stormwater overtopping the pavement and entering the wetland via a swale along the northwesterly side of the road. It should be noted here that information from the Caputo and Wick report was used in our calculations as the pipe and invert information was not available due to sediments in the structures.

The Town has recently advertised and awarded a contract to replace the existing 12″ CMP pipe with a new 18″ HDPE pipe and a new flared end section to capture the intermittent stream flowing from south to north. It is anticipated that this work will be completed in the Fall 2007. This pipe will increase the capacity and provide improvement during minor storm events. However, our calculations show that this area will remain subject to flooding during major storms without additional improvements.

Recommended Improvements

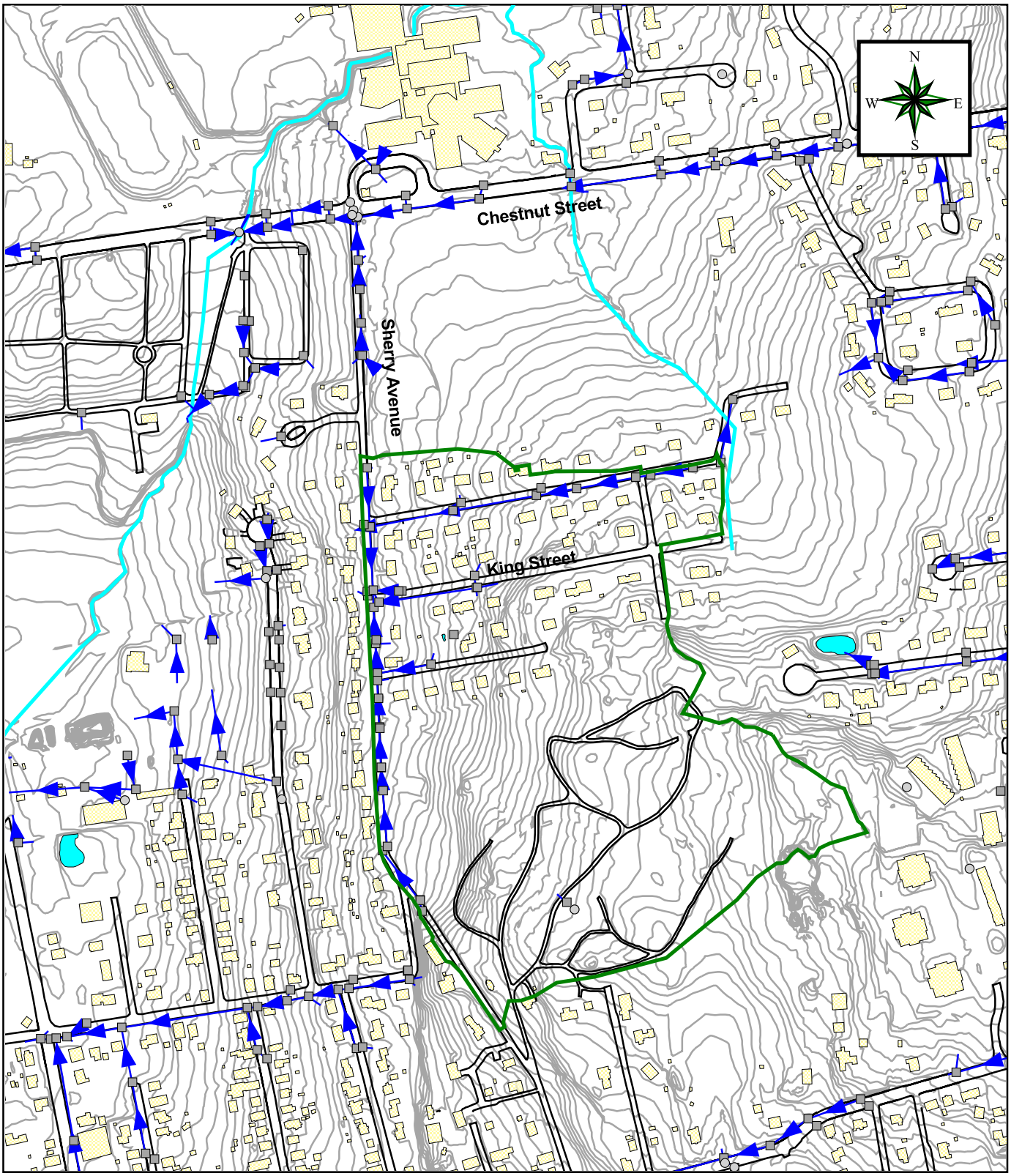
Because of the large rate of runoff generated from the areas east of Elbow Street, it is suggested that the Town attempt to identify possible property available for stormwater retention. Enlarging the existing detention pond on Highview Drive may alleviate some of the flooding downstream. Although the plans call for the existing 12″ pipe to be replaced with an 18″ HDPE pipe, our calculations indicate that 25 cfs is currently flowing across the pavement, and would require the capacity of a 30″ pipe. This project should be considered a long-term goal as part of a complex upgrade of the drainage pipes from Elbow Street to Chestnut Street and through the cemetery.



Area 2 – Sherry Avenue

Existing Conditions

Sherry Avenue is a north-south roadway which provides an alternate route to Wood Street and the down town area from Chestnut Street (See Figure 26). Located opposite Mount Hope High School, it borders the Saint Mary Cemetery to the west, and town-owned land to the north. The remaining length of the roadway, from Silver Creek Court south is residential. There is a closed drainage system in Sherry



Legend

Existing Drain Pipes

Problem Area Watershed

Town of Bristol Rhode Island

Silver Creek

NOT TO SCALE

Figure 26

Sherry Avenue

Avenue, with approximately 500 feet of the roadway draining toward Chestnut Street. The remaining roadway collects flows from the closed drainage systems in King Street and Lugent Lane, and conveys the flow to Varnum Street via a 16" corrugated metal pipe in a prescriptive easement area. However, our calculations indicate that these pipes are undersized and the drainage structures are ineffective in collecting the runoff, resulting in overtopping of Sherry Avenue flooding local properties and Varnum Avenue to the west. The existing outfall, west of Varnum Avenue, flows to a stone swale, which in turn flows through a manmade pond on the DaPonte property. Although it appears that the Elbow Street and Waterman Street drainage system would be connected to the closed drainage system in Sherry Avenue, because of the crushed pipe under Elbow Street, and pipes with negative slopes, our analysis shows that minimal (if any) runoff from Elbow Street reaches Sherry Avenue, and therefore, the 44-acre subwatershed area was analyzed separately using Hydraflow.

Our field inspections revealed that 21 of the drainage structures were filled with sediment, and one structure was filled with water. Many of the pipes do not have sufficient capacity to convey the 2-year storm. The result is that the stormwater runoff floods Sherry Avenue, and then runs down the hill to Varnum Avenue, and through private property before entering the east branch of the Silver Creek.

The photos illustrate the private pond on Mr. Seraphin DaPonte's property, under dry conditions and flooded conditions.

Proposed Improvements

It is recommended that the existing closed drainage system on Sherry Avenue be replaced with a new closed drainage system consisting of RCP and new precast concrete structures with oversized sumps. The existing 16″ outfall pipe should be replaced with a 30″ RCP to provide sufficient capacity in a 10-year storm to safely convey the runoff from Sherry Avenue through the existing easement area to the discharge point. A new BMP (i.e. Vortechs or similar structure) is recommended prior to the cross-country run to remove sediments. Although it would appear that we are increasing the flow to this outfall, the increase in runoff should be negligible as the flows currently reach this point via overland (flooded) flow, due to the steepness of the properties and the well-manicured lawns. The proposed state would result in reduced flooding of private property as well as reduced erosion and removal of sediment. In addition to the 450 linear feet of 30″ RCP, approximately 570 LF of 24″ RCP and 1,050 LF of 18″RCP would replace the existing undersized pipes in Sherry Avenue and intersecting sidestreets. The remaining 300 LF of 12″ corrugated pipe would be replaced with 12″ RCP at slopes sufficient to increase the capacity to accommodate the 10 year storm. New structures and grates would provide sufficient storage for sediments while reducing the depth of stormwater on the roadway surfaces. The outfall would be located so as to pose no flooding to private property, with discharge to the open waters of the Silver Creek.

It is also recommended that additional storage be provided within this subwatershed area to reduce the rate and volume of water flowing downstream toward the Silver Creek. Possible areas include the town-owned land east of Sherry Avenue, and land west of Varnum Street. This land, since it currently is not town-owned, would need to be purchased for this purpose.

We have reviewed the conceptual design to place two 48″ pipes within the existing Right-of-Way from Lugent Lane to Chestnut Street, with a control structure to be constructed in Chestnut Street to restrict the flow and use the 48″ pipes as storage. BETA believes this design would be more costly and would require additional maintenance. In addition to the costs and maintenance issues, sending more water to the Chestnut Street system even at a reduced rate, would increase the volume of water in this already over-capacity system, resulting in greater flows as the longer peaks from the Sherry Avenue system would coincide with the peak flows coming from the High School.

Area 3 – Perry Street

Existing Conditions

As shown in Figure 27, Perry Street receives runoff from approximately 28 acres, extending from Sherry Avenue to Monroe Avenue. The grades are extremely steep (in excess of 7%), with no curbing or berm to contain the runoff within the roadway, resulting in flooding and erosion of abutting properties. The closed drainage system is ineffective with grates incapable of intercepting but a fraction of the existing gutter flow. The pipes seem to be an older system that has been modified over the years, with larger pipes being added to smaller pipes downstream, creating restrictions and surcharging basins. Pipe materials include 6″ asbestos cement (AC) pipe, 24″ RCP, 15″ CMP, 4″ cast iron pipe, and 10″ vitrified clay (VC) pipe. In one instance, the capacity of a pipe is approximately 2 cfs, although the runoff is in excess of 28 cfs.

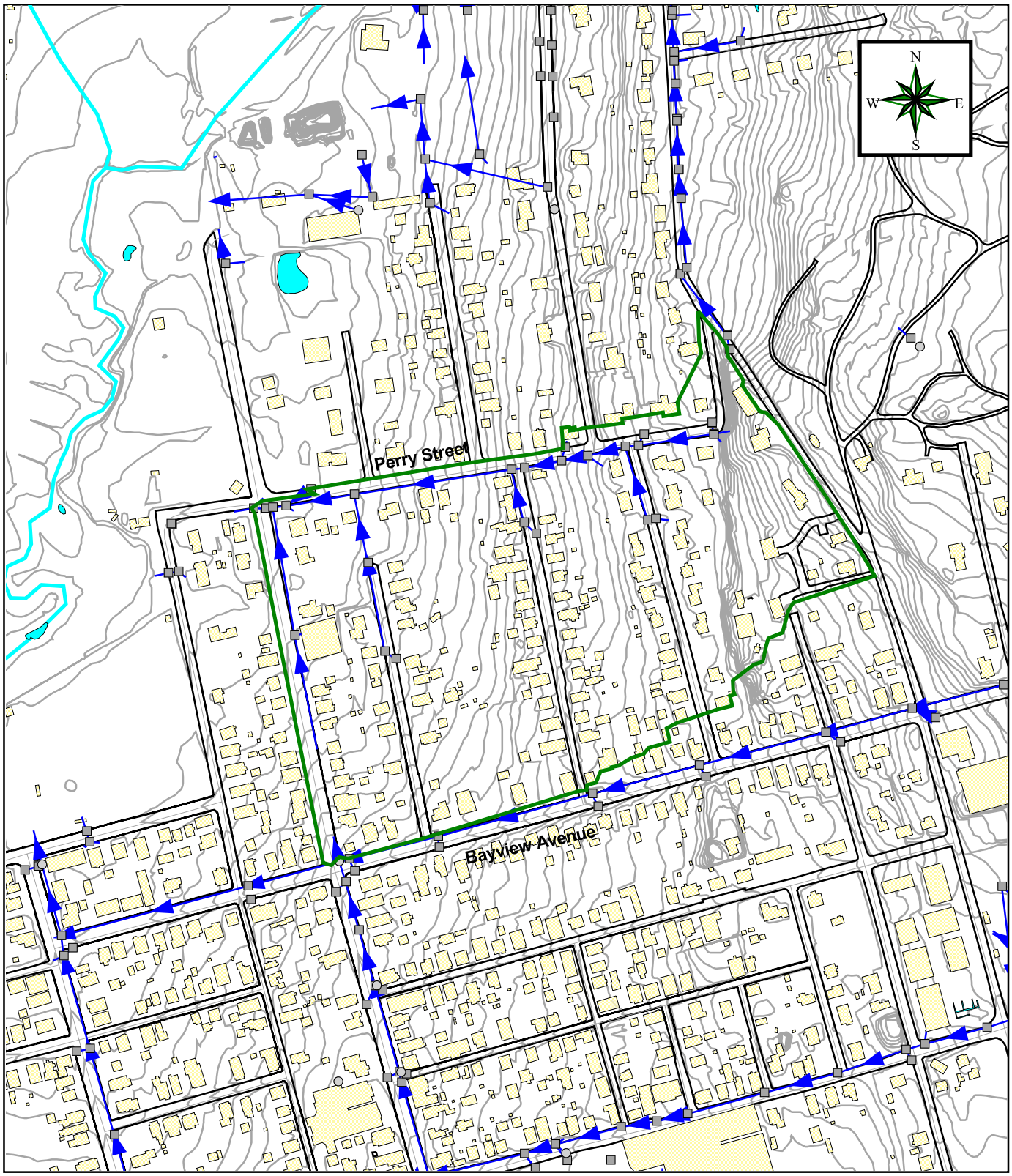
Proposed Improvements

It is recommended that a new trunkline be installed on Perry Street, gradually increasing in size from an 18″ pipe to the east, to a 30″ RCP near the outfall at Monroe Avenue. The lateral pipes would be replaced, requiring 180 LF of 24″ RCP, 770 LF of 18″ RCP, and 300 LF of 12″ RCP. New structures would be proposed incorporating high-capacity double grates where warranted on the steep grades and at low points. Bituminous berm or curbing is recommended along both sides of the roadway to channelize the flows and prevent flooding of adjacent properties. Catch basins would be located upstream of all intersections and crosswalks to minimize localized flooding. High capacity grates are needed to catch the flow, reducing the splash-over velocity due to the steepness of the roadway. As this is a residential area in close proximity to schools, an alternate grate to the RI standard high capacity grate could be selected which would not create a trip hazard.

Area 4 – Highview Drive

Existing Conditions

Highview Drive is located off Metacom Avenue south of Chestnut Street (See Figure 28). This area has been mentioned as requiring improvements. The existing drainage system in Highview Drive includes a closed drainage system which is connected to the swale from Kennedy Lane and Carr Lane. Our data collection program revealed that 7 of the 8 structures on Highview Drive contained silt, and one structure surcharges during storm events. The existing system was analyzed using Hydraflow and this activity was reproduced in the model. The open channel flow from Carr Lane enters the closed drainage system via an 18″ HDPE flared end section, with the connecting pipe at a 5% slope. This water rushes into the



Legend

Existing Drain Pipes

Problem Area Watershed

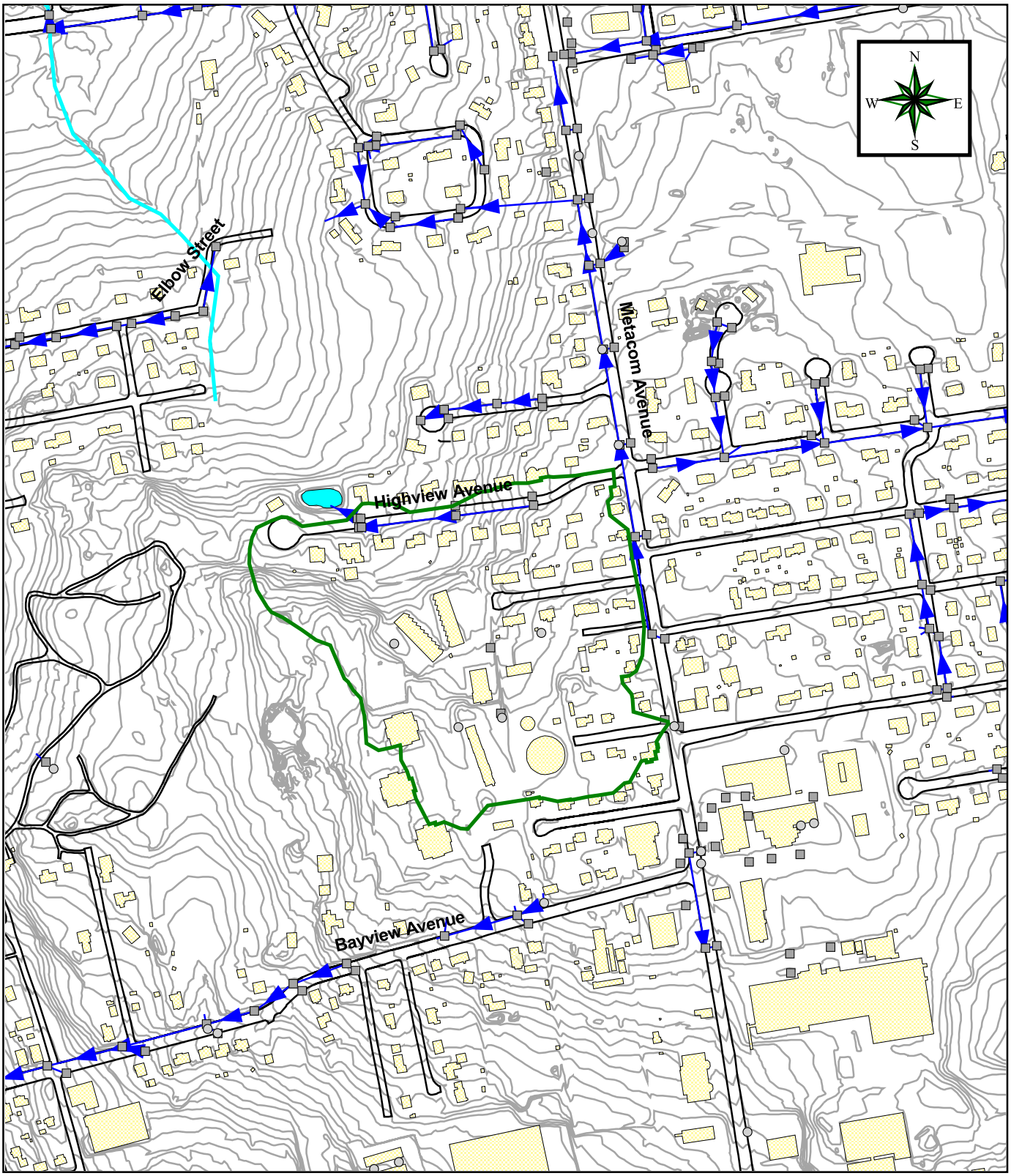
Town of Bristol Rhode Island

Silver Creek

NOT TO SCALE

Figure 27

Perry Street



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Existing Drain Pipes

Problem Area Watershed

Town of Bristol Rhode Island

Silver Creek

NOT TO SCALE

Figure 28

Highview Avenue

closed drainage system increasing the hydraulic grade line and surcharging the system. One pipe is under capacity for the 2 and 10 year storms, while two pipes are under capacity for the 10 year storms.

A detention pond exists at the end of Highview Drive and there have been some misconceptions about the pond including that the pond is not operating properly, and modifications have been performed on the northern wall of the pond. The pond has not been properly maintained, and the overgrown vegetation obstructed the inspection of the northern wall of the basin. The basin was cleaned by the Town during the week of July 16, 2007, removing accumulated silts and vegetation from the interior of the basin. Although it was first thought to have been modified, and not effective in the retention of runoff from this closed drainage system, a visual inspection of the basin revealed that it has not been modified by man; however, approximately 24″ caliper trees are growing inside the detention pond. These trees are removing a portion of the storage volume.

An assessment of the design calculations, including a review of the inlet and outlet structures, indicates that in the original design, the pond was sized to mitigate the increase in runoff, but was not sized to hold the total volume of runoff which flows into the structure during the 2, 10 and 50 year storms. The runoff from the areas south of the detention pond was designed to pass through the detention pond. BETA analyzed the basin and the calculations and determined that the decrease in storage volume results in the pond overtopping, flooding out downstream properties (Elbow Street). A more detailed review of the basin, including a survey of the existing contours and inlet and outlet structures, would reveal the extent of the decease in storage volume from the trees.

Proposed Improvements

It is recommended that the velocity of the flow from Carr Lane be reduced by increasing the pipe diameter and reducing the slope of the pipe from 5% to 1.25%. Other minor modifications include increasing one pipe from a 12″ CMP to an 18″ RCP, and changing the slope of a 24″ pipe to increase the capacity.

As noted in the discussion of Elbow Street, it is recommended that the detention pond be reviewed to see if the size can be increased to retain or detain the volume of water which is directed to it from areas to the south. This will have a positive impact on properties downstream.

Area 5 – Jane Lane

Existing Conditions

As shown in Figure 29, Jane Lane is a looped roadway servicing approximately 20 homes off of Chestnut Street. The closed drainage system in Jane Lane is connected to the drainage system in Metacom Avenue (a State highway) via an 18" corrugated metal pipe. The flows from Metacom Avneue exceeds the pipe capacity for the 10 year storm by approximately 10%, yet the pipes in Jane Lane and connecting to Chestnut Street are insufficient to handle the 2 year storm, causing flooding within the subdivision. Also, our field inspections noted sump pumps connected to the catch basins with algae growth, indicating a chronic problem.

Proposed Improvements

It is recommended that the pipes from Metacom Avenue be video-inspected to identify possible collapse of the CMP. It is recommended that the 18" CMP be replaced with an 18" RCP, which would provide increased capacity and structural soundness. Other pipes within the roadway should be upgraded to 18" RCP, and the outlet pipe discharging to the wetland east of Elbow Street should be a 24" RCP. These improvements should alleviate the flooding in this immediate area.

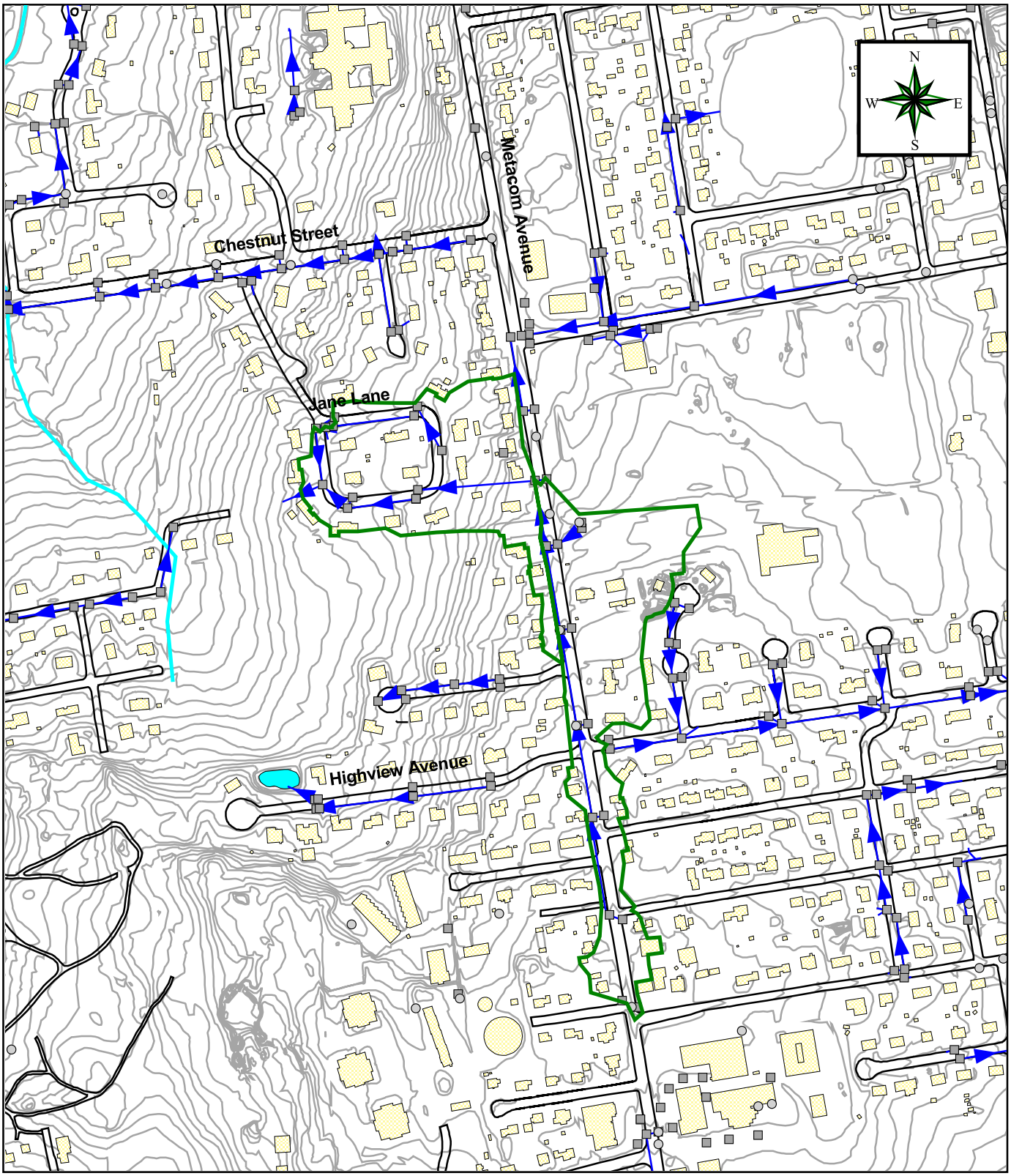
Area 6 – Paull Street/Hillside Road

Existing Conditions

This area is different from the other areas in that it is located adjacent to the Silver Creek wetlands area, and is located within an "AE Zone" as shown on the Flood Insurance Rate Map (RIRM) No. 44001C0014G. The roadways are located within a Special Flood Hazard Area, commonly referred to as the 100-year floodplain. As shown in Figure 30, there is an existing closed drainage system within the roadways consisting of approximately eight (8) catch basins, with several pipes undersized for the 2-year storm. Several of the basins are filled with silt, resulting in roadway flooding. Also, during storms, the Silver Creek and associated wetlands encroaches on the yards of the properties along Paull Street, particularly during periods of high tide when the water cannot flow out to the harbor.

Proposed Improvements

Cleaning and/or upgrading the pipes and catch basins within the roadways will reduce the roadway flooding somewhat, however, in order to alleviate the flooding from the east, additional flood storage area must be created either through dredging of the creek and marsh areas, or by constructing large retention areas in the upper reaches of the watershed.



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Existing Drain Pipes

Problem Area Watershed

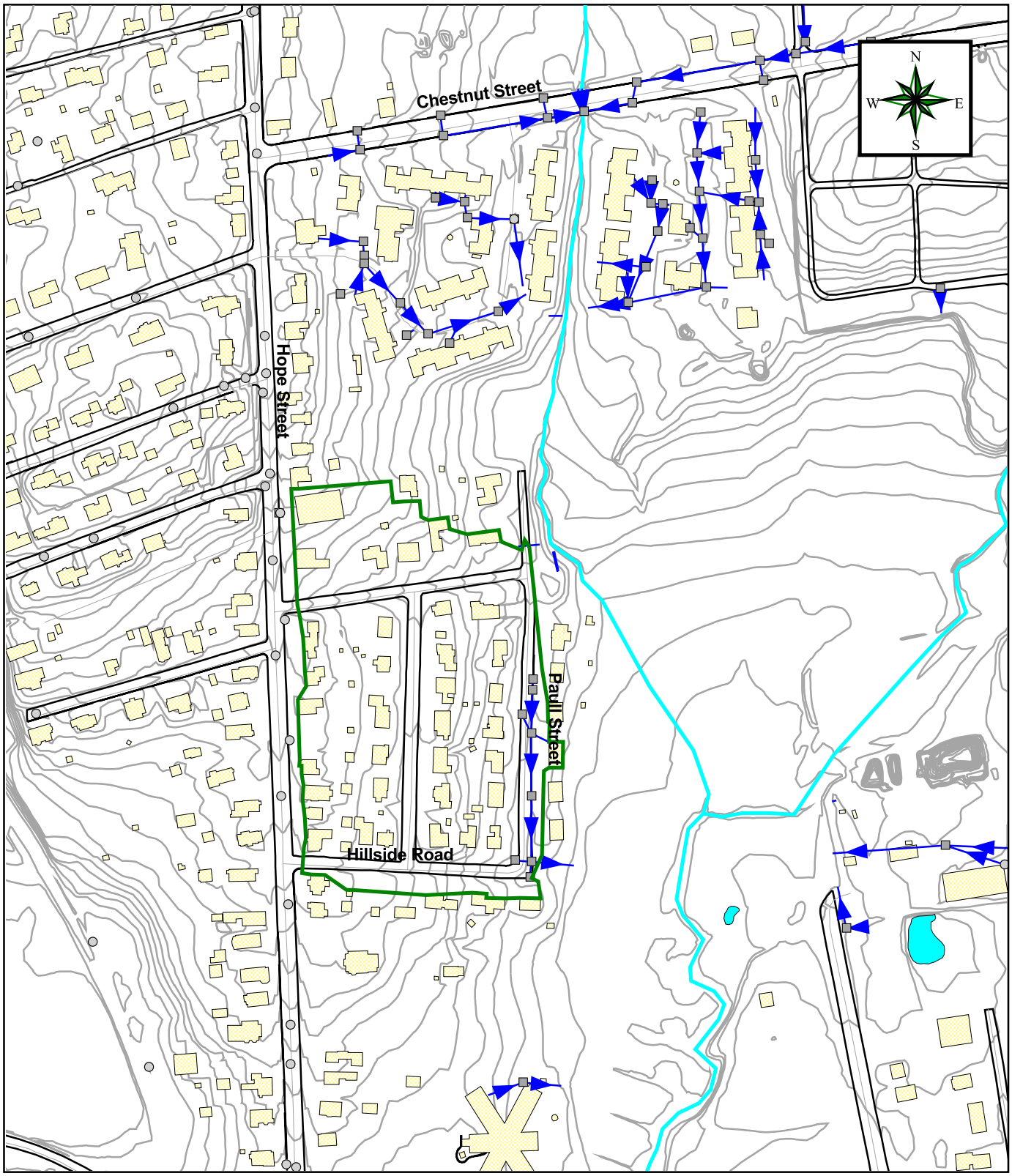
Town of Bristol Rhode Island

Silver Creek

NOT TO SCALE

Figure 29

Jane Lane



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Existing Drain Pipes

Problem Area Watershed

Town of Bristol Rhode Island

Silver Creek

NOT TO SCALE

Figure 30

Paull Street/ Hillside Road

Additional Problem Areas

At the October 17 workshop, a resident from the area north of Perry Street, and west of Varnum Street noted a problem that had not previously been identified: This area is at the base of a very steep grade. Several of the roadways do not have catch basins in them, and the runoff flows down the hill via private property, at a high velocity. When the runoff reaches the bottom of the hill, where the ground is relatively flat prior to entering the creek, water accumulates and ponds in the roadway and on lawns. A review of the plans and a site visit resulted in the recommendation of placing new pipes and catch basins within the roadways, including Varnum Street, Baker Street and Jones Street. These pipes could be tied into the upgraded system proposed for Perry Street, as described in the report.

Silver Creek

Proposed Improvements

As the study progressed, it became increasingly clear that the solutions to reducing flooding associated with the Silver Creek would be complex. The 1,250 acre watershed was separated into 45 subwatershed areas for purposes of analysis, and the aerial mapping provided contour data to enable us to develop approximate cross sections of the creek from the outlet at Hope Street, up to the farthest reaches of the stream channels south of Tupelo Street. The storm water model identified areas where the open channel overtops roadways such as Gooding Avenue, Chestnut Street, and Hope Street near Washington Street. These restrictions upstream create localized flooding, however, if the restrictions were removed, downstream neighborhoods would receive stormwater runoff at a much quicker rate, increasing flooding associated with the tides and expanding the flood zones farther into the neighborhoods.

It is recommended that additional storage be constructed, particularly upstream of the local areas currently experiencing flooding, and on other vacant land, to retain stormwater runoff until the peak flows have safely passed and/or until the hide tide period has passed. Possible locations include along Gooding Avenue, Naomi Street, within the Mount Hope High School campus, or within the Benjamin Church property. Enlarging existing detention ponds should also be considered at locations where it has been determined that doing so would reduce downstream flows.

Another means of increasing flood storage throughout the watershed is to remove and properly dispose of materials that have been dumped in wooded areas near outfalls. While signs are posted at several

locations where roadways dead-end near the stream and associated wetlands, this illegal activity continues, with the dumping of grass clippings, leaves, small trees and other organic materials. Removing this fill and re-establishing the outfalls with proper erosion controls (i.e. riprap) would enable local drainage systems to function better while reducing the sediments entering the drainage system.

Dredging the open waters section of the creek, from Hope Street to the point where the two branches converge behind Paull Street would provide additional storage, and allow for further salt water intrusion into the area, re-establishing the marsh and killing off the invasive fresh-water plants. This project would require an Assent from the CRMC, and would be a costly undertaking, but would have the greatest impact on the flooding problems experienced throughout the watershed.

The primary restriction identified through the model and the connection of individual closed drainage systems is related to the 48" corrugated metal pipe through the middle of the cemetery. The existing pipe has corroded, and the pipes under Chestnut Street are one-third filled with large rocks, most likely from displaced riprap upstream, reducing the capacity, and creating a restriction of the flows coming toward Chestnut Street from the high school and Gooding Avenue to the north, and Elbow Street to the east.

This would require a major undertaking, to replace the existing 48" corrugated metal pipe through the cemetery with 2-48" RCP pipes, or a concrete box culvert of sufficient capacity to convey the 100-year storm. Since upgrading the pipes under the high school is not a feasible option, a new pipe should be constructed in Chestnut Street to intercept the flow from the Elbow Street area, eliminating the crossing under Chestnut Street east of the high school. This will reduce the flow to the wetland behind the high school and reduce the flows through the high school property. Picking up the flow at Chestnut Street and carrying it down to the cemetery pipe would allow for additional pipes to be constructed under Elbow Street, to alleviate flooding during the major storm events without adverse effects downstream. This project would be a major undertaking, requiring permitting with CRMC and RIDEM, but would have the greatest impact on the watershed.

The other project which would also result in tangible improvements to the area would be to upgrade the pipes on Sherry Avenue and the intersecting sidestreets to convey the 10 year storm to a suitable discharge point where the outfall does not flood private properties. Intercepting the flow on Sherry would relieve the flow of surface water onto the St. Mary Cemetery property as well.

RECOMMENDATIONS

1. The Town should develop a Capital Improvements Plan to upgrade drainage systems within the Silver Creek Watershed that are currently under capacity. These pipes should be capable of carrying the runoff from at least a 10-year storm with no surcharge or overtopping of local roadways. Also as part of this Capital Improvement Plan, new detention/retention ponds should be constructed where practical to reduce flows downstream and increase flood storage throughout the watershed. Care must be taken when determining the order in which the improvements occur to make sure areas downstream have sufficient capacity to convey the increased runoff without damage to properties downstream.

2. Many of the problems identified in the easterly portion of the watershed are associated with runoff received from Metacom Avenue. As this is a State highway, the Town should approach RIDOT to try to get them to participate in the upgrading of several of these closed drainage systems to reduce flooding on local streets.

3. The Town should actively enforce the "No Dumping" policy at all areas within the Silver Creek Watershed. Residents should be made aware of this policy, including the ramifications of illegal dumping from both an environmental standpoint as well as from the enforcement angle. This education can be accomplished through the Public Meeting process as well as through local newspapers, flyers, etc.

4. The Town should implement Best Management Practices (BMPs) at the municipal discharges to reduce sediment loading into the channel. The suggested BMPs to reduce sediment, also known as total suspended solids (TSS) would be swirl concentrators, such as a Vortechnics® System. These systems have proven to reduce a net annual target of 80% TSS, if designed and sized properly, and maintained.

5. The Town should undertake a project to dredge the lower open water sections of the Silver Creek, to re-establish the salt marsh and increase available flood storage. This would allow for the large flows due to storms to flow out to Bristol Harbor more efficiently, resulting in a better eco-environment for the marsh and reduced flooding for property owners.

Cost Estimates

BETA has prepared preliminary cost estimates for the projects requiring replacement/installation of pipes or BMPs. Detailed breakdowns are included in the Appendix.

Sherry Avenue: Replace existing storm drains with pipes and drainage structures with capacity to convey the 10 year storm, with Vortechs : $675,000.

Perry Street: Install bituminous berm along pavement edge, replace existing drainage system with new pipes and catch basins, and incorporate high capacity grates: $550,000.

Highview Drive: Minor modifications to the existing closed drainage system, and possible increase in size of the existing drainage pond: $100,000.

Jane Lane: Replace selected pipes to increase capacity: $150,000.

Paul Street: Upgrade selected pipes: $120,000.

Chestnut Street: Install new 48" pipe in Chestnut Street, and replace existing 48" pipe with box culvert through cemetery: $1.1 million

Elbow Street: Install new pipes and erosion control, to be installed as same project as Chestnut Street: $80,000.

Other recommendations that should be implemented as part of the annual maintenance of stormwater facilities include catch basin cleaning, removal of sediments from channels, and removal of dumped organic materials (i.e. grass clippings, trees, etc.). These are acceptable maintenance activities that do not require permits from RIDEM or CRMC, and will increase available storage and extend the life of the existing systems while improving water quality.

APPENDIX

Appendix A – Watershed Analysis

HydroCAD – 2, 10, 25, and 100-year Storm Events

Hydraflow – Pipe Capacity Analysis

Appendix B – Silver Creek Analysis

HydroCAD – 2, 10, and 100-year Storm Events

HEC-RAS

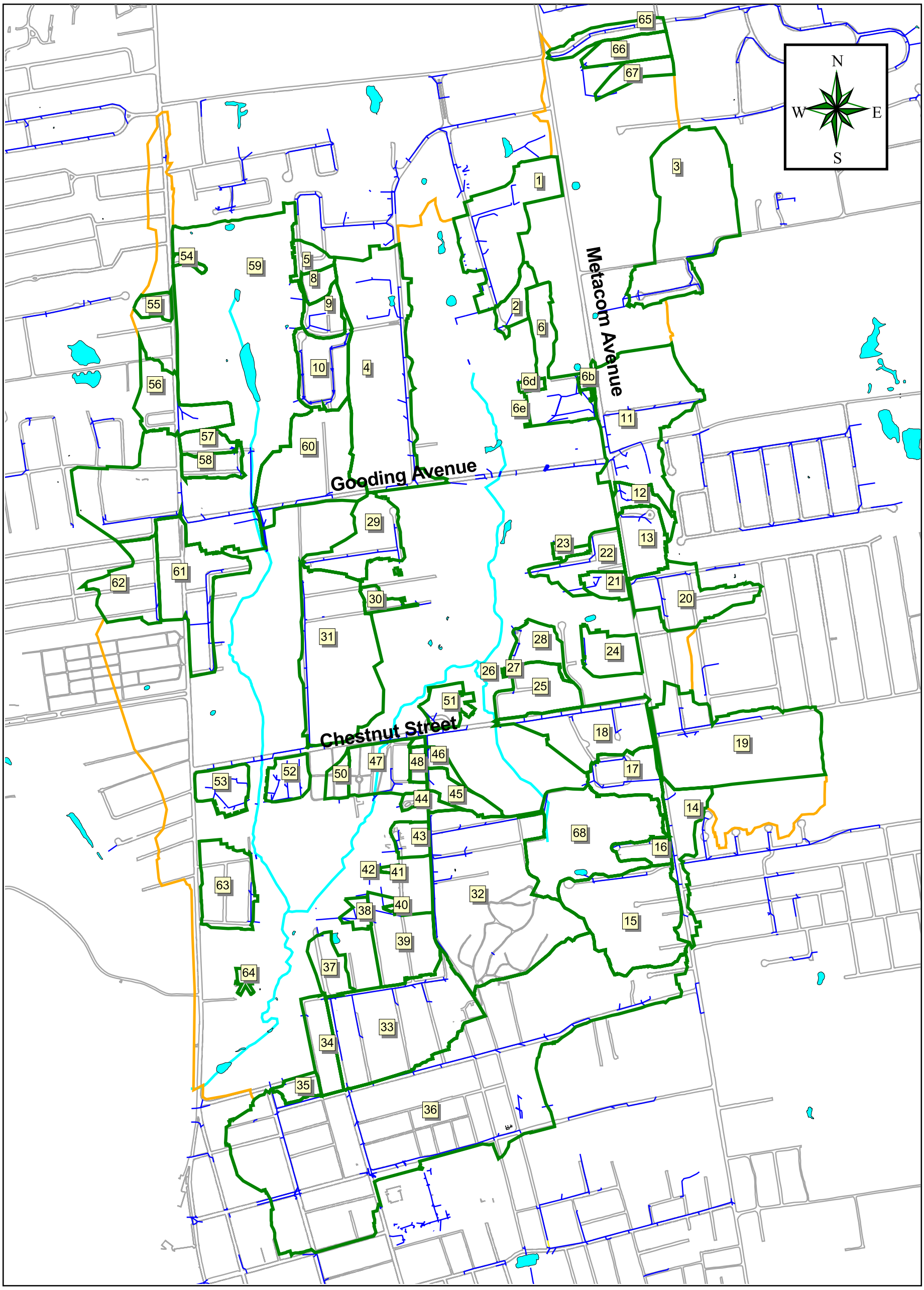
Appendix C – Problem Areas

Appendix D – Estimates

Appendix E – Map of Study Area

Appendix A – Watershed Analysis

HydroCAD – 2, 10, 25, and 100-year Storm Events
Hydraflow – Pipe Capacity Analysis



Legend

- Existing Drain Pipes
- Drainage System Watersheds
- Silver Creek Watershed

Town of Bristol Rhode Island

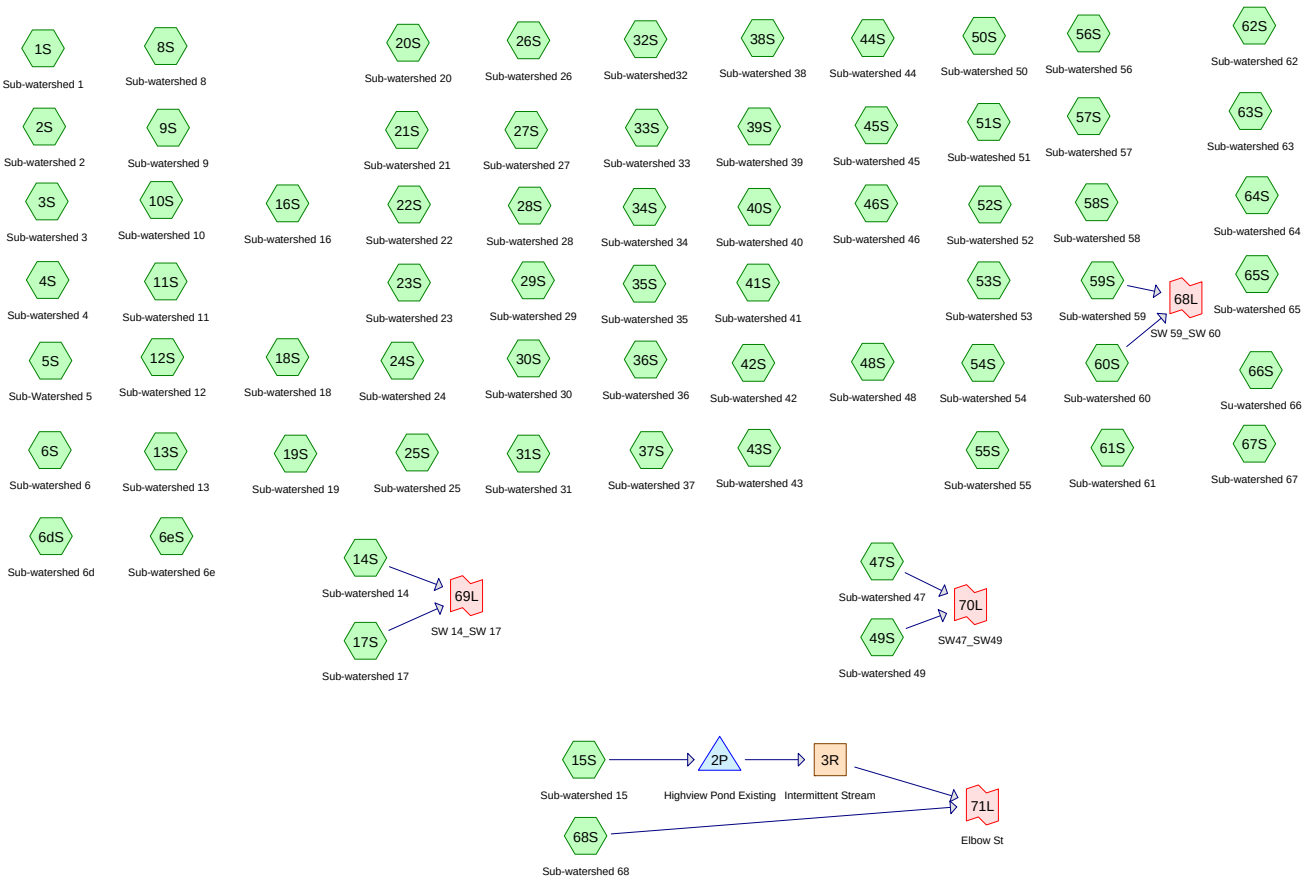
Silver Creek

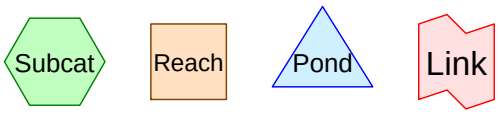
NOT TO SCALE

Appendix

Closed Drainage System Watersheds

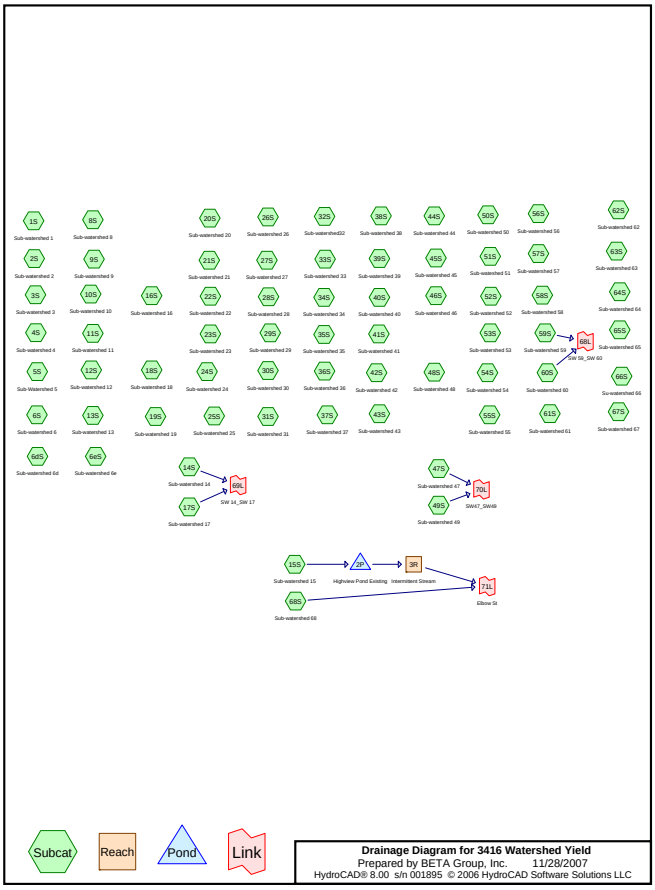
HydroCAD – 2, 10, 25, and 100-year Storm Events





Drainage Diagram for 3416 Watershed Yield
Prepared by BETA Group, Inc. 11/28/2007
HydroCAD® 8.00 s/n 001895 © 2006 HydroCAD Software Solutions LLC

2-Year Storm



Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-watershed 1 Runoff Area=18.400 ac Runoff Depth>2.73"
Flow Length=1,460' Tc=20.1 min CN=94 Runoff=38.24 cfs 4.185 af

Subcatchment 2S: Sub-watershed 2 Runoff Area=3.220 ac Runoff Depth>2.73"
Flow Length=792' Tc=10.2 min CN=94 Runoff=8.58 cfs 0.734 af

Subcatchment 3S: Sub-watershed 3 Runoff Area=27.500 ac Runoff Depth>1.69"
Flow Length=2,500' Tc=39.3 min CN=82 Runoff=27.16 cfs 3.863 af

Subcatchment 4S: Sub-watershed 4 Runoff Area=35.010 ac Runoff Depth>2.24"
Flow Length=3,096' Tc=50.9 min CN=89 Runoff=40.02 cfs 6.544 af

Subcatchment 5S: Sub-Watershed 5 Runoff Area=2.340 ac Runoff Depth>1.56"
Tc=5.0 min CN=80 Runoff=4.39 cfs 0.303 af

Subcatchment 6dS: Sub-watershed 6d Runoff Area=0.630 ac Runoff Depth>2.74"
Tc=5.0 min CN=94 Runoff=1.99 cfs 0.144 af

Subcatchment 6eS: Sub-watershed 6e Runoff Area=0.500 ac Runoff Depth>2.74"
Tc=5.0 min CN=94 Runoff=1.58 cfs 0.114 af

Subcatchment 6S: Sub-watershed 6 Runoff Area=10.610 ac Runoff Depth>2.17"
Flow Length=1,536' Tc=11.4 min CN=88 Runoff=22.54 cfs 1.922 af

Subcatchment 8S: Sub-watershed 8 Runoff Area=2.070 ac Runoff Depth>1.55"
Flow Length=419' Tc=11.6 min CN=80 Runoff=3.11 cfs 0.268 af

Subcatchment 9S: Sub-watershed 9 Runoff Area=3.780 ac Runoff Depth>2.00"
Flow Length=633' Tc=16.8 min CN=86 Runoff=6.45 cfs 0.631 af

Subcatchment 10S: Sub-watershed 10 Runoff Area=8.740 ac Runoff Depth>1.77"
Flow Length=1,337' Tc=19.3 min CN=83 Runoff=12.41 cfs 1.287 af

Subcatchment 11S: Sub-watershed 11 Runoff Area=24.460 ac Runoff Depth>2.25"
Flow Length=1,757' Tc=26.1 min CN=89 Runoff=38.80 cfs 4.595 af

Subcatchment 12S: Sub-watershed 12 Runoff Area=3.040 ac Runoff Depth>2.44"
Flow Length=996' Tc=15.8 min CN=91 Runoff=6.37 cfs 0.618 af

Subcatchment 13S: Sub-watershed 13 Runoff Area=6.760 ac Runoff Depth>1.63"
Tc=5.0 min CN=81 Runoff=13.29 cfs 0.916 af

Subcatchment 14S: Sub-watershed 14 Runoff Area=8.060 ac Runoff Depth>1.48"
Flow Length=1,715' Tc=11.8 min CN=79 Runoff=11.47 cfs 0.997 af

Subcatchment 15S: Sub-watershed 15 Runoff Area=21.680 ac Runoff Depth>1.62"
Flow Length=1,259' Tc=22.2 min CN=81 Runoff=26.53 cfs 2.927 af

Subcatchment 16S: Sub-watershed 16 Runoff Area=2.740 ac Runoff Depth>1.70"
Flow Length=709' Tc=13.2 min CN=82 Runoff=4.32 cfs 0.387 af

Subcatchment 17S: Sub-watershed 17 Runoff Area=7.200 ac Runoff Depth>1.55"
Flow Length=1,430' Tc=21.6 min CN=80 Runoff=8.50 cfs 0.930 af

Subcatchment 18S: Sub-watershed 18 Runoff Area=13.850 ac Runoff Depth>1.55"
Flow Length=1,868' Tc=11.2 min CN=80 Runoff=21.07 cfs 1.793 af

Subcatchment 19S: Sub-watershed 19 Runoff Area=29.160 ac Runoff Depth>1.33"
Flow Length=2,101' Tc=63.7 min CN=77 Runoff=17.07 cfs 3.243 af

Subcatchment 20S: Sub-watershed 20 Runoff Area=11.220 ac Runoff Depth>1.62"
Flow Length=1,264' Tc=17.0 min CN=81 Runoff=15.31 cfs 1.517 af

Subcatchment 21S: Sub-watershed 21 Runoff Area=2.540 ac Runoff Depth>2.74"
Flow Length=496' Tc=5.5 min CN=94 Runoff=7.90 cfs 0.579 af

Subcatchment 22S: Sub-watershed 22 Runoff Area=6.280 ac Runoff Depth>2.74"
Flow Length=1,194' Tc=7.2 min CN=94 Runoff=18.43 cfs 1.432 af

Subcatchment 23S: Sub-watershed 23 Runoff Area=0.900 ac Runoff Depth>2.74"
Tc=5.0 min CN=94 Runoff=2.85 cfs 0.205 af

Subcatchment 24S: Sub-watershed 24 Runoff Area=5.430 ac Runoff Depth>2.44"
Flow Length=1,015' Tc=12.7 min CN=91 Runoff=12.33 cfs 1.105 af

Subcatchment 25S: Sub-watershed 25 Runoff Area=7.910 ac Runoff Depth>1.55"
Flow Length=943' Tc=13.6 min CN=80 Runoff=11.22 cfs 1.024 af

Subcatchment 26S: Sub-watershed 26 Runoff Area=0.040 ac Runoff Depth>3.16"
Tc=5.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment 27S: Sub-watershed 27 Runoff Area=0.090 ac Runoff Depth>1.77"
Tc=5.0 min CN=83 Runoff=0.19 cfs 0.013 af

Subcatchment 28S: Sub-watershed 28 Runoff Area=4.430 ac Runoff Depth>1.55"
Flow Length=1,025' Tc=22.5 min CN=80 Runoff=5.14 cfs 0.572 af

Subcatchment 29S: Sub-watershed 29 Runoff Area=9.890 ac Runoff Depth>1.70"
Flow Length=1,194' Tc=11.1 min CN=82 Runoff=16.57 cfs 1.398 af

Subcatchment 30S: Sub-watershed 30 Runoff Area=1.680 ac Runoff Depth>1.62"
Flow Length=716' Tc=13.0 min CN=81 Runoff=2.54 cfs 0.227 af

Subcatchment 31S: Sub-watershed 31 Runoff Area=27.350 ac Runoff Depth>1.35"
Flow Length=1,762' Tc=27.7 min CN=77 Runoff=24.90 cfs 3.071 af

Subcatchment 32S: Sub-watershed32 Runoff Area=45.010 ac Runoff Depth>1.16"
Flow Length=1,805' Tc=26.8 min CN=74 Runoff=35.08 cfs 4.363 af

Subcatchment 33S: Sub-watershed 33 Runoff Area=27.500 ac Runoff Depth>1.62"
Flow Length=1,541' Tc=10.9 min CN=81 Runoff=44.26 cfs 3.722 af

Subcatchment 34S: Sub-watershed 34 Runoff Area=5.470 ac Runoff Depth>1.62"
Flow Length=967' Tc=16.4 min CN=81 Runoff=7.58 cfs 0.739 af

Subcatchment 35S: Sub-watershed 35 Runoff Area=2.020 ac Runoff Depth>2.17"
Flow Length=401' Tc=11.6 min CN=88 Runoff=4.27 cfs 0.366 af

Subcatchment 36S: Sub-watershed 36 Runoff Area=114.100 ac Runoff Depth>1.76"
Flow Length=4,314' Tc=29.2 min CN=83 Runoff=135.65 cfs 16.770 af

Subcatchment 37S: Sub-watershed 37 Runoff Area=4.120 ac Runoff Depth>2.01"
Flow Length=852' Tc=9.7 min CN=86 Runoff=8.55 cfs 0.689 af

Subcatchment 38S: Sub-watershed 38 Runoff Area=1.590 ac Runoff Depth>2.26"
Tc=5.0 min CN=89 Runoff=4.32 cfs 0.300 af

Subcatchment 39S: Sub-watershed 39 Runoff Area=10.480 ac Runoff Depth>1.62"
Flow Length=1,018' Tc=12.8 min CN=81 Runoff=15.95 cfs 1.418 af

Subcatchment 40S: Sub-watershed 40 Runoff Area=0.240 ac Runoff Depth>1.63"
Flow Length=189' Tc=6.6 min CN=81 Runoff=0.45 cfs 0.033 af

Subcatchment 41S: Sub-watershed 41 Runoff Area=0.290 ac Runoff Depth>2.01"
Flow Length=182' Tc=6.2 min CN=86 Runoff=0.68 cfs 0.049 af

Subcatchment 42S: Sub-watershed 42 Runoff Area=0.070 ac Runoff Depth>2.01"
Flow Length=178' Tc=6.9 min CN=86 Runoff=0.16 cfs 0.012 af

Subcatchment 43S: Sub-watershed 43 Runoff Area=2.850 ac Runoff Depth>1.62"
Flow Length=570' Tc=10.1 min CN=81 Runoff=4.71 cfs 0.386 af

Subcatchment 44S: Sub-watershed 44 Runoff Area=1.720 ac Runoff Depth>1.35"
Flow Length=760' Tc=20.2 min CN=77 Runoff=1.79 cfs 0.194 af

Subcatchment 45S: Sub-watershed 45 Runoff Area=3.670 ac Runoff Depth>1.17"
Flow Length=865' Tc=21.2 min CN=74 Runoff=3.16 cfs 0.356 af

Subcatchment 46S: Sub-watershed 46 Runoff Area=1.370 ac Runoff Depth>1.16"
Flow Length=727' Tc=25.0 min CN=74 Runoff=1.10 cfs 0.133 af

Subcatchment 47S: Sub-watershed 47 Runoff Area=7.620 ac Runoff Depth>1.49"
Flow Length=701' Tc=8.1 min CN=79 Runoff=12.21 cfs 0.944 af

Subcatchment 48S: Sub-watershed 48 Runoff Area=1.320 ac Runoff Depth>1.85"
Flow Length=449' Tc=8.7 min CN=84 Runoff=2.61 cfs 0.203 af

Subcatchment 49S: Sub-watershed 49 Runoff Area=0.300 ac Runoff Depth>1.49"
Flow Length=130' Tc=7.3 min CN=79 Runoff=0.49 cfs 0.037 af

Subcatchment 50S: Sub-watershed 50 Runoff Area=1.900 ac Runoff Depth>1.48"
Flow Length=555' Tc=11.3 min CN=79 Runoff=2.74 cfs 0.235 af

Subcatchment 51S: Sub-wateshed 51 Runoff Area=3.850 ac Runoff Depth>2.44"
Tc=5.0 min CN=91 Runoff=11.18 cfs 0.784 af

Subcatchment 52S: Sub-watershed 52 Runoff Area=3.900 ac Runoff Depth>2.26"
Flow Length=598' Tc=9.6 min CN=89 Runoff=9.08 cfs 0.735 af

Subcatchment 53S: Sub-watershed 53 Runoff Area=4.840 ac Runoff Depth>2.35"
Flow Length=584' Tc=9.2 min CN=90 Runoff=11.82 cfs 0.948 af

Subcatchment 54S: Sub-watershed 54 Runoff Area=0.590 ac Runoff Depth>1.77"
Tc=5.0 min CN=83 Runoff=1.27 cfs 0.087 af

Subcatchment 55S: Sub-watershed 55 Runoff Area=1.880 ac Runoff Depth>2.44"
Flow Length=592' Tc=17.0 min CN=91 Runoff=3.83 cfs 0.382 af

Subcatchment 56S: Sub-watershed 56 Runoff Area=9.220 ac Runoff Depth>1.62"
Flow Length=951' Tc=23.1 min CN=81 Runoff=11.08 cfs 1.244 af

Subcatchment 57S: Sub-watershed 57 Runoff Area=2.690 ac Runoff Depth>1.62"
Flow Length=659' Tc=16.2 min CN=81 Runoff=3.75 cfs 0.364 af

Subcatchment 58S: Sub-watershed 58 Runoff Area=3.420 ac Runoff Depth>1.62"
Flow Length=774' Tc=17.4 min CN=81 Runoff=4.63 cfs 0.462 af

Subcatchment 59S: Sub-watershed 59 Runoff Area=90.930 ac Runoff Depth>1.74"
Flow Length=3,728' Tc=74.5 min CN=83 Runoff=65.15 cfs 13.221 af

Subcatchment 60S: Sub-watershed 60 Runoff Area=18.370 ac Runoff Depth>2.63"
Flow Length=2,475' Tc=20.8 min CN=93 Runoff=36.61 cfs 4.025 af

Subcatchment 61S: Sub-watershed 61 Runoff Area=15.630 ac Runoff Depth>1.70"
Flow Length=1,028' Tc=9.6 min CN=82 Runoff=27.46 cfs 2.210 af

Subcatchment 62S: Sub-watershed 62 Runoff Area=9.320 ac Runoff Depth>1.62"
Flow Length=991' Tc=22.5 min CN=81 Runoff=11.34 cfs 1.258 af

Subcatchment 63S: Sub-watershed 63 Runoff Area=9.850 ac Runoff Depth>1.62"
Flow Length=1,245' Tc=12.1 min CN=81 Runoff=15.29 cfs 1.333 af

Subcatchment 64S: Sub-watershed 64 Runoff Area=0.720 ac Runoff Depth>2.44"
Flow Length=133' Tc=9.7 min CN=91 Runoff=1.79 cfs 0.147 af

Subcatchment 65S: Sub-watershed 65 Runoff Area=4.080 ac Runoff Depth>1.62"
Flow Length=1,220' Tc=15.0 min CN=81 Runoff=5.85 cfs 0.552 af

Subcatchment 66S: Su-watershed 66 Runoff Area=4.660 ac Runoff Depth>1.62"
Flow Length=863' Tc=22.0 min CN=81 Runoff=5.73 cfs 0.629 af

Subcatchment 67S: Sub-watershed 67 Runoff Area=3.140 ac Runoff Depth>1.84"
Flow Length=889' Tc=28.6 min CN=84 Runoff=3.93 cfs 0.482 af

Subcatchment 68S: Sub-watershed 68 Runoff Area=20.630 ac Runoff Depth>1.55"
Flow Length=1,184' Tc=18.0 min CN=80 Runoff=26.25 cfs 2.667 af

Reach 3R: Intermittent Stream Avg. Depth=0.40' Max Vel=1.85 fps Inflow=15.60 cfs 2.891 af
n=0.070 L=725.0' S=0.0283 '/' Capacity=253.16 cfs Outflow=15.47 cfs 2.868 af

Pond 2P: Highview Pond Existing Peak Elev=119.11' Storage=24,195 cf Inflow=26.53 cfs 2.927 af
Outflow=15.60 cfs 2.891 af

Link 68L: SW 59_SW 60 Inflow=72.05 cfs 17.246 af
Primary=72.05 cfs 17.246 af

Link 69L: SW 14_SW 17 Inflow=18.31 cfs 1.927 af
Primary=18.31 cfs 1.927 af

Link 70L: SW47_SW49 Inflow=12.70 cfs 0.981 af
Primary=12.70 cfs 0.981 af

Link 71L: Elbow St Inflow=32.37 cfs 5.535 af
Primary=32.37 cfs 5.535 af

Total Runoff Area = 746.870 ac Runoff Volume = 110.032 af Average Runoff Depth = 1.77"
66.54% Pervious Area = 496.954 ac 33.46% Impervious Area = 249.916 ac

Subcatchment 1S: Sub-watershed 1

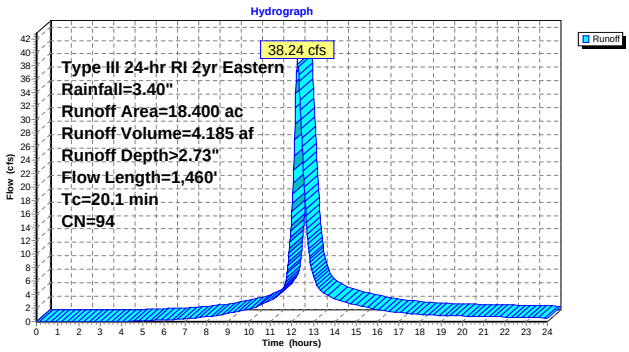
Runoff = 38.24 cfs @ 12.26 hrs, Volume= 4.185 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
18.400	94	Urban commercial, 85% imp, HSG C
2.760		Pervious Area
15.640		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
8.9	1,240	0.0210	2.33		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	120	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.1	1,460	Total			

Subcatchment 1S: Sub-watershed 1



Subcatchment 2S: Sub-watershed 2

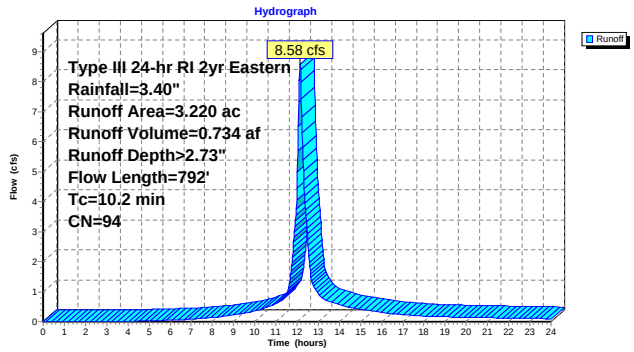
Runoff = 8.58 cfs @ 12.14 hrs, Volume= 0.734 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
3.220	94	Urban commercial, 85% imp, HSG C
0.483		Pervious Area
2.737		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.4	394	0.0280	2.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	298	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.2	792	Total			

Subcatchment 2S: Sub-watershed 2



Subcatchment 3S: Sub-watershed 3

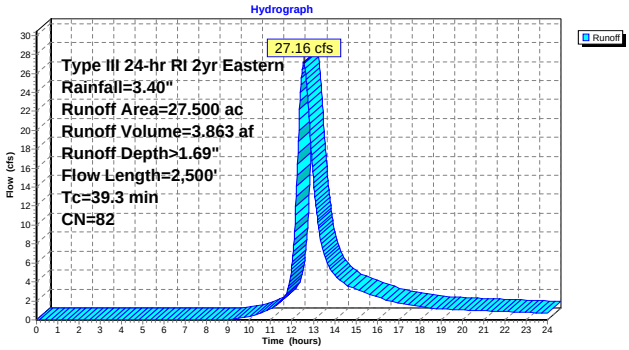
Runoff = 27.16 cfs @ 12.55 hrs, Volume= 3.863 af, Depth> 1.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
13.750	86	Pasture/grassland/range, Poor, HSG C
10.750	80	1/2 acre lots, 25% imp, HSG C
3.000	73	Woods, Fair, HSG C
27.500	82	Weighted Average
24.813		Pervious Area
2.688		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
19.4	1,200	0.0217	1.03		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.9	1,200	0.0050	1.44		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
39.3	2,500	Total			

Subcatchment 3S: Sub-watershed 3



Subcatchment 4S: Sub-watershed 4

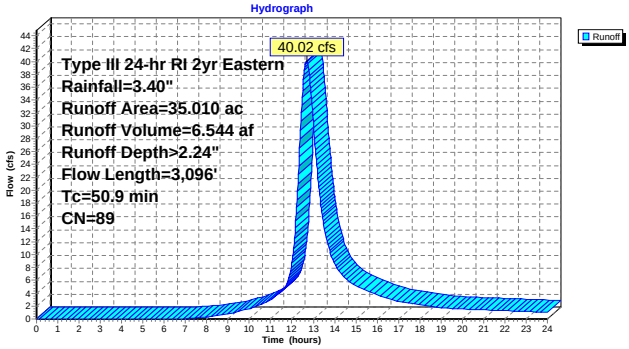
Runoff = 40.02 cfs @ 12.69 hrs, Volume= 6.544 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
5.901	90	Fallow, crop residue, Poor, HSG C
17.070	94	Urban commercial, 85% imp, HSG C
5.647	79	Pasture/grassland/range, Fair, HSG C
3.680	79	1 acre lots, 20% imp, HSG C
2.712	91	Urban industrial, 72% imp, HSG C
35.010	89	Weighted Average
17.812		Pervious Area
17.198		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	106	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.6	70	0.0860	2.05		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.7	82	0.0100	2.03		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
24.2	322	0.0010	0.22		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
13.9	2,386	0.0200	2.87		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
50.9	3,096	Total			

Subcatchment 4S: Sub-watershed 4



Subcatchment 5S: Sub-Watershed 5

Time of concentration was 4.2 minutes. Changed to direct entry to obtain a time of concentration of 5 minutes.

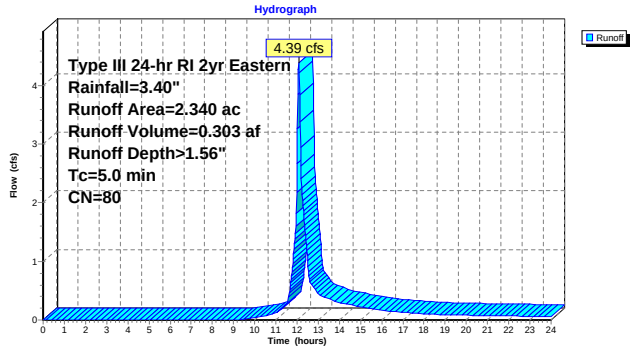
Runoff = 4.39 cfs @ 12.08 hrs, Volume= 0.303 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.340	80	1/2 acre lots, 25% imp, HSG C
1.755		Pervious Area
0.585		Impervious Area

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

Subcatchment 5S: Sub-Watershed 5



Subcatchment 6dS: Sub-watershed 6d

Original time of concentration was 2.5 minutes. Changed time of concentration to 5 minutes.

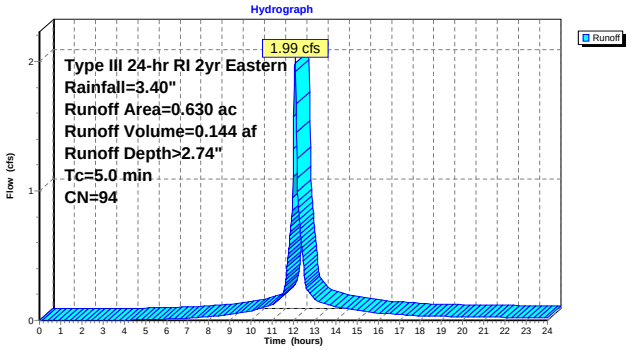
Runoff = 1.99 cfs @ 12.07 hrs, Volume= 0.144 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.630	94	Urban commercial, 85% imp, HSG C
0.095		Pervious Area
0.535		Impervious Area

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

Subcatchment 6dS: Sub-watershed 6d



Subcatchment 6eS: Sub-watershed 6e

Original time of concentration was 4.2 minutes. Changed time of concentration to 5 minutes.

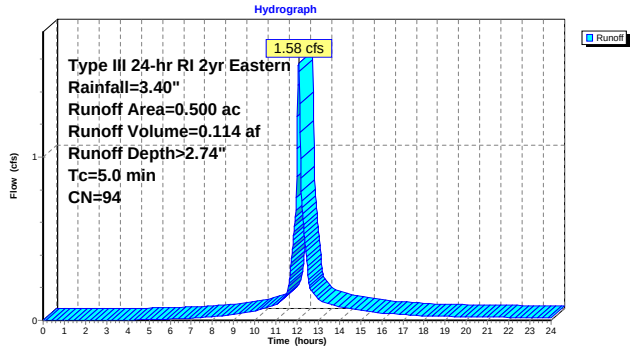
Runoff = 1.58 cfs @ 12.07 hrs, Volume= 0.114 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.500	94	Urban commercial, 85% imp, HSG C
0.075		Pervious Area
0.425		Impervious Area

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

Subcatchment 6eS: Sub-watershed 6e



Subcatchment 6S: Sub-watershed 6

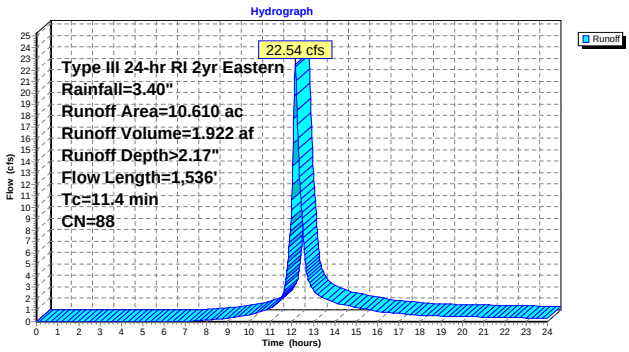
Runoff = 22.54 cfs @ 12.16 hrs, Volume= 1.922 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
8.380	87	Dirt roads, HSG C
2.230	94	Urban commercial, 85% imp, HSG C
10.610	88	Weighted Average
8.714		Pervious Area
1.895		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.0900	2.59		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.8	1,436	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.4	1,536	Total			

Subcatchment 6S: Sub-watershed 6



Subcatchment 8S: Sub-watershed 8

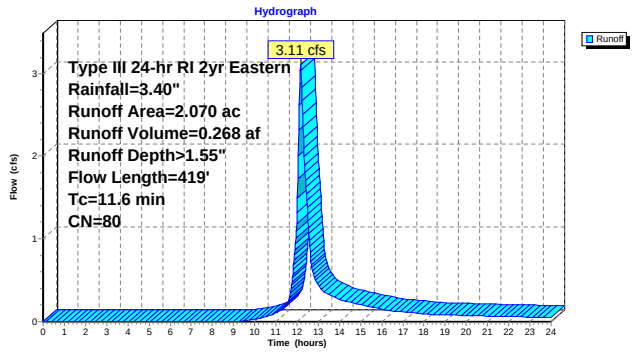
Runoff = 3.11 cfs @ 12.16 hrs, Volume= 0.268 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.070	80	1/2 acre lots, 25% imp, HSG C
1.552		Pervious Area
0.517		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.1	228	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.4	91	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.6	419	Total			

Subcatchment 8S: Sub-watershed 8



Subcatchment 9S: Sub-watershed 9

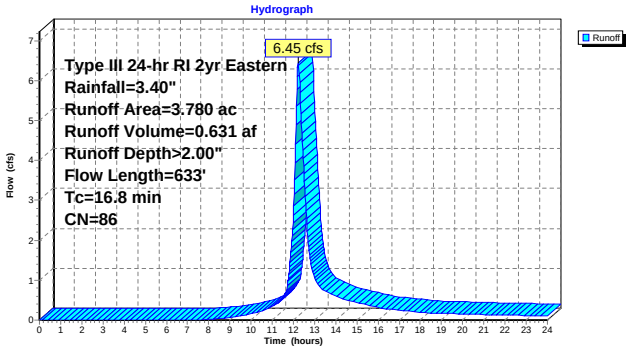
Runoff = 6.45 cfs @ 12.23 hrs, Volume= 0.631 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.990	90	1/8 acre lots, 65% imp, HSG C
0.790	73	Woods, Fair, HSG C
3.780	86	Weighted Average
1.837		Pervious Area
1.944		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	200	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.7	160	0.0500	1.57		**Shallow Concentrated Flow, B- C** Short Grass Pasture Kv= 7.0 fps
0.9	173	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.8	633	Total			

Subcatchment 9S: Sub-watershed 9



Subcatchment 10S: Sub-watershed 10

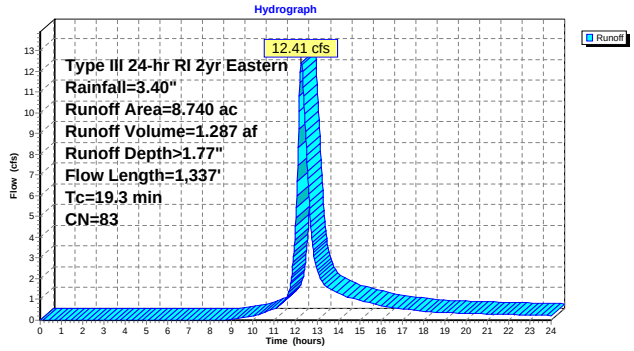
Runoff = 12.41 cfs @ 12.27 hrs, Volume= 1.287 af, Depth> 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
8.740	83	1/4 acre lots, 38% imp, HSG C
5.419		Pervious Area
3.321		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.8	196	0.0150	0.86		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.0	1,041	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
19.3	1,337	Total			

Subcatchment 10S: Sub-watershed 10



Subcatchment 11S: Sub-watershed 11

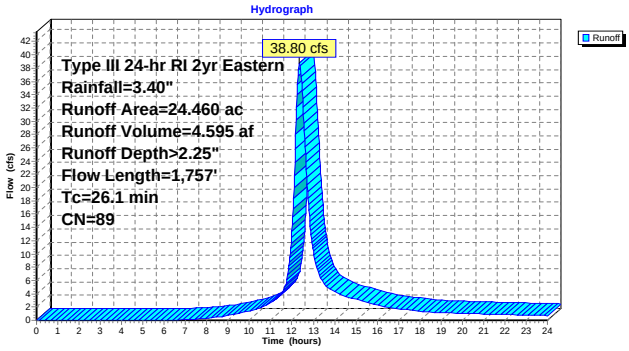
Runoff = 38.80 cfs @ 12.35 hrs, Volume= 4.595 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
5.370	90	Fallow, crop residue, Poor, HSG C
10.340	94	Urban commercial, 85% imp, HSG C
8.750	83	1/4 acre lots, 38% imp, HSG C
24.460	89	Weighted Average
12.346		Pervious Area
12.114		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
12.0	504	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.5	1,153	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
26.1	1,757	Total			

Subcatchment 11S: Sub-watershed 11



Subcatchment 12S: Sub-watershed 12

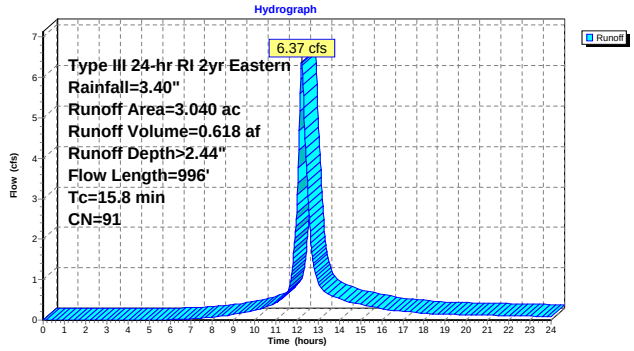
Runoff = 6.37 cfs @ 12.21 hrs, Volume= 0.618 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.130	94	Urban commercial, 85% imp, HSG C
0.910	83	1/4 acre lots, 38% imp, HSG C
3.040	91	Weighted Average
0.884		Pervious Area
2.156		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.5	462	0.0400	1.40		**Shallow Concentrated Flow, A-B** Short Grass Pasture Kv= 7.0 fps
2.2	434	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.8	996	Total			

Subcatchment 12S: Sub-watershed 12



Subcatchment 13S: Sub-watershed 13

Original time of concentration was 4.6 minutes. Changed time of concentration to 5 minutes.

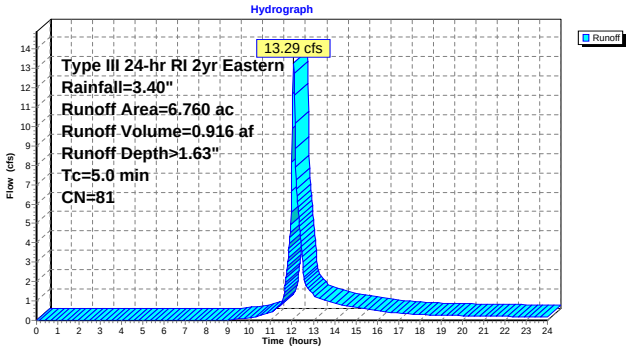
Runoff = 13.29 cfs @ 12.08 hrs, Volume= 0.916 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
6.760	81	1/3 acre lots, 30% imp, HSG C
4.732		Pervious Area
2.028		Impervious Area

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

Subcatchment 13S: Sub-watershed 13



Subcatchment 14S: Sub-watershed 14

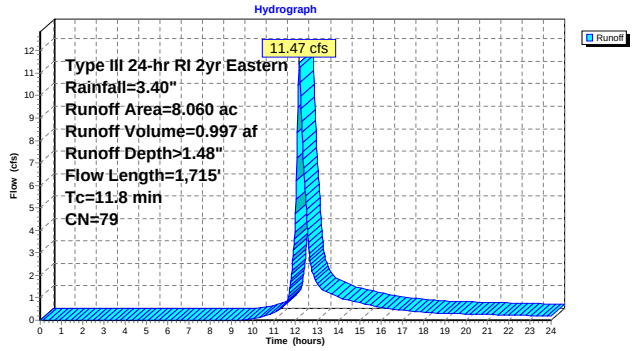
Runoff = 11.47 cfs @ 12.17 hrs, Volume= 0.997 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.240	94	Urban commercial, 85% imp, HSG C
7.820	79	1 acre lots, 20% imp, HSG C
8.060	79	Weighted Average
6.292		Pervious Area
1.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.2	1,615	0.0170	2.65		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.8	1,715	Total			

Subcatchment 14S: Sub-watershed 14



Subcatchment 15S: Sub-watershed 15

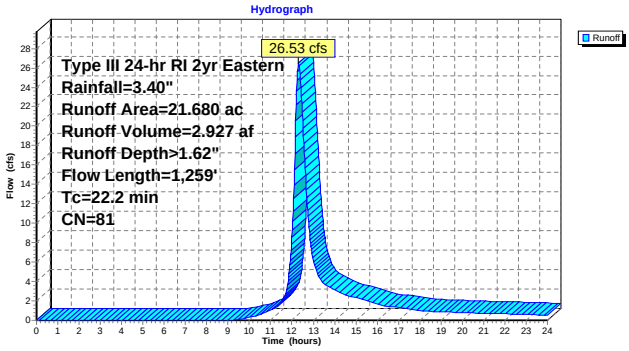
Runoff = 26.53 cfs @ 12.31 hrs, Volume= 2.927 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
15.390	79	1 acre lots, 20% imp, HSG C
5.090	90	1/8 acre lots, 65% imp, HSG C
1.200	76	Woods/grass comb., Fair, HSG C
21.680	81	Weighted Average
15.294		Pervious Area
6.387		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.3	168	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.8	991	0.0340	1.29		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
22.2	1,259	Total			

Subcatchment 15S: Sub-watershed 15



Subcatchment 16S: Sub-watershed 16

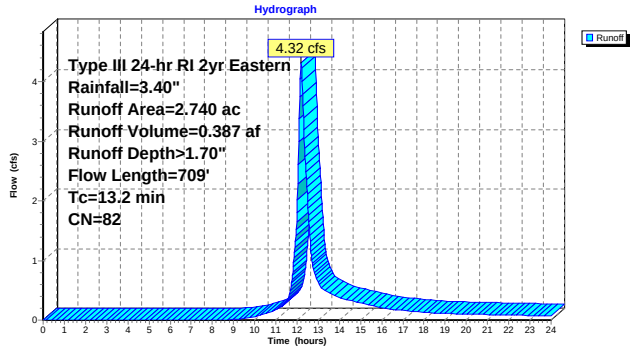
Runoff = 4.32 cfs @ 12.18 hrs, Volume= 0.387 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.330	81	1/3 acre lots, 30% imp, HSG C
0.410	91	Fallow, bare soil, HSG C
2.740	82	Weighted Average
2.041		Pervious Area
0.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	161	0.0370	1.35		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	448	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.2	709	Total			

Subcatchment 16S: Sub-watershed 16



Subcatchment 17S: Sub-watershed 17

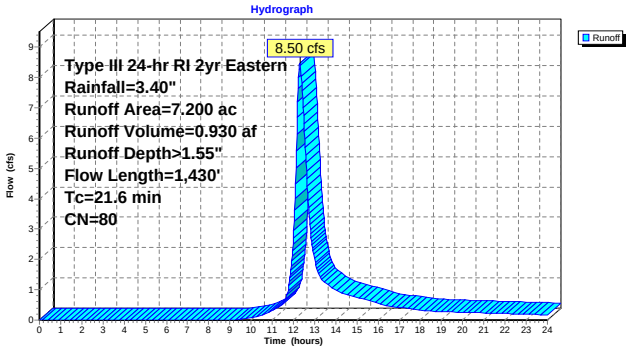
Runoff = 8.50 cfs @ 12.31 hrs, Volume= 0.930 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
7.200	80	1/2 acre lots, 25% imp, HSG C
5.400		Pervious Area
1.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-C** Grass: Short n= 0.150 P2= 3.40"
1.8	338	0.0240	3.14		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.5	125	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	260	0.0460	1.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.9	607	0.0160	2.57		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
21.6	1,430	Total			

Subcatchment 17S: Sub-watershed 17



Subcatchment 18S: Sub-watershed 18

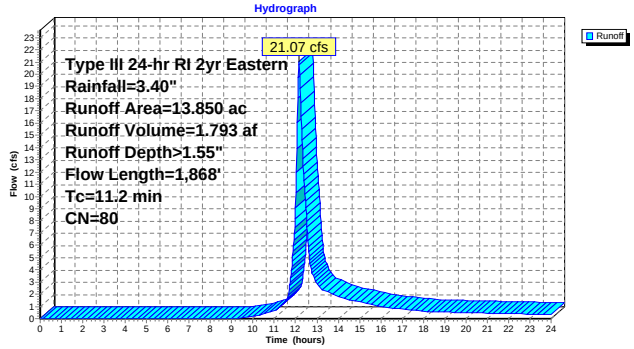
Runoff = 21.07 cfs @ 12.16 hrs, Volume= 1.793 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
13.160	80	1/2 acre lots, 25% imp, HSG C
0.690	73	Woods, Fair, HSG C
13.850	80	Weighted Average
10.560		Pervious Area
3.290		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0500	2.05		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
3.3	299	0.0470	1.52		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.1	1,469	0.0290	3.46		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.2	1,868	Total			

Subcatchment 18S: Sub-watershed 18



Subcatchment 19S: Sub-watershed 19

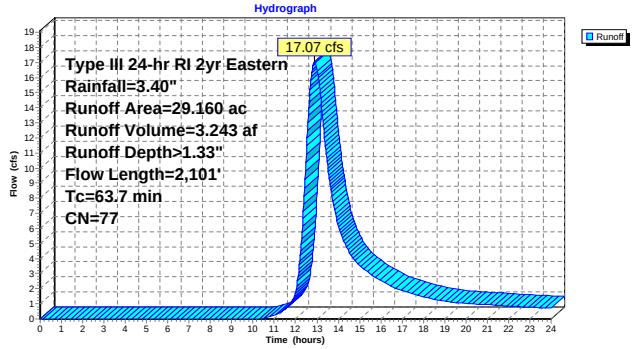
Runoff = 17.07 cfs @ 12.89 hrs, Volume= 3.243 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.460	94	Urban commercial, 85% imp, HSG C
1.460	80	1/2 acre lots, 25% imp, HSG C
26.240	76	Woods/grass comb., Fair, HSG C
29.160	77	Weighted Average
27.554		Pervious Area
1.606		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0160	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.40"
2.9	161	0.0170	0.91		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	17	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	13	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
35.7	678	0.0040	0.32		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
8.6	1,052	0.0100	2.03		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
63.7	2,101	Total			

Subcatchment 19S: Sub-watershed 19



Subcatchment 20S: Sub-watershed 20

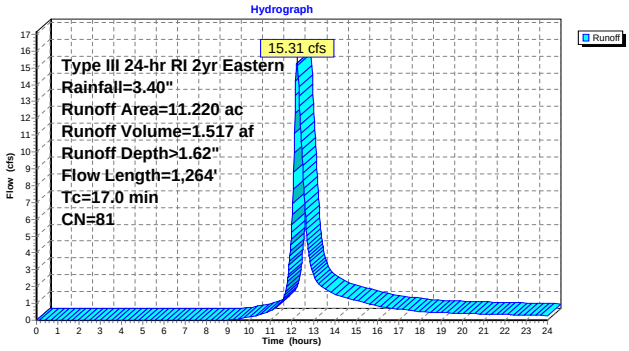
Runoff = 15.31 cfs @ 12.24 hrs, Volume= 1.517 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
11.220	81	1/3 acre lots, 30% imp, HSG C
7.854		Pervious Area
3.366		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.0	174	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	990	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.0	1,264	Total			

Subcatchment 20S: Sub-watershed 20



Subcatchment 21S: Sub-watershed 21

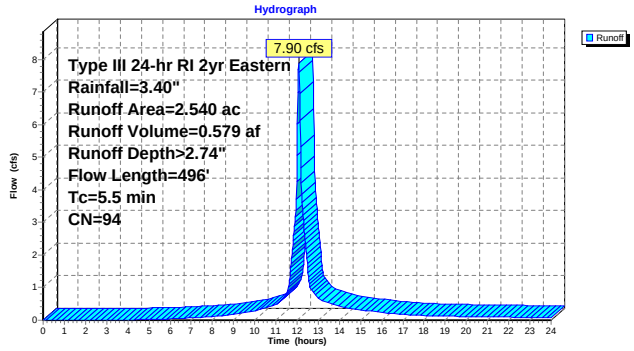
Runoff = 7.90 cfs @ 12.08 hrs, Volume= 0.579 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.540	94	Urban commercial, 85% imp, HSG C
0.381		Pervious Area
2.159		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1000	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	30	0.1200	2.28		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
1.5	396	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.5	496	Total			

Subcatchment 21S: Sub-watershed 21



Subcatchment 22S: Sub-watershed 22

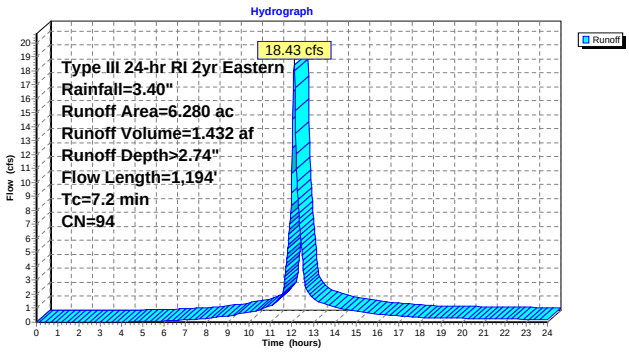
Runoff = 18.43 cfs @ 12.10 hrs, Volume= 1.432 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
6.280	94	Urban commercial, 85% imp, HSG C
0.942		Pervious Area
5.338		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	100	0.0800	2.47		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.5	1,094	0.0190	2.80		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.2	1,194	Total			

Subcatchment 22S: Sub-watershed 22



Subcatchment 23S: Sub-watershed 23

Original time of concentration was 1.8 minutes. Changed time of concentration to 5 minutes.

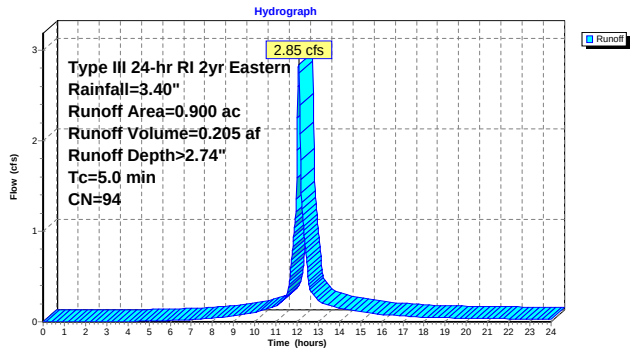
Runoff = 2.85 cfs @ 12.07 hrs, Volume= 0.205 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.900	94	Urban commercial, 85% imp, HSG C
0.135		Pervious Area
0.765		Impervious Area

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

Subcatchment 23S: Sub-watershed 23



Subcatchment 24S: Sub-watershed 24

Institutional land use assumed commercial land for calculations.

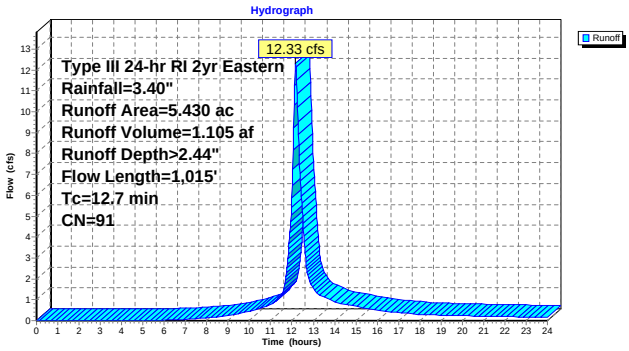
Runoff = 12.33 cfs @ 12.17 hrs, Volume= 1.105 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
4.340	94	Urban commercial, 85% imp, HSG C
1.090	81	1/3 acre lots, 30% imp, HSG C
5.430	91	Weighted Average
1.414		Pervious Area
4.016		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.7	397	0.0650	1.78		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.5	518	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.7	1,015	Total			

Subcatchment 24S: Sub-watershed 24



Subcatchment 25S: Sub-watershed 25

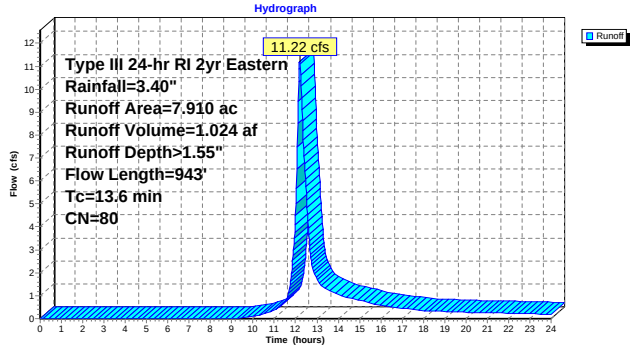
Runoff = 11.22 cfs @ 12.19 hrs, Volume= 1.024 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
7.120	81	1/3 acre lots, 30% imp, HSG C
0.790	73	Woods, Fair, HSG C
7.910	80	Weighted Average
5.774		Pervious Area
2.136		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.5	276	0.0360	1.33		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	567	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	943	Total			

Subcatchment 25S: Sub-watershed 25



Subcatchment 26S: Sub-watershed 26

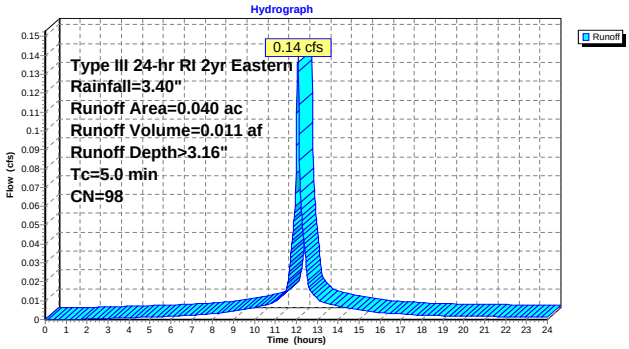
Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.040	98	Paved parking & roofs
0.040		Impervious Area

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

Subcatchment 26S: Sub-watershed 26



Subcatchment 27S: Sub-watershed 27

Original time of concentration was 1.2 minutes. Changed original time of concentration to 5 minutes.

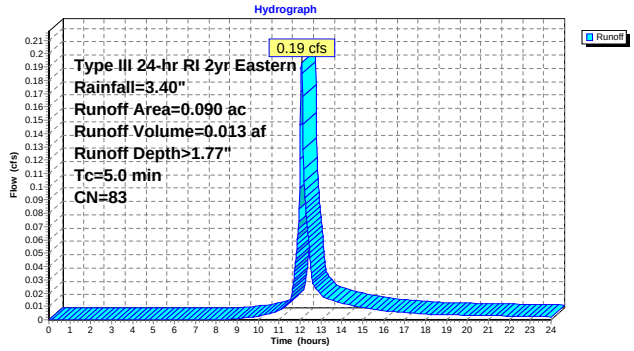
Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.013 af, Depth> 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.090	83	1/4 acre lots, 38% imp, HSG C
0.056		Pervious Area
0.034		Impervious Area

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

Subcatchment 27S: Sub-watershed 27



Subcatchment 28S: Sub-watershed 28

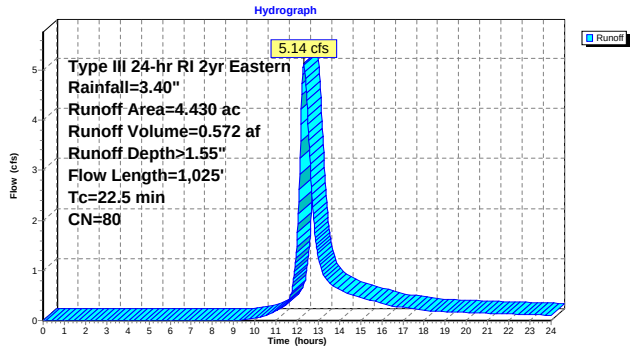
Runoff = 5.14 cfs @ 12.32 hrs, Volume= 0.572 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
3.990	81	1/3 acre lots, 30% imp, HSG C
0.440	73	Woods, Fair, HSG C
4.430	80	Weighted Average
3.233		Pervious Area
1.197		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	23	0.0220	1.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	23	0.0200	0.99		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
7.5	426	0.0360	0.95		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps
3.3	312	0.0060	1.57		**Shallow Concentrated Flow, H-I** Paved Kv= 20.3 fps
22.5	1,025	Total			

Subcatchment 28S: Sub-watershed 28



Subcatchment 29S: Sub-watershed 29

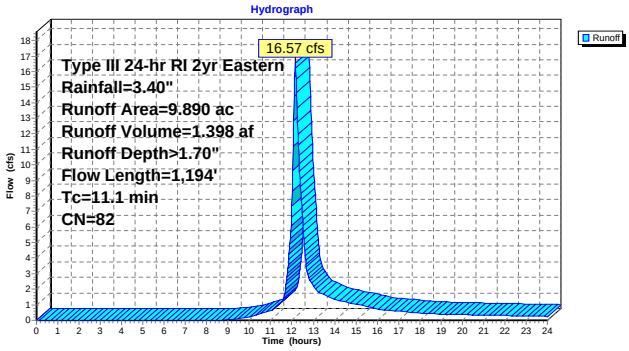
Runoff = 16.57 cfs @ 12.16 hrs, Volume= 1.398 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.490	74	>75% Grass cover, Good, HSG C
0.980	94	Urban commercial, 85% imp, HSG C
8.420	81	1/3 acre lots, 30% imp, HSG C
9.890	82	Weighted Average
6.531		Pervious Area
3.359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0110	1.12		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.7	453	0.0260	1.13		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	641	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.1	1,194	Total			

Subcatchment 29S: Sub-watershed 29



Subcatchment 30S: Sub-watershed 30

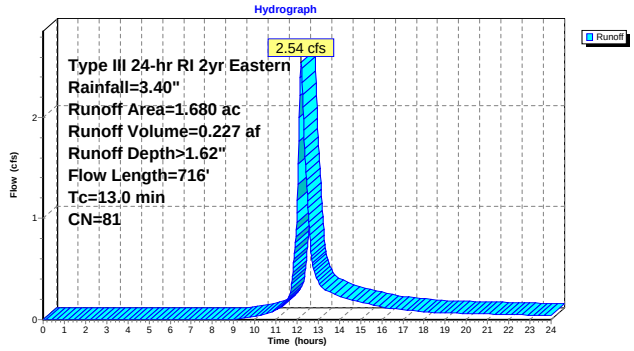
Runoff = 2.54 cfs @ 12.18 hrs, Volume= 0.227 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.680	81	1/3 acre lots, 30% imp, HSG C
1.176		Pervious Area
0.504		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	118	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	498	0.0320	3.63		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.0	716	Total			

Subcatchment 30S: Sub-watershed 30



Subcatchment 31S: Sub-watershed 31

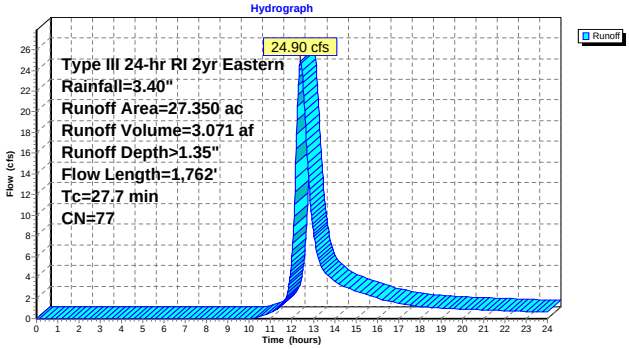
Runoff = 24.90 cfs @ 12.40 hrs, Volume= 3.071 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
12.350	81	1/3 acre lots, 30% imp, HSG C
15.000	74	>75% Grass cover, Good, HSG C
27.350	77	Weighted Average
23.645		Pervious Area
3.705		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
15.3	1,075	0.0280	1.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.8	587	0.0070	1.70		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
27.7	1,762	Total			

Subcatchment 31S: Sub-watershed 31



Subcatchment 32S: Sub-watershed32

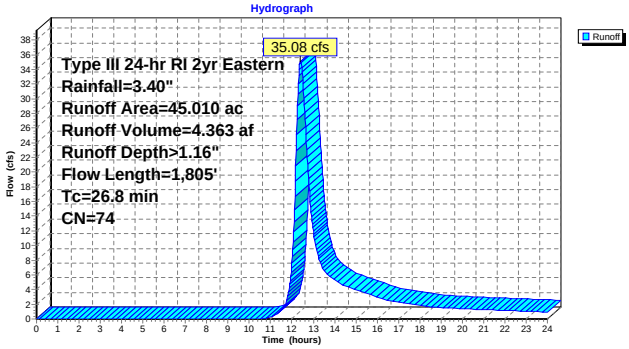
Runoff = 35.08 cfs @ 12.40 hrs, Volume= 4.363 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
14.440	81	1/3 acre lots, 30% imp, HSG C
13.320	69	50-75% Grass cover, Fair, HSG B
15.110	73	Woods, Fair, HSG C
0.900	88	Fallow, crop residue, Good, HSG C
1.240	56	Brush, Fair, HSG B
45.010	74	Weighted Average
40.678		Pervious Area
4.332		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0840	0.14		**Sheet Flow, A-B** Grass: Bermuda n= 0.410 P2= 3.40"
2.3	179	0.0698	1.32		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.9	654	0.0528	3.70		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
5.8	474	0.0738	1.36		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
3.8	398	0.0075	1.76		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
26.8	1,805	Total			

Subcatchment 32S: Sub-watershed32



Subcatchment 33S: Sub-watershed 33

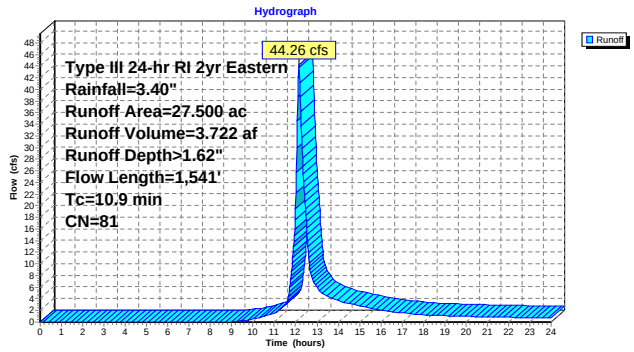
Runoff = 44.26 cfs @ 12.15 hrs, Volume= 3.722 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.960	94	Urban commercial, 85% imp, HSG C
26.540	81	1/3 acre lots, 30% imp, HSG C
27.500	81	Weighted Average
18.722		Pervious Area
8.778		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.0	154	0.1400	2.62		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.3	1,287	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.9	1,541	Total			

Subcatchment 33S: Sub-watershed 33



Subcatchment 34S: Sub-watershed 34

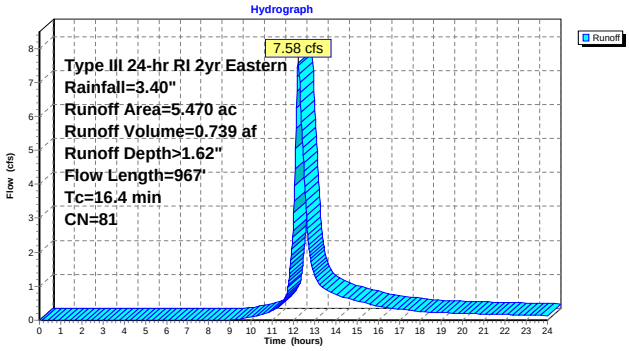
Runoff = 7.58 cfs @ 12.23 hrs, Volume= 0.739 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
5.470	81	1/3 acre lots, 30% imp, HSG C
3.829		Pervious Area
1.641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	131	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.1	736	0.0140	2.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.4	967	Total			

Subcatchment 34S: Sub-watershed 34



Subcatchment 35S: Sub-watershed 35

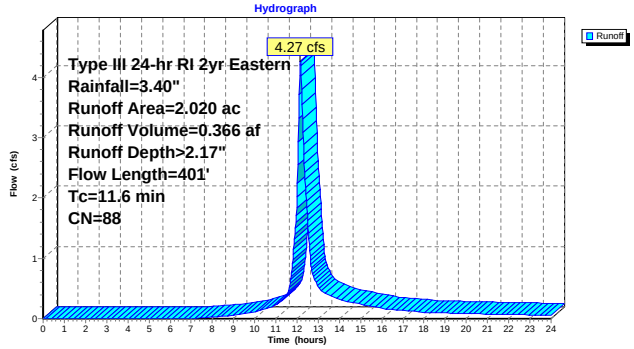
Runoff = 4.27 cfs @ 12.16 hrs, Volume= 0.366 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.010	94	Urban commercial, 85% imp, HSG C
1.010	81	1/3 acre lots, 30% imp, HSG C
2.020	88	Weighted Average
0.859		Pervious Area
1.161		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	111	0.0180	0.94		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	190	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.6	401	Total			

Subcatchment 35S: Sub-watershed 35



Subcatchment 36S: Sub-watershed 36

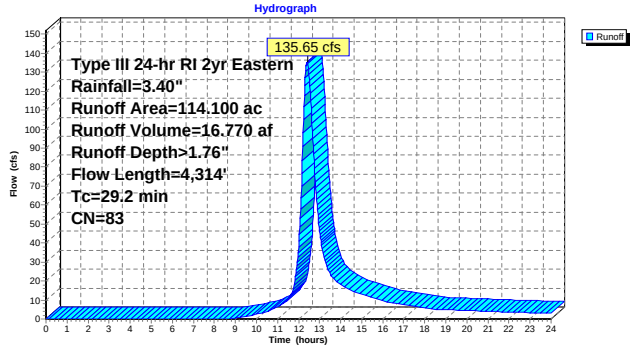
Runoff = 135.65 cfs @ 12.41 hrs, Volume= 16.770 af, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
81.170	83	1/4 acre lots, 38% imp, HSG C
9.230	94	Urban commercial, 85% imp, HSG C
6.090	60	Woods, Fair, HSG B
0.440	69	50-75% Grass cover, Fair, HSG B
4.180	56	Brush, Fair, HSG B
12.990	91	Urban industrial, 72% imp, HSG C
114.100	83	Weighted Average
66.057		Pervious Area
48.043		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.4	172	0.0810	1.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.3	4,042	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
29.2	4,314	Total			

Subcatchment 36S: Sub-watershed 36



Subcatchment 37S: Sub-watershed 37

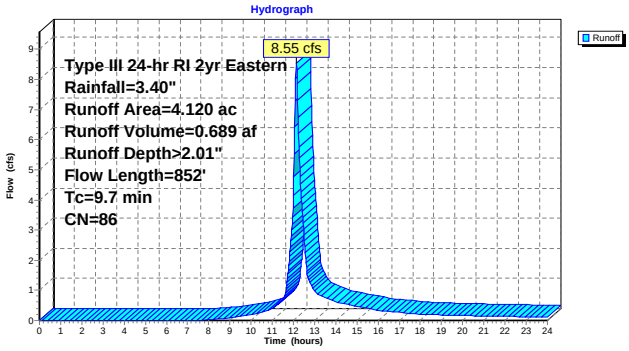
Runoff = 8.55 cfs @ 12.14 hrs, Volume= 0.689 af, Depth> 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.240	81	1/3 acre lots, 30% imp, HSG C
2.470	91	Urban industrial, 72% imp, HSG C
0.410	74	>75% Grass cover, Good, HSG C
4.120	86	Weighted Average
1.970		Pervious Area
2.150		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.67		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
8.7	752	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
9.7	852	Total			

Subcatchment 37S: Sub-watershed 37



Subcatchment 38S: Sub-watershed 38

Original time of concentration was 4.5 minutes. Changed time of concentration to 5 minutes.

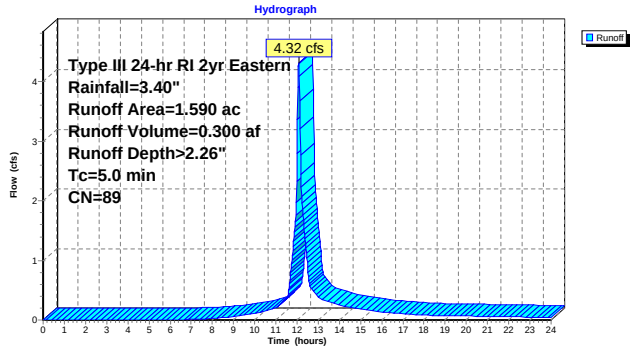
Runoff = 4.32 cfs @ 12.07 hrs, Volume= 0.300 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.160	91	Urban industrial, 72% imp, HSG C
0.320	79	Pasture/grassland/range, Fair, HSG C
1.110	91	Urban industrial, 72% imp, HSG C
1.590	89	Weighted Average
0.676		Pervious Area
0.914		Impervious Area

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

Subcatchment 38S: Sub-watershed 38



Subcatchment 39S: Sub-watershed 39

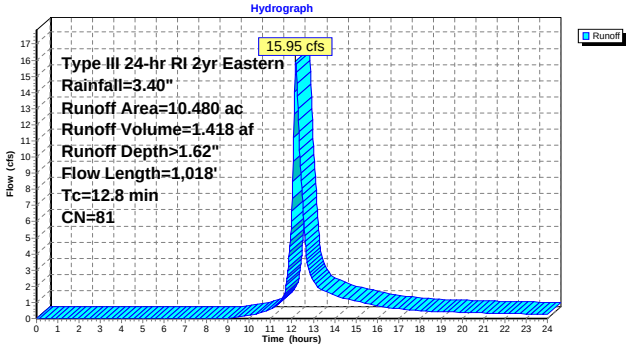
Runoff = 15.95 cfs @ 12.18 hrs, Volume= 1.418 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.520	79	Pasture/grassland/range, Fair, HSG C
9.960	81	1/3 acre lots, 30% imp, HSG C
10.480	81	Weighted Average
7.492		Pervious Area
2.988		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	212	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.0	387	0.0260	3.27		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	319	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.8	1,018	Total			

Subcatchment 39S: Sub-watershed 39



Subcatchment 40S: Sub-watershed 40

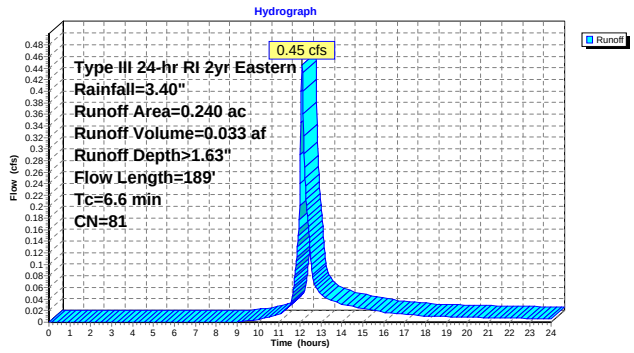
Runoff = 0.45 cfs @ 12.10 hrs, Volume= 0.033 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.240	81	1/3 acre lots, 30% imp, HSG C
0.168		Pervious Area
0.072		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.5	89	0.1500	2.71		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.6	189	Total			

Subcatchment 40S: Sub-watershed 40



Subcatchment 41S: Sub-watershed 41

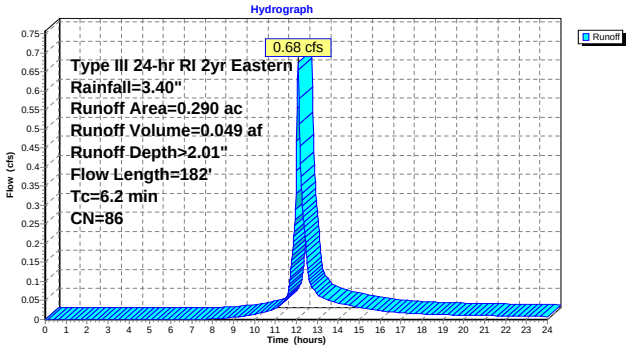
Runoff = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af, Depth> 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.290	86	Pasture/grassland/range, Poor, HSG C
0.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.7	82	0.0730	1.89		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.2	182	Total			

Subcatchment 41S: Sub-watershed 41



Subcatchment 42S: Sub-watershed 42

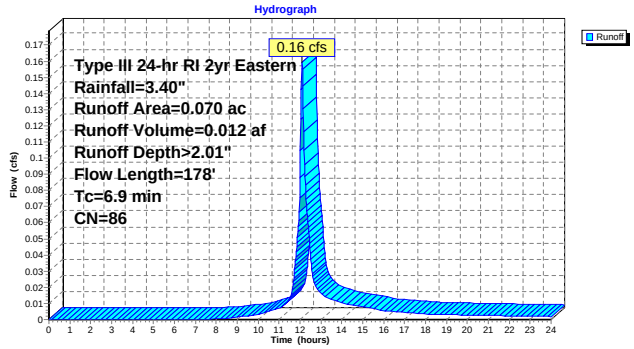
Runoff = 0.16 cfs @ 12.10 hrs, Volume= 0.012 af, Depth> 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.070	86	Pasture/grassland/range, Poor, HSG C
0.070		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.8	78	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.9	178	Total			

Subcatchment 42S: Sub-watershed 42



Subcatchment 43S: Sub-watershed 43

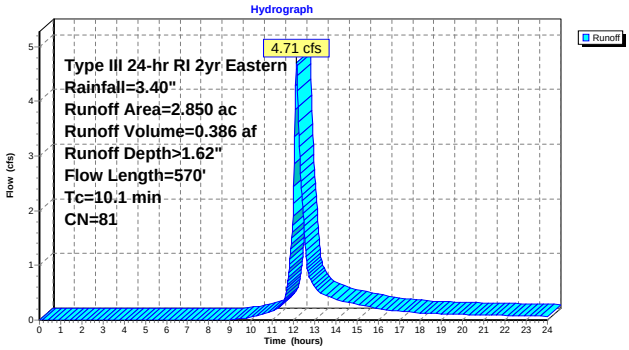
Runoff = 4.71 cfs @ 12.14 hrs, Volume= 0.386 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.850	81	1/3 acre lots, 30% imp, HSG C
1.995		Pervious Area
0.855		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	228	0.0880	2.08		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	206	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.5	36	0.0280	1.17		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
10.1	570	Total			

Subcatchment 43S: Sub-watershed 43



Subcatchment 44S: Sub-watershed 44

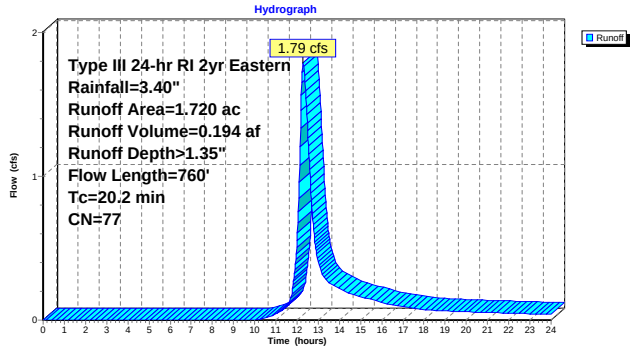
Runoff = 1.79 cfs @ 12.29 hrs, Volume= 0.194 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.860	81	1/3 acre lots, 30% imp, HSG C
0.860	73	Woods, Fair, HSG C
1.720	77	Weighted Average
1.462		Pervious Area
0.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
4.3	262	0.0420	1.02		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	398	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.2	760	Total			

Subcatchment 44S: Sub-watershed 44



Subcatchment 45S: Sub-watershed 45

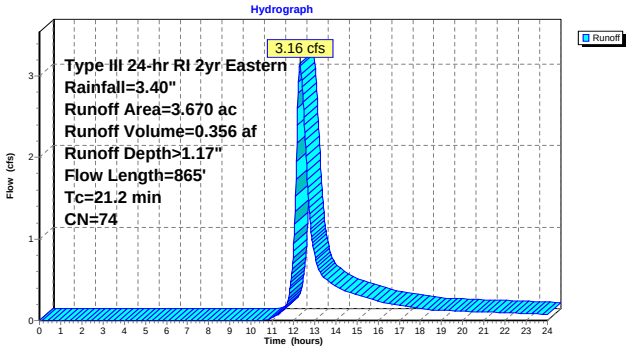
Runoff = 3.16 cfs @ 12.32 hrs, Volume= 0.356 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
3.120	73	Woods, Fair, HSG C
0.180	81	1/3 acre lots, 30% imp, HSG C
0.370	82	Woods/grass comb., Poor, HSG C
3.670	74	Weighted Average
3.616		Pervious Area
0.054		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
13.1	765	0.0380	0.97		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
21.2	865	Total			

Subcatchment 45S: Sub-watershed 45



Subcatchment 46S: Sub-watershed 46

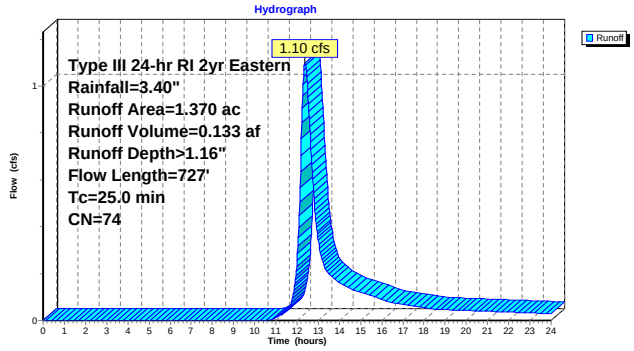
Runoff = 1.10 cfs @ 12.37 hrs, Volume= 0.133 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.230	73	Woods, Fair, HSG C
0.140	82	Woods/grass comb., Poor, HSG C
1.370	74	Weighted Average
1.370		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
7.6	373	0.0270	0.82		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.6	254	0.0160	2.57		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
25.0	727	Total			

Subcatchment 46S: Sub-watershed 46



Subcatchment 47S: Sub-watershed 47

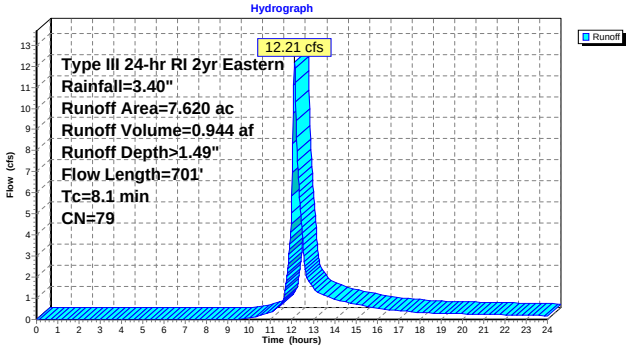
Runoff = 12.21 cfs @ 12.12 hrs, Volume= 0.944 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
7.620	79	50-75% Grass cover, Fair, HSG C
7.620		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1000	0.33		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	581	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.1	701	Total			

Subcatchment 47S: Sub-watershed 47



Subcatchment 48S: Sub-watershed 48

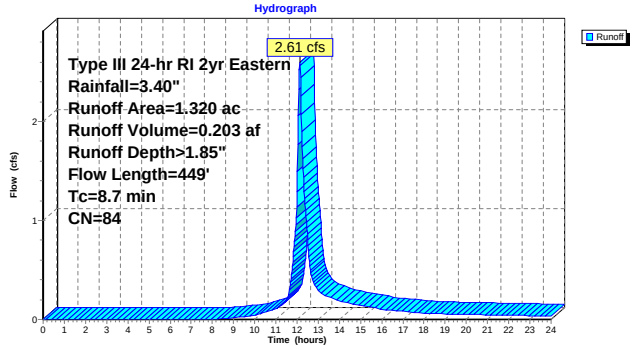
Runoff = 2.61 cfs @ 12.12 hrs, Volume= 0.203 af, Depth> 1.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.320	84	50-75% Grass cover, Fair, HSG D
1.320		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	39	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	310	0.0130	2.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.7	449	Total			

Subcatchment 48S: Sub-watershed 48



Subcatchment 49S: Sub-watershed 49

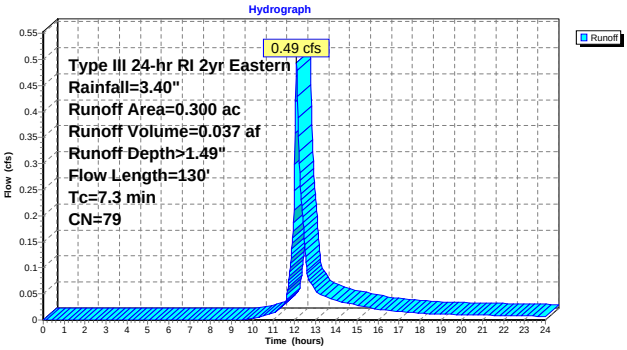
Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.037 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.300	79	50-75% Grass cover, Fair, HSG C
0.300		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.1	11	0.1800	2.97		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	19	0.1100	6.73		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	130	Total			

Subcatchment 49S: Sub-watershed 49



Subcatchment 50S: Sub-watershed 50

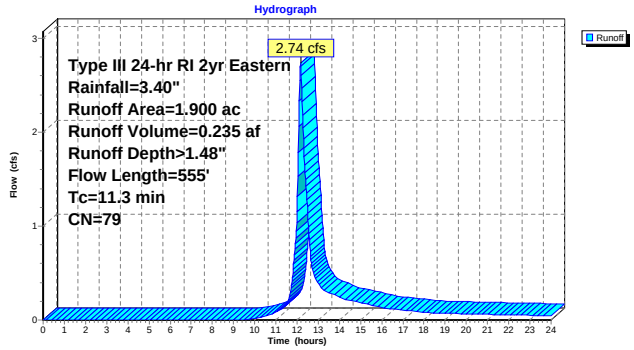
Runoff = 2.74 cfs @ 12.16 hrs, Volume= 0.235 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.900	79	50-75% Grass cover, Fair, HSG C
1.900		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	419	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	36	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.3	555	Total			

Subcatchment 50S: Sub-watershed 50



Subcatchment 51S: Sub-wateshed 51

Original time of concentration was 3.2 minutes. Changed time of concentration to 5 minutes.

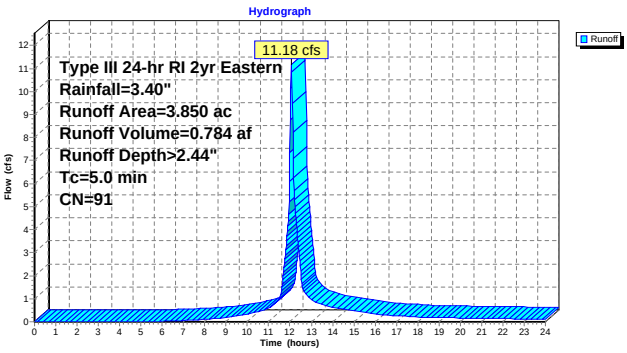
Runoff = 11.18 cfs @ 12.07 hrs, Volume= 0.784 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
3.850	91	Urban industrial, 72% imp, HSG C
1.078		Pervious Area
2.772		Impervious Area

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

Subcatchment 51S: Sub-wateshed 51



Subcatchment 52S: Sub-watershed 52

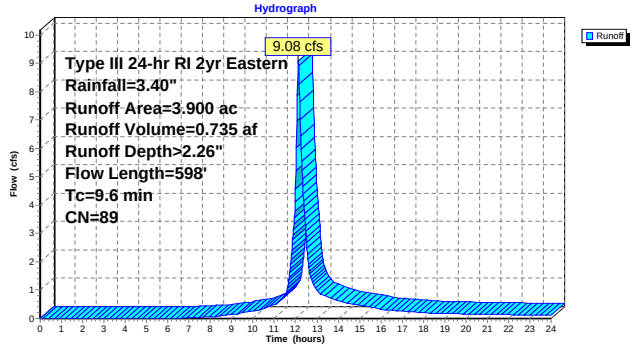
Runoff = 9.08 cfs @ 12.13 hrs, Volume= 0.735 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
3.510	90	1/8 acre lots, 65% imp, HSG C
0.390	79	50-75% Grass cover, Fair, HSG C
3.900	89	Weighted Average
1.618		Pervious Area
2.282		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.9	108	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	361	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	29	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
9.6	598	Total			

Subcatchment 52S: Sub-watershed 52



Subcatchment 53S: Sub-watershed 53

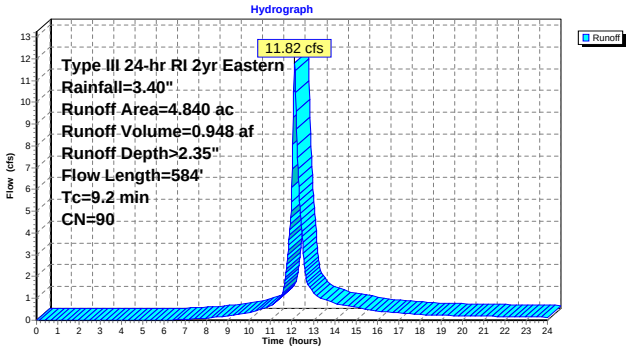
Runoff = 11.82 cfs @ 12.13 hrs, Volume= 0.948 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
4.840	90	1/8 acre lots, 65% imp, HSG C
1.694		Pervious Area
3.146		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	33	0.0610	1.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	451	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.2	584	Total			

Subcatchment 53S: Sub-watershed 53



Subcatchment 54S: Sub-watershed 54

Original time of concentration was 2.6 minutes. Changed time of concentration to 5 minutes.

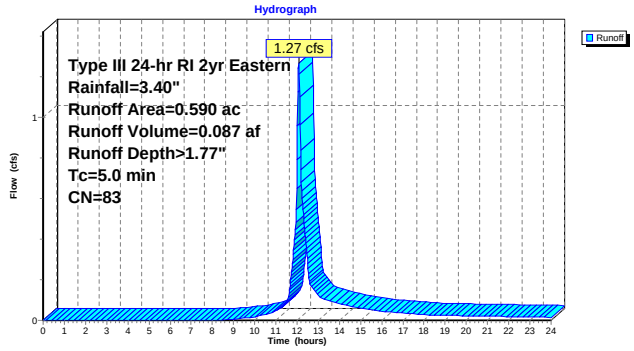
Runoff = 1.27 cfs @ 12.08 hrs, Volume= 0.087 af, Depth> 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.590	83	1/4 acre lots, 38% imp, HSG C
0.366		Pervious Area
0.224		Impervious Area

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

Subcatchment 54S: Sub-watershed 54



Subcatchment 55S: Sub-watershed 55

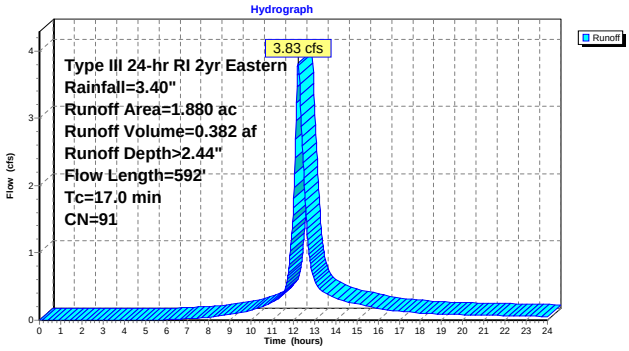
Runoff = 3.83 cfs @ 12.23 hrs, Volume= 0.382 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
1.880	91	Urban industrial, 72% imp, HSG C
0.526		Pervious Area
1.354		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	492	0.0080	1.82		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
17.0	592	Total			

Subcatchment 55S: Sub-watershed 55



Subcatchment 56S: Sub-watershed 56

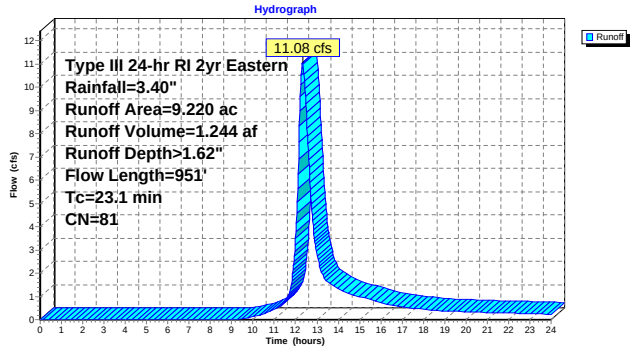
Runoff = 11.08 cfs @ 12.33 hrs, Volume= 1.244 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
9.220	81	1/3 acre lots, 30% imp, HSG C
6.454		Pervious Area
2.766		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.7	228	0.0090	0.66		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	623	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
23.1	951	Total			

Subcatchment 56S: Sub-watershed 56



Subcatchment 57S: Sub-watershed 57

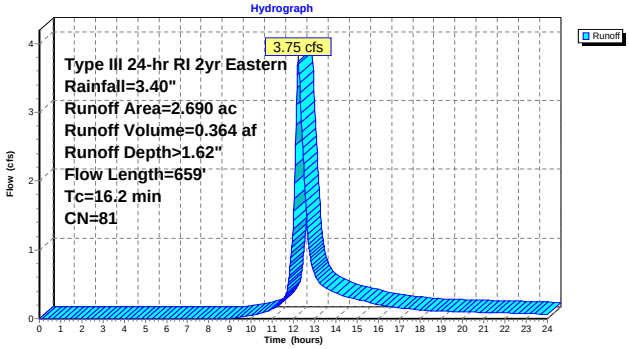
Runoff = 3.75 cfs @ 12.23 hrs, Volume= 0.364 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.690	81	1/3 acre lots, 30% imp, HSG C
1.883		Pervious Area
0.807		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	100	0.0370	0.22		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
6.4	190	0.0050	0.49		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	349	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
16.2	659	Total			

Subcatchment 57S: Sub-watershed 57



Subcatchment 58S: Sub-watershed 58

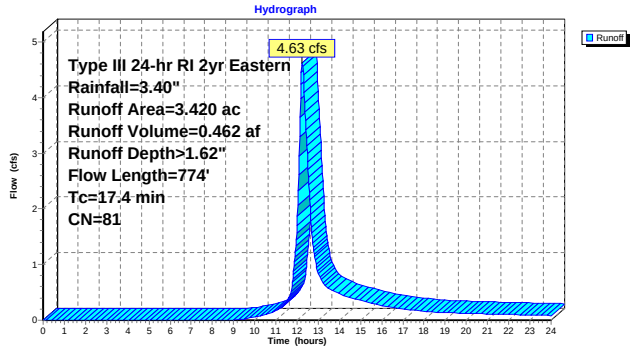
Runoff = 4.63 cfs @ 12.24 hrs, Volume= 0.462 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
3.420	81	1/3 acre lots, 30% imp, HSG C
2.394		Pervious Area
1.026		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.1	74	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.8	600	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.4	774	Total			

Subcatchment 58S: Sub-watershed 58



Subcatchment 59S: Sub-watershed 59

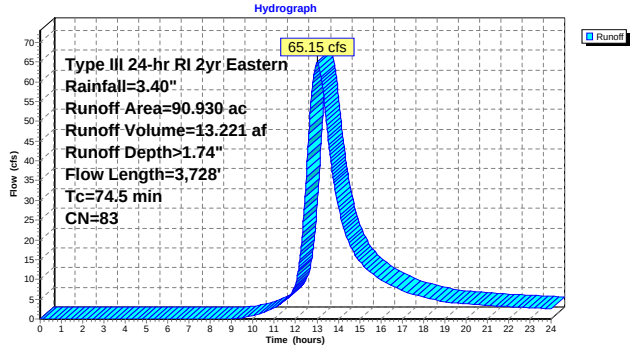
Runoff = 65.15 cfs @ 13.00 hrs, Volume= 13.221 af, Depth> 1.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
35.570	83	1/4 acre lots, 38% imp, HSG C
15.400	79	Pasture/grassland/range, Fair, HSG C
13.820	94	Urban commercial, 85% imp, HSG C
2.410	91	Urban industrial, 72% imp, HSG C
8.840	86	Woods/grass comb., Poor, HSG D
12.190	73	Woods, Fair, HSG C
2.700	79	Pasture/grassland/range, Fair, HSG C
90.930	83	Weighted Average
63.931		Pervious Area
26.999		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
49.4	2,858	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.2	48	0.0010	0.64		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	164	0.0180	0.94		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.5	377	0.0080	1.82		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
1.0	181	0.0220	3.01		**Shallow Concentrated Flow, F-G** Paved Kv= 20.3 fps
74.5	3,728	Total			

Subcatchment 59S: Sub-watershed 59



Subcatchment 60S: Sub-watershed 60

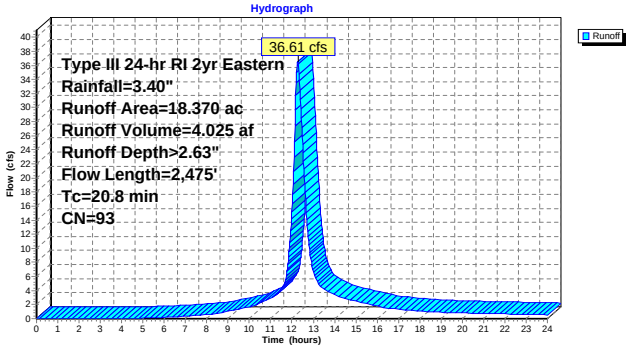
Runoff = 36.61 cfs @ 12.28 hrs, Volume= 4.025 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
5.510	91	Urban industrial, 72% imp, HSG C
12.860	94	Urban commercial, 85% imp, HSG C
18.370	93	Weighted Average
3.472		Pervious Area
14.898		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	83	0.1100	2.32		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.0	2,292	0.0210	2.94		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.8	2,475	Total			

Subcatchment 60S: Sub-watershed 60



Subcatchment 61S: Sub-watershed 61

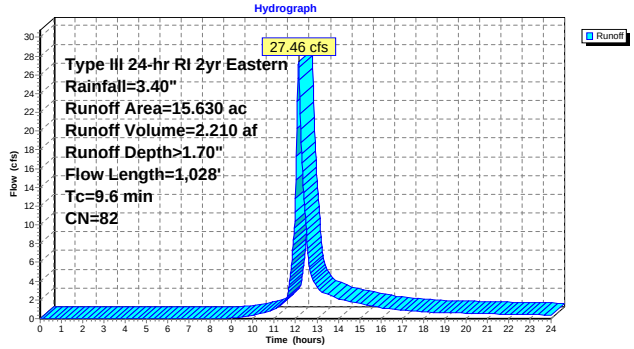
Runoff = 27.46 cfs @ 12.14 hrs, Volume= 2.210 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
14.070	81	1/3 acre lots, 30% imp, HSG C
1.560	94	Urban commercial, 85% imp, HSG C
15.630	82	Weighted Average
10.083		Pervious Area
5.547		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0700	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	132	0.0700	1.85		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.6	796	0.0630	5.10		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.6	1,028	Total			

Subcatchment 61S: Sub-watershed 61



Subcatchment 62S: Sub-watershed 62

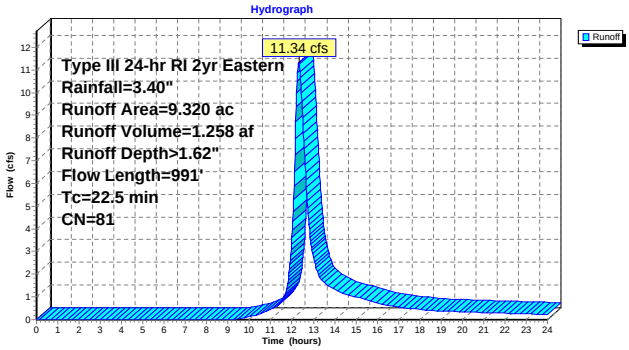
Runoff = 11.34 cfs @ 12.32 hrs, Volume= 1.258 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
9.320	81	1/3 acre lots, 30% imp, HSG C
6.524		Pervious Area
2.796		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.2	169	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.8	722	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.5	991	Total			

Subcatchment 62S: Sub-watershed 62



Subcatchment 63S: Sub-watershed 63

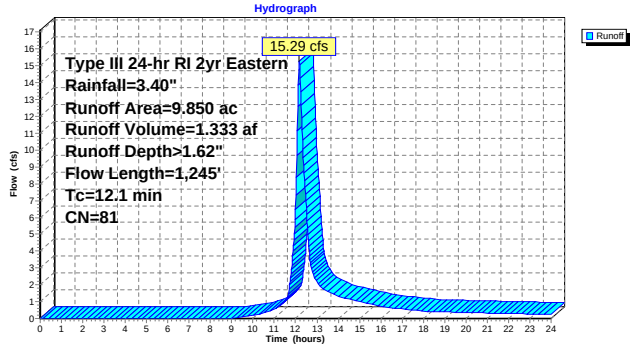
Runoff = 15.29 cfs @ 12.17 hrs, Volume= 1.333 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
9.850	81	1/3 acre lots, 30% imp, HSG C
6.895		Pervious Area
2.955		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	37	0.0540	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	63	0.0480	1.83		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
0.6	118	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.0	188	0.0480	1.53		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
6.0	839	0.0130	2.31		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
12.1	1,245	Total			

Subcatchment 63S: Sub-watershed 63



Subcatchment 64S: Sub-watershed 64

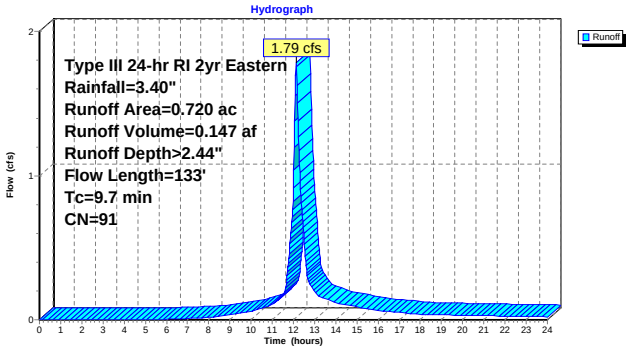
Runoff = 1.79 cfs @ 12.13 hrs, Volume= 0.147 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.720	91	Urban industrial, 72% imp, HSG C
0.202		Pervious Area
0.518		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.5	33	0.0010	0.22		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.7	133	Total			

Subcatchment 64S: Sub-watershed 64



Subcatchment 65S: Sub-watershed 65

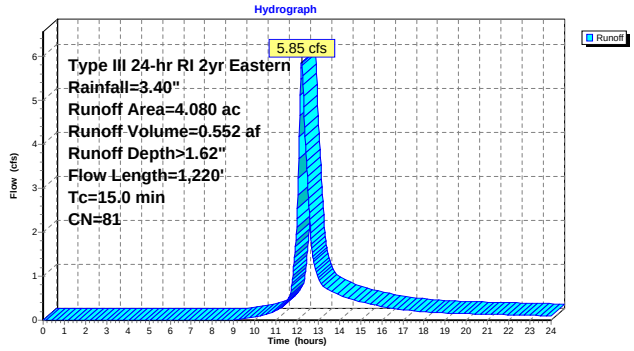
Runoff = 5.85 cfs @ 12.21 hrs, Volume= 0.552 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
4.080	81	1/3 acre lots, 30% imp, HSG C
2.856		Pervious Area
1.224		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	86	0.0300	0.20		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	14	0.0100	0.73		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
7.5	1,120	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.0	1,220	Total			

Subcatchment 65S: Sub-watershed 65



Subcatchment 66S: Su-watershed 66

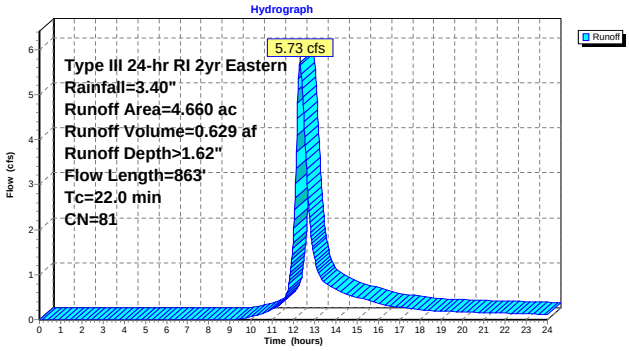
Runoff = 5.73 cfs @ 12.31 hrs, Volume= 0.629 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
4.660	81	1/3 acre lots, 30% imp, HSG C
3.262		Pervious Area
1.398		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	100	0.0060	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	103	0.0390	1.38		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.4	660	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.0	863	Total			

Subcatchment 66S: Su-watershed 66



Subcatchment 67S: Sub-watershed 67

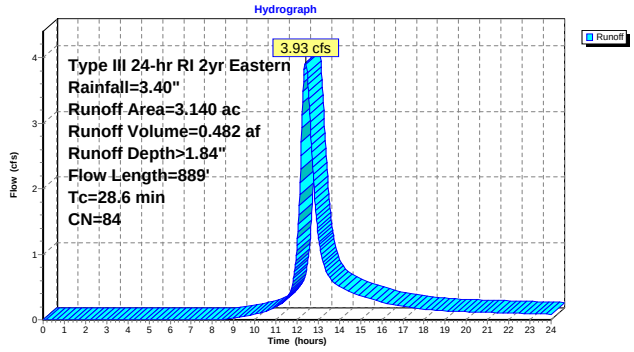
Runoff = 3.93 cfs @ 12.40 hrs, Volume= 0.482 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
0.790	81	1/3 acre lots, 30% imp, HSG C
1.880	88	Fallow, crop residue, Good, HSG C
0.470	73	Woods, Fair, HSG C
3.140	84	Weighted Average
2.903		Pervious Area
0.237		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	199	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.7	490	0.0120	0.77		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.7	100	0.0120	2.22		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
28.6	889	Total			

Subcatchment 67S: Sub-watershed 67



Subcatchment 68S: Sub-watershed 68

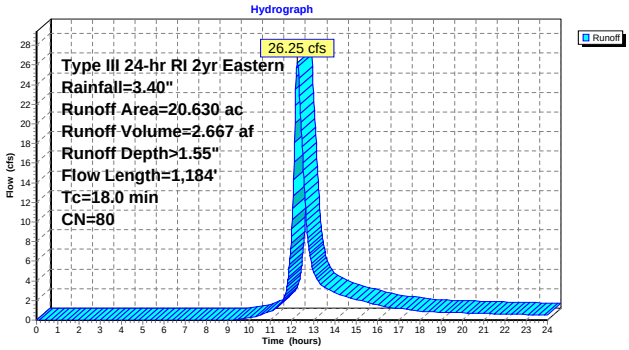
Runoff = 26.25 cfs @ 12.26 hrs, Volume= 2.667 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 2yr Eastern Rainfall=3.40"

Area (ac)	CN	Description
2.350	79	Pasture/grassland/range, Fair, HSG C
2.470	88	Fallow, crop residue, Good, HSG C
1.970	70	Brush, Fair, HSG C
5.490	82	Woods/grass comb., Poor, HSG C
2.460	73	Woods, Fair, HSG C
5.890	81	1/3 acre lots, 30% imp, HSG C
20.630	80	Weighted Average
18.863		Pervious Area
1.767		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0850	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
12.7	1,084	0.0410	1.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.0	1,184	Total			

Subcatchment 68S: Sub-watershed 68



Reach 3R: Intermittent Stream

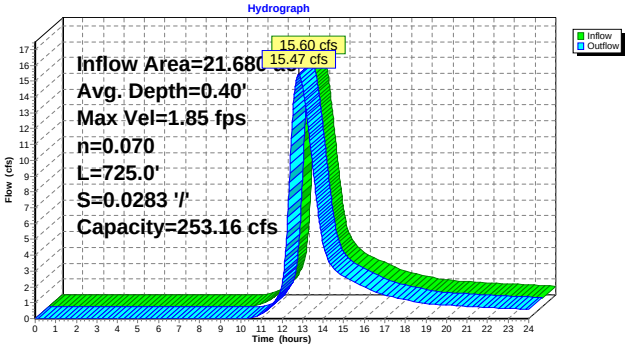
Inflow Area = 21.680 ac, Inflow Depth > 1.60" for RI 2yr Eastern event
Inflow = 15.60 cfs @ 12.62 hrs, Volume= 2.891 af
Outflow = 15.47 cfs @ 12.81 hrs, Volume= 2.868 af, Atten= 1%, Lag= 11.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 1.85 fps, Min. Travel Time= 6.5 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 16.1 min

Peak Storage= 6,071 cf @ 12.70 hrs, Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 253.16 cfs

20.00' x 2.00' deep channel, n= 0.070 Medium-dense brush, winter
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 725.0' Slope= 0.0283 '/'
Inlet Invert= 113.50', Outlet Invert= 93.00'

Reach 3R: Intermittent Stream



Pond 2P: Highview Pond Existing

Inflow Area = 21.680 ac, Inflow Depth > 1.62" for RI 2yr Eastern event
Inflow = 26.53 cfs @ 12.31 hrs, Volume= 2.927 af
Outflow = 15.60 cfs @ 12.62 hrs, Volume= 2.891 af, Atten= 41%, Lag= 18.6 min
Primary = 15.60 cfs @ 12.62 hrs, Volume= 2.891 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 119.11' @ 12.62 hrs Surf.Area= 7,030 sf Storage= 24,195 cf

Plug-Flow detention time= 25.4 min calculated for 2.891 af (99% of inflow)
Center-of-Mass det. time= 18.4 min (867.0 - 848.6)

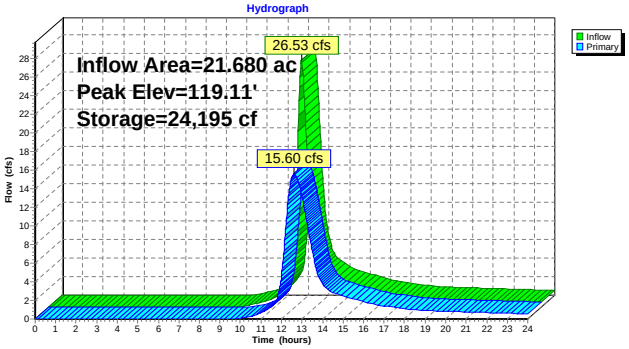
Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	42,295 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	4,620	0	0
118.00	6,496	16,674	16,674
121.00	7,936	21,648	38,322
122.00	10	3,973	42,295

Device	Routing	Invert	Outlet Devices
#1	Primary	115.00'	**18.0" x 40.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 114.40' S= 0.0150 '/' Cc= 0.900 n= 0.013
#2	Primary	121.00'	**128.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=15.60 cfs @ 12.62 hrs HW=119.11' (Free Discharge)
└─**1=Culvert** (Inlet Controls 15.60 cfs @ 8.83 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Highview Pond Existing

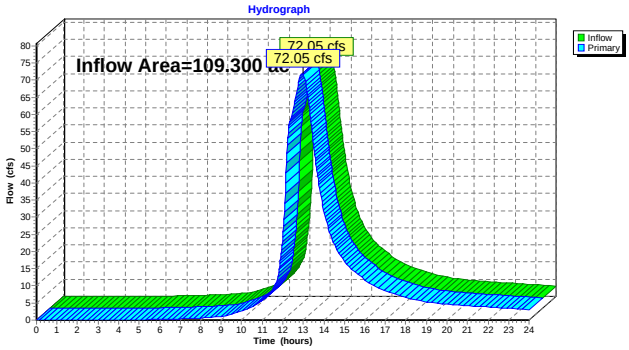


Link 68L: SW 59_SW 60

Inflow Area = 109.300 ac, Inflow Depth > 1.89" for RI 2yr Eastern event
Inflow = 72.05 cfs @ 12.98 hrs, Volume= 17.246 af
Primary = 72.05 cfs @ 12.98 hrs, Volume= 17.246 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 68L: SW 59_SW 60

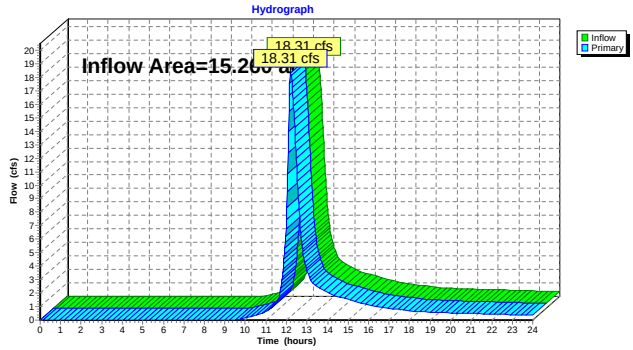


Link 69L: SW 14_SW 17

Inflow Area = 15.260 ac, Inflow Depth > 1.52" for RI 2yr Eastern event
Inflow = 18.31 cfs @ 12.21 hrs, Volume= 1.927 af
Primary = 18.31 cfs @ 12.21 hrs, Volume= 1.927 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 69L: SW 14_SW 17

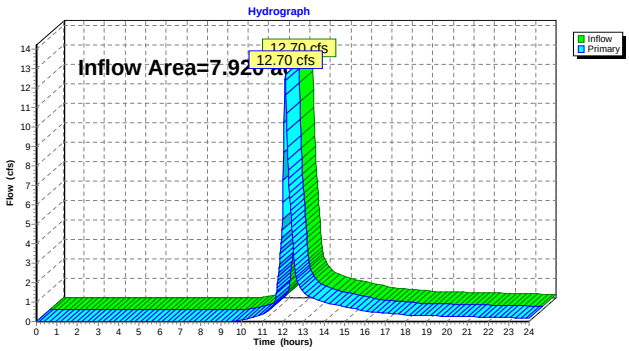


Link 70L: SW47_SW49

Inflow Area = 7.920 ac, Inflow Depth > 1.49" for RI 2yr Eastern event
Inflow = 12.70 cfs @ 12.12 hrs, Volume= 0.981 af
Primary = 12.70 cfs @ 12.12 hrs, Volume= 0.981 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 70L: SW47_SW49

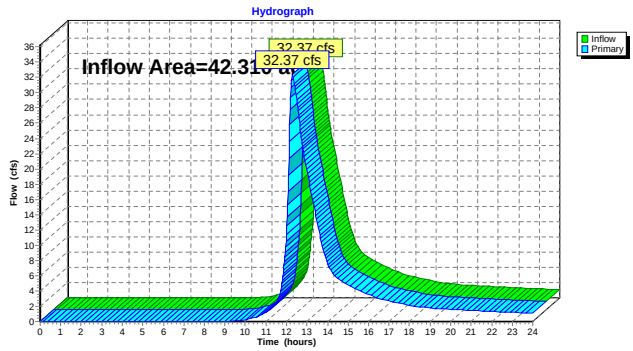


Link 71L: Elbow St

Inflow Area = 42.310 ac, Inflow Depth > 1.57" for RI 2yr Eastern event
Inflow = 32.37 cfs @ 12.29 hrs, Volume= 5.535 af
Primary = 32.37 cfs @ 12.29 hrs, Volume= 5.535 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 71L: Elbow St



10-Year Storm

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-watershed 1 Runoff Area=18.400 ac Runoff Depth>4.20"
Flow Length=1,460' Tc=20.1 min CN=94 Runoff=57.46 cfs 6.435 af

Subcatchment 2S: Sub-watershed 2 Runoff Area=3.220 ac Runoff Depth>4.20"
Flow Length=792' Tc=10.2 min CN=94 Runoff=12.88 cfs 1.128 af

Subcatchment 3S: Sub-watershed 3 Runoff Area=27.500 ac Runoff Depth>2.97"
Flow Length=2,500' Tc=39.3 min CN=82 Runoff=47.92 cfs 6.798 af

Subcatchment 4S: Sub-watershed 4 Runoff Area=35.010 ac Runoff Depth>3.64"
Flow Length=3,096' Tc=50.9 min CN=89 Runoff=64.02 cfs 10.630 af

Subcatchment 5S: Sub-Watershed 5 Runoff Area=2.340 ac Runoff Depth>2.80"
Tc=5.0 min CN=80 Runoff=7.96 cfs 0.547 af

Subcatchment 6dS: Sub-watershed 6d Runoff Area=0.630 ac Runoff Depth>4.21"
Tc=5.0 min CN=94 Runoff=2.99 cfs 0.221 af

Subcatchment 6eS: Sub-watershed 6e Runoff Area=0.500 ac Runoff Depth>4.21"
Tc=5.0 min CN=94 Runoff=2.37 cfs 0.175 af

Subcatchment 6S: Sub-watershed 6 Runoff Area=10.610 ac Runoff Depth>3.57"
Flow Length=1,536' Tc=11.4 min CN=88 Runoff=36.43 cfs 3.154 af

Subcatchment 8S: Sub-watershed 8 Runoff Area=2.070 ac Runoff Depth>2.80"
Flow Length=419' Tc=11.6 min CN=80 Runoff=5.66 cfs 0.483 af

Subcatchment 9S: Sub-watershed 9 Runoff Area=3.780 ac Runoff Depth>3.36"
Flow Length=633' Tc=16.8 min CN=86 Runoff=10.73 cfs 1.060 af

Subcatchment 10S: Sub-watershed 10 Runoff Area=8.740 ac Runoff Depth>3.07"
Flow Length=1,337' Tc=19.3 min CN=83 Runoff=21.56 cfs 2.238 af

Subcatchment 11S: Sub-watershed 11 Runoff Area=24.460 ac Runoff Depth>3.66"
Flow Length=1,757' Tc=26.1 min CN=89 Runoff=62.00 cfs 7.460 af

Subcatchment 12S: Sub-watershed 12 Runoff Area=3.040 ac Runoff Depth>3.88"
Flow Length=996' Tc=15.8 min CN=91 Runoff=9.91 cfs 0.982 af

Subcatchment 13S: Sub-watershed 13 Runoff Area=6.760 ac Runoff Depth>2.89"
Tc=5.0 min CN=81 Runoff=23.72 cfs 1.631 af

Subcatchment 14S: Sub-watershed 14 Runoff Area=8.060 ac Runoff Depth>2.71"
Flow Length=1,715' Tc=11.8 min CN=79 Runoff=21.20 cfs 1.820 af

Subcatchment 15S: Sub-watershed 15 Runoff Area=21.680 ac Runoff Depth>2.88"
Flow Length=1,259' Tc=22.2 min CN=81 Runoff=47.53 cfs 5.211 af

Subcatchment 16S: Sub-watershed 16 Runoff Area=2.740 ac Runoff Depth>2.98"
Flow Length=709' Tc=13.2 min CN=82 Runoff=7.61 cfs 0.681 af

Subcatchment 17S: Sub-watershed 17 Runoff Area=7.200 ac Runoff Depth>2.79"
Flow Length=1,430' Tc=21.6 min CN=80 Runoff=15.46 cfs 1.676 af

Subcatchment 18S: Sub-watershed 18 Runoff Area=13.850 ac Runoff Depth>2.80"
Flow Length=1,868' Tc=11.2 min CN=80 Runoff=38.31 cfs 3.231 af

Subcatchment 19S: Sub-watershed 19 Runoff Area=29.160 ac Runoff Depth>2.50"
Flow Length=2,101' Tc=63.7 min CN=77 Runoff=32.77 cfs 6.083 af

Subcatchment 20S: Sub-watershed 20 Runoff Area=11.220 ac Runoff Depth>2.89"
Flow Length=1,264' Tc=17.0 min CN=81 Runoff=27.43 cfs 2.700 af

Subcatchment 21S: Sub-watershed 21 Runoff Area=2.540 ac Runoff Depth>4.21"
Flow Length=496' Tc=5.5 min CN=94 Runoff=11.85 cfs 0.890 af

Subcatchment 22S: Sub-watershed 22 Runoff Area=6.280 ac Runoff Depth>4.21"
Flow Length=1,194' Tc=7.2 min CN=94 Runoff=27.65 cfs 2.201 af

Subcatchment 23S: Sub-watershed 23 Runoff Area=0.900 ac Runoff Depth>4.21"
Tc=5.0 min CN=94 Runoff=4.27 cfs 0.315 af

Subcatchment 24S: Sub-watershed 24 Runoff Area=5.430 ac Runoff Depth>3.88"
Flow Length=1,015' Tc=12.7 min CN=91 Runoff=19.18 cfs 1.755 af

Subcatchment 25S: Sub-watershed 25 Runoff Area=7.910 ac Runoff Depth>2.80"
Flow Length=943' Tc=13.6 min CN=80 Runoff=20.42 cfs 1.845 af

Subcatchment 26S: Sub-watershed 26 Runoff Area=0.040 ac Runoff Depth>4.66"
Tc=5.0 min CN=98 Runoff=0.20 cfs 0.016 af

Subcatchment 27S: Sub-watershed 27 Runoff Area=0.090 ac Runoff Depth>3.08"
Tc=5.0 min CN=83 Runoff=0.33 cfs 0.023 af

Subcatchment 28S: Sub-watershed 28 Runoff Area=4.430 ac Runoff Depth>2.79"
Flow Length=1,025' Tc=22.5 min CN=80 Runoff=9.35 cfs 1.031 af

Subcatchment 29S: Sub-watershed 29 Runoff Area=9.890 ac Runoff Depth>2.98"
Flow Length=1,194' Tc=11.1 min CN=82 Runoff=29.18 cfs 2.459 af

Subcatchment 30S: Sub-watershed 30 Runoff Area=1.680 ac Runoff Depth>2.89"
Flow Length=716' Tc=13.0 min CN=81 Runoff=4.55 cfs 0.405 af

Subcatchment 31S: Sub-watershed 31 Runoff Area=27.350 ac Runoff Depth>2.52"
Flow Length=1,762' Tc=27.7 min CN=77 Runoff=47.63 cfs 5.754 af

Subcatchment 32S: Sub-watershed32 Runoff Area=45.010 ac Runoff Depth>2.27"
Flow Length=1,805' Tc=26.8 min CN=74 Runoff=71.09 cfs 8.518 af

Subcatchment 33S: Sub-watershed 33 Runoff Area=27.500 ac Runoff Depth>2.89"
Flow Length=1,541' Tc=10.9 min CN=81 Runoff=79.18 cfs 6.626 af

Subcatchment 34S: Sub-watershed 34 Runoff Area=5.470 ac Runoff Depth>2.89"
Flow Length=967' Tc=16.4 min CN=81 Runoff=13.58 cfs 1.316 af

Subcatchment 35S: Sub-watershed 35 Runoff Area=2.020 ac Runoff Depth>3.57"
Flow Length=401' Tc=11.6 min CN=88 Runoff=6.90 cfs 0.600 af

Subcatchment 36S: Sub-watershed 36 Runoff Area=114.100 ac Runoff Depth>3.07"
Flow Length=4,314' Tc=29.2 min CN=83 Runoff=235.31 cfs 29.158 af

Subcatchment 37S: Sub-watershed 37 Runoff Area=4.120 ac Runoff Depth>3.37"
Flow Length=852' Tc=9.7 min CN=86 Runoff=14.19 cfs 1.156 af

Subcatchment 38S: Sub-watershed 38 Runoff Area=1.590 ac Runoff Depth>3.67"
Tc=5.0 min CN=89 Runoff=6.88 cfs 0.487 af

Subcatchment 39S: Sub-watershed 39 Runoff Area=10.480 ac Runoff Depth>2.89"
Flow Length=1,018' Tc=12.8 min CN=81 Runoff=28.55 cfs 2.524 af

Subcatchment 40S: Sub-watershed 40 Runoff Area=0.240 ac Runoff Depth>2.89"
Flow Length=189' Tc=6.6 min CN=81 Runoff=0.80 cfs 0.058 af

Subcatchment 41S: Sub-watershed 41 Runoff Area=0.290 ac Runoff Depth>3.37"
Flow Length=182' Tc=6.2 min CN=86 Runoff=1.12 cfs 0.081 af

Subcatchment 42S: Sub-watershed 42 Runoff Area=0.070 ac Runoff Depth>3.37"
Flow Length=178' Tc=6.9 min CN=86 Runoff=0.26 cfs 0.020 af

Subcatchment 43S: Sub-watershed 43 Runoff Area=2.850 ac Runoff Depth>2.89"
Flow Length=570' Tc=10.1 min CN=81 Runoff=8.42 cfs 0.687 af

Subcatchment 44S: Sub-watershed 44 Runoff Area=1.720 ac Runoff Depth>2.53"
Flow Length=760' Tc=20.2 min CN=77 Runoff=3.43 cfs 0.362 af

Subcatchment 45S: Sub-watershed 45 Runoff Area=3.670 ac Runoff Depth>2.27"
Flow Length=865' Tc=21.2 min CN=74 Runoff=6.41 cfs 0.695 af

Subcatchment 46S: Sub-watershed 46 Runoff Area=1.370 ac Runoff Depth>2.27"
Flow Length=727' Tc=25.0 min CN=74 Runoff=2.23 cfs 0.259 af

Subcatchment 47S: Sub-watershed 47 Runoff Area=7.620 ac Runoff Depth>2.71"
Flow Length=701' Tc=8.1 min CN=79 Runoff=22.53 cfs 1.722 af

Subcatchment 48S: Sub-watershed 48 Runoff Area=1.320 ac Runoff Depth>3.17"
Flow Length=449' Tc=8.7 min CN=84 Runoff=4.45 cfs 0.349 af

Subcatchment 49S: Sub-watershed 49 Runoff Area=0.300 ac Runoff Depth>2.71"
Flow Length=130' Tc=7.3 min CN=79 Runoff=0.91 cfs 0.068 af

Subcatchment 50S: Sub-watershed 50 Runoff Area=1.900 ac Runoff Depth>2.71"
Flow Length=555' Tc=11.3 min CN=79 Runoff=5.07 cfs 0.429 af

Subcatchment 51S: Sub-wateshed 51 Runoff Area=3.850 ac Runoff Depth>3.88"
Tc=5.0 min CN=91 Runoff=17.36 cfs 1.246 af

Subcatchment 52S: Sub-watershed 52 Runoff Area=3.900 ac Runoff Depth>3.67"
Flow Length=598' Tc=9.6 min CN=89 Runoff=14.47 cfs 1.193 af

Subcatchment 53S: Sub-watershed 53 Runoff Area=4.840 ac Runoff Depth>3.77"
Flow Length=584' Tc=9.2 min CN=90 Runoff=18.59 cfs 1.522 af

Subcatchment 54S: Sub-watershed 54 Runoff Area=0.590 ac Runoff Depth>3.08"
Tc=5.0 min CN=83 Runoff=2.20 cfs 0.151 af

Subcatchment 55S: Sub-watershed 55 Runoff Area=1.880 ac Runoff Depth>3.87"
Flow Length=592' Tc=17.0 min CN=91 Runoff=5.96 cfs 0.607 af

Subcatchment 56S: Sub-watershed 56 Runoff Area=9.220 ac Runoff Depth>2.88"
Flow Length=951' Tc=23.1 min CN=81 Runoff=19.85 cfs 2.216 af

Subcatchment 57S: Sub-watershed 57 Runoff Area=2.690 ac Runoff Depth>2.89"
Flow Length=659' Tc=16.2 min CN=81 Runoff=6.71 cfs 0.647 af

Subcatchment 58S: Sub-watershed 58 Runoff Area=3.420 ac Runoff Depth>2.89"
Flow Length=774' Tc=17.4 min CN=81 Runoff=8.29 cfs 0.823 af

Subcatchment 59S: Sub-watershed 59 Runoff Area=90.930 ac Runoff Depth>3.04"
Flow Length=3,728' Tc=74.5 min CN=83 Runoff=113.61 cfs 23.012 af

Subcatchment 60S: Sub-watershed 60 Runoff Area=18.370 ac Runoff Depth>4.09"
Flow Length=2,475' Tc=20.8 min CN=93 Runoff=55.63 cfs 6.256 af

Subcatchment 61S: Sub-watershed 61 Runoff Area=15.630 ac Runoff Depth>2.98"
Flow Length=1,028' Tc=9.6 min CN=82 Runoff=48.33 cfs 3.887 af

Subcatchment 62S: Sub-watershed 62 Runoff Area=9.320 ac Runoff Depth>2.88"
Flow Length=991' Tc=22.5 min CN=81 Runoff=20.31 cfs 2.240 af

Subcatchment 63S: Sub-watershed 63 Runoff Area=9.850 ac Runoff Depth>2.89"
Flow Length=1,245' Tc=12.1 min CN=81 Runoff=27.39 cfs 2.373 af

Subcatchment 64S: Sub-watershed 64 Runoff Area=0.720 ac Runoff Depth>3.88"
Flow Length=133' Tc=9.7 min CN=91 Runoff=2.78 cfs 0.233 af

Subcatchment 65S: Sub-watershed 65 Runoff Area=4.080 ac Runoff Depth>2.89"
Flow Length=1,220' Tc=15.0 min CN=81 Runoff=10.47 cfs 0.982 af

Subcatchment 66S: Su-watershed 66 Runoff Area=4.660 ac Runoff Depth>2.88"
Flow Length=863' Tc=22.0 min CN=81 Runoff=10.26 cfs 1.120 af

Subcatchment 67S: Sub-watershed 67 Runoff Area=3.140 ac Runoff Depth>3.16"
Flow Length=889' Tc=28.6 min CN=84 Runoff=6.73 cfs 0.827 af

Subcatchment 68S: Sub-watershed 68 Runoff Area=20.630 ac Runoff Depth>2.80"
Flow Length=1,184' Tc=18.0 min CN=80 Runoff=47.75 cfs 4.807 af

Reach 3R: Intermittent Stream Avg. Depth=0.66' Max Vel=2.55 fps Inflow=43.97 cfs 5.169 af
n=0.070 L=725.0' S=0.0283 '/' Capacity=253.16 cfs Outflow=37.11 cfs 5.139 af

Pond 2P: Highview Pond Existing Peak Elev=121.16' Storage=39,519 cf Inflow=47.53 cfs 5.211 af
Outflow=43.97 cfs 5.169 af

Link 68L: SW 59_SW 60 Inflow=124.02 cfs 29.268 af
Primary=124.02 cfs 29.268 af

Link 69L: SW 14_SW 17 Inflow=33.78 cfs 3.496 af
Primary=33.78 cfs 3.496 af

Link 70L: SW47_SW49 Inflow=23.43 cfs 1.790 af
Primary=23.43 cfs 1.790 af

Link 71L: Elbow St Inflow=62.54 cfs 9.945 af
Primary=62.54 cfs 9.945 af

Total Runoff Area = 746.870 ac Runoff Volume = 190.298 af Average Runoff Depth = 3.06"
66.54% Pervious Area = 496.954 ac 33.46% Impervious Area = 249.916 ac

Subcatchment 1S: Sub-watershed 1

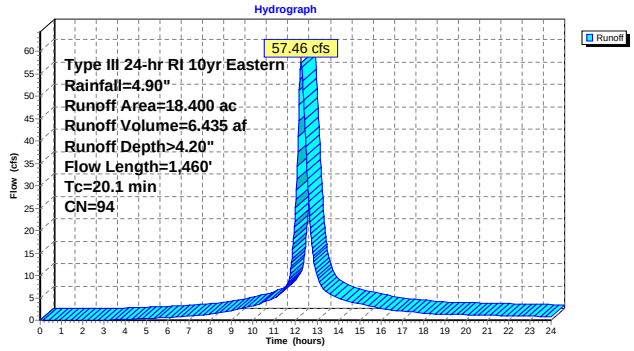
Runoff = 57.46 cfs @ 12.26 hrs, Volume= 6.435 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
18.400	94	Urban commercial, 85% imp, HSG C
2.760		Pervious Area
15.640		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
8.9	1,240	0.0210	2.33		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	120	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.1	1,460	Total			

Subcatchment 1S: Sub-watershed 1



Subcatchment 2S: Sub-watershed 2

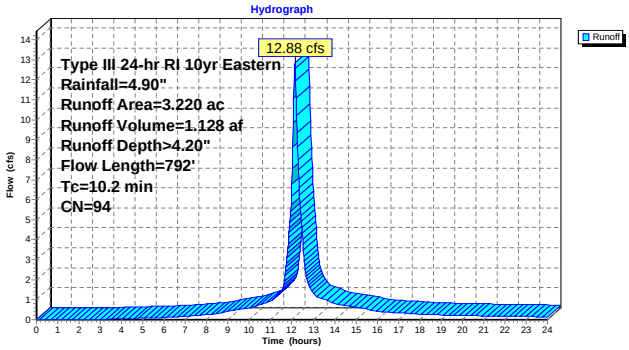
Runoff = 12.88 cfs @ 12.14 hrs, Volume= 1.128 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
3.220	94	Urban commercial, 85% imp, HSG C
0.483		Pervious Area
2.737		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.4	394	0.0280	2.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	298	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.2	792	Total			

Subcatchment 2S: Sub-watershed 2



Subcatchment 3S: Sub-watershed 3

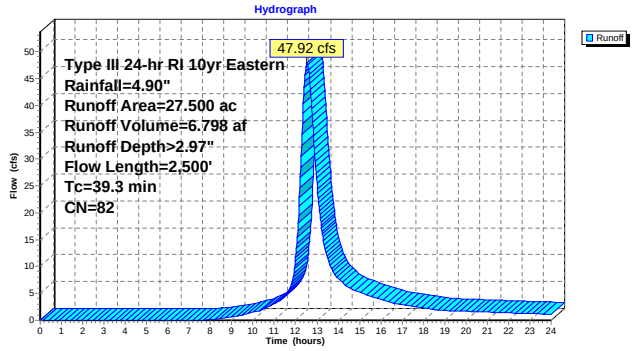
Runoff = 47.92 cfs @ 12.54 hrs, Volume= 6.798 af, Depth> 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
13.750	86	Pasture/grassland/range, Poor, HSG C
10.750	80	1/2 acre lots, 25% imp, HSG C
3.000	73	Woods, Fair, HSG C
27.500	82	Weighted Average
24.813		Pervious Area
2.688		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
19.4	1,200	0.0217	1.03		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.9	1,200	0.0050	1.44		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
39.3	2,500	Total			

Subcatchment 3S: Sub-watershed 3



Subcatchment 4S: Sub-watershed 4

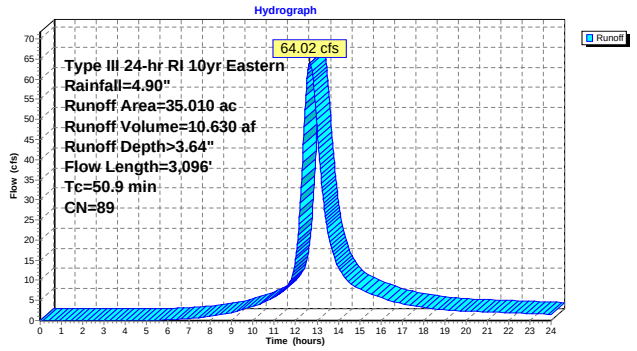
Runoff = 64.02 cfs @ 12.67 hrs, Volume= 10.630 af, Depth> 3.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
5.901	90	Fallow, crop residue, Poor, HSG C
17.070	94	Urban commercial, 85% imp, HSG C
5.647	79	Pasture/grassland/range, Fair, HSG C
3.680	79	1 acre lots, 20% imp, HSG C
2.712	91	Urban industrial, 72% imp, HSG C
35.010	89	Weighted Average
17.812		Pervious Area
17.198		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	106	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.6	70	0.0860	2.05		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.7	82	0.0100	2.03		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
24.2	322	0.0010	0.22		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
13.9	2,386	0.0200	2.87		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
50.9	3,096	Total			

Subcatchment 4S: Sub-watershed 4



Subcatchment 5S: Sub-Watershed 5

Time of concentration was 4.2 minutes. Changed to direct entry to obtain a time of concentration of 5 minutes.

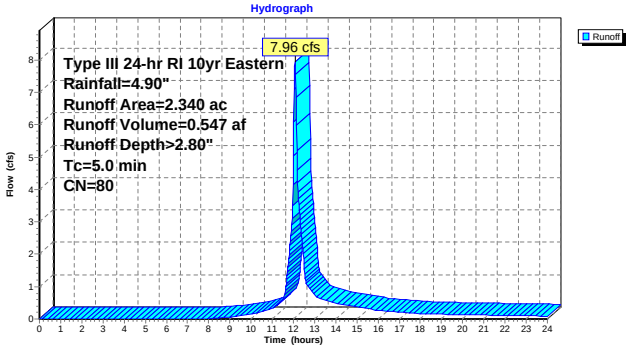
Runoff = 7.96 cfs @ 12.08 hrs, Volume= 0.547 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.340	80	1/2 acre lots, 25% imp, HSG C
1.755		Pervious Area
0.585		Impervious Area

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

Subcatchment 5S: Sub-Watershed 5



Subcatchment 6dS: Sub-watershed 6d

Original time of concentration was 2.5 minutes. Changed time of concentration to 5 minutes.

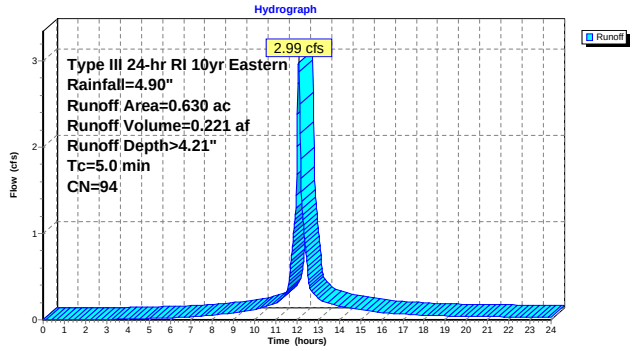
Runoff = 2.99 cfs @ 12.07 hrs, Volume= 0.221 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.630	94	Urban commercial, 85% imp, HSG C
0.095		Pervious Area
0.535		Impervious Area

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

Subcatchment 6dS: Sub-watershed 6d



Subcatchment 6eS: Sub-watershed 6e

Original time of concentration was 4.2 minutes. Changed time of concentration to 5 minutes.

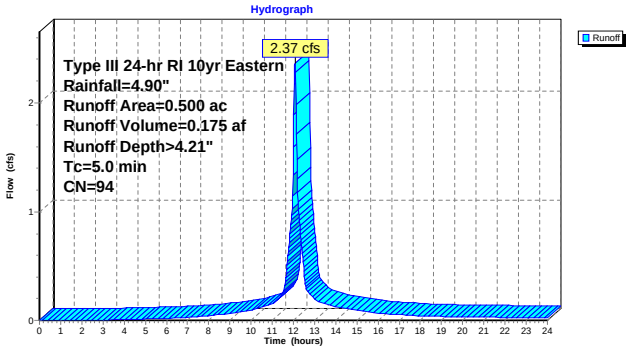
Runoff = 2.37 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.500	94	Urban commercial, 85% imp, HSG C
0.075		Pervious Area
0.425		Impervious Area

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

Subcatchment 6eS: Sub-watershed 6e



Subcatchment 6S: Sub-watershed 6

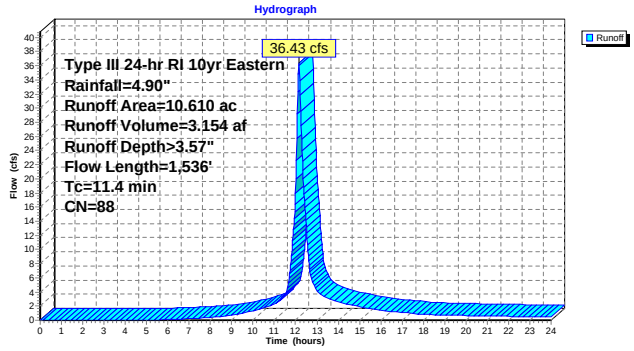
Runoff = 36.43 cfs @ 12.15 hrs, Volume= 3.154 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
8.380	87	Dirt roads, HSG C
2.230	94	Urban commercial, 85% imp, HSG C
10.610	88	Weighted Average
8.714		Pervious Area
1.895		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.0900	2.59		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.8	1,436	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.4	1,536	Total			

Subcatchment 6S: Sub-watershed 6



Subcatchment 8S: Sub-watershed 8

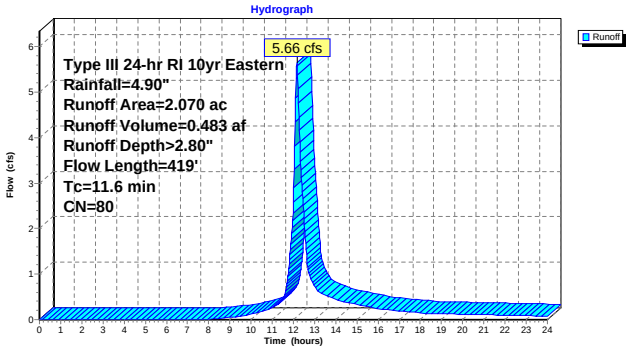
Runoff = 5.66 cfs @ 12.16 hrs, Volume= 0.483 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.070	80	1/2 acre lots, 25% imp, HSG C
1.552		Pervious Area
0.517		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.1	228	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.4	91	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.6	419	Total			

Subcatchment 8S: Sub-watershed 8



Subcatchment 9S: Sub-watershed 9

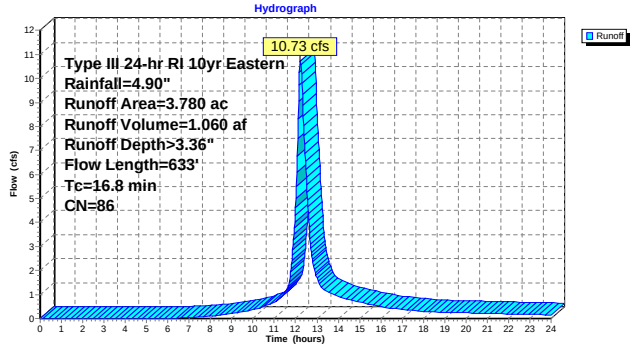
Runoff = 10.73 cfs @ 12.23 hrs, Volume= 1.060 af, Depth> 3.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.990	90	1/8 acre lots, 65% imp, HSG C
0.790	73	Woods, Fair, HSG C
3.780	86	Weighted Average
1.837		Pervious Area
1.944		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	200	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.7	160	0.0500	1.57		**Shallow Concentrated Flow, B- C** Short Grass Pasture Kv= 7.0 fps
0.9	173	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.8	633	Total			

Subcatchment 9S: Sub-watershed 9



Subcatchment 10S: Sub-watershed 10

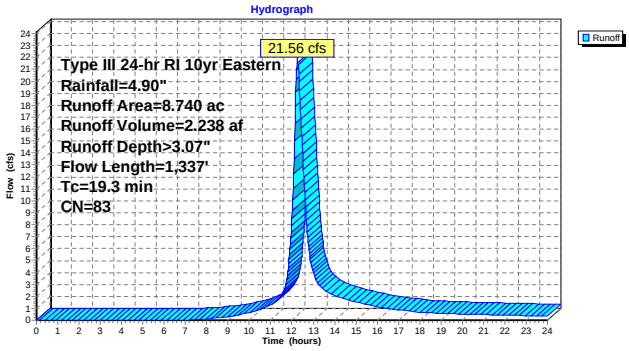
Runoff = 21.56 cfs @ 12.26 hrs, Volume= 2.238 af, Depth> 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
8.740	83	1/4 acre lots, 38% imp, HSG C
5.419		Pervious Area
3.321		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.8	196	0.0150	0.86		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.0	1,041	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
19.3	1,337	Total			

Subcatchment 10S: Sub-watershed 10



Subcatchment 11S: Sub-watershed 11

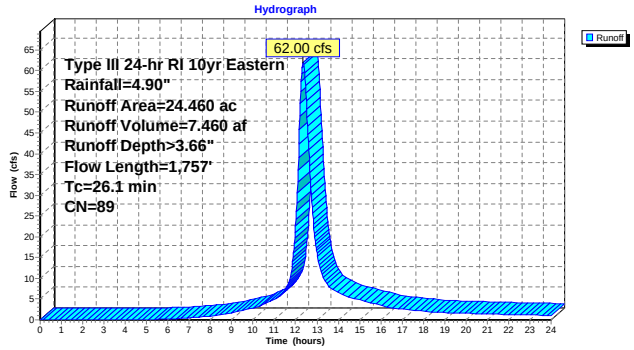
Runoff = 62.00 cfs @ 12.35 hrs, Volume= 7.460 af, Depth> 3.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
5.370	90	Fallow, crop residue, Poor, HSG C
10.340	94	Urban commercial, 85% imp, HSG C
8.750	83	1/4 acre lots, 38% imp, HSG C
24.460	89	Weighted Average
12.346		Pervious Area
12.114		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
12.0	504	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.5	1,153	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
26.1	1,757	Total			

Subcatchment 11S: Sub-watershed 11



Subcatchment 12S: Sub-watershed 12

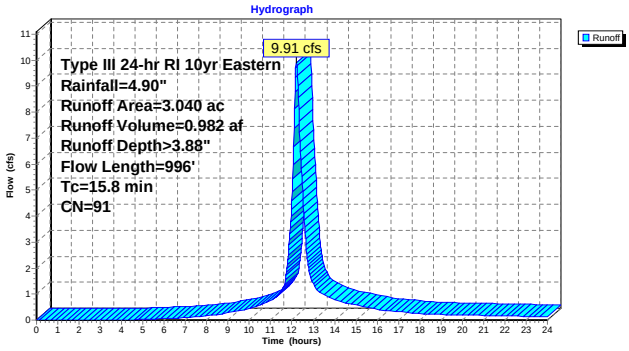
Runoff = 9.91 cfs @ 12.21 hrs, Volume= 0.982 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.130	94	Urban commercial, 85% imp, HSG C
0.910	83	1/4 acre lots, 38% imp, HSG C
3.040	91	Weighted Average
0.884		Pervious Area
2.156		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.5	462	0.0400	1.40		**Shallow Concentrated Flow, A-B** Short Grass Pasture Kv= 7.0 fps
2.2	434	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.8	996	Total			

Subcatchment 12S: Sub-watershed 12



Subcatchment 13S: Sub-watershed 13

Original time of concentration was 4.6 minutes. Changed time of concentration to 5 minutes.

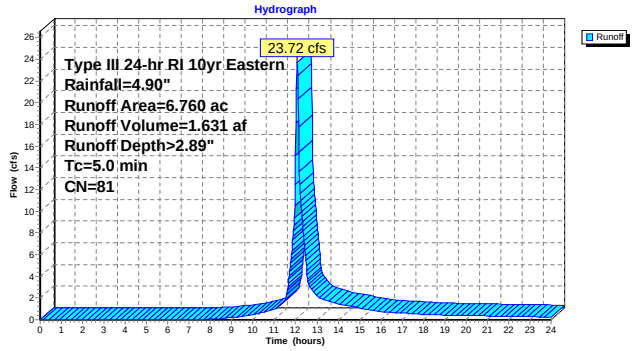
Runoff = 23.72 cfs @ 12.07 hrs, Volume= 1.631 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
6.760	81	1/3 acre lots, 30% imp, HSG C
4.732		Pervious Area
2.028		Impervious Area

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

Subcatchment 13S: Sub-watershed 13



Subcatchment 14S: Sub-watershed 14

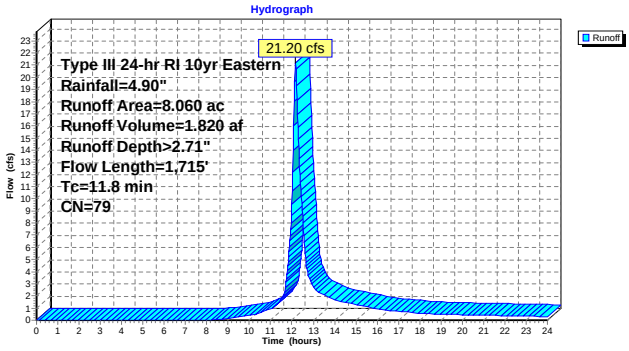
Runoff = 21.20 cfs @ 12.16 hrs, Volume= 1.820 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.240	94	Urban commercial, 85% imp, HSG C
7.820	79	1 acre lots, 20% imp, HSG C
8.060	79	Weighted Average
6.292		Pervious Area
1.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.2	1,615	0.0170	2.65		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.8	1,715	Total			

Subcatchment 14S: Sub-watershed 14



Subcatchment 15S: Sub-watershed 15

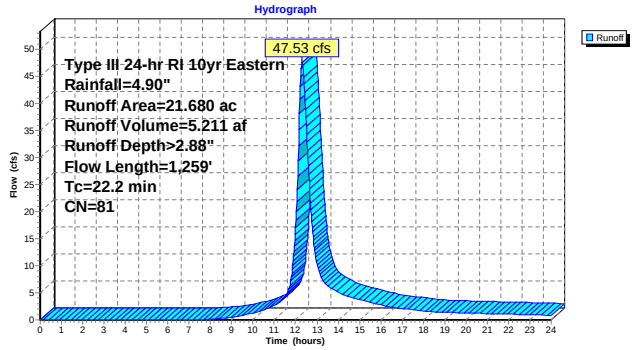
Runoff = 47.53 cfs @ 12.31 hrs, Volume= 5.211 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
15.390	79	1 acre lots, 20% imp, HSG C
5.090	90	1/8 acre lots, 65% imp, HSG C
1.200	76	Woods/grass comb., Fair, HSG C
21.680	81	Weighted Average
15.294		Pervious Area
6.387		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.3	168	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.8	991	0.0340	1.29		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
22.2	1,259	Total			

Subcatchment 15S: Sub-watershed 15



Subcatchment 16S: Sub-watershed 16

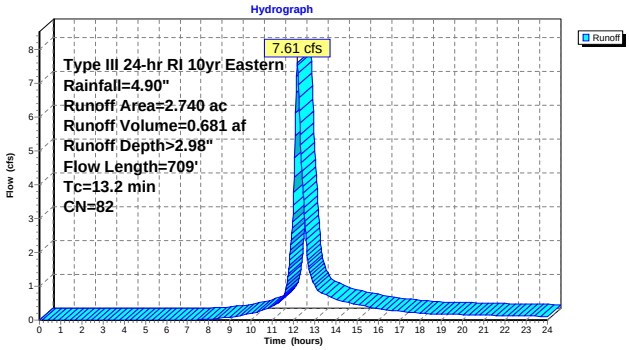
Runoff = 7.61 cfs @ 12.18 hrs, Volume= 0.681 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.330	81	1/3 acre lots, 30% imp, HSG C
0.410	91	Fallow, bare soil, HSG C
2.740	82	Weighted Average
2.041		Pervious Area
0.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	161	0.0370	1.35		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	448	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.2	709	Total			

Subcatchment 16S: Sub-watershed 16



Subcatchment 17S: Sub-watershed 17

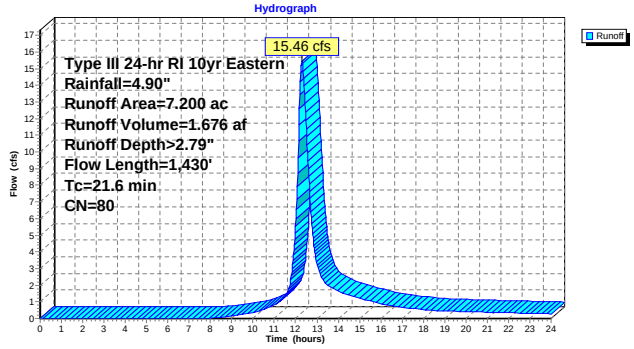
Runoff = 15.46 cfs @ 12.30 hrs, Volume= 1.676 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
7.200	80	1/2 acre lots, 25% imp, HSG C
5.400		Pervious Area
1.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-C** Grass: Short n= 0.150 P2= 3.40"
1.8	338	0.0240	3.14		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.5	125	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	260	0.0460	1.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.9	607	0.0160	2.57		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
21.6	1,430	Total			

Subcatchment 17S: Sub-watershed 17



Subcatchment 18S: Sub-watershed 18

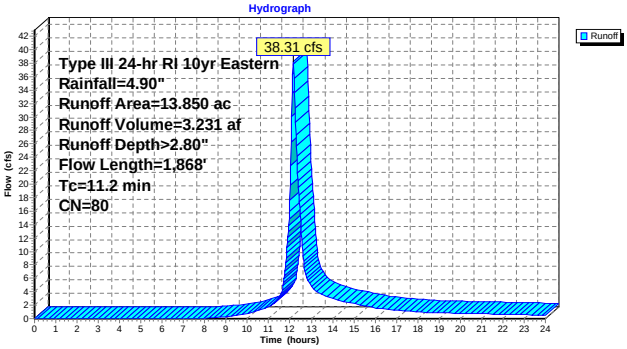
Runoff = 38.31 cfs @ 12.16 hrs, Volume= 3.231 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
13.160	80	1/2 acre lots, 25% imp, HSG C
0.690	73	Woods, Fair, HSG C
13.850	80	Weighted Average
10.560		Pervious Area
3.290		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0500	2.05		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
3.3	299	0.0470	1.52		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.1	1,469	0.0290	3.46		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.2	1,868	Total			

Subcatchment 18S: Sub-watershed 18



Subcatchment 19S: Sub-watershed 19

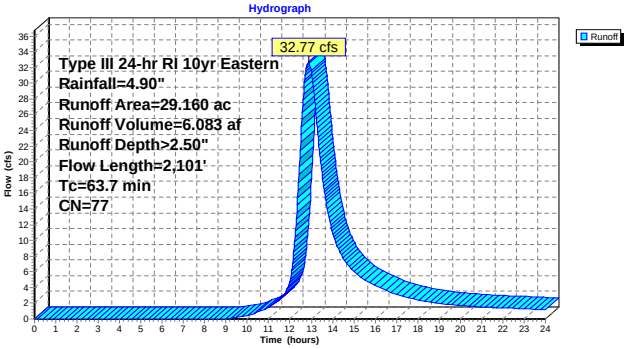
Runoff = 32.77 cfs @ 12.87 hrs, Volume= 6.083 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.460	94	Urban commercial, 85% imp, HSG C
1.460	80	1/2 acre lots, 25% imp, HSG C
26.240	76	Woods/grass comb., Fair, HSG C
29.160	77	Weighted Average
27.554		Pervious Area
1.606		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0160	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.40"
2.9	161	0.0170	0.91		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	17	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	13	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
35.7	678	0.0040	0.32		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
8.6	1,052	0.0100	2.03		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
63.7	2,101	Total			

Subcatchment 19S: Sub-watershed 19



Subcatchment 20S: Sub-watershed 20

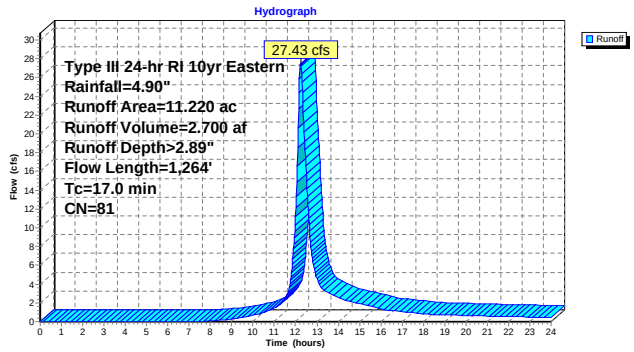
Runoff = 27.43 cfs @ 12.23 hrs, Volume= 2.700 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
11.220	81	1/3 acre lots, 30% imp, HSG C
7.854		Pervious Area
3.366		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.0	174	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	990	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.0	1,264	Total			

Subcatchment 20S: Sub-watershed 20



Subcatchment 21S: Sub-watershed 21

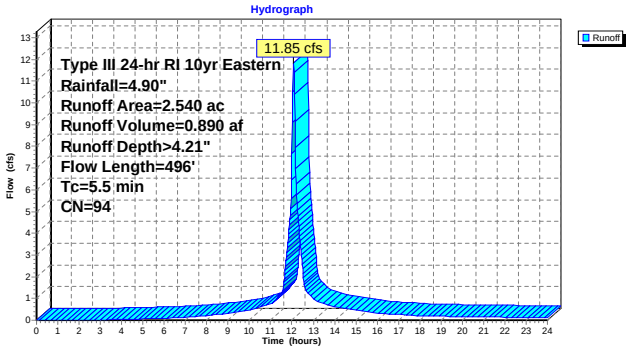
Runoff = 11.85 cfs @ 12.08 hrs, Volume= 0.890 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.540	94	Urban commercial, 85% imp, HSG C
0.381		Pervious Area
2.159		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1000	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	30	0.1200	2.28		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
1.5	396	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.5	496	Total			

Subcatchment 21S: Sub-watershed 21



Subcatchment 22S: Sub-watershed 22

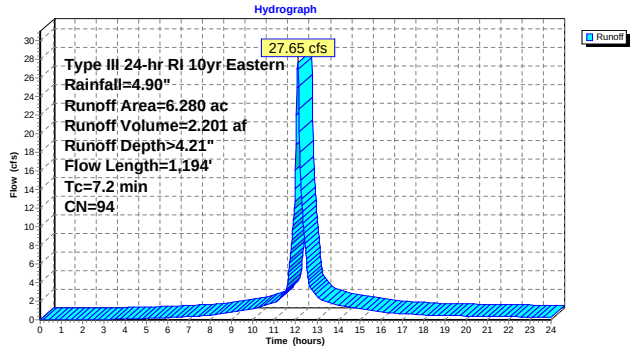
Runoff = 27.65 cfs @ 12.10 hrs, Volume= 2.201 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
6.280	94	Urban commercial, 85% imp, HSG C
0.942		Pervious Area
5.338		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	100	0.0800	2.47		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.5	1,094	0.0190	2.80		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.2	1,194	Total			

Subcatchment 22S: Sub-watershed 22



Subcatchment 23S: Sub-watershed 23

Original time of concentration was 1.8 minutes. Changed time of concentration to 5 minutes.

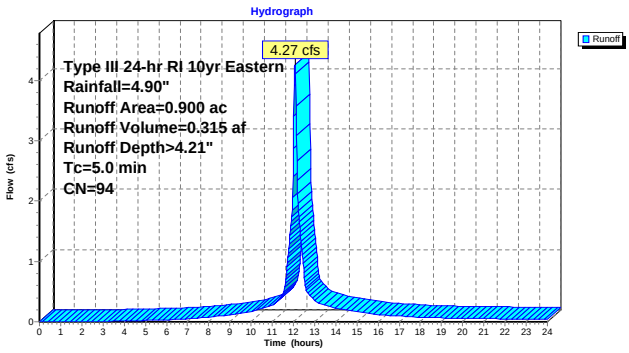
Runoff = 4.27 cfs @ 12.07 hrs, Volume= 0.315 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.900	94	Urban commercial, 85% imp, HSG C
0.135		Pervious Area
0.765		Impervious Area

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

Subcatchment 23S: Sub-watershed 23



Subcatchment 24S: Sub-watershed 24

Institutional land use assumed commercial land for calculations.

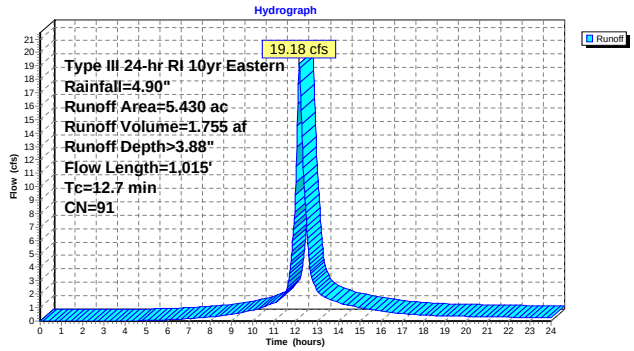
Runoff = 19.18 cfs @ 12.17 hrs, Volume= 1.755 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
4.340	94	Urban commercial, 85% imp, HSG C
1.090	81	1/3 acre lots, 30% imp, HSG C
5.430	91	Weighted Average
1.414		Pervious Area
4.016		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.7	397	0.0650	1.78		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.5	518	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.7	1,015	Total			

Subcatchment 24S: Sub-watershed 24



Subcatchment 25S: Sub-watershed 25

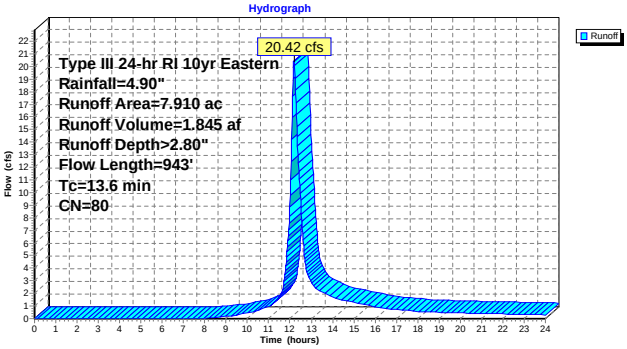
Runoff = 20.42 cfs @ 12.19 hrs, Volume= 1.845 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
7.120	81	1/3 acre lots, 30% imp, HSG C
0.790	73	Woods, Fair, HSG C
7.910	80	Weighted Average
5.774		Pervious Area
2.136		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.5	276	0.0360	1.33		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	567	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	943	Total			

Subcatchment 25S: Sub-watershed 25



Subcatchment 26S: Sub-watershed 26

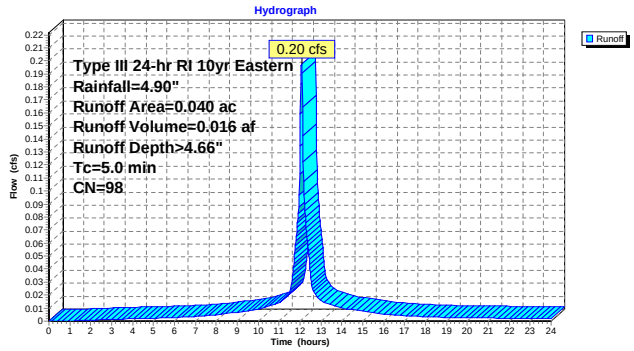
Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.040	98	Paved parking & roofs
0.040		Impervious Area

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

Subcatchment 26S: Sub-watershed 26



Subcatchment 27S: Sub-watershed 27

Original time of concentration was 1.2 minutes. Changed original time of concentration to 5 minutes.

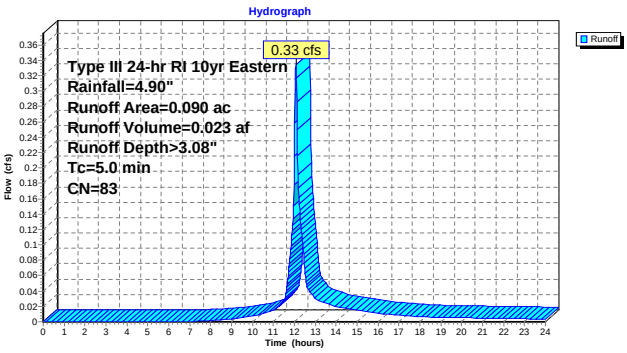
Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.090	83	1/4 acre lots, 38% imp, HSG C
0.056		Pervious Area
0.034		Impervious Area

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

Subcatchment 27S: Sub-watershed 27



Subcatchment 28S: Sub-watershed 28

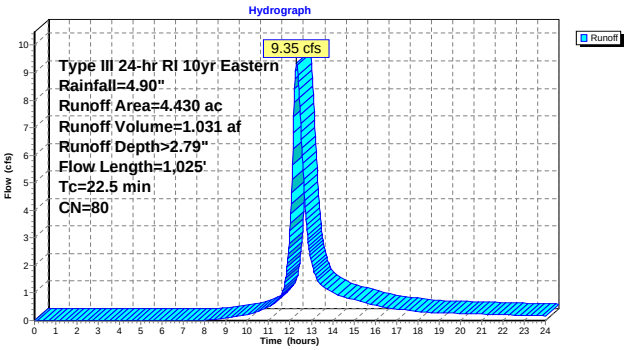
Runoff = 9.35 cfs @ 12.31 hrs, Volume= 1.031 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
3.990	81	1/3 acre lots, 30% imp, HSG C
0.440	73	Woods, Fair, HSG C
4.430	80	Weighted Average
3.233		Pervious Area
1.197		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	23	0.0220	1.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	23	0.0200	0.99		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
7.5	426	0.0360	0.95		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps
3.3	312	0.0060	1.57		**Shallow Concentrated Flow, H-I** Paved Kv= 20.3 fps
22.5	1,025	Total			

Subcatchment 28S: Sub-watershed 28



Subcatchment 29S: Sub-watershed 29

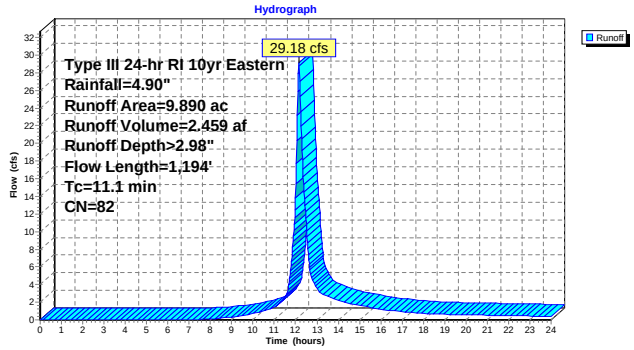
Runoff = 29.18 cfs @ 12.15 hrs, Volume= 2.459 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.490	74	>75% Grass cover, Good, HSG C
0.980	94	Urban commercial, 85% imp, HSG C
8.420	81	1/3 acre lots, 30% imp, HSG C
9.890	82	Weighted Average
6.531		Pervious Area
3.359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0110	1.12		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.7	453	0.0260	1.13		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	641	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.1	1,194	Total			

Subcatchment 29S: Sub-watershed 29



Subcatchment 30S: Sub-watershed 30

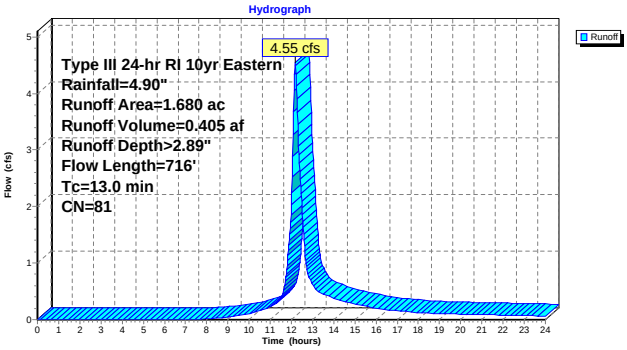
Runoff = 4.55 cfs @ 12.18 hrs, Volume= 0.405 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.680	81	1/3 acre lots, 30% imp, HSG C
1.176		Pervious Area
0.504		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	118	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	498	0.0320	3.63		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.0	716	Total			

Subcatchment 30S: Sub-watershed 30



Subcatchment 31S: Sub-watershed 31

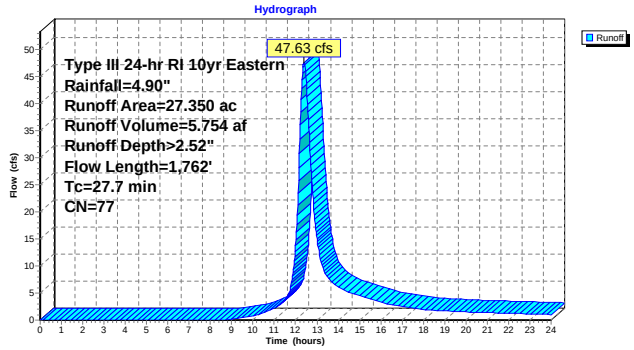
Runoff = 47.63 cfs @ 12.39 hrs, Volume= 5.754 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
12.350	81	1/3 acre lots, 30% imp, HSG C
15.000	74	>75% Grass cover, Good, HSG C
27.350	77	Weighted Average
23.645		Pervious Area
3.705		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
15.3	1,075	0.0280	1.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.8	587	0.0070	1.70		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
27.7	1,762	Total			

Subcatchment 31S: Sub-watershed 31



Subcatchment 32S: Sub-watershed32

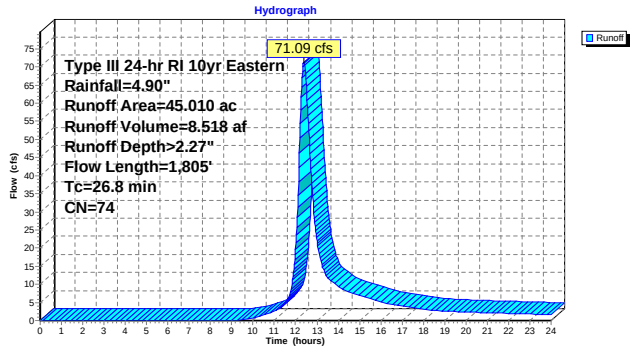
Runoff = 71.09 cfs @ 12.38 hrs, Volume= 8.518 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
14.440	81	1/3 acre lots, 30% imp, HSG C
13.320	69	50-75% Grass cover, Fair, HSG B
15.110	73	Woods, Fair, HSG C
0.900	88	Fallow, crop residue, Good, HSG C
1.240	56	Brush, Fair, HSG B
45.010	74	Weighted Average
40.678		Pervious Area
4.332		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0840	0.14		**Sheet Flow, A-B** Grass: Bermuda n= 0.410 P2= 3.40"
2.3	179	0.0698	1.32		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.9	654	0.0528	3.70		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
5.8	474	0.0738	1.36		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
3.8	398	0.0075	1.76		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
26.8	1,805	Total			

Subcatchment 32S: Sub-watershed32



Subcatchment 33S: Sub-watershed 33

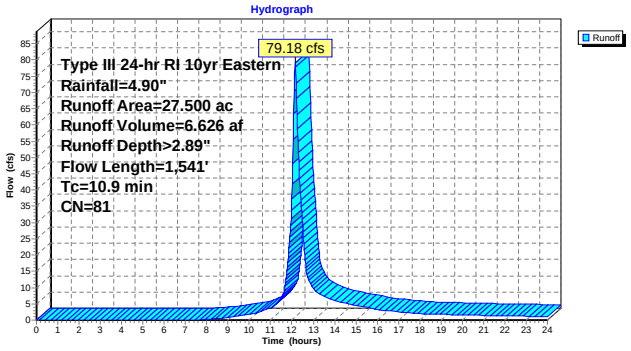
Runoff = 79.18 cfs @ 12.15 hrs, Volume= 6.626 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.960	94	Urban commercial, 85% imp, HSG C
26.540	81	1/3 acre lots, 30% imp, HSG C
27.500	81	Weighted Average
18.722		Pervious Area
8.778		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.0	154	0.1400	2.62		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.3	1,287	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.9	1,541	Total			

Subcatchment 33S: Sub-watershed 33



Subcatchment 34S: Sub-watershed 34

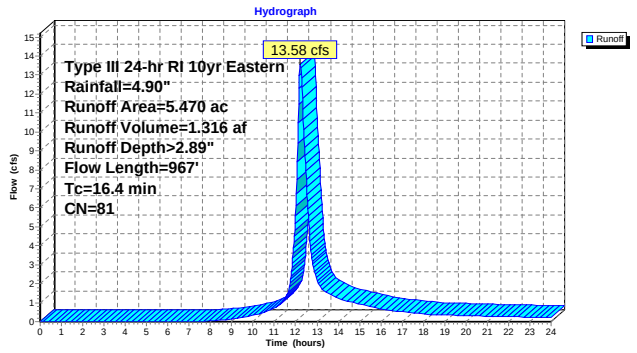
Runoff = 13.58 cfs @ 12.22 hrs, Volume= 1.316 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
5.470	81	1/3 acre lots, 30% imp, HSG C
3.829		Pervious Area
1.641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	131	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.1	736	0.0140	2.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.4	967	Total			

Subcatchment 34S: Sub-watershed 34



Subcatchment 35S: Sub-watershed 35

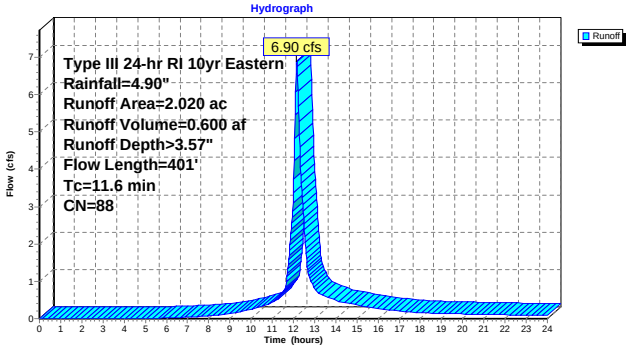
Runoff = 6.90 cfs @ 12.16 hrs, Volume= 0.600 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.010	94	Urban commercial, 85% imp, HSG C
1.010	81	1/3 acre lots, 30% imp, HSG C
2.020	88	Weighted Average
0.859		Pervious Area
1.161		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	111	0.0180	0.94		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	190	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.6	401	Total			

Subcatchment 35S: Sub-watershed 35



Subcatchment 36S: Sub-watershed 36

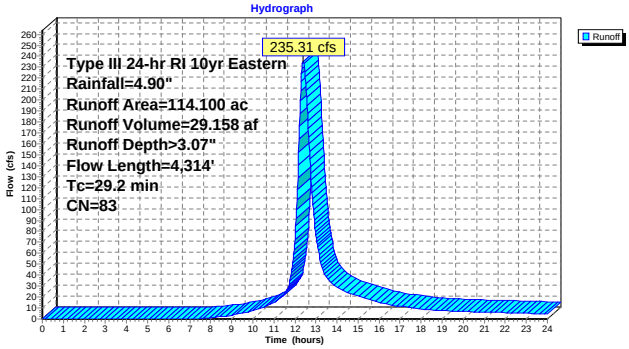
Runoff = 235.31 cfs @ 12.40 hrs, Volume= 29.158 af, Depth> 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
81.170	83	1/4 acre lots, 38% imp, HSG C
9.230	94	Urban commercial, 85% imp, HSG C
6.090	60	Woods, Fair, HSG B
0.440	69	50-75% Grass cover, Fair, HSG B
4.180	56	Brush, Fair, HSG B
12.990	91	Urban industrial, 72% imp, HSG C
114.100	83	Weighted Average
66.057		Pervious Area
48.043		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.4	172	0.0810	1.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.3	4,042	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
29.2	4,314	Total			

Subcatchment 36S: Sub-watershed 36



Subcatchment 37S: Sub-watershed 37

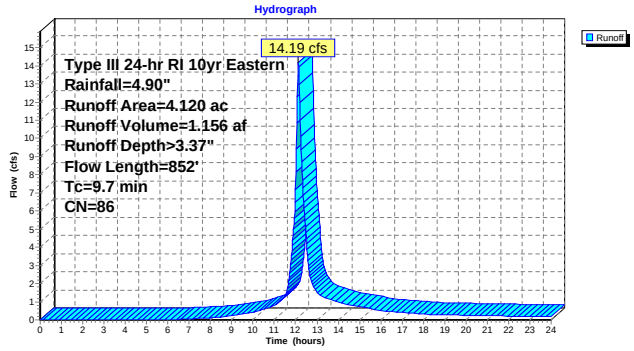
Runoff = 14.19 cfs @ 12.13 hrs, Volume= 1.156 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.240	81	1/3 acre lots, 30% imp, HSG C
2.470	91	Urban industrial, 72% imp, HSG C
0.410	74	>75% Grass cover, Good, HSG C
4.120	86	Weighted Average
1.970		Pervious Area
2.150		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.67		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
8.7	752	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
9.7	852	Total			

Subcatchment 37S: Sub-watershed 37



Subcatchment 38S: Sub-watershed 38

Original time of concentration was 4.5 minutes. Changed time of concentration to 5 minutes.

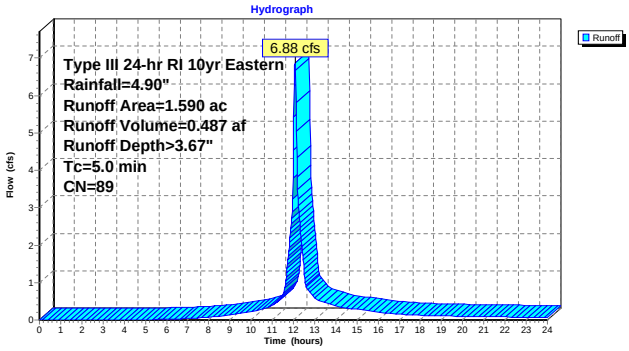
Runoff = 6.88 cfs @ 12.07 hrs, Volume= 0.487 af, Depth> 3.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.160	91	Urban industrial, 72% imp, HSG C
0.320	79	Pasture/grassland/range, Fair, HSG C
1.110	91	Urban industrial, 72% imp, HSG C
1.590	89	Weighted Average
0.676		Pervious Area
0.914		Impervious Area

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

Subcatchment 38S: Sub-watershed 38



Subcatchment 39S: Sub-watershed 39

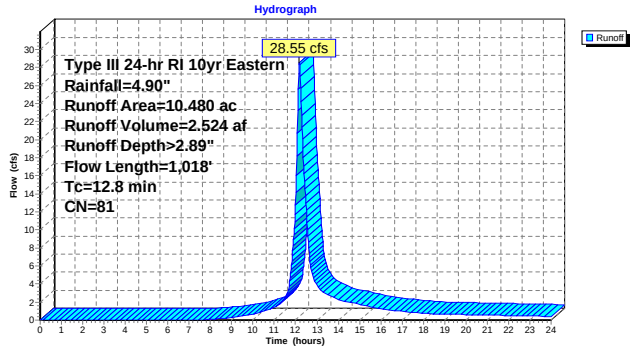
Runoff = 28.55 cfs @ 12.18 hrs, Volume= 2.524 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.520	79	Pasture/grassland/range, Fair, HSG C
9.960	81	1/3 acre lots, 30% imp, HSG C
10.480	81	Weighted Average
7.492		Pervious Area
2.988		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	212	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.0	387	0.0260	3.27		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	319	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.8	1,018	Total			

Subcatchment 39S: Sub-watershed 39



Subcatchment 40S: Sub-watershed 40

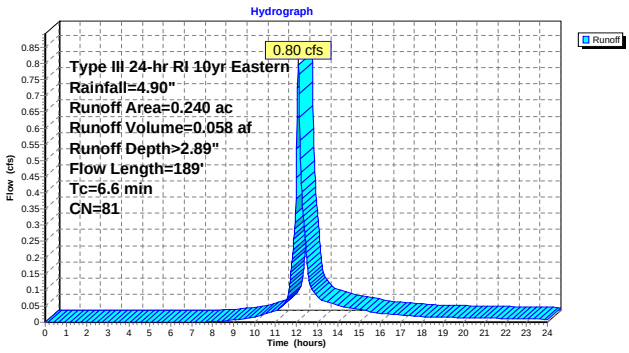
Runoff = 0.80 cfs @ 12.10 hrs, Volume= 0.058 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.240	81	1/3 acre lots, 30% imp, HSG C
0.168		Pervious Area
0.072		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.5	89	0.1500	2.71		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.6	189	Total			

Subcatchment 40S: Sub-watershed 40



Subcatchment 41S: Sub-watershed 41

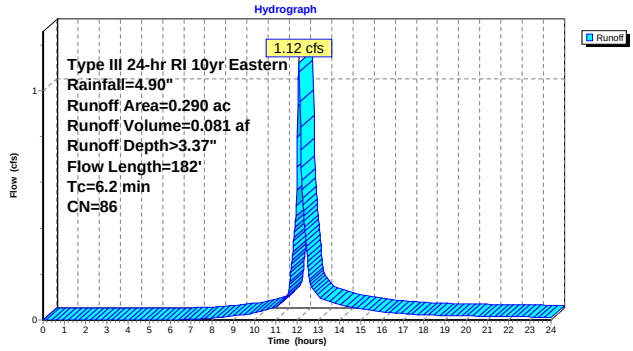
Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.081 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.290	86	Pasture/grassland/range, Poor, HSG C
0.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.7	82	0.0730	1.89		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.2	182	Total			

Subcatchment 41S: Sub-watershed 41



Subcatchment 42S: Sub-watershed 42

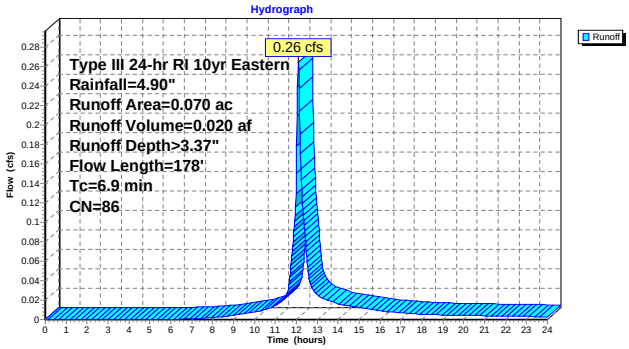
Runoff = 0.26 cfs @ 12.10 hrs, Volume= 0.020 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.070	86	Pasture/grassland/range, Poor, HSG C
0.070		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.8	78	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.9	178	Total			

Subcatchment 42S: Sub-watershed 42



Subcatchment 43S: Sub-watershed 43

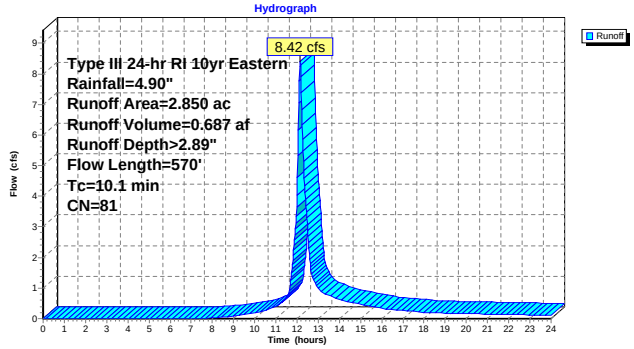
Runoff = 8.42 cfs @ 12.14 hrs, Volume= 0.687 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.850	81	1/3 acre lots, 30% imp, HSG C
1.995		Pervious Area
0.855		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	228	0.0880	2.08		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	206	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.5	36	0.0280	1.17		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
10.1	570	Total			

Subcatchment 43S: Sub-watershed 43



Subcatchment 44S: Sub-watershed 44

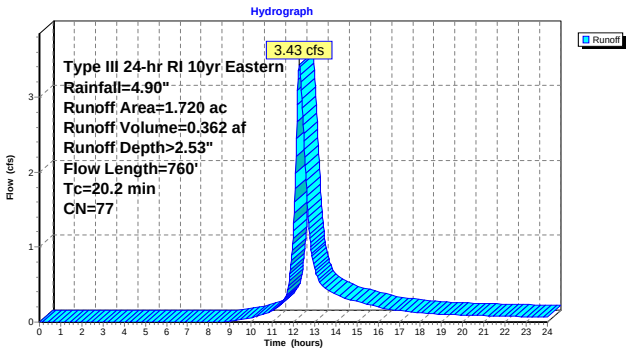
Runoff = 3.43 cfs @ 12.28 hrs, Volume= 0.362 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.860	81	1/3 acre lots, 30% imp, HSG C
0.860	73	Woods, Fair, HSG C
1.720	77	Weighted Average
1.462		Pervious Area
0.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
4.3	262	0.0420	1.02		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	398	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.2	760	Total			

Subcatchment 44S: Sub-watershed 44



Subcatchment 45S: Sub-watershed 45

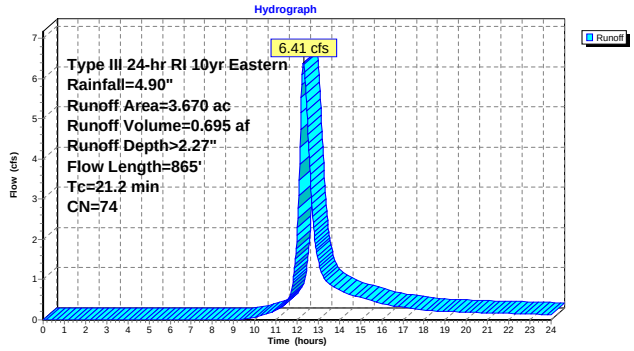
Runoff = 6.41 cfs @ 12.30 hrs, Volume= 0.695 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
3.120	73	Woods, Fair, HSG C
0.180	81	1/3 acre lots, 30% imp, HSG C
0.370	82	Woods/grass comb., Poor, HSG C
3.670	74	Weighted Average
3.616		Pervious Area
0.054		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
13.1	765	0.0380	0.97		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
21.2	865	Total			

Subcatchment 45S: Sub-watershed 45



Subcatchment 46S: Sub-watershed 46

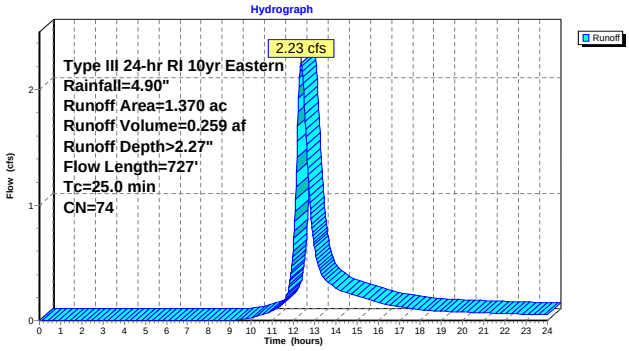
Runoff = 2.23 cfs @ 12.36 hrs, Volume= 0.259 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.230	73	Woods, Fair, HSG C
0.140	82	Woods/grass comb., Poor, HSG C
1.370	74	Weighted Average
1.370		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
7.6	373	0.0270	0.82		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.6	254	0.0160	2.57		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
25.0	727	Total			

Subcatchment 46S: Sub-watershed 46



Subcatchment 47S: Sub-watershed 47

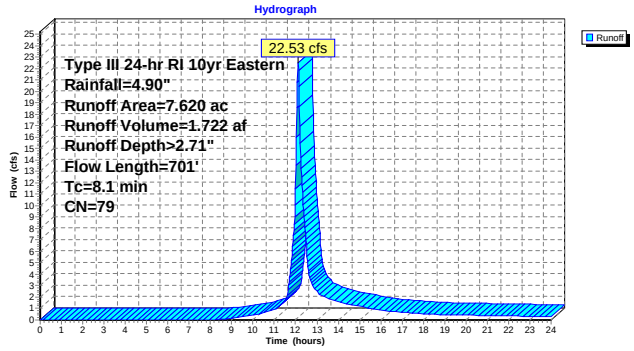
Runoff = 22.53 cfs @ 12.12 hrs, Volume= 1.722 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
7.620	79	50-75% Grass cover, Fair, HSG C
7.620		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1000	0.33		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	581	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.1	701	Total			

Subcatchment 47S: Sub-watershed 47



Subcatchment 48S: Sub-watershed 48

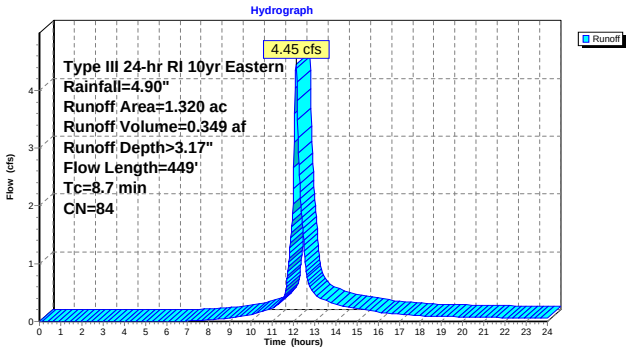
Runoff = 4.45 cfs @ 12.12 hrs, Volume= 0.349 af, Depth> 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.320	84	50-75% Grass cover, Fair, HSG D
1.320		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	39	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	310	0.0130	2.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.7	449	Total			

Subcatchment 48S: Sub-watershed 48



Subcatchment 49S: Sub-watershed 49

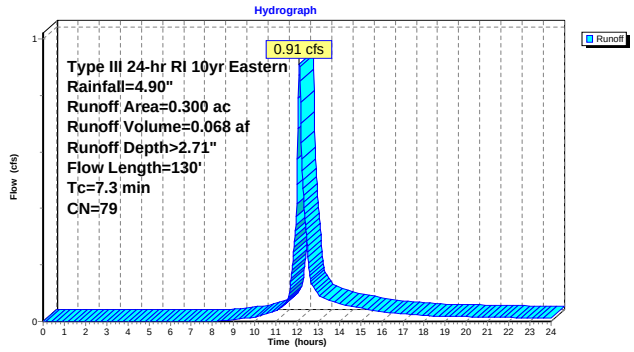
Runoff = 0.91 cfs @ 12.11 hrs, Volume= 0.068 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.300	79	50-75% Grass cover, Fair, HSG C
0.300		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.1	11	0.1800	2.97		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	19	0.1100	6.73		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	130	Total			

Subcatchment 49S: Sub-watershed 49



Subcatchment 50S: Sub-watershed 50

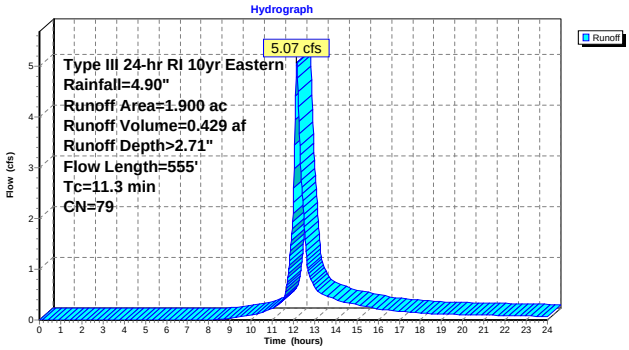
Runoff = 5.07 cfs @ 12.16 hrs, Volume= 0.429 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.900	79	50-75% Grass cover, Fair, HSG C
1.900		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	419	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	36	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.3	555	Total			

Subcatchment 50S: Sub-watershed 50



Subcatchment 51S: Sub-wateshed 51

Original time of concentration was 3.2 minutes. Changed time of concentration to 5 minutes.

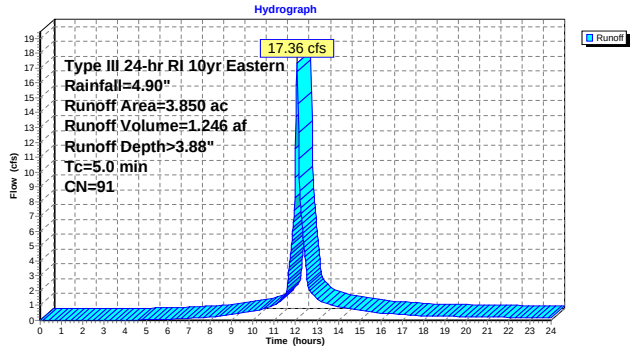
Runoff = 17.36 cfs @ 12.07 hrs, Volume= 1.246 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
3.850	91	Urban industrial, 72% imp, HSG C
1.078		Pervious Area
2.772		Impervious Area

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

Subcatchment 51S: Sub-wateshed 51



Subcatchment 52S: Sub-watershed 52

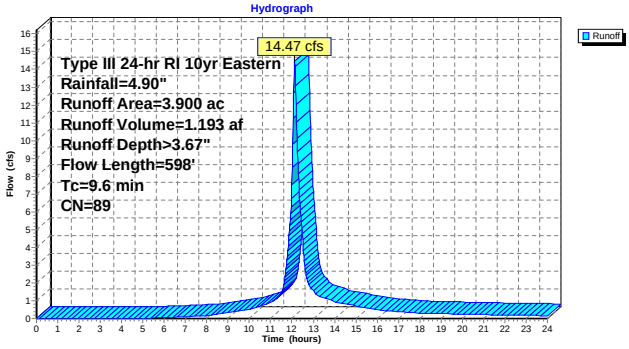
Runoff = 14.47 cfs @ 12.13 hrs, Volume= 1.193 af, Depth> 3.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
3.510	90	1/8 acre lots, 65% imp, HSG C
0.390	79	50-75% Grass cover, Fair, HSG C
3.900	89	Weighted Average
1.618		Pervious Area
2.282		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.9	108	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	361	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	29	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
9.6	598	Total			

Subcatchment 52S: Sub-watershed 52



Subcatchment 53S: Sub-watershed 53

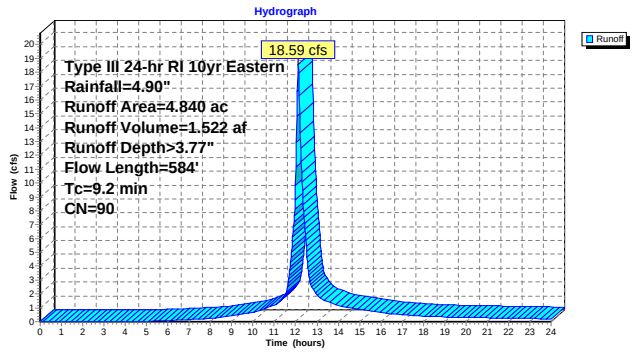
Runoff = 18.59 cfs @ 12.13 hrs, Volume= 1.522 af, Depth> 3.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
4.840	90	1/8 acre lots, 65% imp, HSG C
1.694		Pervious Area
3.146		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	33	0.0610	1.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	451	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.2	584	Total			

Subcatchment 53S: Sub-watershed 53



Subcatchment 54S: Sub-watershed 54

Original time of concentration was 2.6 minutes. Changed time of concentration to 5 minutes.

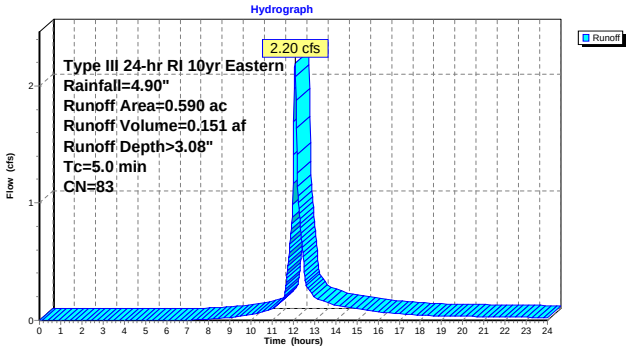
Runoff = 2.20 cfs @ 12.07 hrs, Volume= 0.151 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.590	83	1/4 acre lots, 38% imp, HSG C
0.366		Pervious Area
0.224		Impervious Area

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

Subcatchment 54S: Sub-watershed 54



Subcatchment 55S: Sub-watershed 55

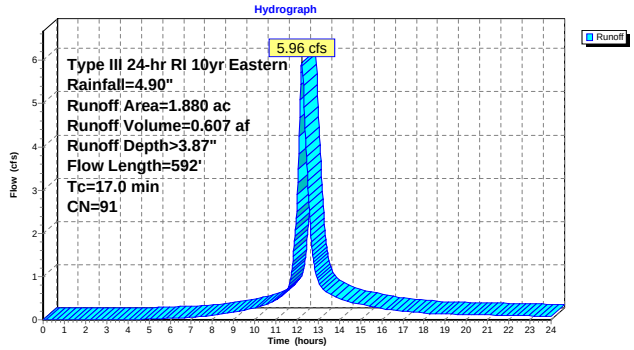
Runoff = 5.96 cfs @ 12.22 hrs, Volume= 0.607 af, Depth> 3.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
1.880	91	Urban industrial, 72% imp, HSG C
0.526		Pervious Area
1.354		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	492	0.0080	1.82		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
17.0	592	Total			

Subcatchment 55S: Sub-watershed 55



Subcatchment 56S: Sub-watershed 56

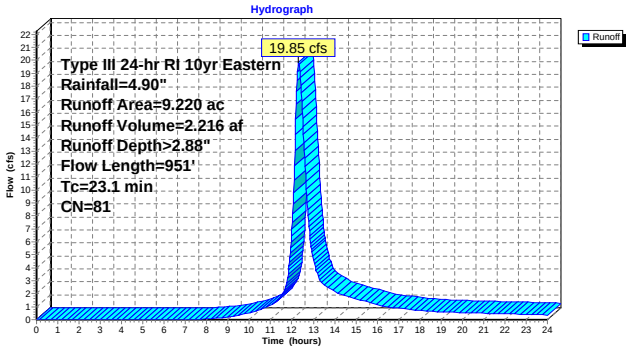
Runoff = 19.85 cfs @ 12.32 hrs, Volume= 2.216 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
9.220	81	1/3 acre lots, 30% imp, HSG C
6.454		Pervious Area
2.766		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.7	228	0.0090	0.66		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	623	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
23.1	951	Total			

Subcatchment 56S: Sub-watershed 56



Subcatchment 57S: Sub-watershed 57

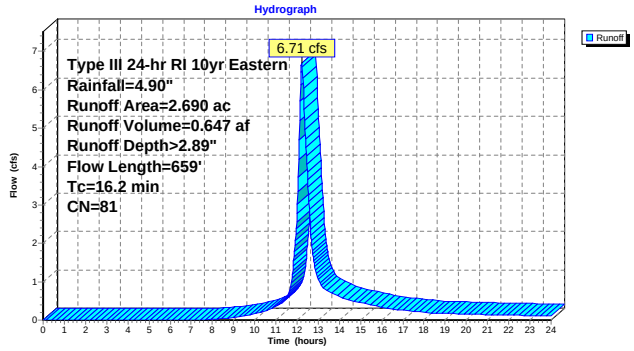
Runoff = 6.71 cfs @ 12.22 hrs, Volume= 0.647 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.690	81	1/3 acre lots, 30% imp, HSG C
1.883		Pervious Area
0.807		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	100	0.0370	0.22		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
6.4	190	0.0050	0.49		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	349	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
16.2	659	Total			

Subcatchment 57S: Sub-watershed 57



Subcatchment 58S: Sub-watershed 58

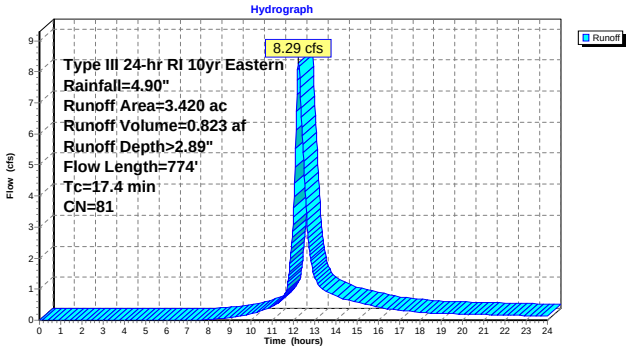
Runoff = 8.29 cfs @ 12.24 hrs, Volume= 0.823 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
3.420	81	1/3 acre lots, 30% imp, HSG C
2.394		Pervious Area
1.026		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.1	74	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.8	600	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.4	774	Total			

Subcatchment 58S: Sub-watershed 58



Subcatchment 59S: Sub-watershed 59

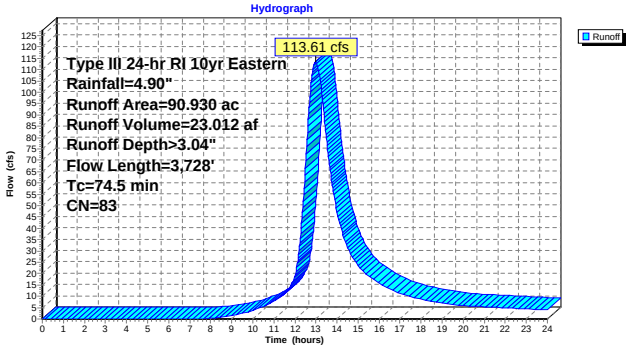
Runoff = 113.61 cfs @ 13.00 hrs, Volume= 23.012 af, Depth> 3.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
35.570	83	1/4 acre lots, 38% imp, HSG C
15.400	79	Pasture/grassland/range, Fair, HSG C
13.820	94	Urban commercial, 85% imp, HSG C
2.410	91	Urban industrial, 72% imp, HSG C
8.840	86	Woods/grass comb., Poor, HSG D
12.190	73	Woods, Fair, HSG C
2.700	79	Pasture/grassland/range, Fair, HSG C
90.930	83	Weighted Average
63.931		Pervious Area
26.999		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
49.4	2,858	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.2	48	0.0010	0.64		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	164	0.0180	0.94		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.5	377	0.0080	1.82		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
1.0	181	0.0220	3.01		**Shallow Concentrated Flow, F-G** Paved Kv= 20.3 fps
74.5	3,728	Total			

Subcatchment 59S: Sub-watershed 59



Subcatchment 60S: Sub-watershed 60

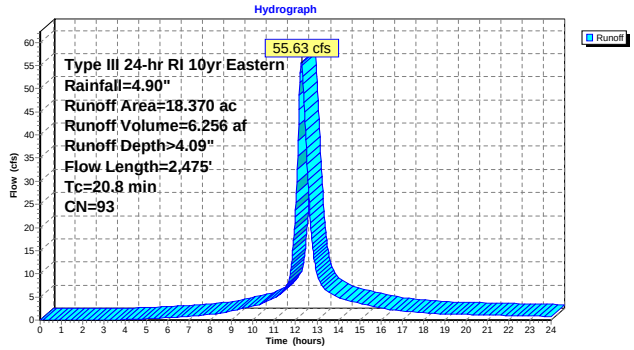
Runoff = 55.63 cfs @ 12.27 hrs, Volume= 6.256 af, Depth> 4.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
5.510	91	Urban industrial, 72% imp, HSG C
12.860	94	Urban commercial, 85% imp, HSG C
18.370	93	Weighted Average
3.472		Pervious Area
14.898		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	83	0.1100	2.32		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.0	2,292	0.0210	2.94		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.8	2,475	Total			

Subcatchment 60S: Sub-watershed 60



Subcatchment 61S: Sub-watershed 61

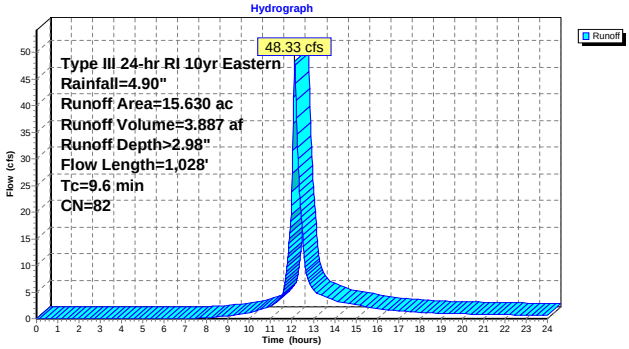
Runoff = 48.33 cfs @ 12.13 hrs, Volume= 3.887 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
14.070	81	1/3 acre lots, 30% imp, HSG C
1.560	94	Urban commercial, 85% imp, HSG C
15.630	82	Weighted Average
10.083		Pervious Area
5.547		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0700	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	132	0.0700	1.85		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.6	796	0.0630	5.10		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.6	1,028	Total			

Subcatchment 61S: Sub-watershed 61



Subcatchment 62S: Sub-watershed 62

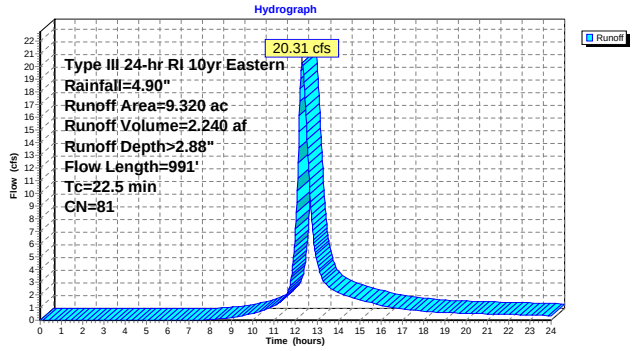
Runoff = 20.31 cfs @ 12.31 hrs, Volume= 2.240 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
9.320	81	1/3 acre lots, 30% imp, HSG C
6.524		Pervious Area
2.796		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.2	169	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.8	722	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.5	991	Total			

Subcatchment 62S: Sub-watershed 62



Subcatchment 63S: Sub-watershed 63

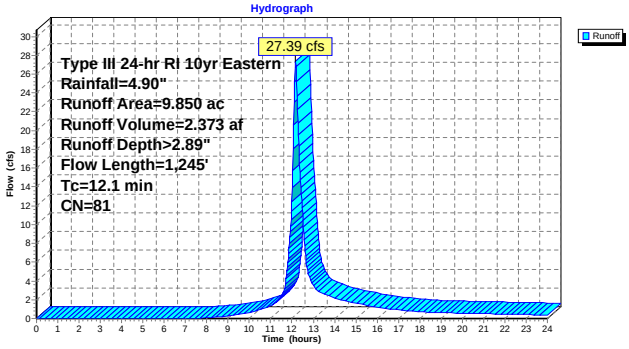
Runoff = 27.39 cfs @ 12.17 hrs, Volume= 2.373 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
9.850	81	1/3 acre lots, 30% imp, HSG C
6.895		Pervious Area
2.955		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	37	0.0540	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	63	0.0480	1.83		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
0.6	118	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.0	188	0.0480	1.53		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
6.0	839	0.0130	2.31		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
12.1	1,245	Total			

Subcatchment 63S: Sub-watershed 63



Subcatchment 64S: Sub-watershed 64

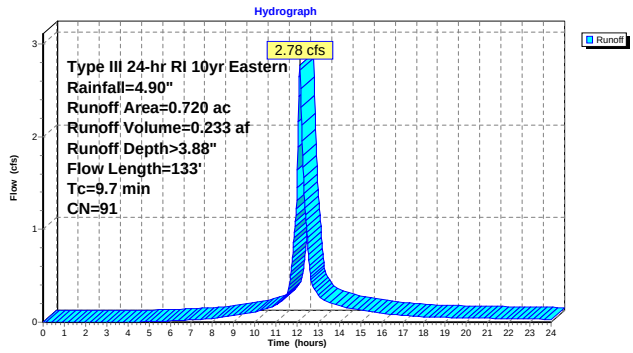
Runoff = 2.78 cfs @ 12.13 hrs, Volume= 0.233 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.720	91	Urban industrial, 72% imp, HSG C
0.202		Pervious Area
0.518		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.5	33	0.0010	0.22		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.7	133	Total			

Subcatchment 64S: Sub-watershed 64



Subcatchment 65S: Sub-watershed 65

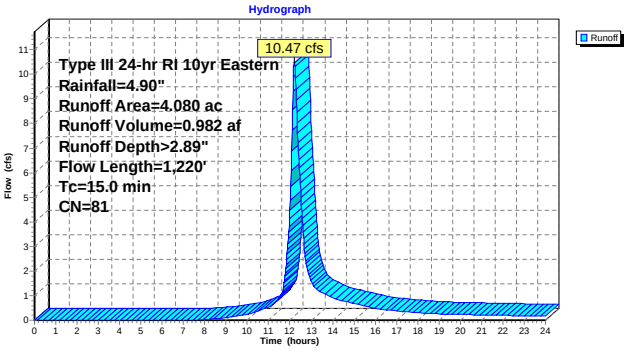
Runoff = 10.47 cfs @ 12.21 hrs, Volume= 0.982 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
4.080	81	1/3 acre lots, 30% imp, HSG C
2.856		Pervious Area
1.224		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	86	0.0300	0.20		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	14	0.0100	0.73		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
7.5	1,120	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.0	1,220	Total			

Subcatchment 65S: Sub-watershed 65



Subcatchment 66S: Su-watershed 66

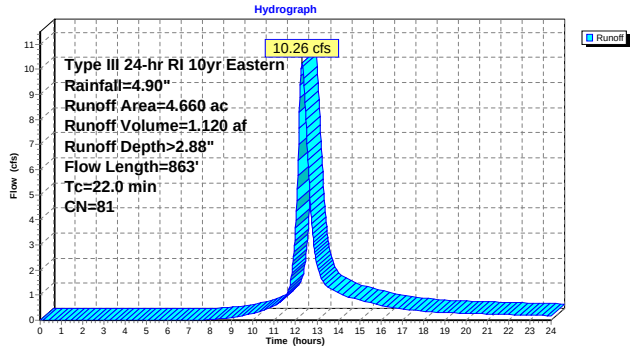
Runoff = 10.26 cfs @ 12.30 hrs, Volume= 1.120 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
4.660	81	1/3 acre lots, 30% imp, HSG C
3.262		Pervious Area
1.398		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	100	0.0060	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	103	0.0390	1.38		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.4	660	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.0	863	Total			

Subcatchment 66S: Su-watershed 66



Subcatchment 67S: Sub-watershed 67

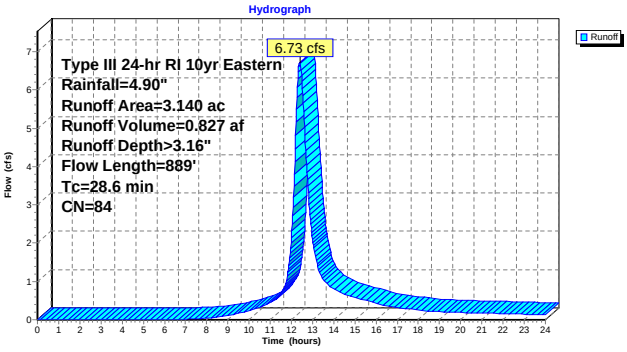
Runoff = 6.73 cfs @ 12.39 hrs, Volume= 0.827 af, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
0.790	81	1/3 acre lots, 30% imp, HSG C
1.880	88	Fallow, crop residue, Good, HSG C
0.470	73	Woods, Fair, HSG C
3.140	84	Weighted Average
2.903		Pervious Area
0.237		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	199	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.7	490	0.0120	0.77		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.7	100	0.0120	2.22		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
28.6	889	Total			

Subcatchment 67S: Sub-watershed 67



Subcatchment 68S: Sub-watershed 68

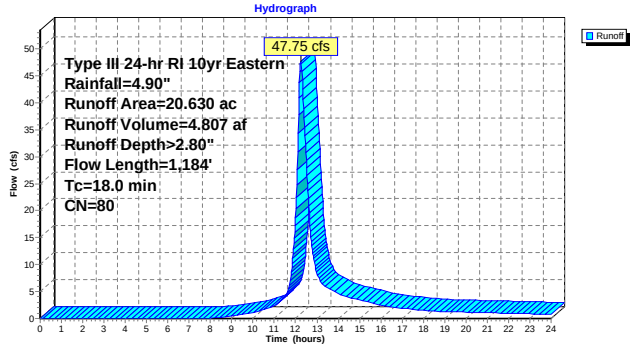
Runoff = 47.75 cfs @ 12.25 hrs, Volume= 4.807 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 10yr Eastern Rainfall=4.90"

Area (ac)	CN	Description
2.350	79	Pasture/grassland/range, Fair, HSG C
2.470	88	Fallow, crop residue, Good, HSG C
1.970	70	Brush, Fair, HSG C
5.490	82	Woods/grass comb., Poor, HSG C
2.460	73	Woods, Fair, HSG C
5.890	81	1/3 acre lots, 30% imp, HSG C
20.630	80	Weighted Average
18.863		Pervious Area
1.767		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0850	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
12.7	1,084	0.0410	1.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.0	1,184	Total			

Subcatchment 68S: Sub-watershed 68



Reach 3R: Intermittent Stream

Inflow Area = 21.680 ac, Inflow Depth > 2.86" for RI 10yr Eastern event
Inflow = 43.97 cfs @ 12.41 hrs, Volume= 5.169 af
Outflow = 37.11 cfs @ 12.57 hrs, Volume= 5.139 af, Atten= 16%, Lag= 9.8 min

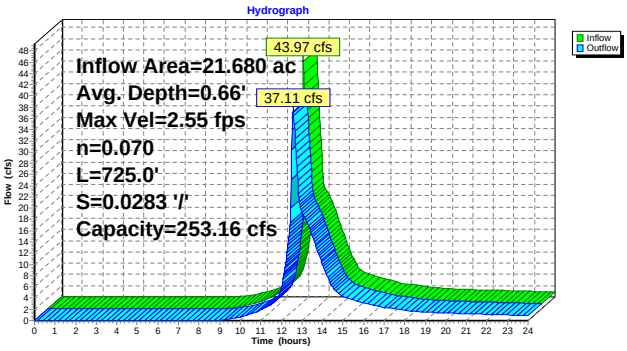
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 2.55 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 0.89 fps, Avg. Travel Time= 13.6 min

Peak Storage= 10,569 cf @ 12.49 hrs, Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 253.16 cfs

20.00' x 2.00' deep channel, n= 0.070 Medium-dense brush, winter
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 725.0' Slope= 0.0283 '/'
Inlet Invert= 113.50', Outlet Invert= 93.00'

‡

Reach 3R: Intermittent Stream



Pond 2P: Highview Pond Existing

Inflow Area = 21.680 ac, Inflow Depth > 2.88" for RI 10yr Eastern event
Inflow = 47.53 cfs @ 12.31 hrs, Volume= 5.211 af
Outflow = 43.97 cfs @ 12.41 hrs, Volume= 5.169 af, Atten= 7%, Lag= 6.3 min
Primary = 43.97 cfs @ 12.41 hrs, Volume= 5.169 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 121.16' @ 12.40 hrs Surf.Area= 6,633 sf Storage= 39,519 cf

Plug-Flow detention time= 24.0 min calculated for 5.169 af (99% of inflow)
Center-of-Mass det. time= 19.2 min (851.4 - 832.3)

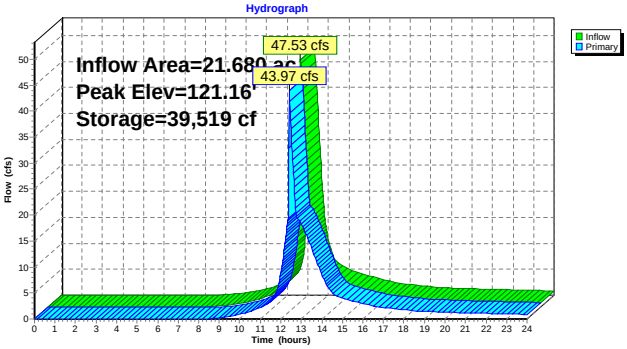
Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	42,295 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	4,620	0	0
118.00	6,496	16,674	16,674
121.00	7,936	21,648	38,322
122.00	10	3,973	42,295

Device	Routing	Invert	Outlet Devices
#1	Primary	115.00'	**18.0" x 40.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 114.40' S= 0.0150 '/' Cc= 0.900 n= 0.013
#2	Primary	121.00'	**128.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=42.62 cfs @ 12.41 hrs HW=121.16' (Free Discharge)
└**1=Culvert** (Inlet Controls 19.80 cfs @ 11.20 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 22.83 cfs @ 1.09 fps)

Pond 2P: Highview Pond Existing

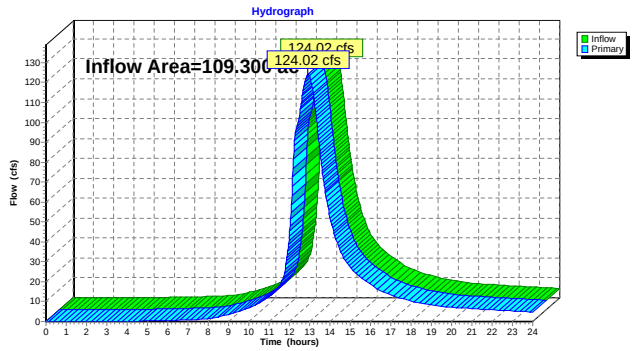


Link 68L: SW 59_SW 60

Inflow Area = 109.300 ac, Inflow Depth > 3.21" for RI 10yr Eastern event
Inflow = 124.02 cfs @ 12.93 hrs, Volume= 29.268 af
Primary = 124.02 cfs @ 12.93 hrs, Volume= 29.268 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 68L: SW 59_SW 60

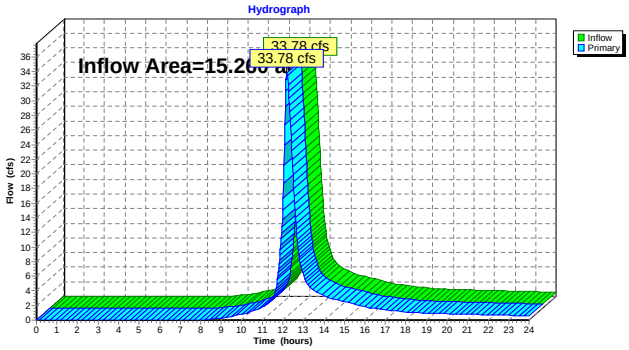


Link 69L: SW 14_SW 17

Inflow Area = 15.260 ac, Inflow Depth > 2.75" for RI 10yr Eastern event
Inflow = 33.78 cfs @ 12.20 hrs, Volume= 3.496 af
Primary = 33.78 cfs @ 12.20 hrs, Volume= 3.496 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 69L: SW 14_SW 17

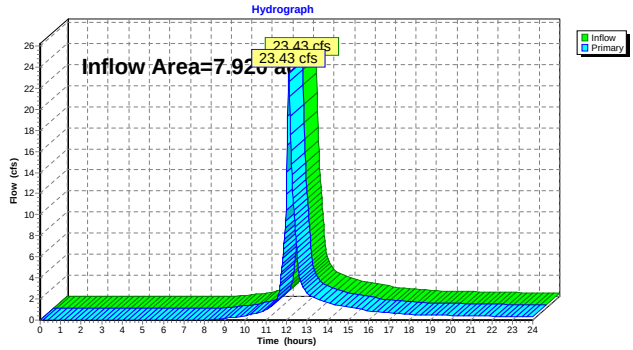


Link 70L: SW47_SW49

Inflow Area = 7.920 ac, Inflow Depth > 2.71" for RI 10yr Eastern event
Inflow = 23.43 cfs @ 12.12 hrs, Volume= 1.790 af
Primary = 23.43 cfs @ 12.12 hrs, Volume= 1.790 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 70L: SW47_SW49

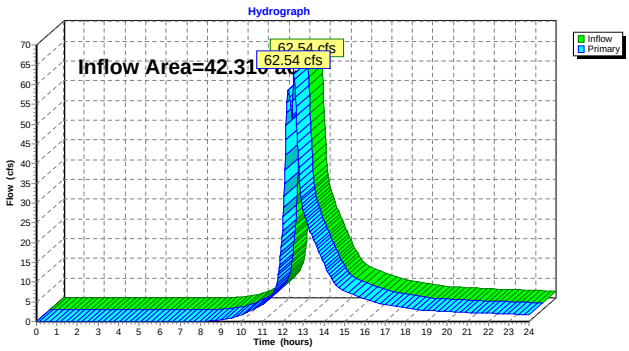


Link 71L: Elbow St

Inflow Area = 42.310 ac, Inflow Depth > 2.82" for RI 10yr Eastern event
Inflow = 62.54 cfs @ 12.54 hrs, Volume= 9.945 af
Primary = 62.54 cfs @ 12.54 hrs, Volume= 9.945 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 71L: Elbow St



25-Year Storm

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-watershed 1 Runoff Area=18.400 ac Runoff Depth>4.98"
Flow Length=1,460' Tc=20.1 min CN=94 Runoff=67.63 cfs 7.643 af

Subcatchment 2S: Sub-watershed 2 Runoff Area=3.220 ac Runoff Depth>4.99"
Flow Length=792' Tc=10.2 min CN=94 Runoff=15.15 cfs 1.340 af

Subcatchment 3S: Sub-watershed 3 Runoff Area=27.500 ac Runoff Depth>3.68"
Flow Length=2,500' Tc=39.3 min CN=82 Runoff=59.31 cfs 8.443 af

Subcatchment 4S: Sub-watershed 4 Runoff Area=35.010 ac Runoff Depth>4.41"
Flow Length=3,096' Tc=50.9 min CN=89 Runoff=76.81 cfs 12.856 af

Subcatchment 5S: Sub-Watershed 5 Runoff Area=2.340 ac Runoff Depth>3.51"
Tc=5.0 min CN=80 Runoff=9.93 cfs 0.684 af

Subcatchment 6dS: Sub-watershed 6d Runoff Area=0.630 ac Runoff Depth>5.00"
Tc=5.0 min CN=94 Runoff=3.51 cfs 0.262 af

Subcatchment 6eS: Sub-watershed 6e Runoff Area=0.500 ac Runoff Depth>5.00"
Tc=5.0 min CN=94 Runoff=2.79 cfs 0.208 af

Subcatchment 6S: Sub-watershed 6 Runoff Area=10.610 ac Runoff Depth>4.33"
Flow Length=1,536' Tc=11.4 min CN=88 Runoff=43.84 cfs 3.828 af

Subcatchment 8S: Sub-watershed 8 Runoff Area=2.070 ac Runoff Depth>3.50"
Flow Length=419' Tc=11.6 min CN=80 Runoff=7.07 cfs 0.604 af

Subcatchment 9S: Sub-watershed 9 Runoff Area=3.780 ac Runoff Depth>4.11"
Flow Length=633' Tc=16.8 min CN=86 Runoff=13.03 cfs 1.296 af

Subcatchment 10S: Sub-watershed 10 Runoff Area=8.740 ac Runoff Depth>3.80"
Flow Length=1,337' Tc=19.3 min CN=83 Runoff=26.56 cfs 2.768 af

Subcatchment 11S: Sub-watershed 11 Runoff Area=24.460 ac Runoff Depth>4.43"
Flow Length=1,757' Tc=26.1 min CN=89 Runoff=74.35 cfs 9.022 af

Subcatchment 12S: Sub-watershed 12 Runoff Area=3.040 ac Runoff Depth>4.65"
Flow Length=996' Tc=15.8 min CN=91 Runoff=11.78 cfs 1.179 af

Subcatchment 13S: Sub-watershed 13 Runoff Area=6.760 ac Runoff Depth>3.61"
Tc=5.0 min CN=81 Runoff=29.45 cfs 2.033 af

Subcatchment 14S: Sub-watershed 14 Runoff Area=8.060 ac Runoff Depth>3.41"
Flow Length=1,715' Tc=11.8 min CN=79 Runoff=26.63 cfs 2.287 af

Subcatchment 15S: Sub-watershed 15 Runoff Area=21.680 ac Runoff Depth>3.60"
Flow Length=1,259' Tc=22.2 min CN=81 Runoff=59.12 cfs 6.498 af

Subcatchment 16S: Sub-watershed 16 Runoff Area=2.740 ac Runoff Depth>3.70"
Flow Length=709' Tc=13.2 min CN=82 Runoff=9.42 cfs 0.846 af

Subcatchment 17S: Sub-watershed 17 Runoff Area=7.200 ac Runoff Depth>3.50"
Flow Length=1,430' Tc=21.6 min CN=80 Runoff=19.32 cfs 2.098 af

Subcatchment 18S: Sub-watershed 18 Runoff Area=13.850 ac Runoff Depth>3.50"
Flow Length=1,868' Tc=11.2 min CN=80 Runoff=47.86 cfs 4.045 af

Subcatchment 19S: Sub-watershed 19 Runoff Area=29.160 ac Runoff Depth>3.17"
Flow Length=2,101' Tc=63.7 min CN=77 Runoff=41.65 cfs 7.714 af

Subcatchment 20S: Sub-watershed 20 Runoff Area=11.220 ac Runoff Depth>3.60"
Flow Length=1,264' Tc=17.0 min CN=81 Runoff=34.15 cfs 3.366 af

Subcatchment 21S: Sub-watershed 21 Runoff Area=2.540 ac Runoff Depth>5.00"
Flow Length=496' Tc=5.5 min CN=94 Runoff=13.94 cfs 1.057 af

Subcatchment 22S: Sub-watershed 22 Runoff Area=6.280 ac Runoff Depth>4.99"
Flow Length=1,194' Tc=7.2 min CN=94 Runoff=32.52 cfs 2.614 af

Subcatchment 23S: Sub-watershed 23 Runoff Area=0.900 ac Runoff Depth>5.00"
Tc=5.0 min CN=94 Runoff=5.02 cfs 0.375 af

Subcatchment 24S: Sub-watershed 24 Runoff Area=5.430 ac Runoff Depth>4.65"
Flow Length=1,015' Tc=12.7 min CN=91 Runoff=22.80 cfs 2.106 af

Subcatchment 25S: Sub-watershed 25 Runoff Area=7.910 ac Runoff Depth>3.50"
Flow Length=943' Tc=13.6 min CN=80 Runoff=25.52 cfs 2.309 af

Subcatchment 26S: Sub-watershed 26 Runoff Area=0.040 ac Runoff Depth>5.46"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.018 af

Subcatchment 27S: Sub-watershed 27 Runoff Area=0.090 ac Runoff Depth>3.81"
Tc=5.0 min CN=83 Runoff=0.41 cfs 0.029 af

Subcatchment 28S: Sub-watershed 28 Runoff Area=4.430 ac Runoff Depth>3.50"
Flow Length=1,025' Tc=22.5 min CN=80 Runoff=11.69 cfs 1.291 af

Subcatchment 29S: Sub-watershed 29 Runoff Area=9.890 ac Runoff Depth>3.70"
Flow Length=1,194' Tc=11.1 min CN=82 Runoff=36.09 cfs 3.053 af

Subcatchment 30S: Sub-watershed 30 Runoff Area=1.680 ac Runoff Depth>3.60"
Flow Length=716' Tc=13.0 min CN=81 Runoff=5.66 cfs 0.504 af

Subcatchment 31S: Sub-watershed 31 Runoff Area=27.350 ac Runoff Depth>3.20"
Flow Length=1,762' Tc=27.7 min CN=77 Runoff=60.47 cfs 7.294 af

Subcatchment 32S: Sub-watershed32 Runoff Area=45.010 ac Runoff Depth>2.92"
Flow Length=1,805' Tc=26.8 min CN=74 Runoff=91.88 cfs 10.943 af

Subcatchment 33S: Sub-watershed 33 Runoff Area=27.500 ac Runoff Depth>3.60"
Flow Length=1,541' Tc=10.9 min CN=81 Runoff=98.48 cfs 8.260 af

Subcatchment 34S: Sub-watershed 34 Runoff Area=5.470 ac Runoff Depth>3.60"
Flow Length=967' Tc=16.4 min CN=81 Runoff=16.88 cfs 1.641 af

Subcatchment 35S: Sub-watershed 35 Runoff Area=2.020 ac Runoff Depth>4.33"
Flow Length=401' Tc=11.6 min CN=88 Runoff=8.30 cfs 0.729 af

Subcatchment 36S: Sub-watershed 36 Runoff Area=114.100 ac Runoff Depth>3.79"
Flow Length=4,314' Tc=29.2 min CN=83 Runoff=289.78 cfs 36.069 af

Subcatchment 37S: Sub-watershed 37 Runoff Area=4.120 ac Runoff Depth>4.12"
Flow Length=852' Tc=9.7 min CN=86 Runoff=17.22 cfs 1.414 af

Subcatchment 38S: Sub-watershed 38 Runoff Area=1.590 ac Runoff Depth>4.44"
Tc=5.0 min CN=89 Runoff=8.24 cfs 0.589 af

Subcatchment 39S: Sub-watershed 39 Runoff Area=10.480 ac Runoff Depth>3.60"
Flow Length=1,018' Tc=12.8 min CN=81 Runoff=35.50 cfs 3.147 af

Subcatchment 40S: Sub-watershed 40 Runoff Area=0.240 ac Runoff Depth>3.61"
Flow Length=189' Tc=6.6 min CN=81 Runoff=0.99 cfs 0.072 af

Subcatchment 41S: Sub-watershed 41 Runoff Area=0.290 ac Runoff Depth>4.12"
Flow Length=182' Tc=6.2 min CN=86 Runoff=1.36 cfs 0.100 af

Subcatchment 42S: Sub-watershed 42 Runoff Area=0.070 ac Runoff Depth>4.12"
Flow Length=178' Tc=6.9 min CN=86 Runoff=0.32 cfs 0.024 af

Subcatchment 43S: Sub-watershed 43 Runoff Area=2.850 ac Runoff Depth>3.60"
Flow Length=570' Tc=10.1 min CN=81 Runoff=10.46 cfs 0.856 af

Subcatchment 44S: Sub-watershed 44 Runoff Area=1.720 ac Runoff Depth>3.21"
Flow Length=760' Tc=20.2 min CN=77 Runoff=4.36 cfs 0.459 af

Subcatchment 45S: Sub-watershed 45 Runoff Area=3.670 ac Runoff Depth>2.92"
Flow Length=865' Tc=21.2 min CN=74 Runoff=8.28 cfs 0.893 af

Subcatchment 46S: Sub-watershed 46 Runoff Area=1.370 ac Runoff Depth>2.92"
Flow Length=727' Tc=25.0 min CN=74 Runoff=2.88 cfs 0.333 af

Subcatchment 47S: Sub-watershed 47 Runoff Area=7.620 ac Runoff Depth>3.41"
Flow Length=701' Tc=8.1 min CN=79 Runoff=28.28 cfs 2.164 af

Subcatchment 48S: Sub-watershed 48 Runoff Area=1.320 ac Runoff Depth>3.91"
Flow Length=449' Tc=8.7 min CN=84 Runoff=5.45 cfs 0.430 af

Subcatchment 49S: Sub-watershed 49 Runoff Area=0.300 ac Runoff Depth>3.41"
Flow Length=130' Tc=7.3 min CN=79 Runoff=1.14 cfs 0.085 af

Subcatchment 50S: Sub-watershed 50 Runoff Area=1.900 ac Runoff Depth>3.41"
Flow Length=555' Tc=11.3 min CN=79 Runoff=6.37 cfs 0.539 af

Subcatchment 51S: Sub-wateshed 51 Runoff Area=3.850 ac Runoff Depth>4.66"
Tc=5.0 min CN=91 Runoff=20.63 cfs 1.495 af

Subcatchment 52S: Sub-watershed 52 Runoff Area=3.900 ac Runoff Depth>4.44"
Flow Length=598' Tc=9.6 min CN=89 Runoff=17.34 cfs 1.443 af

Subcatchment 53S: Sub-watershed 53 Runoff Area=4.840 ac Runoff Depth>4.55"
Flow Length=584' Tc=9.2 min CN=90 Runoff=22.19 cfs 1.834 af

Subcatchment 54S: Sub-watershed 54 Runoff Area=0.590 ac Runoff Depth>3.81"
Tc=5.0 min CN=83 Runoff=2.70 cfs 0.187 af

Subcatchment 55S: Sub-watershed 55 Runoff Area=1.880 ac Runoff Depth>4.65"
Flow Length=592' Tc=17.0 min CN=91 Runoff=7.09 cfs 0.729 af

Subcatchment 56S: Sub-watershed 56 Runoff Area=9.220 ac Runoff Depth>3.60"
Flow Length=951' Tc=23.1 min CN=81 Runoff=24.69 cfs 2.763 af

Subcatchment 57S: Sub-watershed 57 Runoff Area=2.690 ac Runoff Depth>3.60"
Flow Length=659' Tc=16.2 min CN=81 Runoff=8.35 cfs 0.807 af

Subcatchment 58S: Sub-watershed 58 Runoff Area=3.420 ac Runoff Depth>3.60"
Flow Length=774' Tc=17.4 min CN=81 Runoff=10.31 cfs 1.026 af

Subcatchment 59S: Sub-watershed 59 Runoff Area=90.930 ac Runoff Depth>3.76"
Flow Length=3,728' Tc=74.5 min CN=83 Runoff=140.11 cfs 28.477 af

Subcatchment 60S: Sub-watershed 60 Runoff Area=18.370 ac Runoff Depth>4.87"
Flow Length=2,475' Tc=20.8 min CN=93 Runoff=65.69 cfs 7.457 af

Subcatchment 61S: Sub-watershed 61 Runoff Area=15.630 ac Runoff Depth>3.71"
Flow Length=1,028' Tc=9.6 min CN=82 Runoff=59.76 cfs 4.827 af

Subcatchment 62S: Sub-watershed 62 Runoff Area=9.320 ac Runoff Depth>3.60"
Flow Length=991' Tc=22.5 min CN=81 Runoff=25.24 cfs 2.793 af

Subcatchment 63S: Sub-watershed 63 Runoff Area=9.850 ac Runoff Depth>3.60"
Flow Length=1,245' Tc=12.1 min CN=81 Runoff=34.05 cfs 2.958 af

Subcatchment 64S: Sub-watershed 64 Runoff Area=0.720 ac Runoff Depth>4.66"
Flow Length=133' Tc=9.7 min CN=91 Runoff=3.30 cfs 0.279 af

Subcatchment 65S: Sub-watershed 65 Runoff Area=4.080 ac Runoff Depth>3.60"
Flow Length=1,220' Tc=15.0 min CN=81 Runoff=13.02 cfs 1.225 af

Subcatchment 66S: Su-watershed 66 Runoff Area=4.660 ac Runoff Depth>3.60"
Flow Length=863' Tc=22.0 min CN=81 Runoff=12.76 cfs 1.397 af

Subcatchment 67S: Sub-watershed 67 Runoff Area=3.140 ac Runoff Depth>3.90"
Flow Length=889' Tc=28.6 min CN=84 Runoff=8.25 cfs 1.020 af

Subcatchment 68S: Sub-watershed 68 Runoff Area=20.630 ac Runoff Depth>3.50"
Flow Length=1,184' Tc=18.0 min CN=80 Runoff=59.68 cfs 6.017 af

Reach 3R: Intermittent Stream Avg. Depth=0.81' Max Vel=2.89 fps Inflow=58.87 cfs 6.445 af
n=0.070 L=725.0' S=0.0283 '/' Capacity=253.16 cfs Outflow=52.64 cfs 6.412 af

Pond 2P: Highview Pond Existing Peak Elev=121.23' Storage=39,958 cf Inflow=59.12 cfs 6.498 af
Outflow=58.87 cfs 6.445 af

Link 68L: SW 59_SW 60 Inflow=152.48 cfs 35.934 af
Primary=152.48 cfs 35.934 af

Link 69L: SW 14_SW 17 Inflow=42.40 cfs 4.386 af
Primary=42.40 cfs 4.386 af

Link 70L: SW47_SW49 Inflow=29.41 cfs 2.249 af
Primary=29.41 cfs 2.249 af

Link 71L: Elbow St Inflow=91.35 cfs 12.428 af
Primary=91.35 cfs 12.428 af

Total Runoff Area = 746.870 ac Runoff Volume = 235.154 af Average Runoff Depth = 3.78"
66.54% Pervious Area = 496.954 ac 33.46% Impervious Area = 249.916 ac

Subcatchment 1S: Sub-watershed 1

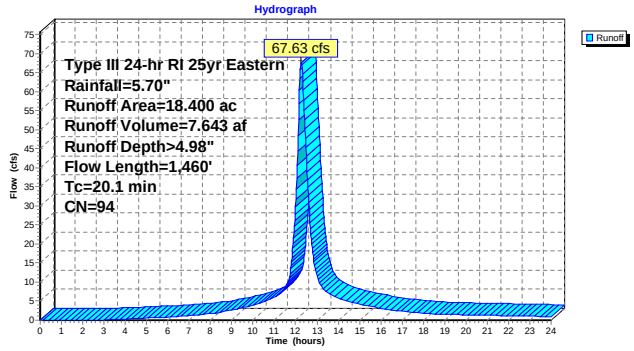
Runoff = 67.63 cfs @ 12.26 hrs, Volume= 7.643 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
18.400	94	Urban commercial, 85% imp, HSG C
2.760		Pervious Area
15.640		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
8.9	1,240	0.0210	2.33		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	120	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.1	1,460	Total			

Subcatchment 1S: Sub-watershed 1



Subcatchment 2S: Sub-watershed 2

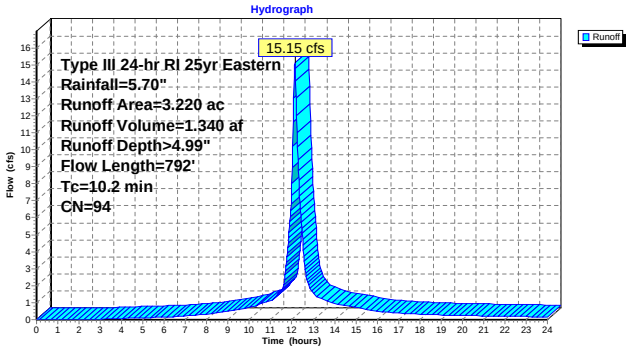
Runoff = 15.15 cfs @ 12.14 hrs, Volume= 1.340 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
3.220	94	Urban commercial, 85% imp, HSG C
0.483		Pervious Area
2.737		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.4	394	0.0280	2.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	298	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.2	792	Total			

Subcatchment 2S: Sub-watershed 2



Subcatchment 3S: Sub-watershed 3

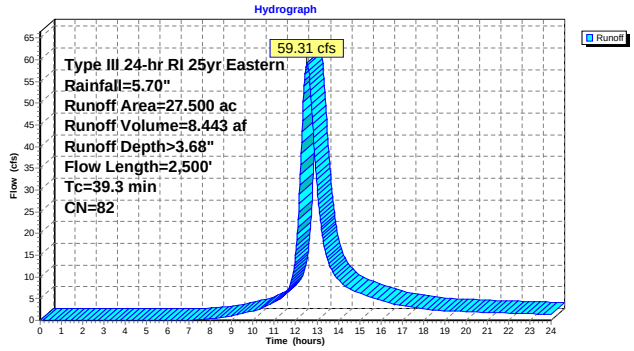
Runoff = 59.31 cfs @ 12.54 hrs, Volume= 8.443 af, Depth> 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
13.750	86	Pasture/grassland/range, Poor, HSG C
10.750	80	1/2 acre lots, 25% imp, HSG C
3.000	73	Woods, Fair, HSG C
27.500	82	Weighted Average
24.813		Pervious Area
2.688		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
19.4	1,200	0.0217	1.03		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.9	1,200	0.0050	1.44		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
39.3	2,500	Total			

Subcatchment 3S: Sub-watershed 3



Subcatchment 4S: Sub-watershed 4

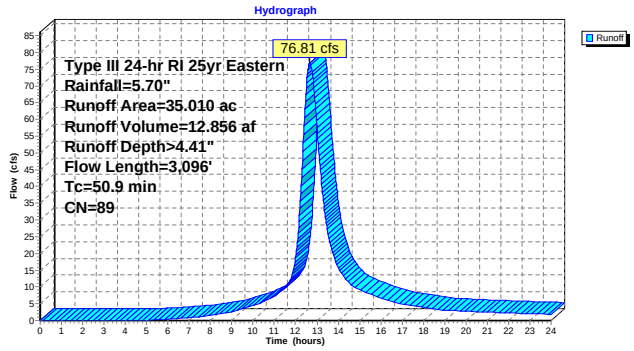
Runoff = 76.81 cfs @ 12.67 hrs, Volume= 12.856 af, Depth> 4.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
5.901	90	Fallow, crop residue, Poor, HSG C
17.070	94	Urban commercial, 85% imp, HSG C
5.647	79	Pasture/grassland/range, Fair, HSG C
3.680	79	1 acre lots, 20% imp, HSG C
2.712	91	Urban industrial, 72% imp, HSG C
35.010	89	Weighted Average
17.812		Pervious Area
17.198		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	106	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.6	70	0.0860	2.05		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.7	82	0.0100	2.03		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
24.2	322	0.0010	0.22		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
13.9	2,386	0.0200	2.87		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
50.9	3,096	Total			

Subcatchment 4S: Sub-watershed 4



Subcatchment 5S: Sub-Watershed 5

Time of concentration was 4.2 minutes. Changed to direct entry to obtain a time of concentration of 5 minutes.

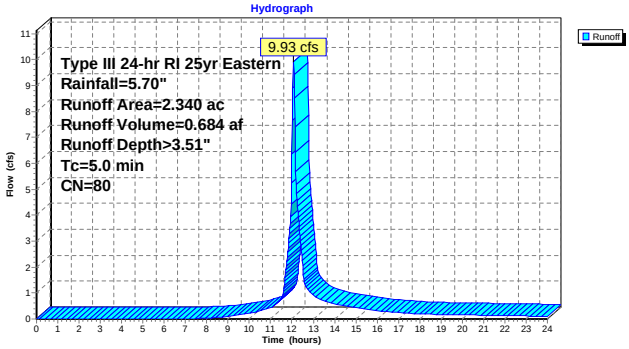
Runoff = 9.93 cfs @ 12.07 hrs, Volume= 0.684 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.340	80	1/2 acre lots, 25% imp, HSG C
1.755		Pervious Area
0.585		Impervious Area

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

Subcatchment 5S: Sub-Watershed 5



Subcatchment 6dS: Sub-watershed 6d

Original time of concentration was 2.5 minutes. Changed time of concentration to 5 minutes.

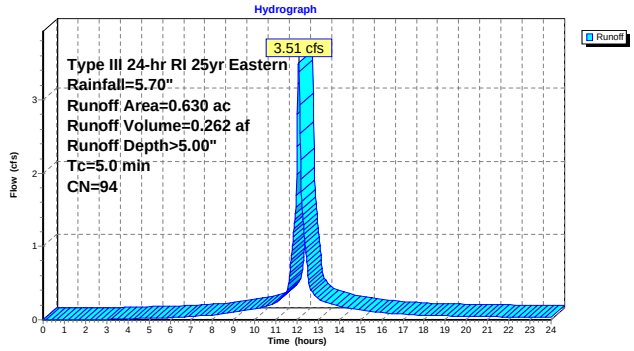
Runoff = 3.51 cfs @ 12.07 hrs, Volume= 0.262 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.630	94	Urban commercial, 85% imp, HSG C
0.095		Pervious Area
0.535		Impervious Area

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

Subcatchment 6dS: Sub-watershed 6d



Subcatchment 6eS: Sub-watershed 6e

Original time of concentration was 4.2 minutes. Changed time of concentration to 5 minutes.

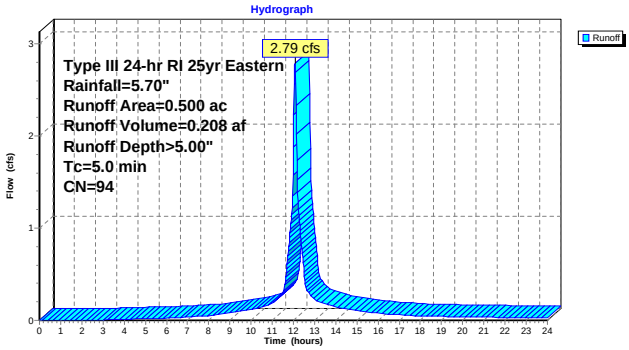
Runoff = 2.79 cfs @ 12.07 hrs, Volume= 0.208 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.500	94	Urban commercial, 85% imp, HSG C
0.075		Pervious Area
0.425		Impervious Area

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

Subcatchment 6eS: Sub-watershed 6e



Subcatchment 6S: Sub-watershed 6

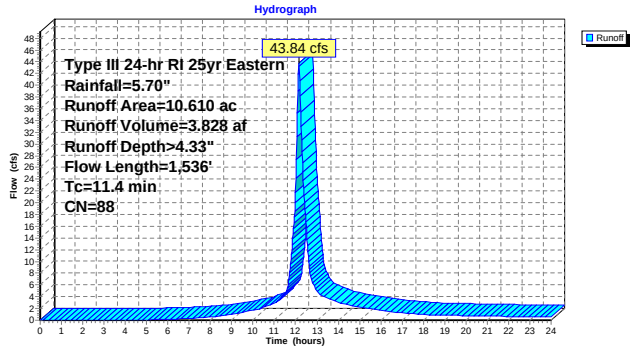
Runoff = 43.84 cfs @ 12.15 hrs, Volume= 3.828 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
8.380	87	Dirt roads, HSG C
2.230	94	Urban commercial, 85% imp, HSG C
10.610	88	Weighted Average
8.714		Pervious Area
1.895		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.0900	2.59		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.8	1,436	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.4	1,536	Total			

Subcatchment 6S: Sub-watershed 6



Subcatchment 8S: Sub-watershed 8

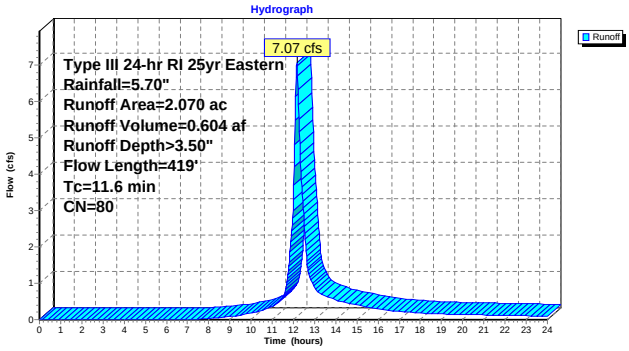
Runoff = 7.07 cfs @ 12.16 hrs, Volume= 0.604 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.070	80	1/2 acre lots, 25% imp, HSG C
1.552		Pervious Area
0.517		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.1	228	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.4	91	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.6	419	Total			

Subcatchment 8S: Sub-watershed 8



Subcatchment 9S: Sub-watershed 9

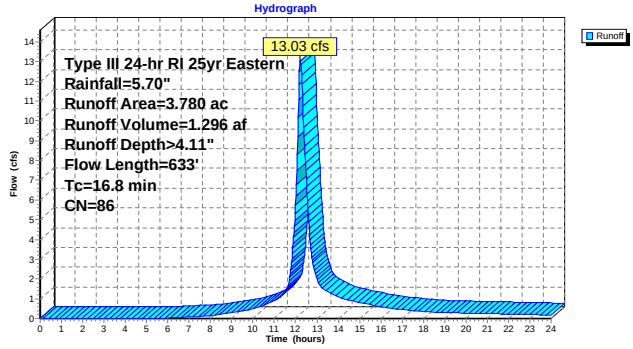
Runoff = 13.03 cfs @ 12.22 hrs, Volume= 1.296 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.990	90	1/8 acre lots, 65% imp, HSG C
0.790	73	Woods, Fair, HSG C
3.780	86	Weighted Average
1.837		Pervious Area
1.944		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	200	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.7	160	0.0500	1.57		**Shallow Concentrated Flow, B- C** Short Grass Pasture Kv= 7.0 fps
0.9	173	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.8	633	Total			

Subcatchment 9S: Sub-watershed 9



Subcatchment 10S: Sub-watershed 10

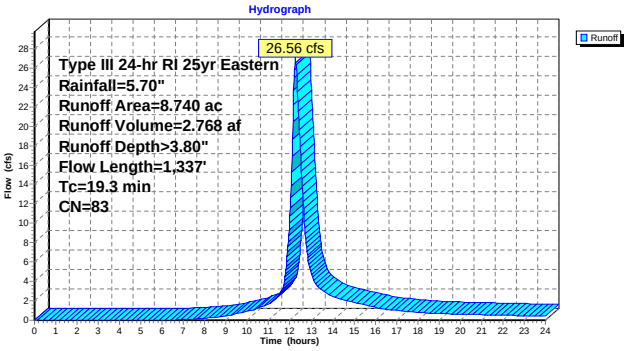
Runoff = 26.56 cfs @ 12.26 hrs, Volume= 2.768 af, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
8.740	83	1/4 acre lots, 38% imp, HSG C
5.419		Pervious Area
3.321		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.8	196	0.0150	0.86		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.0	1,041	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
19.3	1,337	Total			

Subcatchment 10S: Sub-watershed 10



Subcatchment 11S: Sub-watershed 11

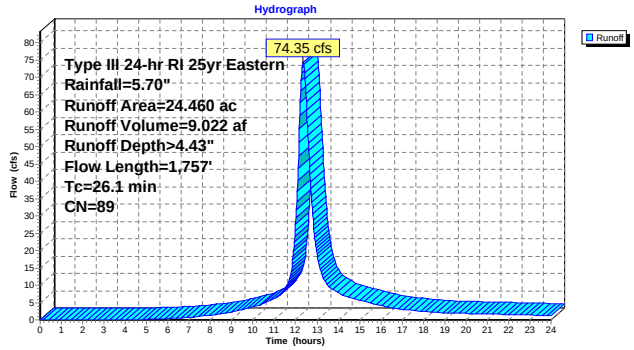
Runoff = 74.35 cfs @ 12.35 hrs, Volume= 9.022 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
5.370	90	Fallow, crop residue, Poor, HSG C
10.340	94	Urban commercial, 85% imp, HSG C
8.750	83	1/4 acre lots, 38% imp, HSG C
24.460	89	Weighted Average
12.346		Pervious Area
12.114		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
12.0	504	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.5	1,153	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
26.1	1,757	Total			

Subcatchment 11S: Sub-watershed 11



Subcatchment 12S: Sub-watershed 12

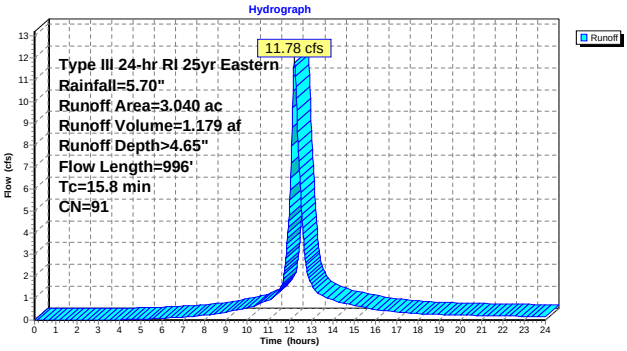
Runoff = 11.78 cfs @ 12.21 hrs, Volume= 1.179 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.130	94	Urban commercial, 85% imp, HSG C
0.910	83	1/4 acre lots, 38% imp, HSG C
3.040	91	Weighted Average
0.884		Pervious Area
2.156		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.5	462	0.0400	1.40		**Shallow Concentrated Flow, A-B** Short Grass Pasture Kv= 7.0 fps
2.2	434	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.8	996	Total			

Subcatchment 12S: Sub-watershed 12



Subcatchment 13S: Sub-watershed 13

Original time of concentration was 4.6 minutes. Changed time of concentration to 5 minutes.

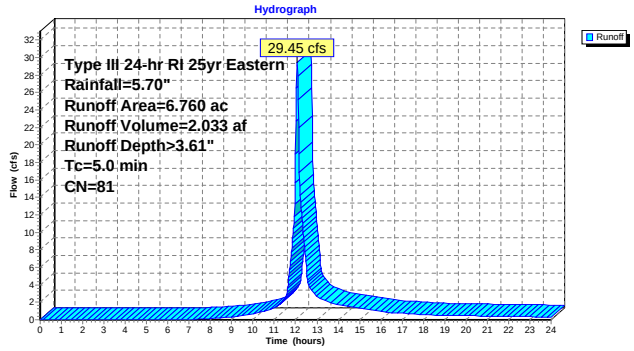
Runoff = 29.45 cfs @ 12.07 hrs, Volume= 2.033 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
6.760	81	1/3 acre lots, 30% imp, HSG C
4.732		Pervious Area
2.028		Impervious Area

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

Subcatchment 13S: Sub-watershed 13



Subcatchment 14S: Sub-watershed 14

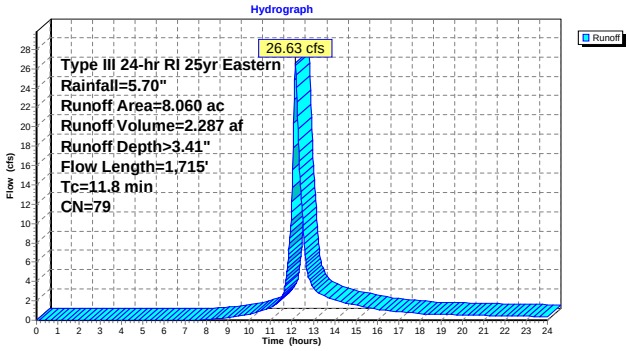
Runoff = 26.63 cfs @ 12.16 hrs, Volume= 2.287 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.240	94	Urban commercial, 85% imp, HSG C
7.820	79	1 acre lots, 20% imp, HSG C
8.060	79	Weighted Average
6.292		Pervious Area
1.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.2	1,615	0.0170	2.65		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.8	1,715	Total			

Subcatchment 14S: Sub-watershed 14



Subcatchment 15S: Sub-watershed 15

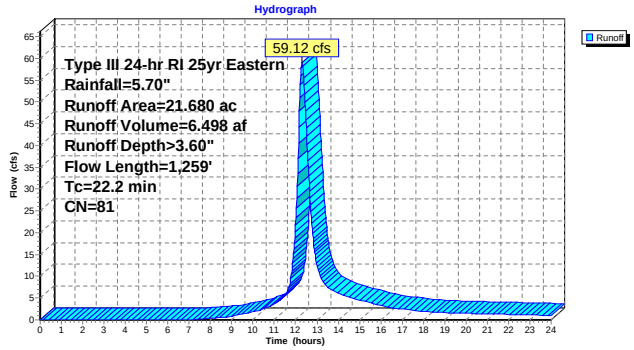
Runoff = 59.12 cfs @ 12.30 hrs, Volume= 6.498 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
15.390	79	1 acre lots, 20% imp, HSG C
5.090	90	1/8 acre lots, 65% imp, HSG C
1.200	76	Woods/grass comb., Fair, HSG C
21.680	81	Weighted Average
15.294		Pervious Area
6.387		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.3	168	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.8	991	0.0340	1.29		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
22.2	1,259	Total			

Subcatchment 15S: Sub-watershed 15



Subcatchment 16S: Sub-watershed 16

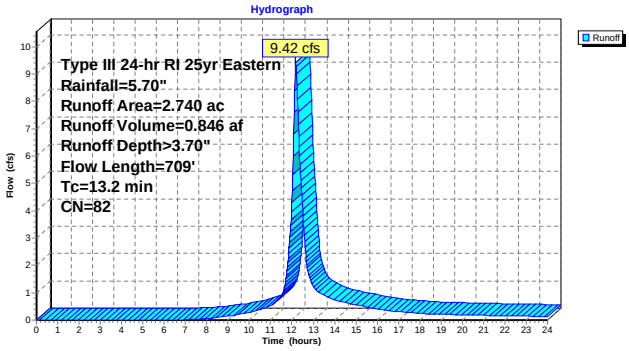
Runoff = 9.42 cfs @ 12.18 hrs, Volume= 0.846 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.330	81	1/3 acre lots, 30% imp, HSG C
0.410	91	Fallow, bare soil, HSG C
2.740	82	Weighted Average
2.041		Pervious Area
0.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	161	0.0370	1.35		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	448	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.2	709	Total			

Subcatchment 16S: Sub-watershed 16



Subcatchment 17S: Sub-watershed 17

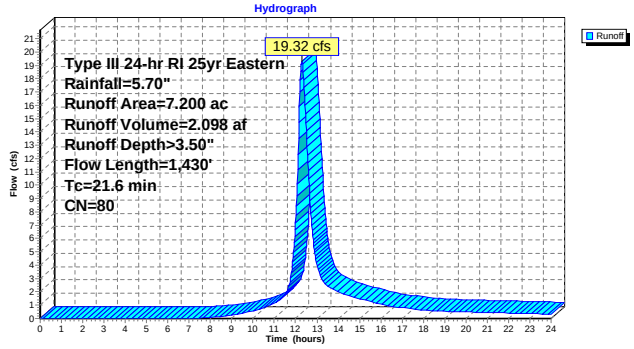
Runoff = 19.32 cfs @ 12.30 hrs, Volume= 2.098 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
7.200	80	1/2 acre lots, 25% imp, HSG C
5.400		Pervious Area
1.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-C** Grass: Short n= 0.150 P2= 3.40"
1.8	338	0.0240	3.14		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.5	125	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	260	0.0460	1.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.9	607	0.0160	2.57		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
21.6	1,430	Total			

Subcatchment 17S: Sub-watershed 17



Subcatchment 18S: Sub-watershed 18

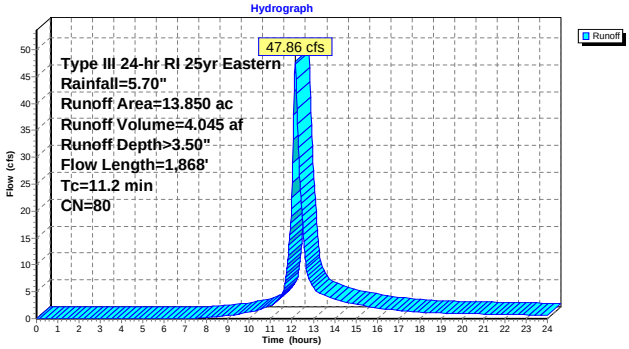
Runoff = 47.86 cfs @ 12.15 hrs, Volume= 4.045 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
13.160	80	1/2 acre lots, 25% imp, HSG C
0.690	73	Woods, Fair, HSG C
13.850	80	Weighted Average
10.560		Pervious Area
3.290		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0500	2.05		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
3.3	299	0.0470	1.52		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.1	1,469	0.0290	3.46		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.2	1,868	Total			

Subcatchment 18S: Sub-watershed 18



Subcatchment 19S: Sub-watershed 19

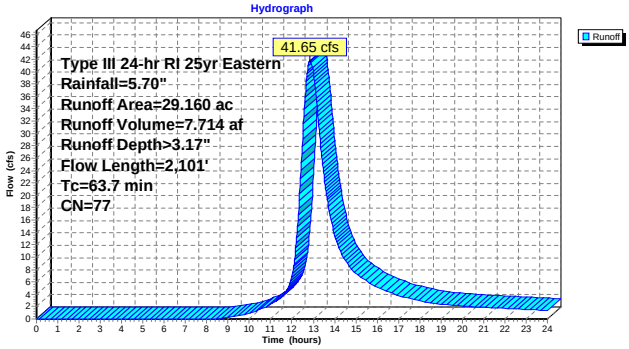
Runoff = 41.65 cfs @ 12.86 hrs, Volume= 7.714 af, Depth> 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.460	94	Urban commercial, 85% imp, HSG C
1.460	80	1/2 acre lots, 25% imp, HSG C
26.240	76	Woods/grass comb., Fair, HSG C
29.160	77	Weighted Average
27.554		Pervious Area
1.606		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0160	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.40"
2.9	161	0.0170	0.91		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	17	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	13	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
35.7	678	0.0040	0.32		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
8.6	1,052	0.0100	2.03		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
63.7	2,101	Total			

Subcatchment 19S: Sub-watershed 19



Subcatchment 20S: Sub-watershed 20

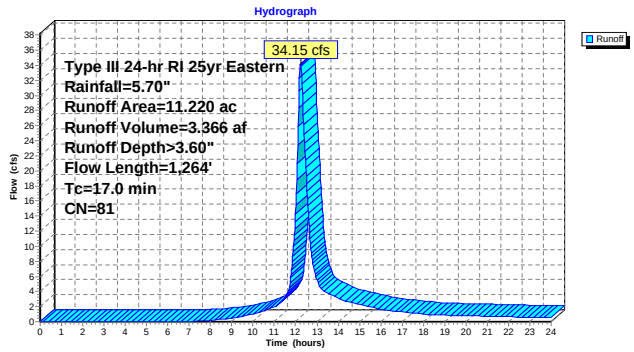
Runoff = 34.15 cfs @ 12.23 hrs, Volume= 3.366 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
11.220	81	1/3 acre lots, 30% imp, HSG C
7.854		Pervious Area
3.366		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.0	174	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	990	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.0	1,264	Total			

Subcatchment 20S: Sub-watershed 20



Subcatchment 21S: Sub-watershed 21

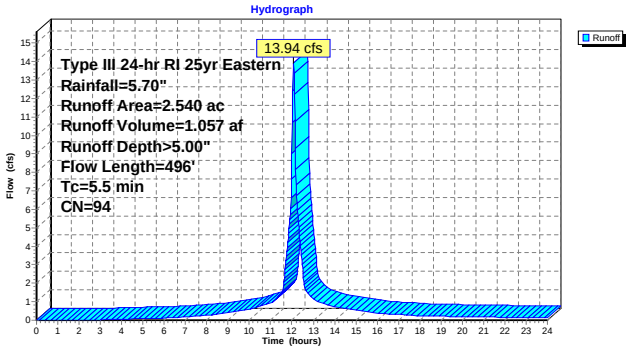
Runoff = 13.94 cfs @ 12.08 hrs, Volume= 1.057 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.540	94	Urban commercial, 85% imp, HSG C
0.381		Pervious Area
2.159		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1000	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	30	0.1200	2.28		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
1.5	396	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.5	496	Total			

Subcatchment 21S: Sub-watershed 21



Subcatchment 22S: Sub-watershed 22

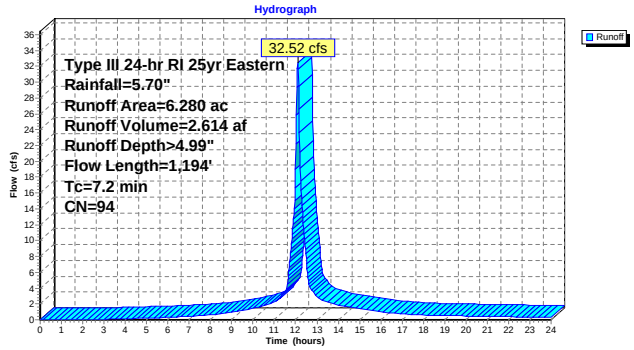
Runoff = 32.52 cfs @ 12.10 hrs, Volume= 2.614 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
6.280	94	Urban commercial, 85% imp, HSG C
0.942		Pervious Area
5.338		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	100	0.0800	2.47		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.5	1,094	0.0190	2.80		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.2	1,194	Total			

Subcatchment 22S: Sub-watershed 22



Subcatchment 23S: Sub-watershed 23

Original time of concentration was 1.8 minutes. Changed time of concentration to 5 minutes.

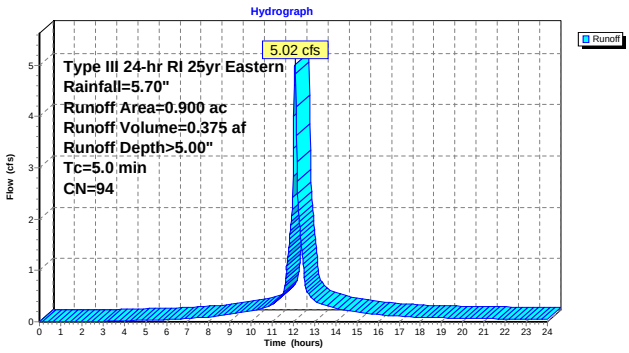
Runoff = 5.02 cfs @ 12.07 hrs, Volume= 0.375 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.900	94	Urban commercial, 85% imp, HSG C
0.135		Pervious Area
0.765		Impervious Area

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

Subcatchment 23S: Sub-watershed 23



Subcatchment 24S: Sub-watershed 24

Institutional land use assumed commercial land for calculations.

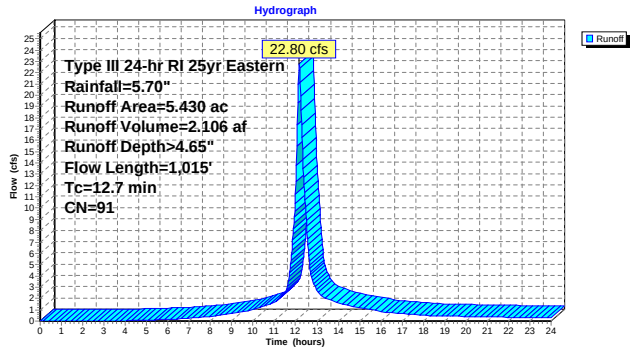
Runoff = 22.80 cfs @ 12.17 hrs, Volume= 2.106 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
4.340	94	Urban commercial, 85% imp, HSG C
1.090	81	1/3 acre lots, 30% imp, HSG C
5.430	91	Weighted Average
1.414		Pervious Area
4.016		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.7	397	0.0650	1.78		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.5	518	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.7	1,015	Total			

Subcatchment 24S: Sub-watershed 24



Subcatchment 25S: Sub-watershed 25

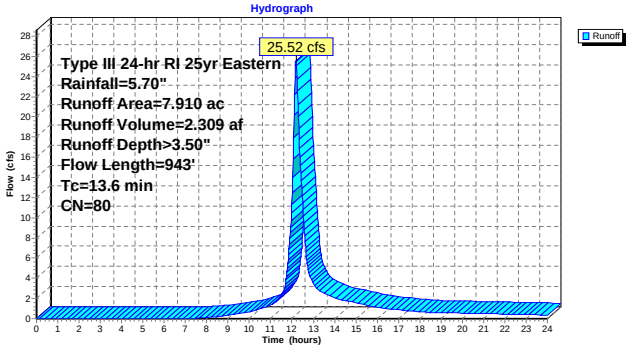
Runoff = 25.52 cfs @ 12.19 hrs, Volume= 2.309 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
7.120	81	1/3 acre lots, 30% imp, HSG C
0.790	73	Woods, Fair, HSG C
7.910	80	Weighted Average
5.774		Pervious Area
2.136		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.5	276	0.0360	1.33		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	567	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	943	Total			

Subcatchment 25S: Sub-watershed 25



Subcatchment 26S: Sub-watershed 26

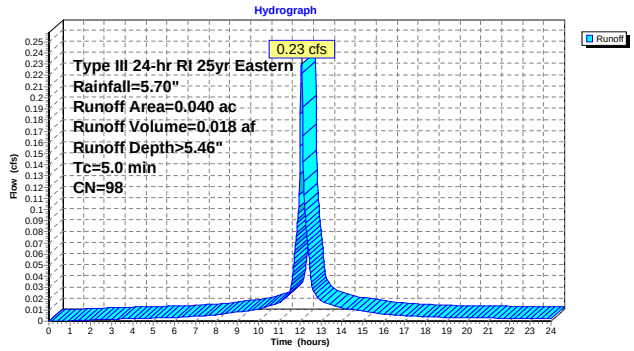
Runoff = 0.23 cfs @ 12.07 hrs, Volume= 0.018 af, Depth> 5.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.040	98	Paved parking & roofs
0.040		Impervious Area

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

Subcatchment 26S: Sub-watershed 26



Subcatchment 27S: Sub-watershed 27

Original time of concentration was 1.2 minutes. Changed original time of concentration to 5 minutes.

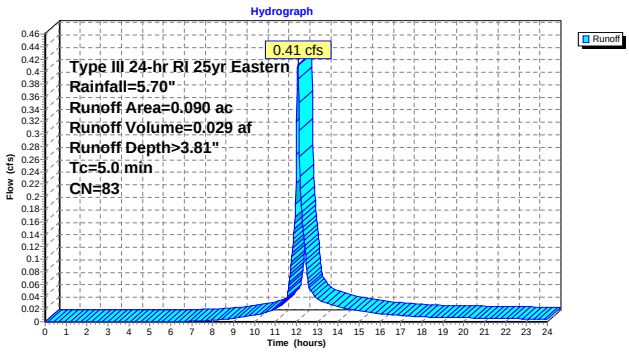
Runoff = 0.41 cfs @ 12.07 hrs, Volume= 0.029 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.090	83	1/4 acre lots, 38% imp, HSG C
0.056		Pervious Area
0.034		Impervious Area

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

Subcatchment 27S: Sub-watershed 27



Subcatchment 28S: Sub-watershed 28

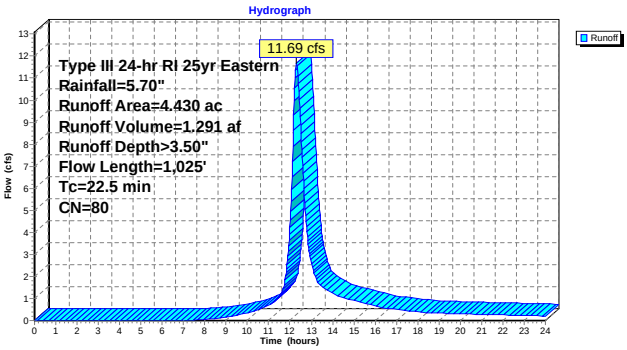
Runoff = 11.69 cfs @ 12.31 hrs, Volume= 1.291 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
3.990	81	1/3 acre lots, 30% imp, HSG C
0.440	73	Woods, Fair, HSG C
4.430	80	Weighted Average
3.233		Pervious Area
1.197		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	23	0.0220	1.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	23	0.0200	0.99		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
7.5	426	0.0360	0.95		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps
3.3	312	0.0060	1.57		**Shallow Concentrated Flow, H-I** Paved Kv= 20.3 fps
22.5	1,025	Total			

Subcatchment 28S: Sub-watershed 28



Subcatchment 29S: Sub-watershed 29

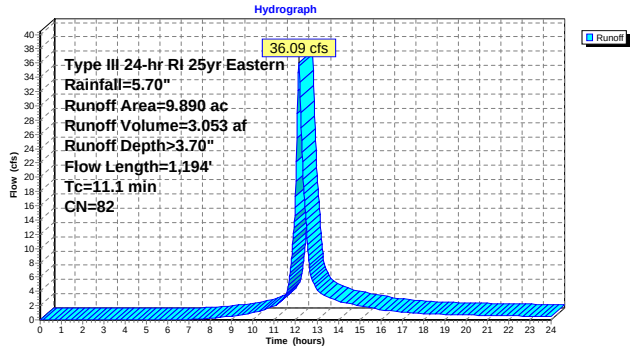
Runoff = 36.09 cfs @ 12.15 hrs, Volume= 3.053 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.490	74	>75% Grass cover, Good, HSG C
0.980	94	Urban commercial, 85% imp, HSG C
8.420	81	1/3 acre lots, 30% imp, HSG C
9.890	82	Weighted Average
6.531		Pervious Area
3.359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0110	1.12		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.7	453	0.0260	1.13		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	641	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.1	1,194	Total			

Subcatchment 29S: Sub-watershed 29



Subcatchment 30S: Sub-watershed 30

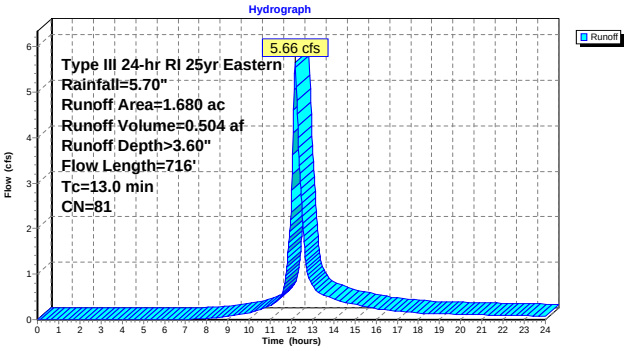
Runoff = 5.66 cfs @ 12.18 hrs, Volume= 0.504 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.680	81	1/3 acre lots, 30% imp, HSG C
1.176		Pervious Area
0.504		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	118	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	498	0.0320	3.63		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.0	716	Total			

Subcatchment 30S: Sub-watershed 30



Subcatchment 31S: Sub-watershed 31

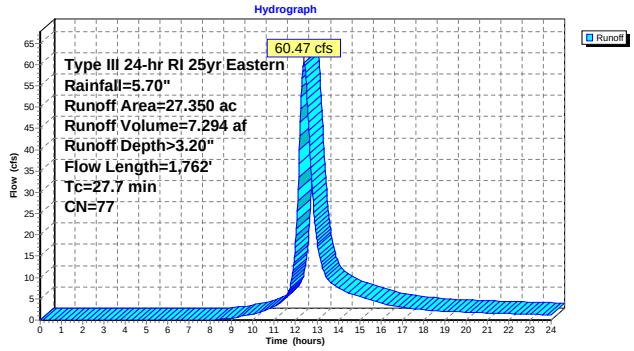
Runoff = 60.47 cfs @ 12.39 hrs, Volume= 7.294 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
12.350	81	1/3 acre lots, 30% imp, HSG C
15.000	74	>75% Grass cover, Good, HSG C
27.350	77	Weighted Average
23.645		Pervious Area
3.705		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
15.3	1,075	0.0280	1.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.8	587	0.0070	1.70		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
27.7	1,762	Total			

Subcatchment 31S: Sub-watershed 31



Subcatchment 32S: Sub-watershed32

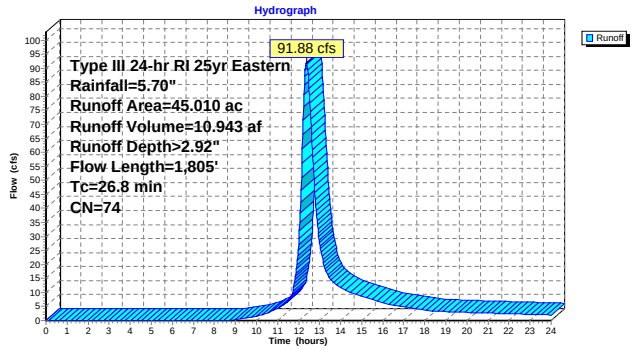
Runoff = 91.88 cfs @ 12.37 hrs, Volume= 10.943 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
14.440	81	1/3 acre lots, 30% imp, HSG C
13.320	69	50-75% Grass cover, Fair, HSG B
15.110	73	Woods, Fair, HSG C
0.900	88	Fallow, crop residue, Good, HSG C
1.240	56	Brush, Fair, HSG B
45.010	74	Weighted Average
40.678		Pervious Area
4.332		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0840	0.14		**Sheet Flow, A-B** Grass: Bermuda n= 0.410 P2= 3.40"
2.3	179	0.0698	1.32		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.9	654	0.0528	3.70		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
5.8	474	0.0738	1.36		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
3.8	398	0.0075	1.76		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
26.8	1,805	Total			

Subcatchment 32S: Sub-watershed32



Subcatchment 33S: Sub-watershed 33

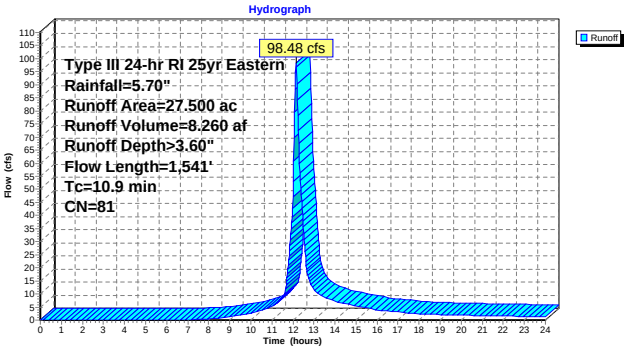
Runoff = 98.48 cfs @ 12.15 hrs, Volume= 8.260 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.960	94	Urban commercial, 85% imp, HSG C
26.540	81	1/3 acre lots, 30% imp, HSG C
27.500	81	Weighted Average
18.722		Pervious Area
8.778		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.0	154	0.1400	2.62		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.3	1,287	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.9	1,541	Total			

Subcatchment 33S: Sub-watershed 33



Subcatchment 34S: Sub-watershed 34

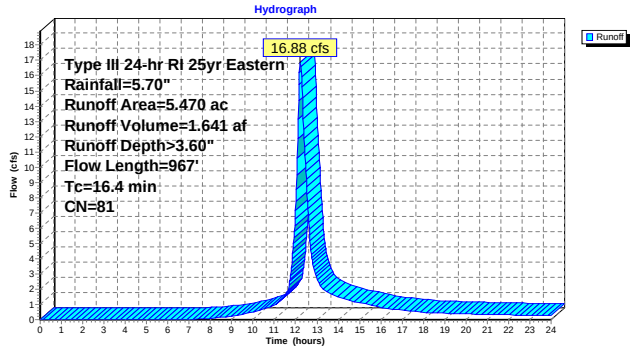
Runoff = 16.88 cfs @ 12.22 hrs, Volume= 1.641 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
5.470	81	1/3 acre lots, 30% imp, HSG C
3.829		Pervious Area
1.641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	131	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.1	736	0.0140	2.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.4	967	Total			

Subcatchment 34S: Sub-watershed 34



Subcatchment 35S: Sub-watershed 35

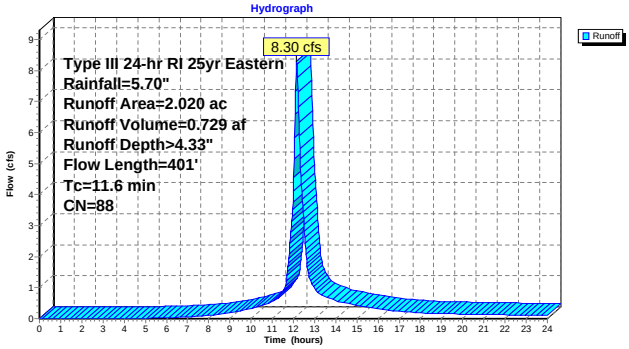
Runoff = 8.30 cfs @ 12.16 hrs, Volume= 0.729 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.010	94	Urban commercial, 85% imp, HSG C
1.010	81	1/3 acre lots, 30% imp, HSG C
2.020	88	Weighted Average
0.859		Pervious Area
1.161		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	111	0.0180	0.94		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	190	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.6	401	Total			

Subcatchment 35S: Sub-watershed 35



Subcatchment 36S: Sub-watershed 36

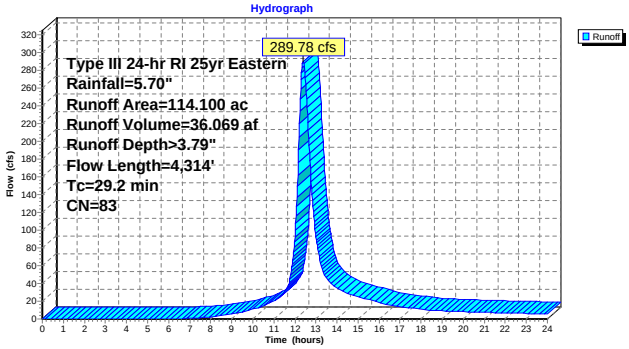
Runoff = 289.78 cfs @ 12.40 hrs, Volume= 36.069 af, Depth> 3.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
81.170	83	1/4 acre lots, 38% imp, HSG C
9.230	94	Urban commercial, 85% imp, HSG C
6.090	60	Woods, Fair, HSG B
0.440	69	50-75% Grass cover, Fair, HSG B
4.180	56	Brush, Fair, HSG B
12.990	91	Urban industrial, 72% imp, HSG C
114.100	83	Weighted Average
66.057		Pervious Area
48.043		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.4	172	0.0810	1.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.3	4,042	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
29.2	4,314	Total			

Subcatchment 36S: Sub-watershed 36



Subcatchment 37S: Sub-watershed 37

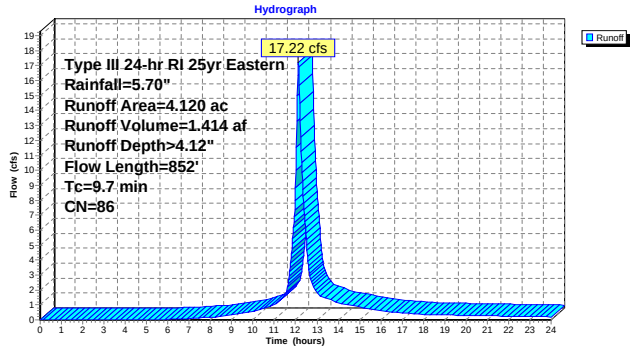
Runoff = 17.22 cfs @ 12.13 hrs, Volume= 1.414 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.240	81	1/3 acre lots, 30% imp, HSG C
2.470	91	Urban industrial, 72% imp, HSG C
0.410	74	>75% Grass cover, Good, HSG C
4.120	86	Weighted Average
1.970		Pervious Area
2.150		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.67		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
8.7	752	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
9.7	852	Total			

Subcatchment 37S: Sub-watershed 37



Subcatchment 38S: Sub-watershed 38

Original time of concentration was 4.5 minutes. Changed time of concentration to 5 minutes.

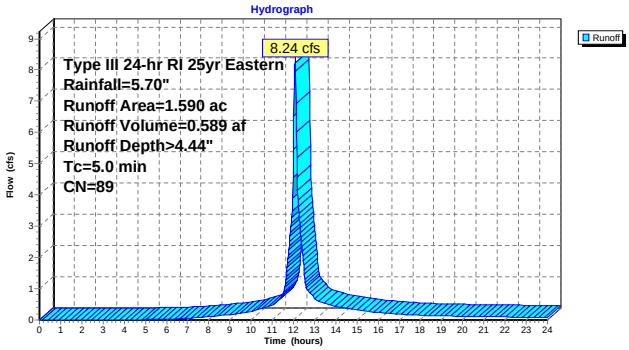
Runoff = 8.24 cfs @ 12.07 hrs, Volume= 0.589 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.160	91	Urban industrial, 72% imp, HSG C
0.320	79	Pasture/grassland/range, Fair, HSG C
1.110	91	Urban industrial, 72% imp, HSG C
1.590	89	Weighted Average
0.676		Pervious Area
0.914		Impervious Area

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

Subcatchment 38S: Sub-watershed 38



Subcatchment 39S: Sub-watershed 39

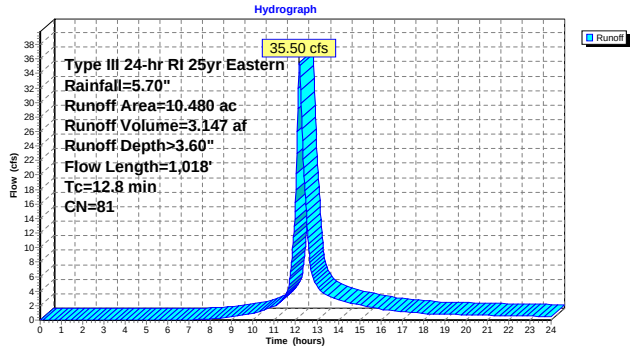
Runoff = 35.50 cfs @ 12.17 hrs, Volume= 3.147 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.520	79	Pasture/grassland/range, Fair, HSG C
9.960	81	1/3 acre lots, 30% imp, HSG C
10.480	81	Weighted Average
7.492		Pervious Area
2.988		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	212	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.0	387	0.0260	3.27		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	319	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.8	1,018	Total			

Subcatchment 39S: Sub-watershed 39



Subcatchment 40S: Sub-watershed 40

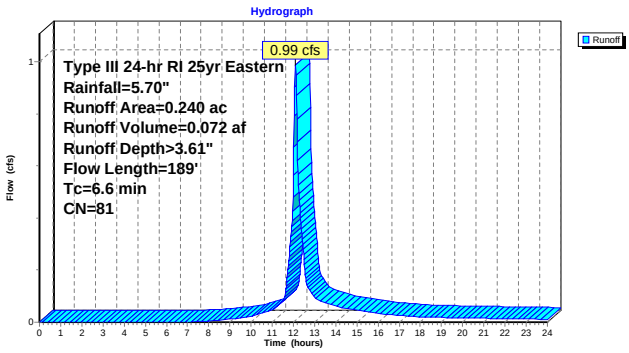
Runoff = 0.99 cfs @ 12.10 hrs, Volume= 0.072 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.240	81	1/3 acre lots, 30% imp, HSG C
0.168		Pervious Area
0.072		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.5	89	0.1500	2.71		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.6	189	Total			

Subcatchment 40S: Sub-watershed 40



Subcatchment 41S: Sub-watershed 41

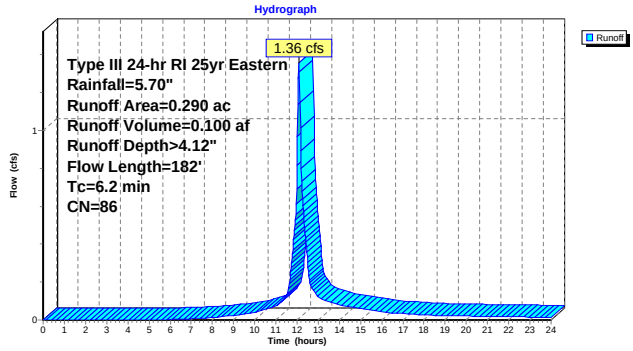
Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.290	86	Pasture/grassland/range, Poor, HSG C
0.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.7	82	0.0730	1.89		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.2	182	Total			

Subcatchment 41S: Sub-watershed 41



Subcatchment 42S: Sub-watershed 42

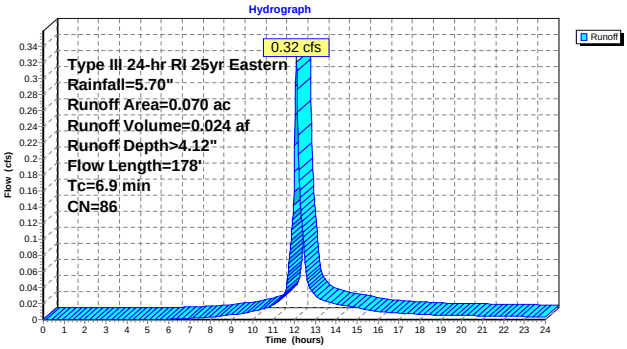
Runoff = 0.32 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.070	86	Pasture/grassland/range, Poor, HSG C
0.070		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.8	78	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.9	178	Total			

Subcatchment 42S: Sub-watershed 42



Subcatchment 43S: Sub-watershed 43

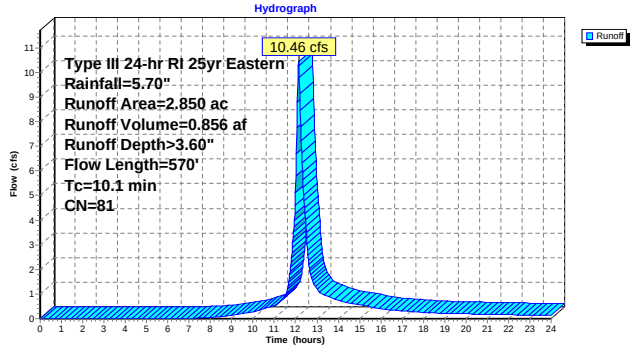
Runoff = 10.46 cfs @ 12.14 hrs, Volume= 0.856 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.850	81	1/3 acre lots, 30% imp, HSG C
1.995		Pervious Area
0.855		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	228	0.0880	2.08		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	206	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.5	36	0.0280	1.17		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
10.1	570	Total			

Subcatchment 43S: Sub-watershed 43



Subcatchment 44S: Sub-watershed 44

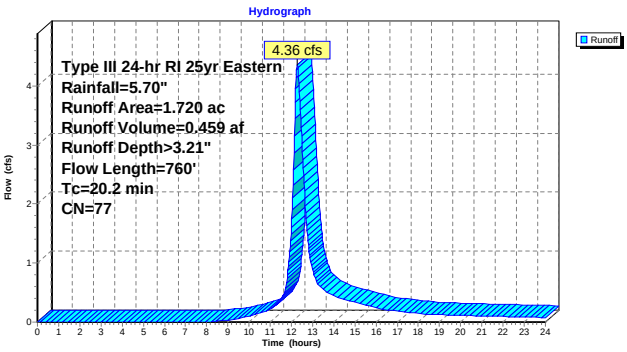
Runoff = 4.36 cfs @ 12.28 hrs, Volume= 0.459 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.860	81	1/3 acre lots, 30% imp, HSG C
0.860	73	Woods, Fair, HSG C
1.720	77	Weighted Average
1.462		Pervious Area
0.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
4.3	262	0.0420	1.02		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	398	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.2	760	Total			

Subcatchment 44S: Sub-watershed 44



Subcatchment 45S: Sub-watershed 45

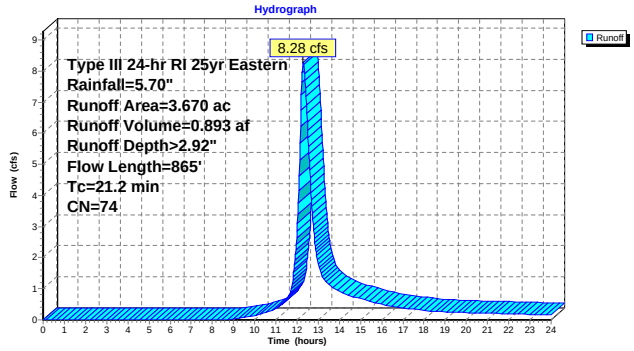
Runoff = 8.28 cfs @ 12.30 hrs, Volume= 0.893 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
3.120	73	Woods, Fair, HSG C
0.180	81	1/3 acre lots, 30% imp, HSG C
0.370	82	Woods/grass comb., Poor, HSG C
3.670	74	Weighted Average
3.616		Pervious Area
0.054		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
13.1	765	0.0380	0.97		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
21.2	865	Total			

Subcatchment 45S: Sub-watershed 45



Subcatchment 46S: Sub-watershed 46

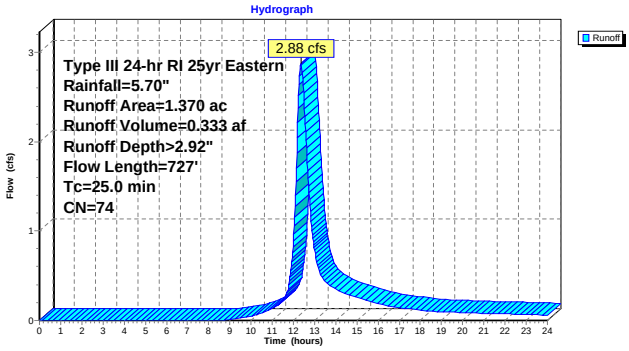
Runoff = 2.88 cfs @ 12.35 hrs, Volume= 0.333 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.230	73	Woods, Fair, HSG C
0.140	82	Woods/grass comb., Poor, HSG C
1.370	74	Weighted Average
1.370		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
7.6	373	0.0270	0.82		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.6	254	0.0160	2.57		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
25.0	727	Total			

Subcatchment 46S: Sub-watershed 46



Subcatchment 47S: Sub-watershed 47

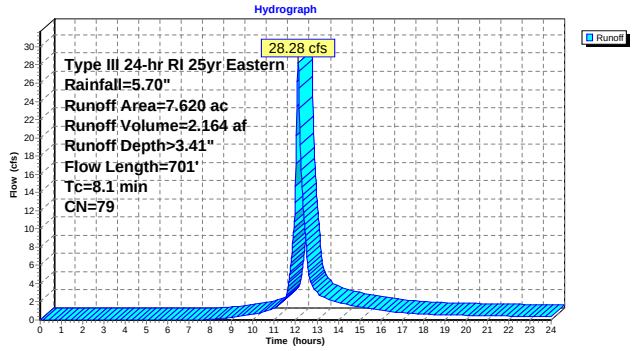
Runoff = 28.28 cfs @ 12.12 hrs, Volume= 2.164 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
7.620	79	50-75% Grass cover, Fair, HSG C
7.620		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1000	0.33		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	581	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.1	701	Total			

Subcatchment 47S: Sub-watershed 47



Subcatchment 48S: Sub-watershed 48

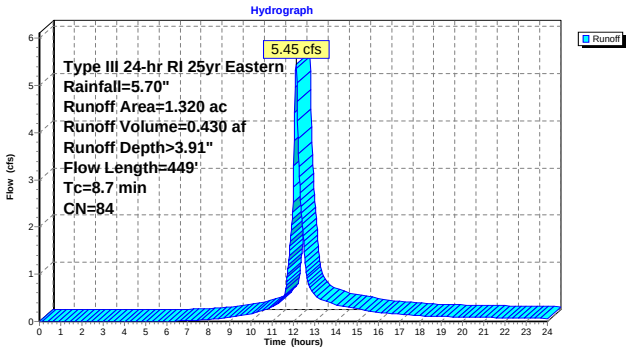
Runoff = 5.45 cfs @ 12.12 hrs, Volume= 0.430 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.320	84	50-75% Grass cover, Fair, HSG D
1.320		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	39	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	310	0.0130	2.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.7	449	Total			

Subcatchment 48S: Sub-watershed 48



Subcatchment 49S: Sub-watershed 49

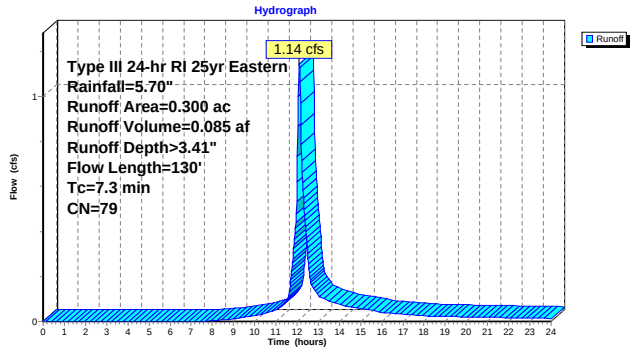
Runoff = 1.14 cfs @ 12.10 hrs, Volume= 0.085 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.300	79	50-75% Grass cover, Fair, HSG C
0.300		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.1	11	0.1800	2.97		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	19	0.1100	6.73		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	130	Total			

Subcatchment 49S: Sub-watershed 49



Subcatchment 50S: Sub-watershed 50

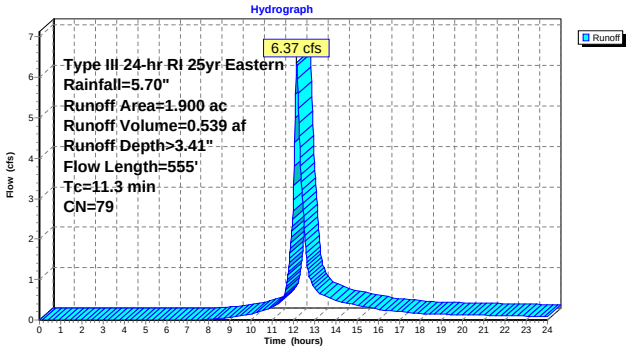
Runoff = 6.37 cfs @ 12.16 hrs, Volume= 0.539 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.900	79	50-75% Grass cover, Fair, HSG C
1.900		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	419	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	36	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.3	555	Total			

Subcatchment 50S: Sub-watershed 50



Subcatchment 51S: Sub-wateshed 51

Original time of concentration was 3.2 minutes. Changed time of concentration to 5 minutes.

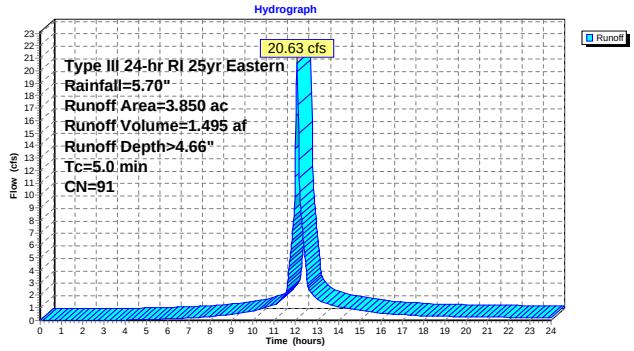
Runoff = 20.63 cfs @ 12.07 hrs, Volume= 1.495 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
3.850	91	Urban industrial, 72% imp, HSG C
1.078		Pervious Area
2.772		Impervious Area

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

Subcatchment 51S: Sub-wateshed 51



Subcatchment 52S: Sub-watershed 52

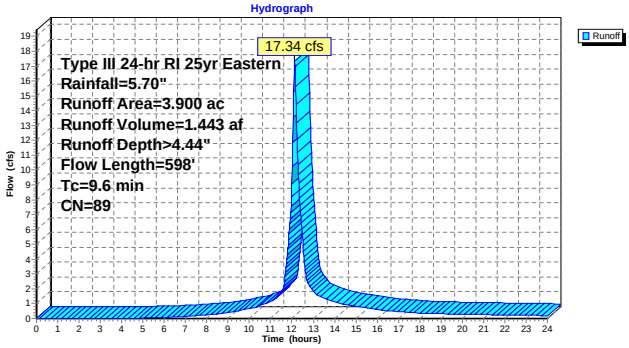
Runoff = 17.34 cfs @ 12.13 hrs, Volume= 1.443 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
3.510	90	1/8 acre lots, 65% imp, HSG C
0.390	79	50-75% Grass cover, Fair, HSG C
3.900	89	Weighted Average
1.618		Pervious Area
2.282		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.9	108	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	361	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	29	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
9.6	598	Total			

Subcatchment 52S: Sub-watershed 52



Subcatchment 53S: Sub-watershed 53

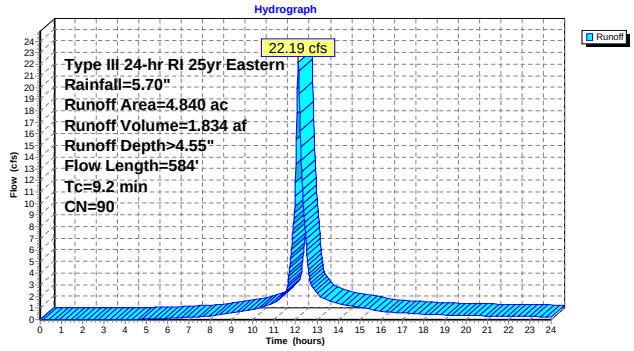
Runoff = 22.19 cfs @ 12.13 hrs, Volume= 1.834 af, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
4.840	90	1/8 acre lots, 65% imp, HSG C
1.694		Pervious Area
3.146		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	33	0.0610	1.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	451	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.2	584	Total			

Subcatchment 53S: Sub-watershed 53



Subcatchment 54S: Sub-watershed 54

Original time of concentration was 2.6 minutes. Changed time of concentration to 5 minutes.

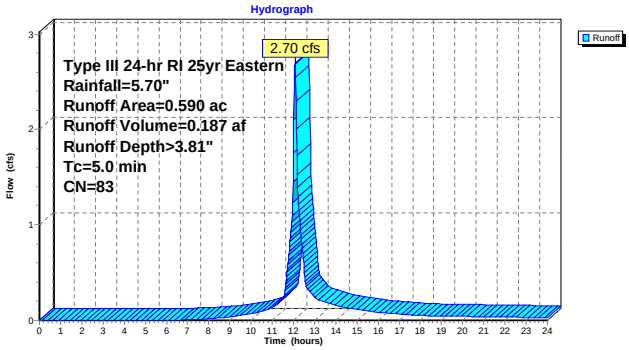
Runoff = 2.70 cfs @ 12.07 hrs, Volume= 0.187 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.590	83	1/4 acre lots, 38% imp, HSG C
0.366		Pervious Area
0.224		Impervious Area

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

Subcatchment 54S: Sub-watershed 54



Subcatchment 55S: Sub-watershed 55

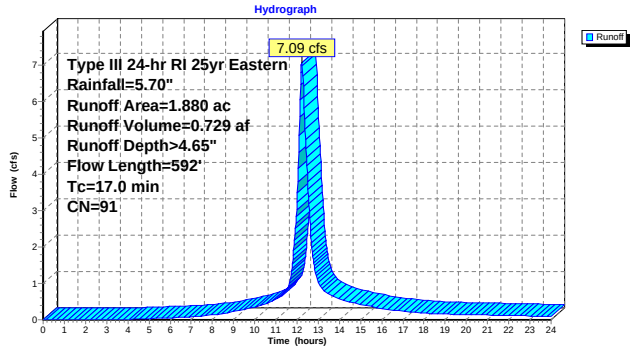
Runoff = 7.09 cfs @ 12.22 hrs, Volume= 0.729 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
1.880	91	Urban industrial, 72% imp, HSG C
0.526		Pervious Area
1.354		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	492	0.0080	1.82		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
17.0	592	Total			

Subcatchment 55S: Sub-watershed 55



Subcatchment 56S: Sub-watershed 56

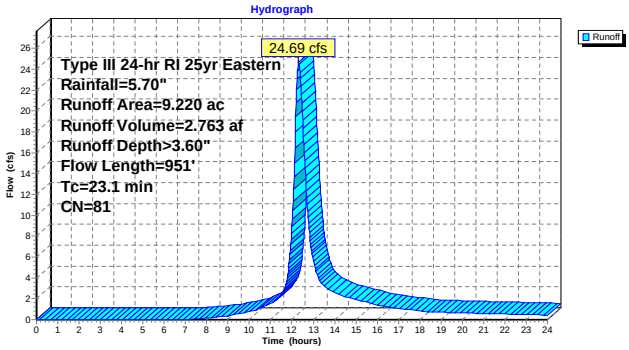
Runoff = 24.69 cfs @ 12.31 hrs, Volume= 2.763 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
9.220	81	1/3 acre lots, 30% imp, HSG C
6.454		Pervious Area
2.766		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.7	228	0.0090	0.66		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	623	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
23.1	951	Total			

Subcatchment 56S: Sub-watershed 56



Subcatchment 57S: Sub-watershed 57

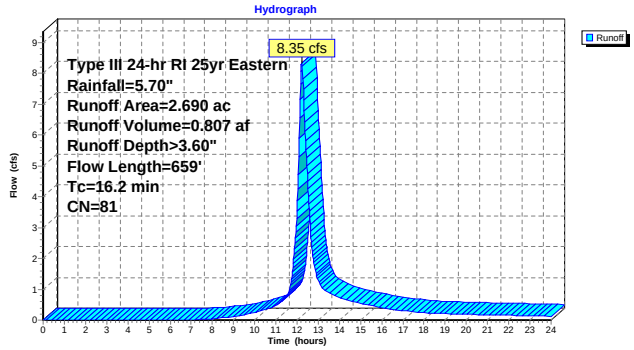
Runoff = 8.35 cfs @ 12.22 hrs, Volume= 0.807 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.690	81	1/3 acre lots, 30% imp, HSG C
1.883		Pervious Area
0.807		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	100	0.0370	0.22		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
6.4	190	0.0050	0.49		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	349	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
16.2	659	Total			

Subcatchment 57S: Sub-watershed 57



Subcatchment 58S: Sub-watershed 58

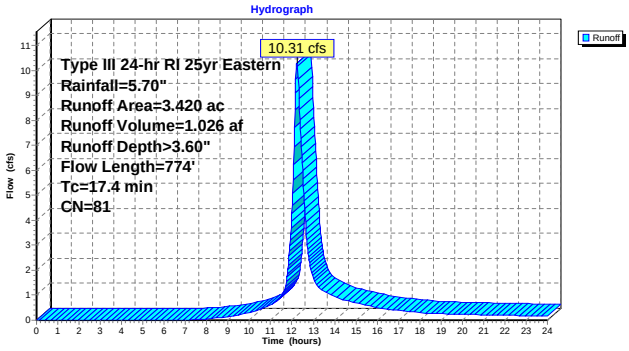
Runoff = 10.31 cfs @ 12.24 hrs, Volume= 1.026 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
3.420	81	1/3 acre lots, 30% imp, HSG C
2.394		Pervious Area
1.026		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.1	74	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.8	600	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.4	774	Total			

Subcatchment 58S: Sub-watershed 58



Subcatchment 59S: Sub-watershed 59

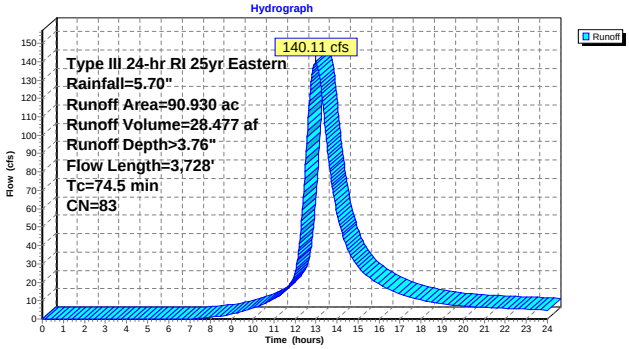
Runoff = 140.11 cfs @ 12.99 hrs, Volume= 28.477 af, Depth> 3.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
35.570	83	1/4 acre lots, 38% imp, HSG C
15.400	79	Pasture/grassland/range, Fair, HSG C
13.820	94	Urban commercial, 85% imp, HSG C
2.410	91	Urban industrial, 72% imp, HSG C
8.840	86	Woods/grass comb., Poor, HSG D
12.190	73	Woods, Fair, HSG C
2.700	79	Pasture/grassland/range, Fair, HSG C
90.930	83	Weighted Average
63.931		Pervious Area
26.999		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
49.4	2,858	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.2	48	0.0010	0.64		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	164	0.0180	0.94		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.5	377	0.0080	1.82		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
1.0	181	0.0220	3.01		**Shallow Concentrated Flow, F-G** Paved Kv= 20.3 fps
74.5	3,728	Total			

Subcatchment 59S: Sub-watershed 59



Subcatchment 60S: Sub-watershed 60

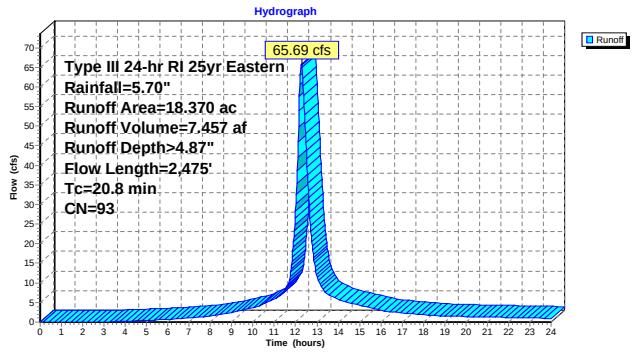
Runoff = 65.69 cfs @ 12.27 hrs, Volume= 7.457 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
5.510	91	Urban industrial, 72% imp, HSG C
12.860	94	Urban commercial, 85% imp, HSG C
18.370	93	Weighted Average
3.472		Pervious Area
14.898		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	83	0.1100	2.32		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.0	2,292	0.0210	2.94		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.8	2,475	Total			

Subcatchment 60S: Sub-watershed 60



Subcatchment 61S: Sub-watershed 61

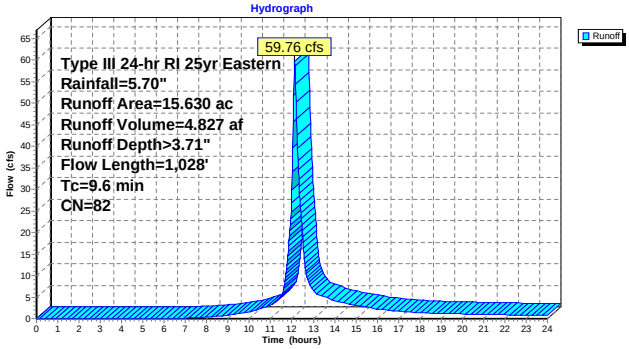
Runoff = 59.76 cfs @ 12.13 hrs, Volume= 4.827 af, Depth> 3.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
14.070	81	1/3 acre lots, 30% imp, HSG C
1.560	94	Urban commercial, 85% imp, HSG C
15.630	82	Weighted Average
10.083		Pervious Area
5.547		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0700	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	132	0.0700	1.85		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.6	796	0.0630	5.10		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.6	1,028	Total			

Subcatchment 61S: Sub-watershed 61



Subcatchment 62S: Sub-watershed 62

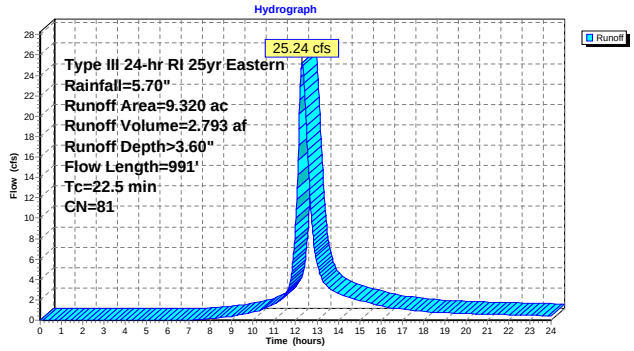
Runoff = 25.24 cfs @ 12.31 hrs, Volume= 2.793 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
9.320	81	1/3 acre lots, 30% imp, HSG C
6.524		Pervious Area
2.796		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.2	169	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.8	722	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.5	991	Total			

Subcatchment 62S: Sub-watershed 62



Subcatchment 63S: Sub-watershed 63

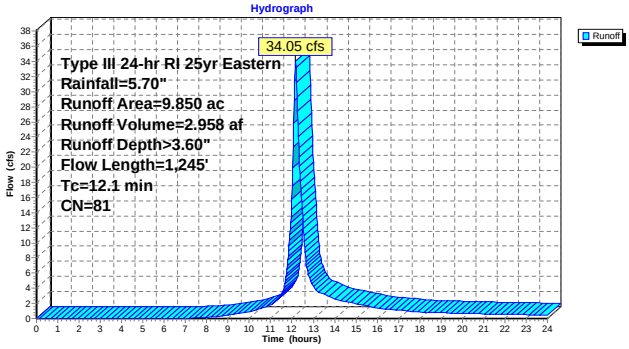
Runoff = 34.05 cfs @ 12.17 hrs, Volume= 2.958 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
9.850	81	1/3 acre lots, 30% imp, HSG C
6.895		Pervious Area
2.955		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	37	0.0540	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	63	0.0480	1.83		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
0.6	118	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.0	188	0.0480	1.53		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
6.0	839	0.0130	2.31		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
12.1	1,245	Total			

Subcatchment 63S: Sub-watershed 63



Subcatchment 64S: Sub-watershed 64

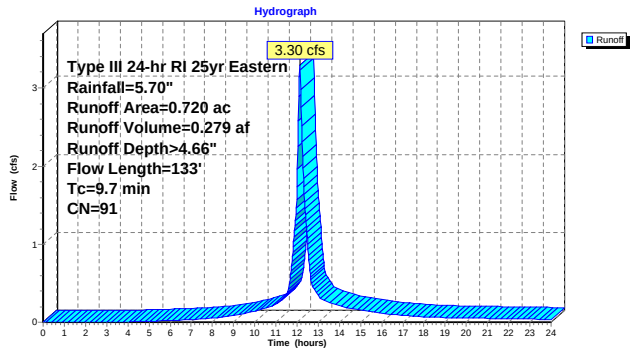
Runoff = 3.30 cfs @ 12.13 hrs, Volume= 0.279 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.720	91	Urban industrial, 72% imp, HSG C
0.202		Pervious Area
0.518		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.5	33	0.0010	0.22		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.7	133	Total			

Subcatchment 64S: Sub-watershed 64



Subcatchment 65S: Sub-watershed 65

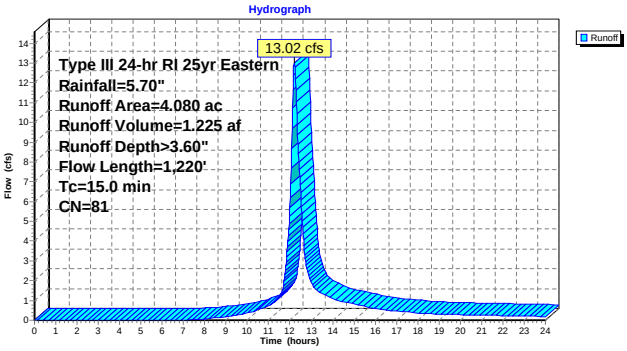
Runoff = 13.02 cfs @ 12.20 hrs, Volume= 1.225 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
4.080	81	1/3 acre lots, 30% imp, HSG C
2.856		Pervious Area
1.224		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	86	0.0300	0.20		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	14	0.0100	0.73		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
7.5	1,120	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.0	1,220	Total			

Subcatchment 65S: Sub-watershed 65



Subcatchment 66S: Su-watershed 66

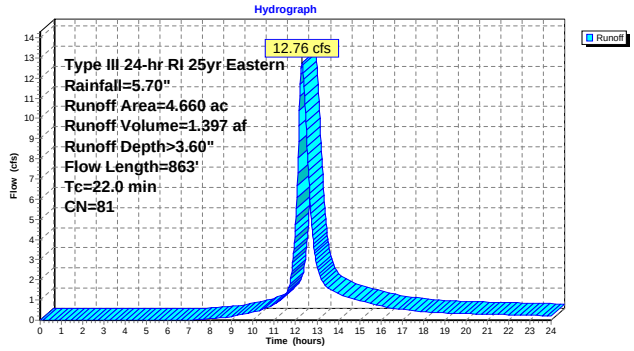
Runoff = 12.76 cfs @ 12.30 hrs, Volume= 1.397 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
4.660	81	1/3 acre lots, 30% imp, HSG C
3.262		Pervious Area
1.398		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	100	0.0060	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	103	0.0390	1.38		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.4	660	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.0	863	Total			

Subcatchment 66S: Su-watershed 66



Subcatchment 67S: Sub-watershed 67

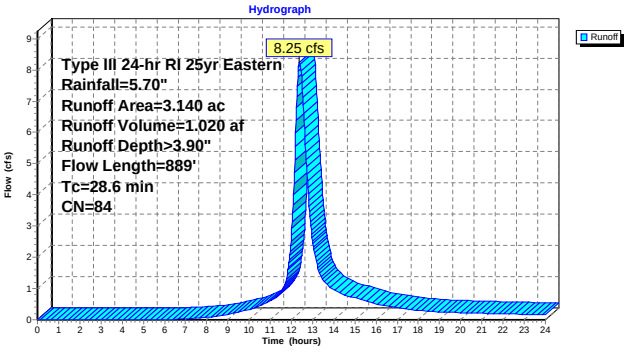
Runoff = 8.25 cfs @ 12.38 hrs, Volume= 1.020 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
0.790	81	1/3 acre lots, 30% imp, HSG C
1.880	88	Fallow, crop residue, Good, HSG C
0.470	73	Woods, Fair, HSG C
3.140	84	Weighted Average
2.903		Pervious Area
0.237		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	199	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.7	490	0.0120	0.77		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.7	100	0.0120	2.22		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
28.6	889	Total			

Subcatchment 67S: Sub-watershed 67



Subcatchment 68S: Sub-watershed 68

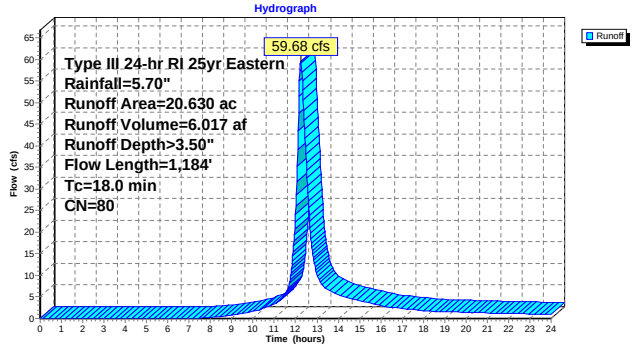
Runoff = 59.68 cfs @ 12.25 hrs, Volume= 6.017 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 25yr Eastern Rainfall=5.70"

Area (ac)	CN	Description
2.350	79	Pasture/grassland/range, Fair, HSG C
2.470	88	Fallow, crop residue, Good, HSG C
1.970	70	Brush, Fair, HSG C
5.490	82	Woods/grass comb., Poor, HSG C
2.460	73	Woods, Fair, HSG C
5.890	81	1/3 acre lots, 30% imp, HSG C
20.630	80	Weighted Average
18.863		Pervious Area
1.767		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0850	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
12.7	1,084	0.0410	1.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.0	1,184	Total			

Subcatchment 68S: Sub-watershed 68



Reach 3R: Intermittent Stream

Inflow Area = 21.680 ac, Inflow Depth > 3.57" for RI 25yr Eastern event
Inflow = 58.87 cfs @ 12.32 hrs, Volume= 6.445 af
Outflow = 52.64 cfs @ 12.49 hrs, Volume= 6.412 af, Atten= 11%, Lag= 10.2 min

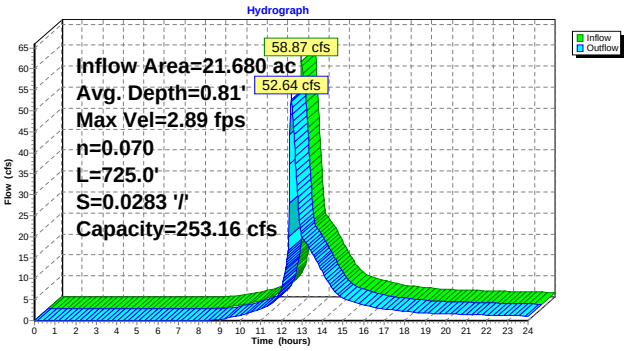
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 2.89 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 12.8 min

Peak Storage= 13,255 cf @ 12.42 hrs, Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 253.16 cfs

20.00' x 2.00' deep channel, n= 0.070 Medium-dense brush, winter
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 725.0' Slope= 0.0283 '/'
Inlet Invert= 113.50', Outlet Invert= 93.00'

‡

Reach 3R: Intermittent Stream



Pond 2P: Highview Pond Existing

Inflow Area = 21.680 ac, Inflow Depth > 3.60" for RI 25yr Eastern event
Inflow = 59.12 cfs @ 12.30 hrs, Volume= 6.498 af
Outflow = 58.87 cfs @ 12.32 hrs, Volume= 6.445 af, Atten= 0%, Lag= 1.0 min
Primary = 58.87 cfs @ 12.32 hrs, Volume= 6.445 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 121.23' @ 12.32 hrs Surf.Area= 6,087 sf Storage= 39,958 cf

Plug-Flow detention time= 22.6 min calculated for 6.445 af (99% of inflow)
Center-of-Mass det. time= 17.8 min (843.8 - 826.1)

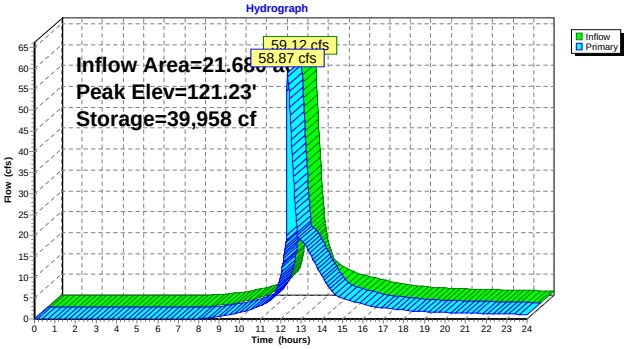
Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	42,295 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	4,620	0	0
118.00	6,496	16,674	16,674
121.00	7,936	21,648	38,322
122.00	10	3,973	42,295

Device	Routing	Invert	Outlet Devices
#1	Primary	115.00'	**18.0" x 40.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 114.40' S= 0.0150 '/' Cc= 0.900 n= 0.013
#2	Primary	121.00'	**128.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=58.81 cfs @ 12.32 hrs HW=121.23' (Free Discharge)
└**1=Culvert** (Inlet Controls 19.92 cfs @ 11.28 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 38.88 cfs @ 1.30 fps)

Pond 2P: Highview Pond Existing

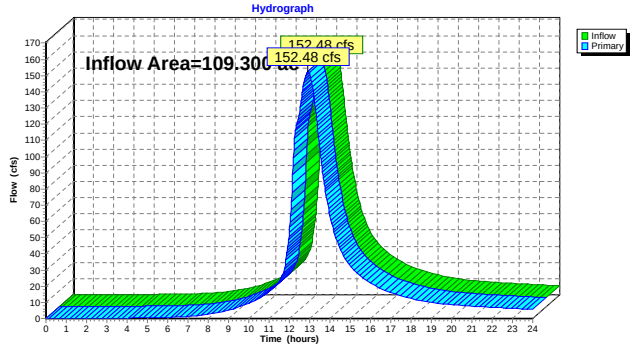


Link 68L: SW 59_SW 60

Inflow Area = 109.300 ac, Inflow Depth > 3.95" for RI 25yr Eastern event
Inflow = 152.48 cfs @ 12.92 hrs, Volume= 35.934 af
Primary = 152.48 cfs @ 12.92 hrs, Volume= 35.934 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 68L: SW 59_SW 60

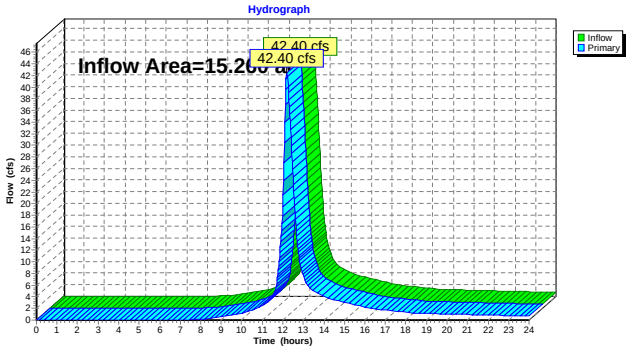


Link 69L: SW 14_SW 17

Inflow Area = 15.260 ac, Inflow Depth > 3.45" for RI 25yr Eastern event
Inflow = 42.40 cfs @ 12.19 hrs, Volume= 4.386 af
Primary = 42.40 cfs @ 12.19 hrs, Volume= 4.386 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 69L: SW 14_SW 17

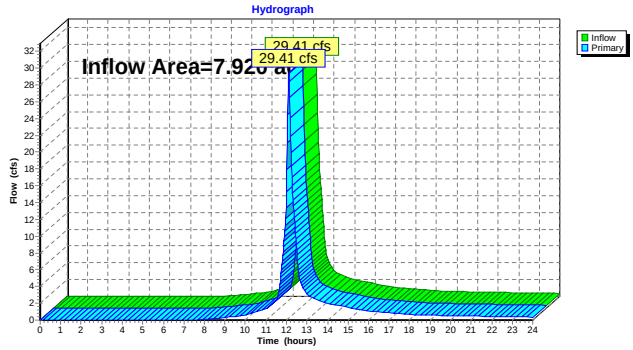


Link 70L: SW47_SW49

Inflow Area = 7.920 ac, Inflow Depth > 3.41" for RI 25yr Eastern event
Inflow = 29.41 cfs @ 12.11 hrs, Volume= 2.249 af
Primary = 29.41 cfs @ 12.11 hrs, Volume= 2.249 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 70L: SW47_SW49

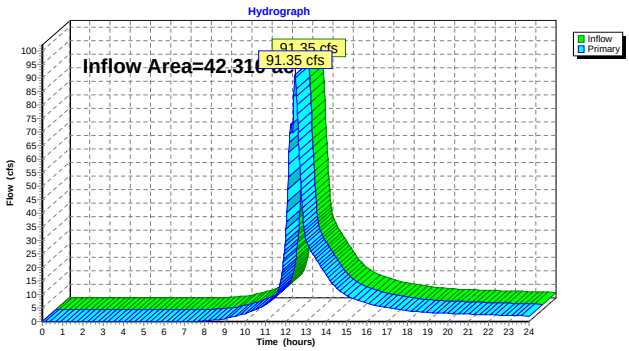


Link 71L: Elbow St

Inflow Area = 42.310 ac, Inflow Depth > 3.52" for RI 25yr Eastern event
Inflow = 91.35 cfs @ 12.46 hrs, Volume= 12.428 af
Primary = 91.35 cfs @ 12.46 hrs, Volume= 12.428 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 71L: Elbow St



100-Year Storm

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-watershed 1 Runoff Area=18.400 ac Runoff Depth>6.37"
Flow Length=1,460' Tc=20.1 min CN=94 Runoff=85.31 cfs 9.766 af

Subcatchment 2S: Sub-watershed 2 Runoff Area=3.220 ac Runoff Depth>6.38"
Flow Length=792' Tc=10.2 min CN=94 Runoff=19.11 cfs 1.712 af

Subcatchment 3S: Sub-watershed 3 Runoff Area=27.500 ac Runoff Depth>4.97"
Flow Length=2,500' Tc=39.3 min CN=82 Runoff=79.44 cfs 11.400 af

Subcatchment 4S: Sub-watershed 4 Runoff Area=35.010 ac Runoff Depth>5.76"
Flow Length=3,096' Tc=50.9 min CN=89 Runoff=99.11 cfs 16.796 af

Subcatchment 5S: Sub-Watershed 5 Runoff Area=2.340 ac Runoff Depth>4.78"
Tc=5.0 min CN=80 Runoff=13.43 cfs 0.933 af

Subcatchment 6dS: Sub-watershed 6d Runoff Area=0.630 ac Runoff Depth>6.38"
Tc=5.0 min CN=94 Runoff=4.43 cfs 0.335 af

Subcatchment 6eS: Sub-watershed 6e Runoff Area=0.500 ac Runoff Depth>6.38"
Tc=5.0 min CN=94 Runoff=3.52 cfs 0.266 af

Subcatchment 6S: Sub-watershed 6 Runoff Area=10.610 ac Runoff Depth>5.68"
Flow Length=1,536' Tc=11.4 min CN=88 Runoff=56.74 cfs 5.023 af

Subcatchment 8S: Sub-watershed 8 Runoff Area=2.070 ac Runoff Depth>4.78"
Flow Length=419' Tc=11.6 min CN=80 Runoff=9.57 cfs 0.824 af

Subcatchment 9S: Sub-watershed 9 Runoff Area=3.780 ac Runoff Depth>5.45"
Flow Length=633' Tc=16.8 min CN=86 Runoff=17.05 cfs 1.716 af

Subcatchment 10S: Sub-watershed 10 Runoff Area=8.740 ac Runoff Depth>5.11"
Flow Length=1,337' Tc=19.3 min CN=83 Runoff=35.35 cfs 3.718 af

Subcatchment 11S: Sub-watershed 11 Runoff Area=24.460 ac Runoff Depth>5.78"
Flow Length=1,757' Tc=26.1 min CN=89 Runoff=95.85 cfs 11.785 af

Subcatchment 12S: Sub-watershed 12 Runoff Area=3.040 ac Runoff Depth>6.02"
Flow Length=996' Tc=15.8 min CN=91 Runoff=15.04 cfs 1.526 af

Subcatchment 13S: Sub-watershed 13 Runoff Area=6.760 ac Runoff Depth>4.89"
Tc=5.0 min CN=81 Runoff=39.58 cfs 2.757 af

Subcatchment 14S: Sub-watershed 14 Runoff Area=8.060 ac Runoff Depth>4.67"
Flow Length=1,715' Tc=11.8 min CN=79 Runoff=36.29 cfs 3.134 af

Subcatchment 15S: Sub-watershed 15 Runoff Area=21.680 ac Runoff Depth>4.88"
Flow Length=1,259' Tc=22.2 min CN=81 Runoff=79.62 cfs 8.815 af

Subcatchment 16S: Sub-watershed 16 Runoff Area=2.740 ac Runoff Depth>5.00"
Flow Length=709' Tc=13.2 min CN=82 Runoff=12.60 cfs 1.141 af

Subcatchment 17S: Sub-watershed 17 Runoff Area=7.200 ac Runoff Depth>4.77"
Flow Length=1,430' Tc=21.6 min CN=80 Runoff=26.19 cfs 2.861 af

Subcatchment 18S: Sub-watershed 18 Runoff Area=13.850 ac Runoff Depth>4.78"
Flow Length=1,868' Tc=11.2 min CN=80 Runoff=64.80 cfs 5.514 af

Subcatchment 19S: Sub-watershed 19 Runoff Area=29.160 ac Runoff Depth>4.40"
Flow Length=2,101' Tc=63.7 min CN=77 Runoff=57.74 cfs 10.689 af

Subcatchment 20S: Sub-watershed 20 Runoff Area=11.220 ac Runoff Depth>4.88"
Flow Length=1,264' Tc=17.0 min CN=81 Runoff=45.99 cfs 4.566 af

Subcatchment 21S: Sub-watershed 21 Runoff Area=2.540 ac Runoff Depth>6.38"
Flow Length=496' Tc=5.5 min CN=94 Runoff=17.57 cfs 1.351 af

Subcatchment 22S: Sub-watershed 22 Runoff Area=6.280 ac Runoff Depth>6.38"
Flow Length=1,194' Tc=7.2 min CN=94 Runoff=41.00 cfs 3.340 af

Subcatchment 23S: Sub-watershed 23 Runoff Area=0.900 ac Runoff Depth>6.38"
Tc=5.0 min CN=94 Runoff=6.33 cfs 0.479 af

Subcatchment 24S: Sub-watershed 24 Runoff Area=5.430 ac Runoff Depth>6.03"
Flow Length=1,015' Tc=12.7 min CN=91 Runoff=29.10 cfs 2.727 af

Subcatchment 25S: Sub-watershed 25 Runoff Area=7.910 ac Runoff Depth>4.78"
Flow Length=943' Tc=13.6 min CN=80 Runoff=34.56 cfs 3.148 af

Subcatchment 26S: Sub-watershed 26 Runoff Area=0.040 ac Runoff Depth>6.86"
Tc=5.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment 27S: Sub-watershed 27 Runoff Area=0.090 ac Runoff Depth>5.12"
Tc=5.0 min CN=83 Runoff=0.55 cfs 0.038 af

Subcatchment 28S: Sub-watershed 28 Runoff Area=4.430 ac Runoff Depth>4.77"
Flow Length=1,025' Tc=22.5 min CN=80 Runoff=15.83 cfs 1.760 af

Subcatchment 29S: Sub-watershed 29 Runoff Area=9.890 ac Runoff Depth>5.00"
Flow Length=1,194' Tc=11.1 min CN=82 Runoff=48.28 cfs 4.121 af

Subcatchment 30S: Sub-watershed 30 Runoff Area=1.680 ac Runoff Depth>4.89"
Flow Length=716' Tc=13.0 min CN=81 Runoff=7.62 cfs 0.684 af

Subcatchment 31S: Sub-watershed 31 Runoff Area=27.350 ac Runoff Depth>4.43"
Flow Length=1,762' Tc=27.7 min CN=77 Runoff=83.46 cfs 10.102 af

Subcatchment 32S: Sub-watershed32 Runoff Area=45.010 ac Runoff Depth>4.11"
Flow Length=1,805' Tc=26.8 min CN=74 Runoff=129.77 cfs 15.406 af

Subcatchment 33S: Sub-watershed 33 Runoff Area=27.500 ac Runoff Depth>4.89"
Flow Length=1,541' Tc=10.9 min CN=81 Runoff=132.53 cfs 11.204 af

Subcatchment 34S: Sub-watershed 34 Runoff Area=5.470 ac Runoff Depth>4.88"
Flow Length=967' Tc=16.4 min CN=81 Runoff=22.74 cfs 2.226 af

Subcatchment 35S: Sub-watershed 35 Runoff Area=2.020 ac Runoff Depth>5.68"
Flow Length=401' Tc=11.6 min CN=88 Runoff=10.75 cfs 0.956 af

Subcatchment 36S: Sub-watershed 36 Runoff Area=114.100 ac Runoff Depth>5.10"
Flow Length=4,314' Tc=29.2 min CN=83 Runoff=385.76 cfs 48.456 af

Subcatchment 37S: Sub-watershed 37 Runoff Area=4.120 ac Runoff Depth>5.45"
Flow Length=852' Tc=9.7 min CN=86 Runoff=22.52 cfs 1.872 af

Subcatchment 38S: Sub-watershed 38 Runoff Area=1.590 ac Runoff Depth>5.80"
Tc=5.0 min CN=89 Runoff=10.61 cfs 0.769 af

Subcatchment 39S: Sub-watershed 39 Runoff Area=10.480 ac Runoff Depth>4.89"
Flow Length=1,018' Tc=12.8 min CN=81 Runoff=47.78 cfs 4.268 af

Subcatchment 40S: Sub-watershed 40 Runoff Area=0.240 ac Runoff Depth>4.89"
Flow Length=189' Tc=6.6 min CN=81 Runoff=1.33 cfs 0.098 af

Subcatchment 41S: Sub-watershed 41 Runoff Area=0.290 ac Runoff Depth>5.46"
Flow Length=182' Tc=6.2 min CN=86 Runoff=1.78 cfs 0.132 af

Subcatchment 42S: Sub-watershed 42 Runoff Area=0.070 ac Runoff Depth>5.46"
Flow Length=178' Tc=6.9 min CN=86 Runoff=0.42 cfs 0.032 af

Subcatchment 43S: Sub-watershed 43 Runoff Area=2.850 ac Runoff Depth>4.89"
Flow Length=570' Tc=10.1 min CN=81 Runoff=14.07 cfs 1.161 af

Subcatchment 44S: Sub-watershed 44 Runoff Area=1.720 ac Runoff Depth>4.44"
Flow Length=760' Tc=20.2 min CN=77 Runoff=6.02 cfs 0.636 af

Subcatchment 45S: Sub-watershed 45 Runoff Area=3.670 ac Runoff Depth>4.11"
Flow Length=865' Tc=21.2 min CN=74 Runoff=11.69 cfs 1.258 af

Subcatchment 46S: Sub-watershed 46 Runoff Area=1.370 ac Runoff Depth>4.11"
Flow Length=727' Tc=25.0 min CN=74 Runoff=4.07 cfs 0.469 af

Subcatchment 47S: Sub-watershed 47 Runoff Area=7.620 ac Runoff Depth>4.67"
Flow Length=701' Tc=8.1 min CN=79 Runoff=38.50 cfs 2.965 af

Subcatchment 48S: Sub-watershed 48 Runoff Area=1.320 ac Runoff Depth>5.23"
Flow Length=449' Tc=8.7 min CN=84 Runoff=7.21 cfs 0.575 af

Subcatchment 49S: Sub-watershed 49 Runoff Area=0.300 ac Runoff Depth>4.67"
Flow Length=130' Tc=7.3 min CN=79 Runoff=1.56 cfs 0.117 af

Subcatchment 50S: Sub-watershed 50 Runoff Area=1.900 ac Runoff Depth>4.67"
Flow Length=555' Tc=11.3 min CN=79 Runoff=8.68 cfs 0.739 af

Subcatchment 51S: Sub-wateshed 51 Runoff Area=3.850 ac Runoff Depth>6.03"
Tc=5.0 min CN=91 Runoff=26.31 cfs 1.936 af

Subcatchment 52S: Sub-watershed 52 Runoff Area=3.900 ac Runoff Depth>5.80"
Flow Length=598' Tc=9.6 min CN=89 Runoff=22.34 cfs 1.884 af

Subcatchment 53S: Sub-watershed 53 Runoff Area=4.840 ac Runoff Depth>5.91"
Flow Length=584' Tc=9.2 min CN=90 Runoff=28.43 cfs 2.385 af

Subcatchment 54S: Sub-watershed 54 Runoff Area=0.590 ac Runoff Depth>5.12"
Tc=5.0 min CN=83 Runoff=3.59 cfs 0.252 af

Subcatchment 55S: Sub-watershed 55 Runoff Area=1.880 ac Runoff Depth>6.02"
Flow Length=592' Tc=17.0 min CN=91 Runoff=9.05 cfs 0.943 af

Subcatchment 56S: Sub-watershed 56 Runoff Area=9.220 ac Runoff Depth>4.88"
Flow Length=951' Tc=23.1 min CN=81 Runoff=33.29 cfs 3.748 af

Subcatchment 57S: Sub-watershed 57 Runoff Area=2.690 ac Runoff Depth>4.88"
Flow Length=659' Tc=16.2 min CN=81 Runoff=11.24 cfs 1.095 af

Subcatchment 58S: Sub-watershed 58 Runoff Area=3.420 ac Runoff Depth>4.88"
Flow Length=774' Tc=17.4 min CN=81 Runoff=13.89 cfs 1.392 af

Subcatchment 59S: Sub-watershed 59 Runoff Area=90.930 ac Runoff Depth>5.05"
Flow Length=3,728' Tc=74.5 min CN=83 Runoff=186.85 cfs 38.275 af

Subcatchment 60S: Sub-watershed 60 Runoff Area=18.370 ac Runoff Depth>6.25"
Flow Length=2,475' Tc=20.8 min CN=93 Runoff=83.17 cfs 9.570 af

Subcatchment 61S: Sub-watershed 61 Runoff Area=15.630 ac Runoff Depth>5.00"
Flow Length=1,028' Tc=9.6 min CN=82 Runoff=79.92 cfs 6.515 af

Subcatchment 62S: Sub-watershed 62 Runoff Area=9.320 ac Runoff Depth>4.88"
Flow Length=991' Tc=22.5 min CN=81 Runoff=34.00 cfs 3.789 af

Subcatchment 63S: Sub-watershed 63 Runoff Area=9.850 ac Runoff Depth>4.89"
Flow Length=1,245' Tc=12.1 min CN=81 Runoff=45.83 cfs 4.012 af

Subcatchment 64S: Sub-watershed 64 Runoff Area=0.720 ac Runoff Depth>6.03"
Flow Length=133' Tc=9.7 min CN=91 Runoff=4.21 cfs 0.362 af

Subcatchment 65S: Sub-watershed 65 Runoff Area=4.080 ac Runoff Depth>4.89"
Flow Length=1,220' Tc=15.0 min CN=81 Runoff=17.54 cfs 1.661 af

Subcatchment 66S: Su-watershed 66 Runoff Area=4.660 ac Runoff Depth>4.88"
Flow Length=863' Tc=22.0 min CN=81 Runoff=17.19 cfs 1.895 af

Subcatchment 67S: Sub-watershed 67 Runoff Area=3.140 ac Runoff Depth>5.21"
Flow Length=889' Tc=28.6 min CN=84 Runoff=10.92 cfs 1.363 af

Subcatchment 68S: Sub-watershed 68 Runoff Area=20.630 ac Runoff Depth>4.77"
Flow Length=1,184' Tc=18.0 min CN=80 Runoff=80.86 cfs 8.203 af

Reach 3R: Intermittent Stream Avg. Depth=1.01' Max Vel=3.29 fps Inflow=79.54 cfs 8.762 af
n=0.070 L=725.0' S=0.0283 '/' Capacity=253.16 cfs Outflow=76.68 cfs 8.724 af

Pond 2P: Highview Pond Existing Peak Elev=121.31' Storage=40,393 cf Inflow=79.62 cfs 8.815 af
Outflow=79.54 cfs 8.762 af

Link 68L: SW 59_SW 60 Inflow=202.68 cfs 47.844 af
Primary=202.68 cfs 47.844 af

Link 69L: SW 14_SW 17 Inflow=57.76 cfs 5.995 af
Primary=57.76 cfs 5.995 af

Link 70L: SW47_SW49 Inflow=40.05 cfs 3.082 af
Primary=40.05 cfs 3.082 af

Link 71L: Elbow St Inflow=138.70 cfs 16.927 af
Primary=138.70 cfs 16.927 af

Total Runoff Area = 746.870 ac Runoff Volume = 315.669 af Average Runoff Depth = 5.07"
66.54% Pervious Area = 496.954 ac 33.46% Impervious Area = 249.916 ac

Subcatchment 1S: Sub-watershed 1

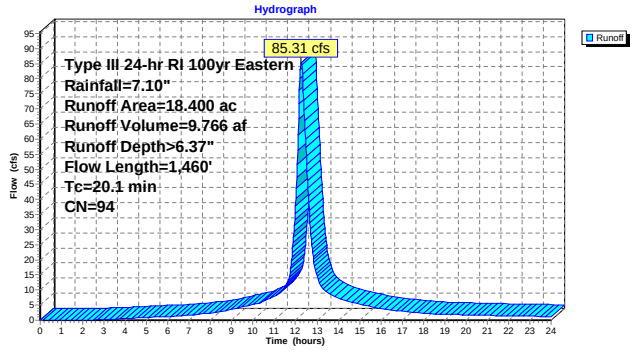
Runoff = 85.31 cfs @ 12.26 hrs, Volume= 9.766 af, Depth> 6.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
18.400	94	Urban commercial, 85% imp, HSG C
2.760		Pervious Area
15.640		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
8.9	1,240	0.0210	2.33		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	120	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.1	1,460	Total			

Subcatchment 1S: Sub-watershed 1



Subcatchment 2S: Sub-watershed 2

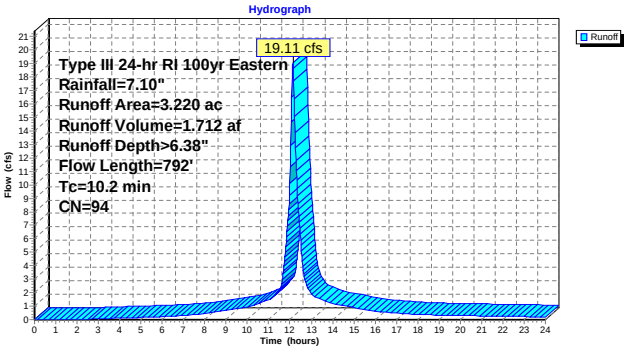
Runoff = 19.11 cfs @ 12.14 hrs, Volume= 1.712 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
3.220	94	Urban commercial, 85% imp, HSG C
0.483		Pervious Area
2.737		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.4	394	0.0280	2.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	298	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.2	792	Total			

Subcatchment 2S: Sub-watershed 2



Subcatchment 3S: Sub-watershed 3

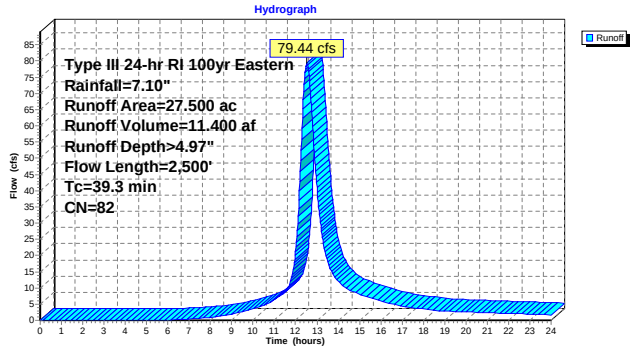
Runoff = 79.44 cfs @ 12.53 hrs, Volume= 11.400 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
13.750	86	Pasture/grassland/range, Poor, HSG C
10.750	80	1/2 acre lots, 25% imp, HSG C
3.000	73	Woods, Fair, HSG C
27.500	82	Weighted Average
24.813		Pervious Area
2.688		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0100	0.28		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
19.4	1,200	0.0217	1.03		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.9	1,200	0.0050	1.44		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
39.3	2,500	Total			

Subcatchment 3S: Sub-watershed 3



Subcatchment 4S: Sub-watershed 4

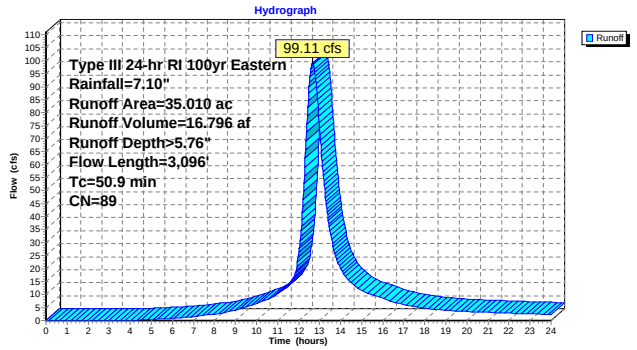
Runoff = 99.11 cfs @ 12.67 hrs, Volume= 16.796 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
5.901	90	Fallow, crop residue, Poor, HSG C
17.070	94	Urban commercial, 85% imp, HSG C
5.647	79	Pasture/grassland/range, Fair, HSG C
3.680	79	1 acre lots, 20% imp, HSG C
2.712	91	Urban industrial, 72% imp, HSG C
35.010	89	Weighted Average
17.812		Pervious Area
17.198		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	106	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.6	70	0.0860	2.05		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.7	82	0.0100	2.03		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
24.2	322	0.0010	0.22		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
13.9	2,386	0.0200	2.87		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
50.9	3,096	Total			

Subcatchment 4S: Sub-watershed 4



Subcatchment 5S: Sub-Watershed 5

Time of concentration was 4.2 minutes. Changed to direct entry to obtain a time of concentration of 5 minutes.

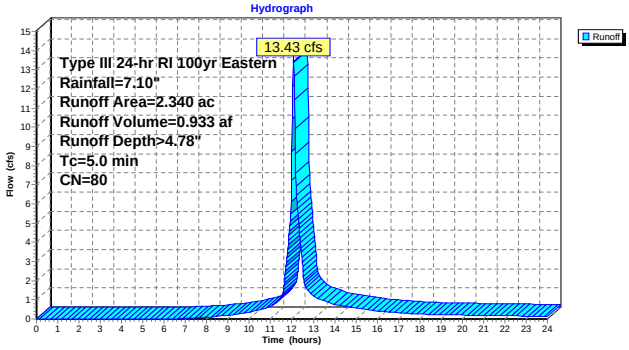
Runoff = 13.43 cfs @ 12.07 hrs, Volume= 0.933 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.340	80	1/2 acre lots, 25% imp, HSG C
1.755		Pervious Area
0.585		Impervious Area

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

Subcatchment 5S: Sub-Watershed 5



Subcatchment 6dS: Sub-watershed 6d

Original time of concentration was 2.5 minutes. Changed time of concentration to 5 minutes.

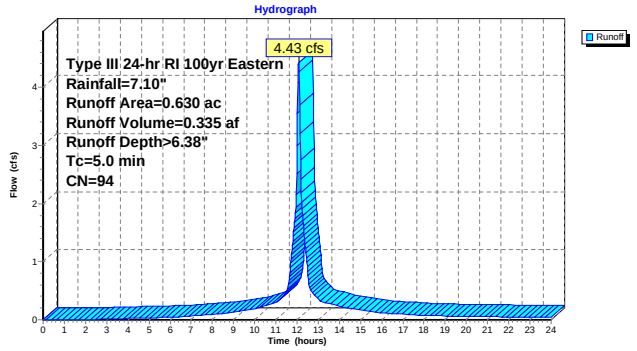
Runoff = 4.43 cfs @ 12.07 hrs, Volume= 0.335 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.630	94	Urban commercial, 85% imp, HSG C
0.095		Pervious Area
0.535		Impervious Area

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

Subcatchment 6dS: Sub-watershed 6d



Subcatchment 6eS: Sub-watershed 6e

Original time of concentration was 4.2 minutes. Changed time of concentration to 5 minutes.

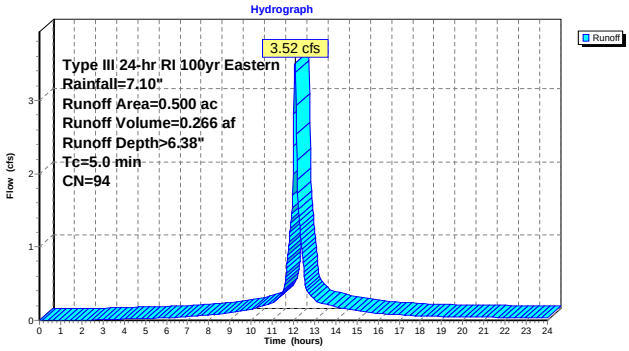
Runoff = 3.52 cfs @ 12.07 hrs, Volume= 0.266 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.500	94	Urban commercial, 85% imp, HSG C
0.075		Pervious Area
0.425		Impervious Area

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

Subcatchment 6eS: Sub-watershed 6e



Subcatchment 6S: Sub-watershed 6

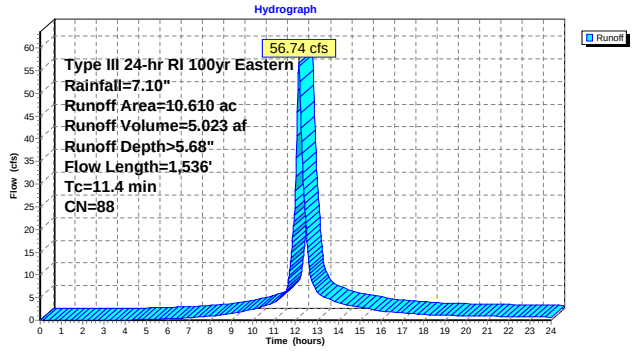
Runoff = 56.74 cfs @ 12.15 hrs, Volume= 5.023 af, Depth> 5.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
8.380	87	Dirt roads, HSG C
2.230	94	Urban commercial, 85% imp, HSG C
10.610	88	Weighted Average
8.714		Pervious Area
1.895		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.0900	2.59		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.8	1,436	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.4	1,536	Total			

Subcatchment 6S: Sub-watershed 6



Subcatchment 8S: Sub-watershed 8

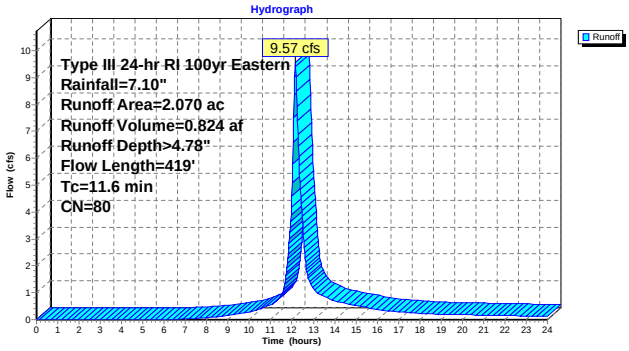
Runoff = 9.57 cfs @ 12.16 hrs, Volume= 0.824 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.070	80	1/2 acre lots, 25% imp, HSG C
1.552		Pervious Area
0.517		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.1	228	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.4	91	0.0400	4.06		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.6	419	Total			

Subcatchment 8S: Sub-watershed 8



Subcatchment 9S: Sub-watershed 9

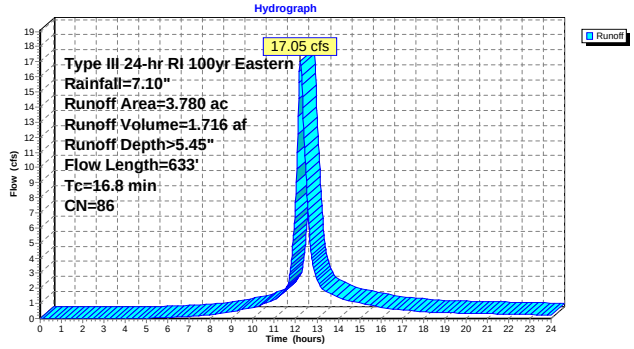
Runoff = 17.05 cfs @ 12.22 hrs, Volume= 1.716 af, Depth> 5.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.990	90	1/8 acre lots, 65% imp, HSG C
0.790	73	Woods, Fair, HSG C
3.780	86	Weighted Average
1.837		Pervious Area
1.944		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	200	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.7	160	0.0500	1.57		**Shallow Concentrated Flow, B- C** Short Grass Pasture Kv= 7.0 fps
0.9	173	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.8	633	Total			

Subcatchment 9S: Sub-watershed 9



Subcatchment 10S: Sub-watershed 10

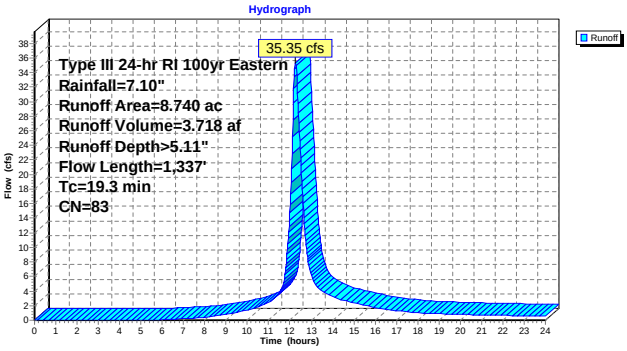
Runoff = 35.35 cfs @ 12.26 hrs, Volume= 3.718 af, Depth> 5.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
8.740	83	1/4 acre lots, 38% imp, HSG C
5.419		Pervious Area
3.321		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.8	196	0.0150	0.86		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.0	1,041	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
19.3	1,337	Total			

Subcatchment 10S: Sub-watershed 10



Subcatchment 11S: Sub-watershed 11

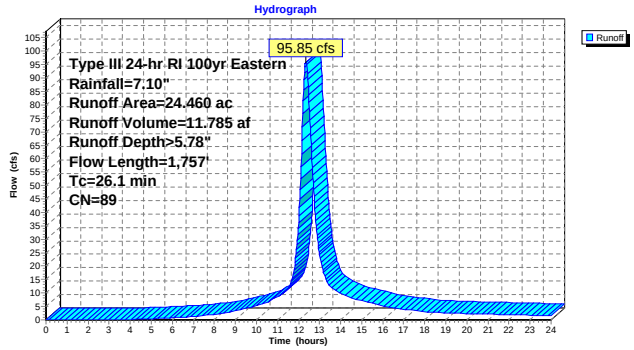
Runoff = 95.85 cfs @ 12.34 hrs, Volume= 11.785 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
5.370	90	Fallow, crop residue, Poor, HSG C
10.340	94	Urban commercial, 85% imp, HSG C
8.750	83	1/4 acre lots, 38% imp, HSG C
24.460	89	Weighted Average
12.346		Pervious Area
12.114		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.0200	0.36		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
12.0	504	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.5	1,153	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
26.1	1,757	Total			

Subcatchment 11S: Sub-watershed 11



Subcatchment 12S: Sub-watershed 12

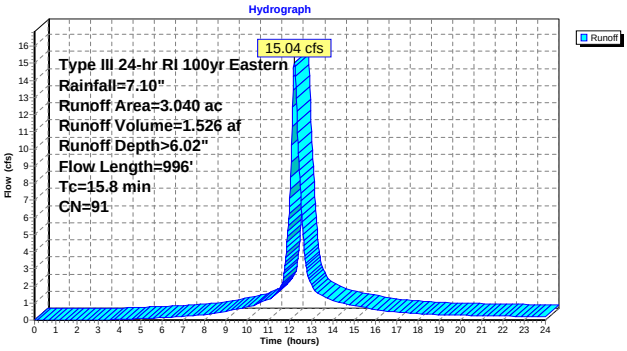
Runoff = 15.04 cfs @ 12.21 hrs, Volume= 1.526 af, Depth> 6.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.130	94	Urban commercial, 85% imp, HSG C
0.910	83	1/4 acre lots, 38% imp, HSG C
3.040	91	Weighted Average
0.884		Pervious Area
2.156		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.5	462	0.0400	1.40		**Shallow Concentrated Flow, A-B** Short Grass Pasture Kv= 7.0 fps
2.2	434	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.8	996	Total			

Subcatchment 12S: Sub-watershed 12



Subcatchment 13S: Sub-watershed 13

Original time of concentration was 4.6 minutes. Changed time of concentration to 5 minutes.

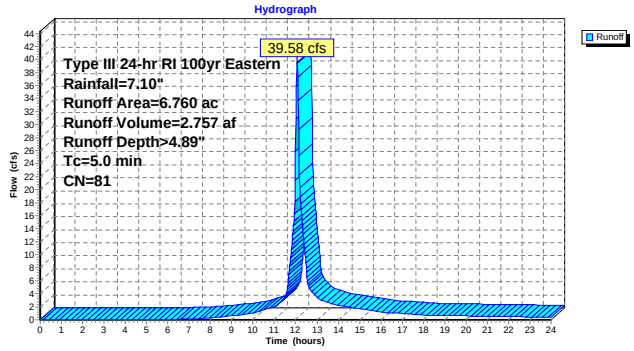
Runoff = 39.58 cfs @ 12.07 hrs, Volume= 2.757 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
6.760	81	1/3 acre lots, 30% imp, HSG C
4.732		Pervious Area
2.028		Impervious Area

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

Subcatchment 13S: Sub-watershed 13



Subcatchment 14S: Sub-watershed 14

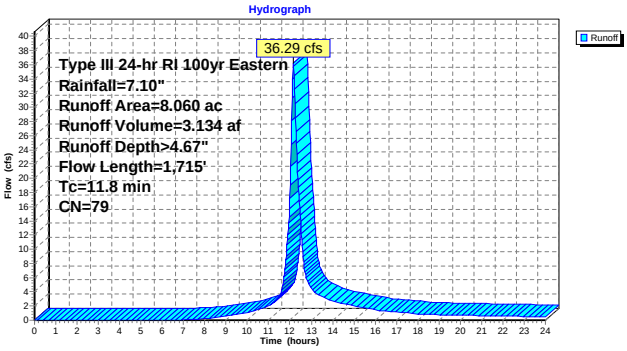
Runoff = 36.29 cfs @ 12.16 hrs, Volume= 3.134 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.240	94	Urban commercial, 85% imp, HSG C
7.820	79	1 acre lots, 20% imp, HSG C
8.060	79	Weighted Average
6.292		Pervious Area
1.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
10.2	1,615	0.0170	2.65		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.8	1,715	Total			

Subcatchment 14S: Sub-watershed 14



Subcatchment 15S: Sub-watershed 15

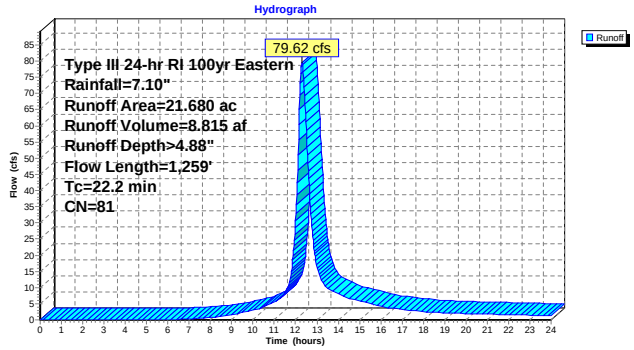
Runoff = 79.62 cfs @ 12.30 hrs, Volume= 8.815 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
15.390	79	1 acre lots, 20% imp, HSG C
5.090	90	1/8 acre lots, 65% imp, HSG C
1.200	76	Woods/grass comb., Fair, HSG C
21.680	81	Weighted Average
15.294		Pervious Area
6.387		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, B-B** Grass: Short n= 0.150 P2= 3.40"
1.3	168	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.8	991	0.0340	1.29		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
22.2	1,259	Total			

Subcatchment 15S: Sub-watershed 15



Subcatchment 16S: Sub-watershed 16

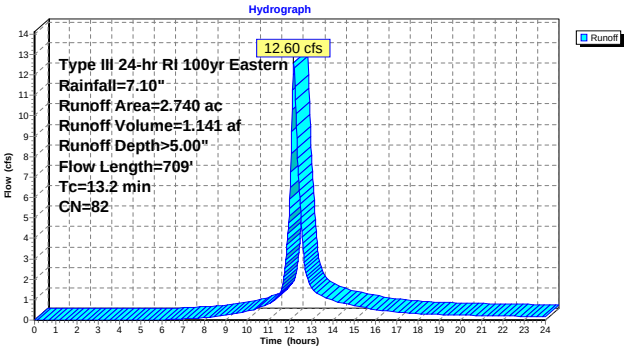
Runoff = 12.60 cfs @ 12.18 hrs, Volume= 1.141 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.330	81	1/3 acre lots, 30% imp, HSG C
0.410	91	Fallow, bare soil, HSG C
2.740	82	Weighted Average
2.041		Pervious Area
0.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	161	0.0370	1.35		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	448	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.2	709	Total			

Subcatchment 16S: Sub-watershed 16



Subcatchment 17S: Sub-watershed 17

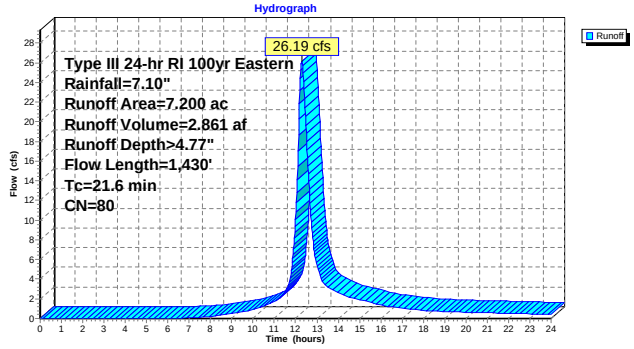
Runoff = 26.19 cfs @ 12.29 hrs, Volume= 2.861 af, Depth> 4.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
7.200	80	1/2 acre lots, 25% imp, HSG C
5.400		Pervious Area
1.800		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-C** Grass: Short n= 0.150 P2= 3.40"
1.8	338	0.0240	3.14		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.5	125	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	260	0.0460	1.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.9	607	0.0160	2.57		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
21.6	1,430	Total			

Subcatchment 17S: Sub-watershed 17



Subcatchment 18S: Sub-watershed 18

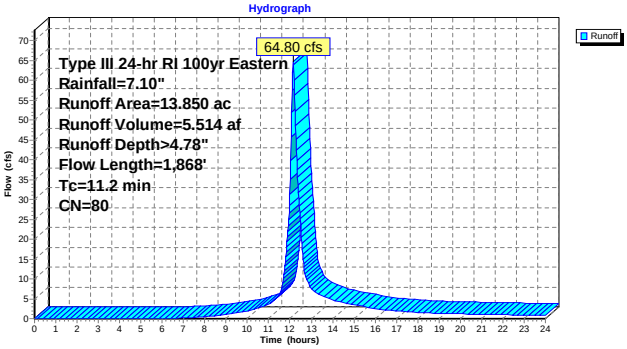
Runoff = 64.80 cfs @ 12.15 hrs, Volume= 5.514 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
13.160	80	1/2 acre lots, 25% imp, HSG C
0.690	73	Woods, Fair, HSG C
13.850	80	Weighted Average
10.560		Pervious Area
3.290		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0500	2.05		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
3.3	299	0.0470	1.52		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
7.1	1,469	0.0290	3.46		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.2	1,868	Total			

Subcatchment 18S: Sub-watershed 18



Subcatchment 19S: Sub-watershed 19

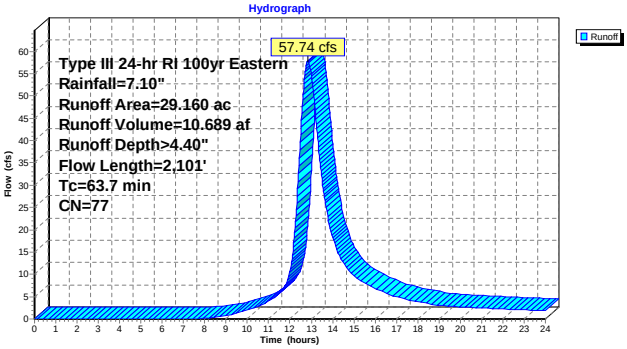
Runoff = 57.74 cfs @ 12.83 hrs, Volume= 10.689 af, Depth> 4.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.460	94	Urban commercial, 85% imp, HSG C
1.460	80	1/2 acre lots, 25% imp, HSG C
26.240	76	Woods/grass comb., Fair, HSG C
29.160	77	Weighted Average
27.554		Pervious Area
1.606		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0160	0.11		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.40"
2.9	161	0.0170	0.91		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	17	0.0230	3.08		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
1.2	80	0.0250	1.11		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	13	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
35.7	678	0.0040	0.32		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
8.6	1,052	0.0100	2.03		**Shallow Concentrated Flow, G-H** Paved Kv= 20.3 fps
63.7	2,101	Total			

Subcatchment 19S: Sub-watershed 19



Subcatchment 20S: Sub-watershed 20

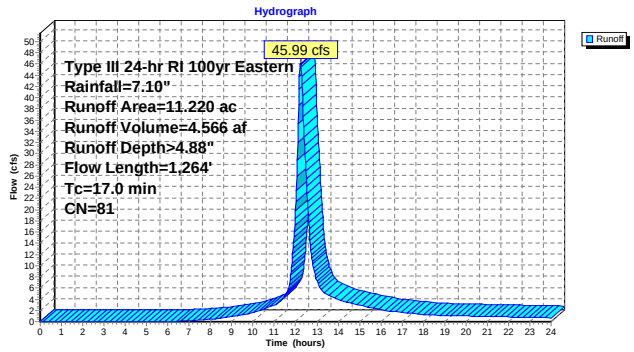
Runoff = 45.99 cfs @ 12.23 hrs, Volume= 4.566 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
11.220	81	1/3 acre lots, 30% imp, HSG C
7.854		Pervious Area
3.366		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.0	174	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	990	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.0	1,264	Total			

Subcatchment 20S: Sub-watershed 20



Subcatchment 21S: Sub-watershed 21

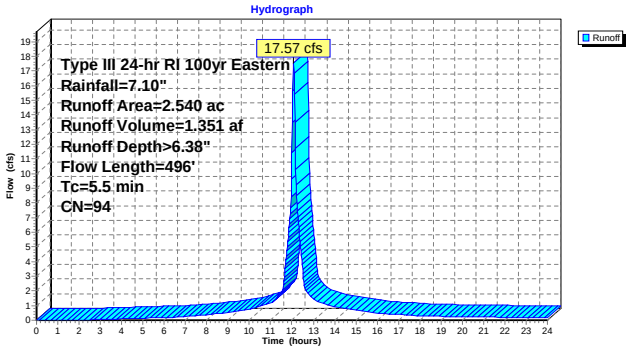
Runoff = 17.57 cfs @ 12.08 hrs, Volume= 1.351 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.540	94	Urban commercial, 85% imp, HSG C
0.381		Pervious Area
2.159		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	70	0.1000	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	30	0.1200	2.28		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
1.5	396	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
5.5	496	Total			

Subcatchment 21S: Sub-watershed 21



Subcatchment 22S: Sub-watershed 22

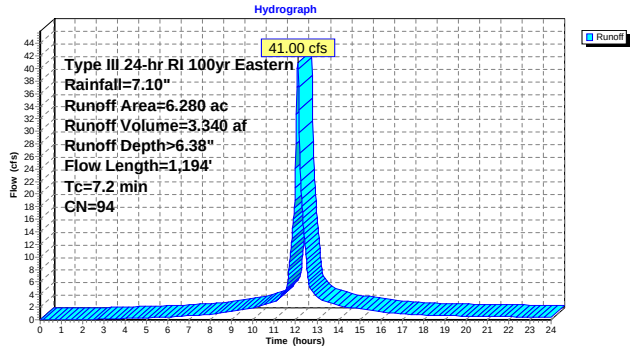
Runoff = 41.00 cfs @ 12.10 hrs, Volume= 3.340 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
6.280	94	Urban commercial, 85% imp, HSG C
0.942		Pervious Area
5.338		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	100	0.0800	2.47		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.5	1,094	0.0190	2.80		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.2	1,194	Total			

Subcatchment 22S: Sub-watershed 22



Subcatchment 23S: Sub-watershed 23

Original time of concentration was 1.8 minutes. Changed time of concentration to 5 minutes.

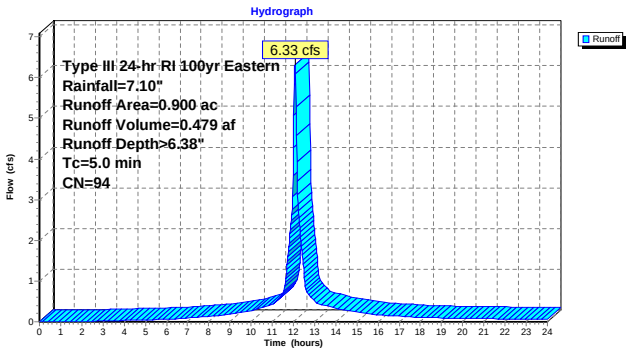
Runoff = 6.33 cfs @ 12.07 hrs, Volume= 0.479 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.900	94	Urban commercial, 85% imp, HSG C
0.135		Pervious Area
0.765		Impervious Area

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

Subcatchment 23S: Sub-watershed 23



Subcatchment 24S: Sub-watershed 24

Institutional land use assumed commercial land for calculations.

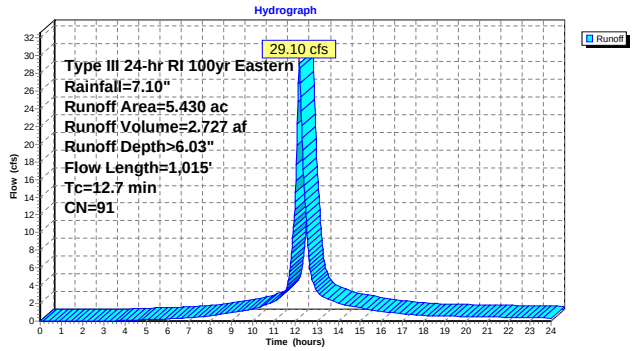
Runoff = 29.10 cfs @ 12.17 hrs, Volume= 2.727 af, Depth> 6.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
4.340	94	Urban commercial, 85% imp, HSG C
1.090	81	1/3 acre lots, 30% imp, HSG C
5.430	91	Weighted Average
1.414		Pervious Area
4.016		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.7	397	0.0650	1.78		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.5	518	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.7	1,015	Total			

Subcatchment 24S: Sub-watershed 24



Subcatchment 25S: Sub-watershed 25

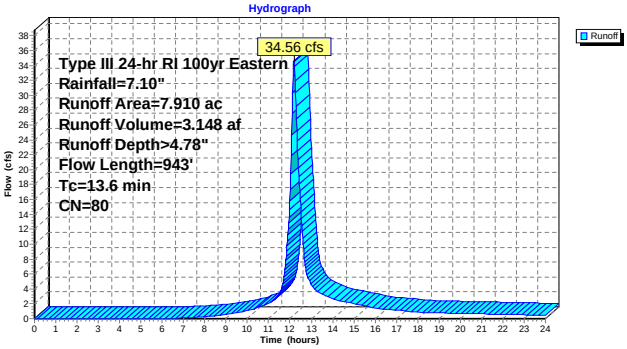
Runoff = 34.56 cfs @ 12.18 hrs, Volume= 3.148 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
7.120	81	1/3 acre lots, 30% imp, HSG C
0.790	73	Woods, Fair, HSG C
7.910	80	Weighted Average
5.774		Pervious Area
2.136		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
3.5	276	0.0360	1.33		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	567	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	943	Total			

Subcatchment 25S: Sub-watershed 25



Subcatchment 26S: Sub-watershed 26

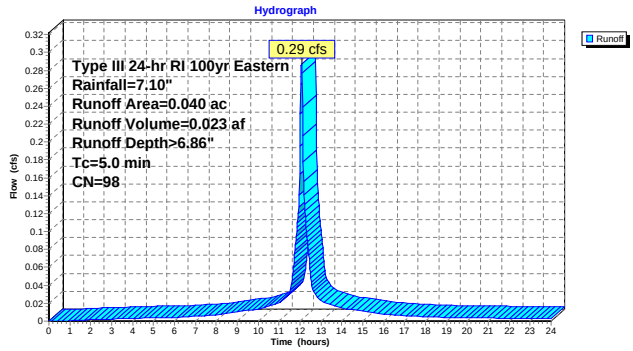
Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.040	98	Paved parking & roofs
0.040		Impervious Area

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

Subcatchment 26S: Sub-watershed 26



Subcatchment 27S: Sub-watershed 27

Original time of concentration was 1.2 minutes. Changed original time of concentration to 5 minutes.

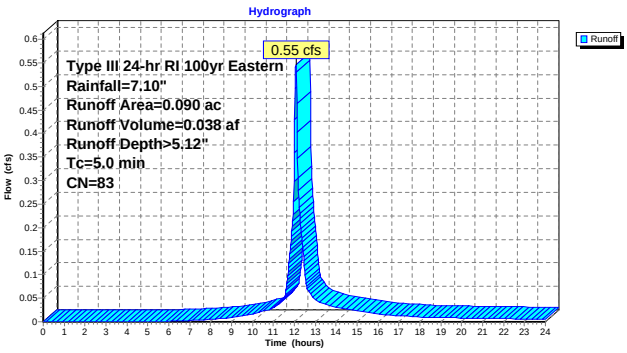
Runoff = 0.55 cfs @ 12.07 hrs, Volume= 0.038 af, Depth> 5.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.090	83	1/4 acre lots, 38% imp, HSG C
0.056		Pervious Area
0.034		Impervious Area

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

Subcatchment 27S: Sub-watershed 27



Subcatchment 28S: Sub-watershed 28

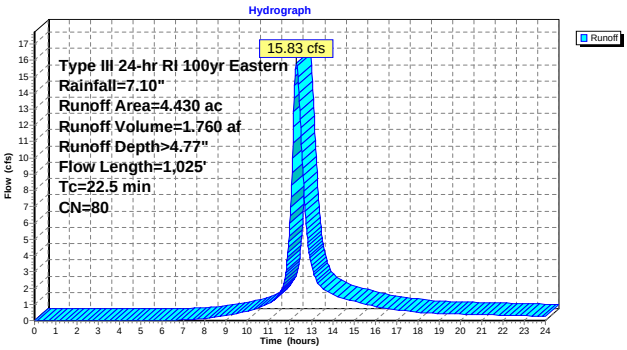
Runoff = 15.83 cfs @ 12.31 hrs, Volume= 1.760 af, Depth> 4.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
3.990	81	1/3 acre lots, 30% imp, HSG C
0.440	73	Woods, Fair, HSG C
4.430	80	Weighted Average
3.233		Pervious Area
1.197		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	23	0.0220	1.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	19	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	23	0.0200	0.99		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
7.5	426	0.0360	0.95		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps
3.3	312	0.0060	1.57		**Shallow Concentrated Flow, H-I** Paved Kv= 20.3 fps
22.5	1,025	Total			

Subcatchment 28S: Sub-watershed 28



Subcatchment 29S: Sub-watershed 29

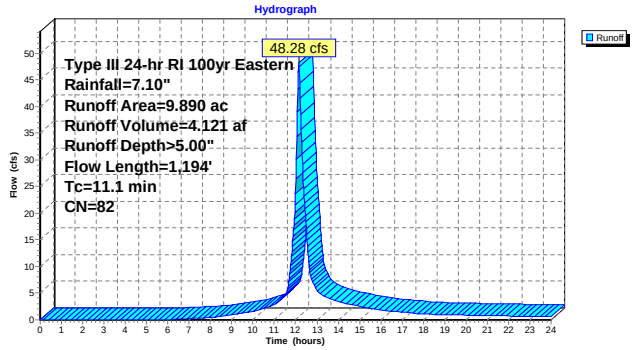
Runoff = 48.28 cfs @ 12.15 hrs, Volume= 4.121 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.490	74	>75% Grass cover, Good, HSG C
0.980	94	Urban commercial, 85% imp, HSG C
8.420	81	1/3 acre lots, 30% imp, HSG C
9.890	82	Weighted Average
6.531		Pervious Area
3.359		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0110	1.12		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
6.7	453	0.0260	1.13		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	641	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.1	1,194	Total			

Subcatchment 29S: Sub-watershed 29



Subcatchment 30S: Sub-watershed 30

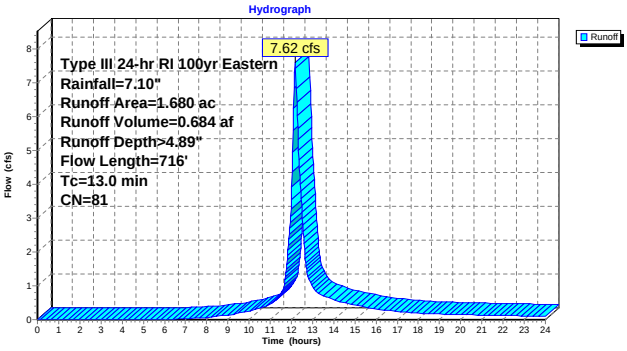
Runoff = 7.62 cfs @ 12.18 hrs, Volume= 0.684 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.680	81	1/3 acre lots, 30% imp, HSG C
1.176		Pervious Area
0.504		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	118	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	498	0.0320	3.63		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.0	716	Total			

Subcatchment 30S: Sub-watershed 30



Subcatchment 31S: Sub-watershed 31

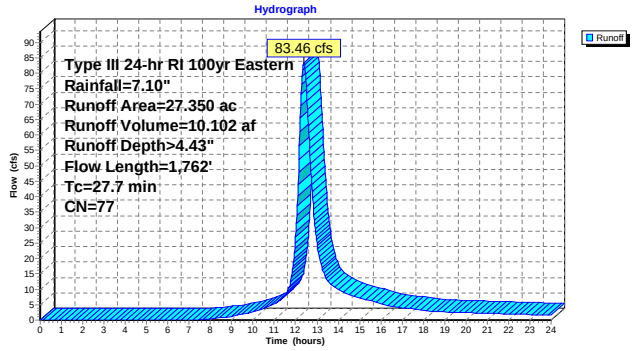
Runoff = 83.46 cfs @ 12.38 hrs, Volume= 10.102 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
12.350	81	1/3 acre lots, 30% imp, HSG C
15.000	74	>75% Grass cover, Good, HSG C
27.350	77	Weighted Average
23.645		Pervious Area
3.705		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
15.3	1,075	0.0280	1.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.8	587	0.0070	1.70		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
27.7	1,762	Total			

Subcatchment 31S: Sub-watershed 31



Subcatchment 32S: Sub-watershed32

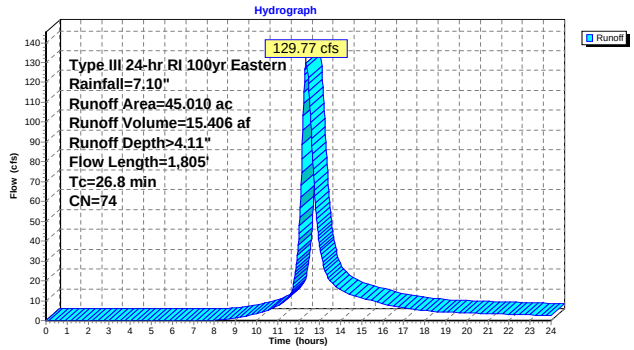
Runoff = 129.77 cfs @ 12.37 hrs, Volume= 15.406 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
14.440	81	1/3 acre lots, 30% imp, HSG C
13.320	69	50-75% Grass cover, Fair, HSG B
15.110	73	Woods, Fair, HSG C
0.900	88	Fallow, crop residue, Good, HSG C
1.240	56	Brush, Fair, HSG B
45.010	74	Weighted Average
40.678		Pervious Area
4.332		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0840	0.14		**Sheet Flow, A-B** Grass: Bermuda n= 0.410 P2= 3.40"
2.3	179	0.0698	1.32		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.9	654	0.0528	3.70		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
5.8	474	0.0738	1.36		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
3.8	398	0.0075	1.76		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
26.8	1,805	Total			

Subcatchment 32S: Sub-watershed32



Subcatchment 33S: Sub-watershed 33

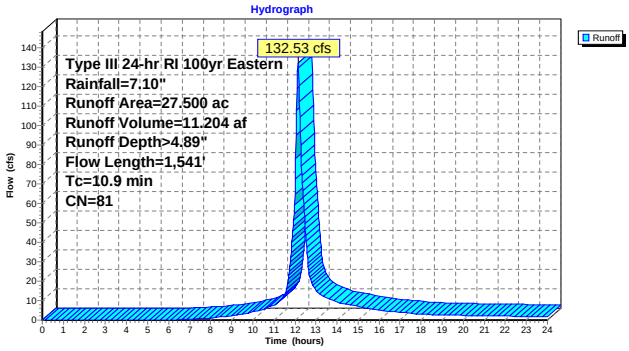
Runoff = 132.53 cfs @ 12.15 hrs, Volume= 11.204 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.960	94	Urban commercial, 85% imp, HSG C
26.540	81	1/3 acre lots, 30% imp, HSG C
27.500	81	Weighted Average
18.722		Pervious Area
8.778		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.0	154	0.1400	2.62		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.3	1,287	0.0400	4.06		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.9	1,541	Total			

Subcatchment 33S: Sub-watershed 33



Subcatchment 34S: Sub-watershed 34

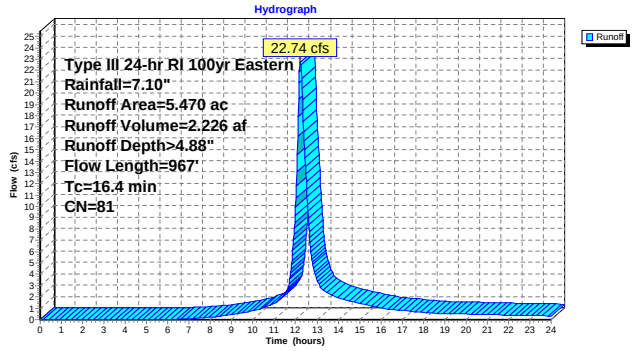
Runoff = 22.74 cfs @ 12.22 hrs, Volume= 2.226 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
5.470	81	1/3 acre lots, 30% imp, HSG C
3.829		Pervious Area
1.641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	131	0.0300	1.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.1	736	0.0140	2.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.4	967	Total			

Subcatchment 34S: Sub-watershed 34



Subcatchment 35S: Sub-watershed 35

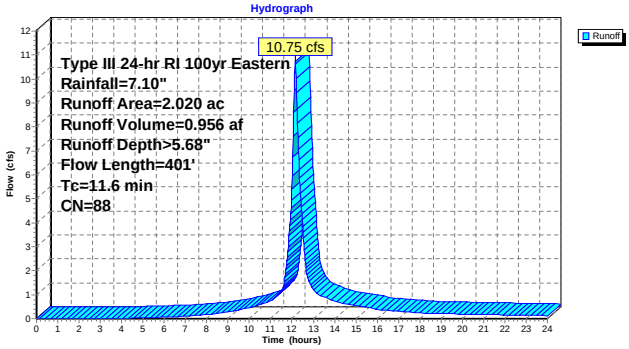
Runoff = 10.75 cfs @ 12.16 hrs, Volume= 0.956 af, Depth> 5.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.010	94	Urban commercial, 85% imp, HSG C
1.010	81	1/3 acre lots, 30% imp, HSG C
2.020	88	Weighted Average
0.859		Pervious Area
1.161		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.0	111	0.0180	0.94		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	190	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.6	401	Total			

Subcatchment 35S: Sub-watershed 35



Subcatchment 36S: Sub-watershed 36

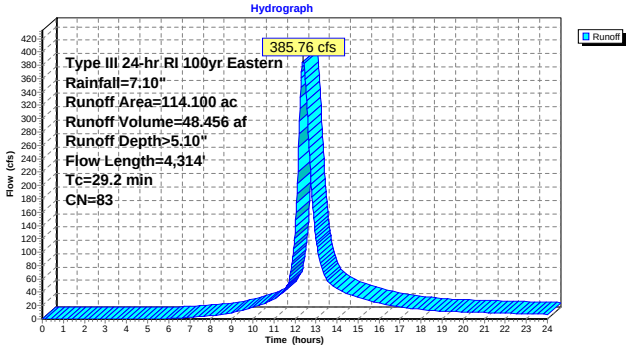
Runoff = 385.76 cfs @ 12.39 hrs, Volume= 48.456 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
81.170	83	1/4 acre lots, 38% imp, HSG C
9.230	94	Urban commercial, 85% imp, HSG C
6.090	60	Woods, Fair, HSG B
0.440	69	50-75% Grass cover, Fair, HSG B
4.180	56	Brush, Fair, HSG B
12.990	91	Urban industrial, 72% imp, HSG C
114.100	83	Weighted Average
66.057		Pervious Area
48.043		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.4	172	0.0810	1.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.3	4,042	0.0330	3.69		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
29.2	4,314	Total			

Subcatchment 36S: Sub-watershed 36



Subcatchment 37S: Sub-watershed 37

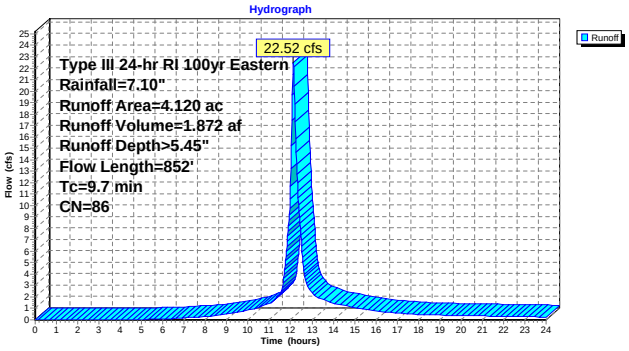
Runoff = 22.52 cfs @ 12.13 hrs, Volume= 1.872 af, Depth> 5.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.240	81	1/3 acre lots, 30% imp, HSG C
2.470	91	Urban industrial, 72% imp, HSG C
0.410	74	>75% Grass cover, Good, HSG C
4.120	86	Weighted Average
1.970		Pervious Area
2.150		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.67		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
8.7	752	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
9.7	852	Total			

Subcatchment 37S: Sub-watershed 37



Subcatchment 38S: Sub-watershed 38

Original time of concentration was 4.5 minutes. Changed time of concentration to 5 minutes.

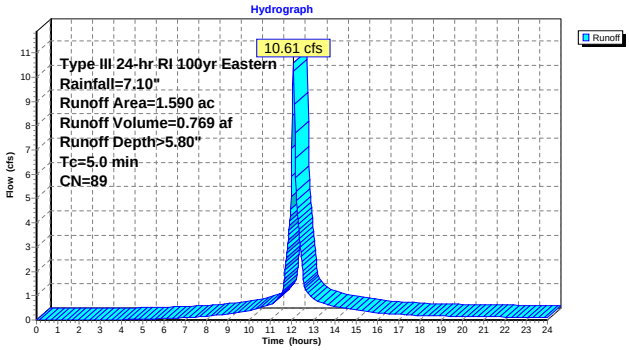
Runoff = 10.61 cfs @ 12.07 hrs, Volume= 0.769 af, Depth> 5.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.160	91	Urban industrial, 72% imp, HSG C
0.320	79	Pasture/grassland/range, Fair, HSG C
1.110	91	Urban industrial, 72% imp, HSG C
1.590	89	Weighted Average
0.676		Pervious Area
0.914		Impervious Area

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

Subcatchment 38S: Sub-watershed 38



Subcatchment 39S: Sub-watershed 39

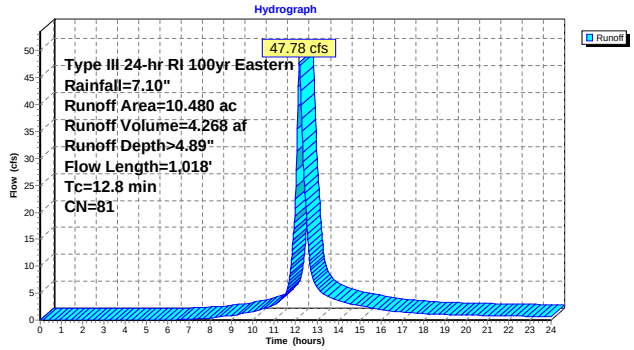
Runoff = 47.78 cfs @ 12.17 hrs, Volume= 4.268 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.520	79	Pasture/grassland/range, Fair, HSG C
9.960	81	1/3 acre lots, 30% imp, HSG C
10.480	81	Weighted Average
7.492		Pervious Area
2.988		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	212	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.0	387	0.0260	3.27		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	319	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
12.8	1,018	Total			

Subcatchment 39S: Sub-watershed 39



Subcatchment 40S: Sub-watershed 40

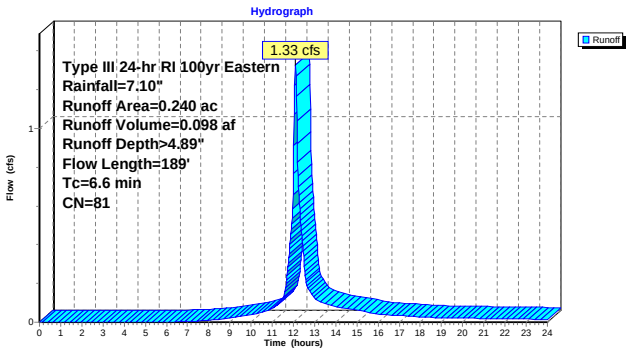
Runoff = 1.33 cfs @ 12.09 hrs, Volume= 0.098 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.240	81	1/3 acre lots, 30% imp, HSG C
0.168		Pervious Area
0.072		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.5	89	0.1500	2.71		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.6	189	Total			

Subcatchment 40S: Sub-watershed 40



Subcatchment 41S: Sub-watershed 41

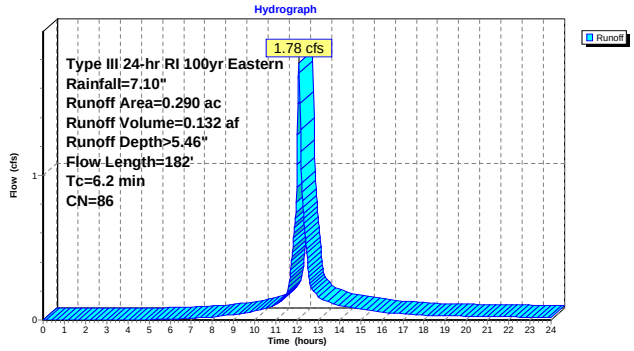
Runoff = 1.78 cfs @ 12.09 hrs, Volume= 0.132 af, Depth> 5.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.290	86	Pasture/grassland/range, Poor, HSG C
0.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.0800	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.7	82	0.0730	1.89		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.2	182	Total			

Subcatchment 41S: Sub-watershed 41



Subcatchment 42S: Sub-watershed 42

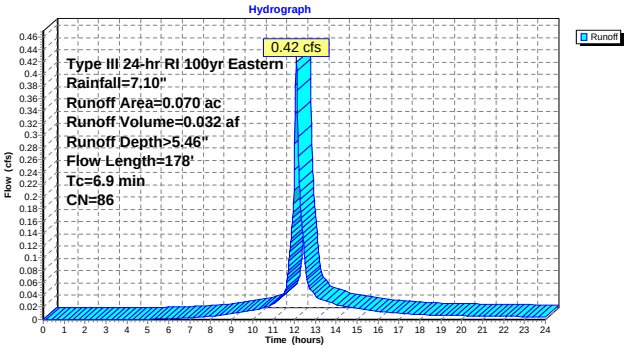
Runoff = 0.42 cfs @ 12.10 hrs, Volume= 0.032 af, Depth> 5.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.070	86	Pasture/grassland/range, Poor, HSG C
0.070		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.8	78	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
6.9	178	Total			

Subcatchment 42S: Sub-watershed 42



Subcatchment 43S: Sub-watershed 43

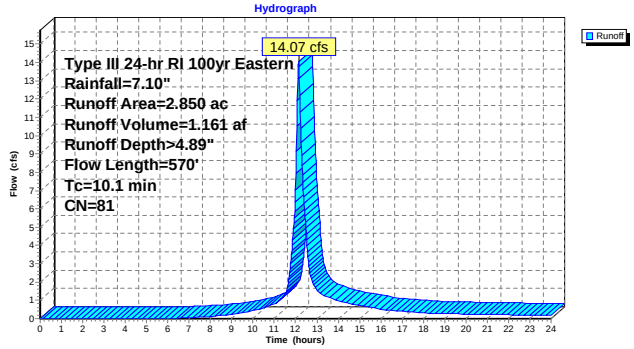
Runoff = 14.07 cfs @ 12.14 hrs, Volume= 1.161 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.850	81	1/3 acre lots, 30% imp, HSG C
1.995		Pervious Area
0.855		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.8	228	0.0880	2.08		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.7	206	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.5	36	0.0280	1.17		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
10.1	570	Total			

Subcatchment 43S: Sub-watershed 43



Subcatchment 44S: Sub-watershed 44

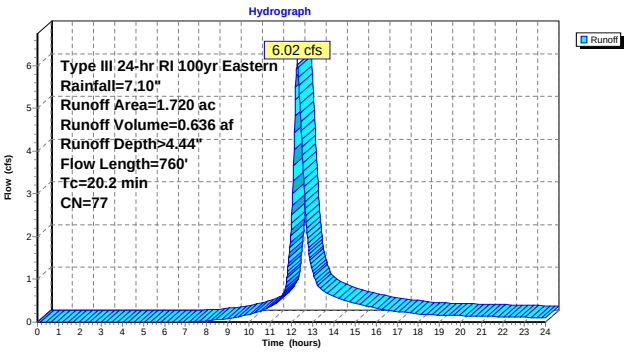
Runoff = 6.02 cfs @ 12.28 hrs, Volume= 0.636 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.860	81	1/3 acre lots, 30% imp, HSG C
0.860	73	Woods, Fair, HSG C
1.720	77	Weighted Average
1.462		Pervious Area
0.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
4.3	262	0.0420	1.02		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.5	398	0.0450	4.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.2	760	Total			

Subcatchment 44S: Sub-watershed 44



Subcatchment 45S: Sub-watershed 45

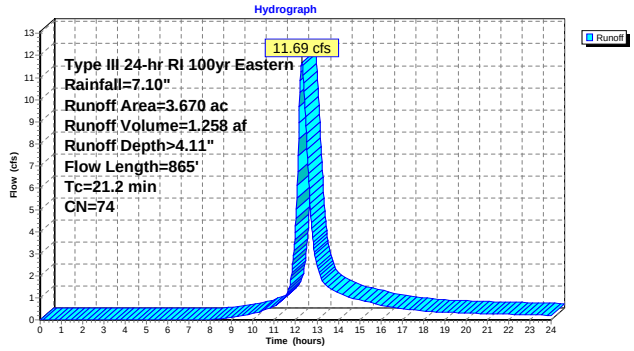
Runoff = 11.69 cfs @ 12.29 hrs, Volume= 1.258 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
3.120	73	Woods, Fair, HSG C
0.180	81	1/3 acre lots, 30% imp, HSG C
0.370	82	Woods/grass comb., Poor, HSG C
3.670	74	Weighted Average
3.616		Pervious Area
0.054		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0300	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
13.1	765	0.0380	0.97		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
21.2	865	Total			

Subcatchment 45S: Sub-watershed 45



Subcatchment 46S: Sub-watershed 46

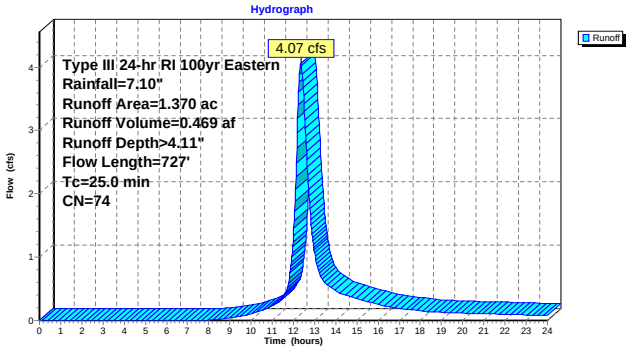
Runoff = 4.07 cfs @ 12.35 hrs, Volume= 0.469 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.230	73	Woods, Fair, HSG C
0.140	82	Woods/grass comb., Poor, HSG C
1.370	74	Weighted Average
1.370		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
7.6	373	0.0270	0.82		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.6	254	0.0160	2.57		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
25.0	727	Total			

Subcatchment 46S: Sub-watershed 46



Subcatchment 47S: Sub-watershed 47

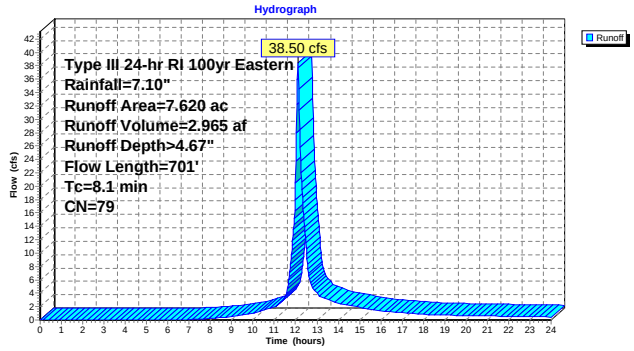
Runoff = 38.50 cfs @ 12.11 hrs, Volume= 2.965 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
7.620	79	50-75% Grass cover, Fair, HSG C
7.620		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.1000	0.33		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.9	581	0.0280	3.40		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.1	701	Total			

Subcatchment 47S: Sub-watershed 47



Subcatchment 48S: Sub-watershed 48

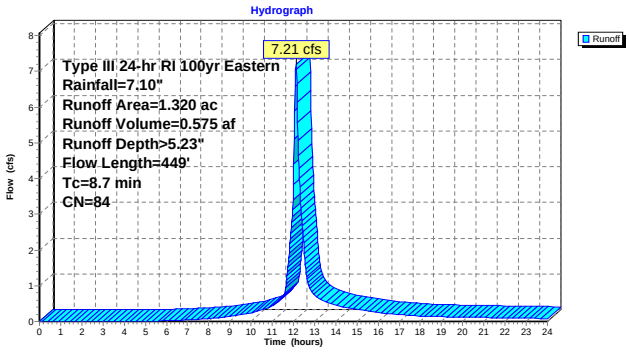
Runoff = 7.21 cfs @ 12.12 hrs, Volume= 0.575 af, Depth> 5.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.320	84	50-75% Grass cover, Fair, HSG D
1.320		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.4	39	0.0510	1.58		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	310	0.0130	2.31		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.7	449	Total			

Subcatchment 48S: Sub-watershed 48



Subcatchment 49S: Sub-watershed 49

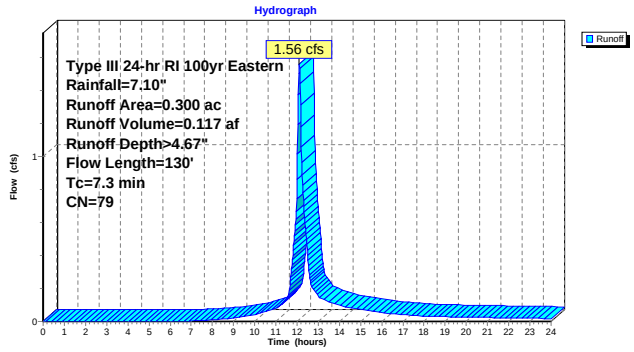
Runoff = 1.56 cfs @ 12.10 hrs, Volume= 0.117 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.300	79	50-75% Grass cover, Fair, HSG C
0.300		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.1	11	0.1800	2.97		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	19	0.1100	6.73		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
7.3	130	Total			

Subcatchment 49S: Sub-watershed 49



Subcatchment 50S: Sub-watershed 50

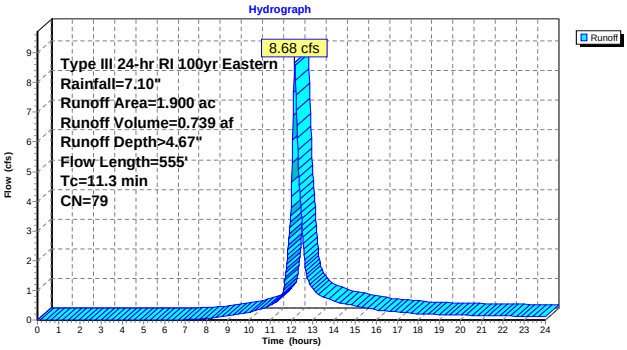
Runoff = 8.68 cfs @ 12.15 hrs, Volume= 0.739 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.900	79	50-75% Grass cover, Fair, HSG C
1.900		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	419	0.0500	1.57		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	36	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.3	555	Total			

Subcatchment 50S: Sub-watershed 50



Subcatchment 51S: Sub-wateshed 51

Original time of concentration was 3.2 minutes. Changed time of concentration to 5 minutes.

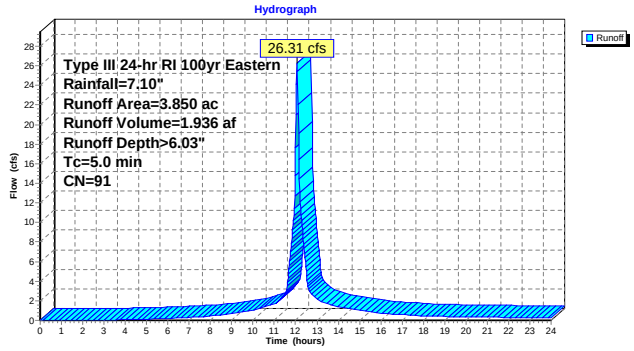
Runoff = 26.31 cfs @ 12.07 hrs, Volume= 1.936 af, Depth> 6.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
3.850	91	Urban industrial, 72% imp, HSG C
1.078		Pervious Area
2.772		Impervious Area

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

Subcatchment 51S: Sub-wateshed 51



Subcatchment 52S: Sub-watershed 52

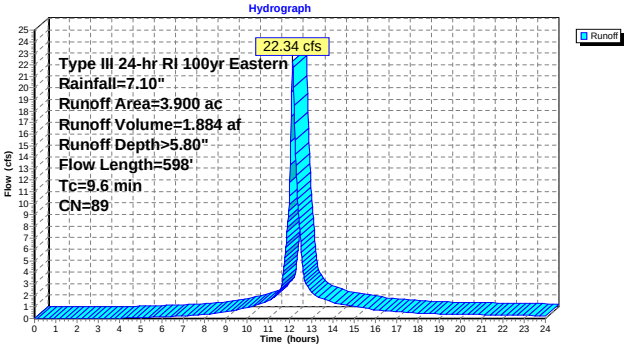
Runoff = 22.34 cfs @ 12.13 hrs, Volume= 1.884 af, Depth> 5.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
3.510	90	1/8 acre lots, 65% imp, HSG C
0.390	79	50-75% Grass cover, Fair, HSG C
3.900	89	Weighted Average
1.618		Pervious Area
2.282		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.1200	0.36		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.9	108	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	361	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	29	0.0690	1.84		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
9.6	598	Total			

Subcatchment 52S: Sub-watershed 52



Subcatchment 53S: Sub-watershed 53

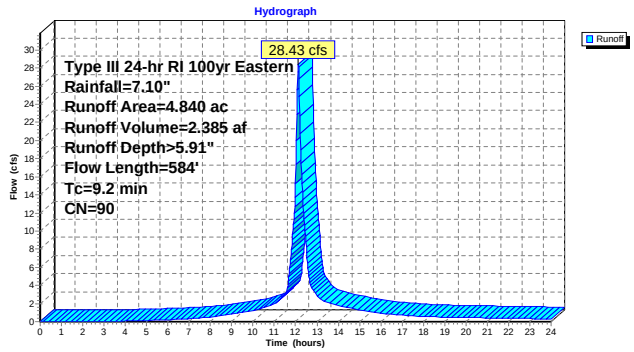
Runoff = 28.43 cfs @ 12.12 hrs, Volume= 2.385 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
4.840	90	1/8 acre lots, 65% imp, HSG C
1.694		Pervious Area
3.146		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0500	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	33	0.0610	1.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.3	451	0.0270	3.34		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.2	584	Total			

Subcatchment 53S: Sub-watershed 53



Subcatchment 54S: Sub-watershed 54

Original time of concentration was 2.6 minutes. Changed time of concentration to 5 minutes.

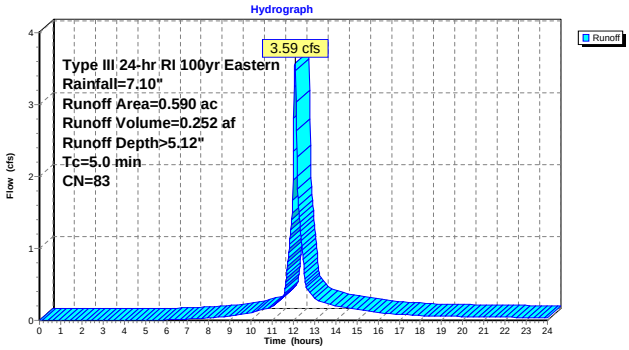
Runoff = 3.59 cfs @ 12.07 hrs, Volume= 0.252 af, Depth> 5.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.590	83	1/4 acre lots, 38% imp, HSG C
0.366		Pervious Area
0.224		Impervious Area

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

Subcatchment 54S: Sub-watershed 54



Subcatchment 55S: Sub-watershed 55

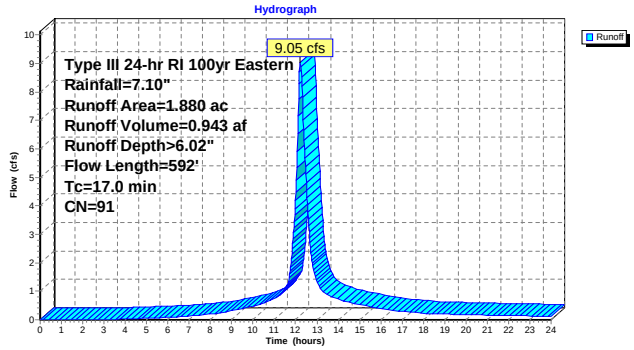
Runoff = 9.05 cfs @ 12.22 hrs, Volume= 0.943 af, Depth> 6.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
1.880	91	Urban industrial, 72% imp, HSG C
0.526		Pervious Area
1.354		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.5	492	0.0080	1.82		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
17.0	592	Total			

Subcatchment 55S: Sub-watershed 55



Subcatchment 56S: Sub-watershed 56

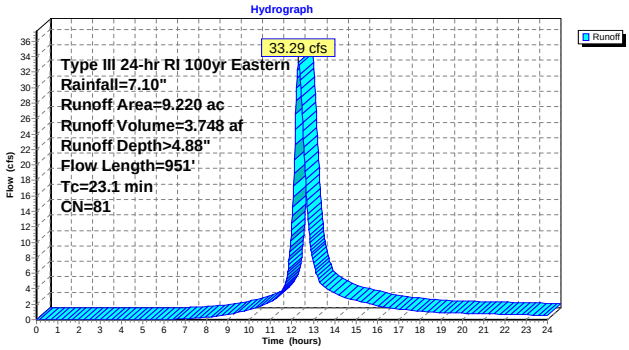
Runoff = 33.29 cfs @ 12.31 hrs, Volume= 3.748 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
9.220	81	1/3 acre lots, 30% imp, HSG C
6.454		Pervious Area
2.766		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.7	228	0.0090	0.66		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.9	623	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
23.1	951	Total			

Subcatchment 56S: Sub-watershed 56



Subcatchment 57S: Sub-watershed 57

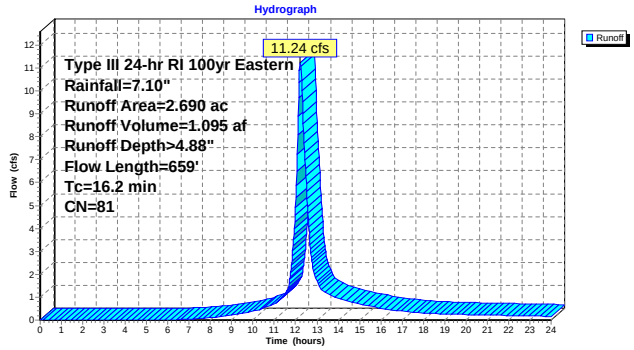
Runoff = 11.24 cfs @ 12.22 hrs, Volume= 1.095 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.690	81	1/3 acre lots, 30% imp, HSG C
1.883		Pervious Area
0.807		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	100	0.0370	0.22		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
6.4	190	0.0050	0.49		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.2	349	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	20	0.0500	1.57		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
16.2	659	Total			

Subcatchment 57S: Sub-watershed 57



Subcatchment 58S: Sub-watershed 58

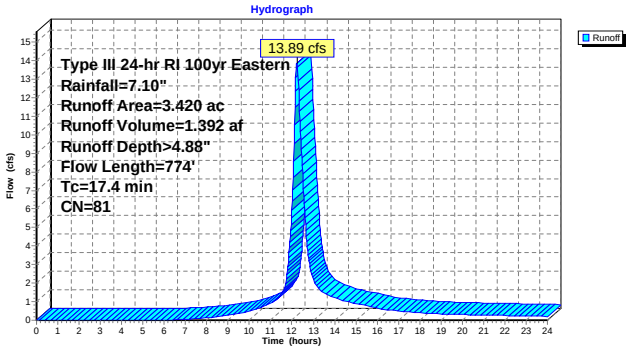
Runoff = 13.89 cfs @ 12.23 hrs, Volume= 1.392 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
3.420	81	1/3 acre lots, 30% imp, HSG C
2.394		Pervious Area
1.026		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.1	74	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.8	600	0.0170	2.65		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.4	774	Total			

Subcatchment 58S: Sub-watershed 58



Subcatchment 59S: Sub-watershed 59

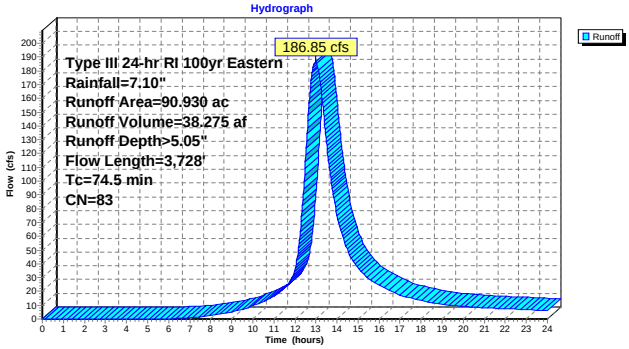
Runoff = 186.85 cfs @ 12.99 hrs, Volume= 38.275 af, Depth> 5.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
35.570	83	1/4 acre lots, 38% imp, HSG C
15.400	79	Pasture/grassland/range, Fair, HSG C
13.820	94	Urban commercial, 85% imp, HSG C
2.410	91	Urban industrial, 72% imp, HSG C
8.840	86	Woods/grass comb., Poor, HSG D
12.190	73	Woods, Fair, HSG C
2.700	79	Pasture/grassland/range, Fair, HSG C
90.930	83	Weighted Average
63.931		Pervious Area
26.999		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0050	0.10		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
49.4	2,858	0.0190	0.96		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.2	48	0.0010	0.64		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.9	164	0.0180	0.94		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
3.5	377	0.0080	1.82		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
1.0	181	0.0220	3.01		**Shallow Concentrated Flow, F-G** Paved Kv= 20.3 fps
74.5	3,728	Total			

Subcatchment 59S: Sub-watershed 59



Subcatchment 60S: Sub-watershed 60

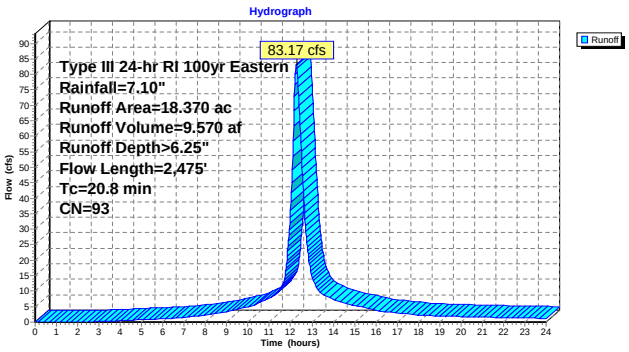
Runoff = 83.17 cfs @ 12.27 hrs, Volume= 9.570 af, Depth> 6.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
5.510	91	Urban industrial, 72% imp, HSG C
12.860	94	Urban commercial, 85% imp, HSG C
18.370	93	Weighted Average
3.472		Pervious Area
14.898		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	83	0.1100	2.32		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
13.0	2,292	0.0210	2.94		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
20.8	2,475	Total			

Subcatchment 60S: Sub-watershed 60



Subcatchment 61S: Sub-watershed 61

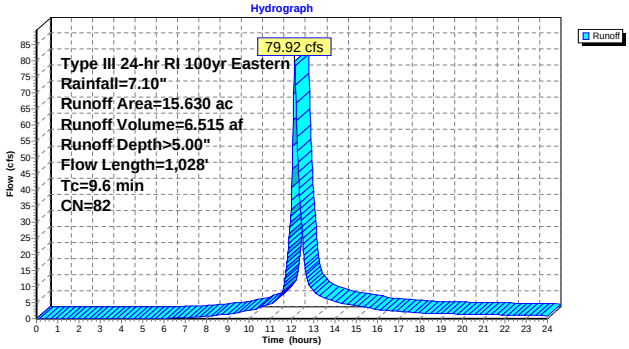
Runoff = 79.92 cfs @ 12.13 hrs, Volume= 6.515 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
14.070	81	1/3 acre lots, 30% imp, HSG C
1.560	94	Urban commercial, 85% imp, HSG C
15.630	82	Weighted Average
10.083		Pervious Area
5.547		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0700	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	132	0.0700	1.85		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.6	796	0.0630	5.10		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.6	1,028	Total			

Subcatchment 61S: Sub-watershed 61



Subcatchment 62S: Sub-watershed 62

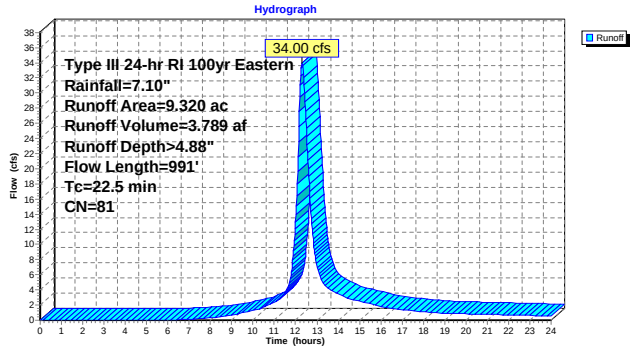
Runoff = 34.00 cfs @ 12.30 hrs, Volume= 3.789 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
9.320	81	1/3 acre lots, 30% imp, HSG C
6.524		Pervious Area
2.796		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
5.2	169	0.0060	0.54		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
4.8	722	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.5	991	Total			

Subcatchment 62S: Sub-watershed 62



Subcatchment 63S: Sub-watershed 63

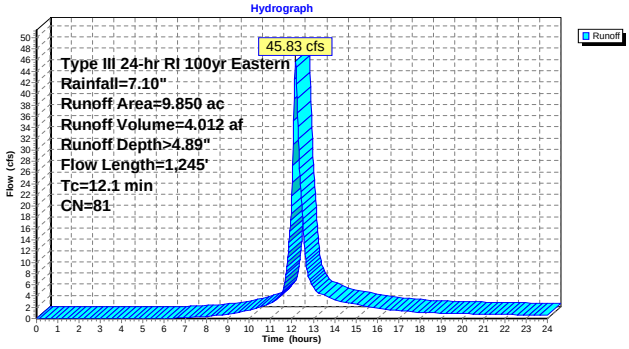
Runoff = 45.83 cfs @ 12.16 hrs, Volume= 4.012 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
9.850	81	1/3 acre lots, 30% imp, HSG C
6.895		Pervious Area
2.955		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	37	0.0540	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.6	63	0.0480	1.83		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
0.6	118	0.0250	3.21		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
2.0	188	0.0480	1.53		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
6.0	839	0.0130	2.31		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
12.1	1,245	Total			

Subcatchment 63S: Sub-watershed 63



Subcatchment 64S: Sub-watershed 64

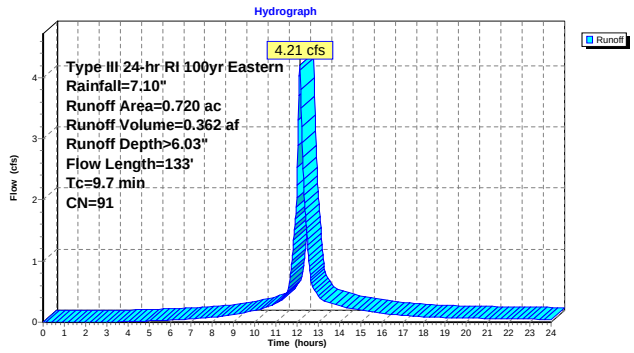
Runoff = 4.21 cfs @ 12.13 hrs, Volume= 0.362 af, Depth> 6.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.720	91	Urban industrial, 72% imp, HSG C
0.202		Pervious Area
0.518		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
2.5	33	0.0010	0.22		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.7	133	Total			

Subcatchment 64S: Sub-watershed 64



Subcatchment 65S: Sub-watershed 65

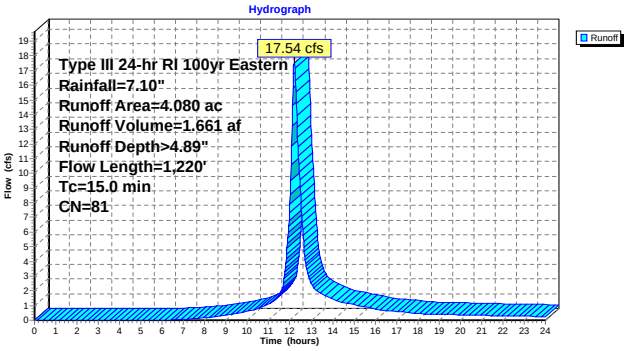
Runoff = 17.54 cfs @ 12.20 hrs, Volume= 1.661 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
4.080	81	1/3 acre lots, 30% imp, HSG C
2.856		Pervious Area
1.224		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	86	0.0300	0.20		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
0.3	14	0.0100	0.73		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
7.5	1,120	0.0150	2.49		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
15.0	1,220	Total			

Subcatchment 65S: Sub-watershed 65



Subcatchment 66S: Su-watershed 66

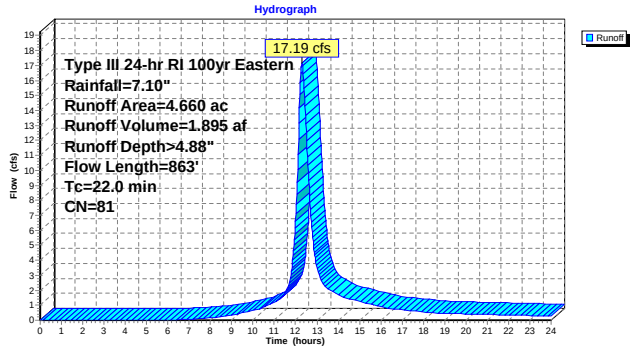
Runoff = 17.19 cfs @ 12.30 hrs, Volume= 1.895 af, Depth> 4.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
4.660	81	1/3 acre lots, 30% imp, HSG C
3.262		Pervious Area
1.398		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	100	0.0060	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
1.2	103	0.0390	1.38		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
5.4	660	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
22.0	863	Total			

Subcatchment 66S: Su-watershed 66



Subcatchment 67S: Sub-watershed 67

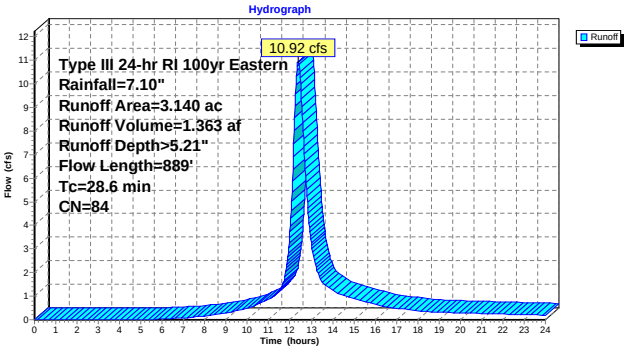
Runoff = 10.92 cfs @ 12.38 hrs, Volume= 1.363 af, Depth> 5.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
0.790	81	1/3 acre lots, 30% imp, HSG C
1.880	88	Fallow, crop residue, Good, HSG C
0.470	73	Woods, Fair, HSG C
3.140	84	Weighted Average
2.903		Pervious Area
0.237		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
4.7	199	0.0200	0.71		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
10.7	490	0.0120	0.77		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.7	100	0.0120	2.22		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
28.6	889	Total			

Subcatchment 67S: Sub-watershed 67



Subcatchment 68S: Sub-watershed 68

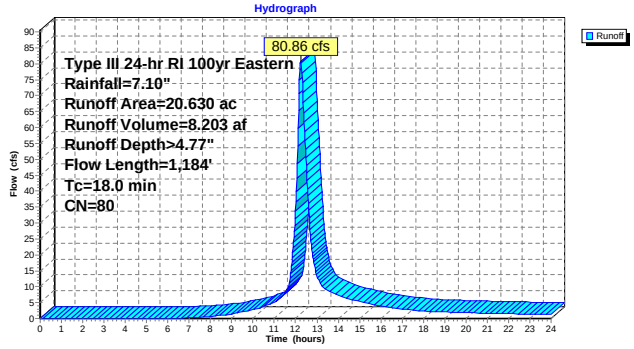
Runoff = 80.86 cfs @ 12.24 hrs, Volume= 8.203 af, Depth> 4.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr RI 100yr Eastern Rainfall=7.10"

Area (ac)	CN	Description
2.350	79	Pasture/grassland/range, Fair, HSG C
2.470	88	Fallow, crop residue, Good, HSG C
1.970	70	Brush, Fair, HSG C
5.490	82	Woods/grass comb., Poor, HSG C
2.460	73	Woods, Fair, HSG C
5.890	81	1/3 acre lots, 30% imp, HSG C
20.630	80	Weighted Average
18.863		Pervious Area
1.767		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.0850	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"
12.7	1,084	0.0410	1.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.0	1,184	Total			

Subcatchment 68S: Sub-watershed 68



Reach 3R: Intermittent Stream

[79] Warning: Submerged Pond 2P Primary device # 1 OUTLET by 0.11'

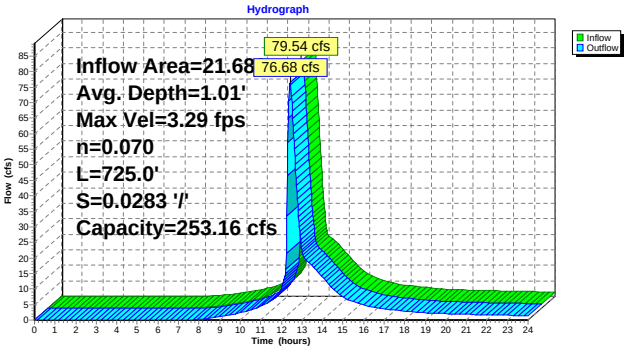
Inflow Area = 21.680 ac, Inflow Depth > 4.85" for RI 100yr Eastern event
Inflow = 79.54 cfs @ 12.30 hrs, Volume= 8.762 af
Outflow = 76.68 cfs @ 12.43 hrs, Volume= 8.724 af, Atten= 4%, Lag= 7.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.29 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 11.7 min

Peak Storage= 16,917 cf @ 12.36 hrs, Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 253.16 cfs

20.00' x 2.00' deep channel, n= 0.070 Medium-dense brush, winter
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 725.0' Slope= 0.0283 '/'
Inlet Invert= 113.50', Outlet Invert= 93.00'

Reach 3R: Intermittent Stream



Pond 2P: Highview Pond Existing

Inflow Area = 21.680 ac, Inflow Depth > 4.88" for RI 100yr Eastern event
Inflow = 79.62 cfs @ 12.30 hrs, Volume= 8.815 af
Outflow = 79.54 cfs @ 12.30 hrs, Volume= 8.762 af, Atten= 0%, Lag= 0.3 min
Primary = 79.54 cfs @ 12.30 hrs, Volume= 8.762 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 121.31' @ 12.30 hrs Surf.Area= 5,491 sf Storage= 40,393 cf

Plug-Flow detention time= 19.4 min calculated for 8.762 af (99% of inflow)
Center-of-Mass det. time= 15.8 min (833.3 - 817.5)

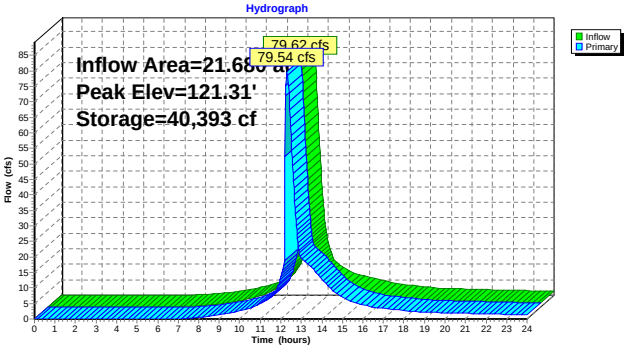
Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	42,295 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	4,620	0	0
118.00	6,496	16,674	16,674
121.00	7,936	21,648	38,322
122.00	10	3,973	42,295

Device	Routing	Invert	Outlet Devices
#1	Primary	115.00'	**18.0" x 40.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 114.40' S= 0.0150 '/' Cc= 0.900 n= 0.013
#2	Primary	121.00'	**128.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=79.35 cfs @ 12.30 hrs HW=121.31' (Free Discharge)
└**1=Culvert** (Inlet Controls 20.06 cfs @ 11.35 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 59.29 cfs @ 1.50 fps)

Pond 2P: Highview Pond Existing

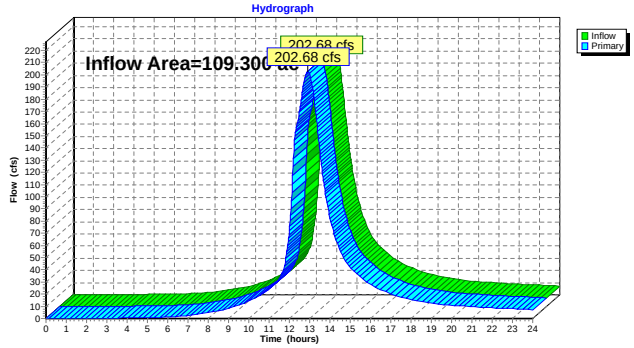


Link 68L: SW 59_SW 60

Inflow Area = 109.300 ac, Inflow Depth > 5.25" for RI 100yr Eastern event
Inflow = 202.68 cfs @ 12.92 hrs, Volume= 47.844 af
Primary = 202.68 cfs @ 12.92 hrs, Volume= 47.844 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 68L: SW 59_SW 60

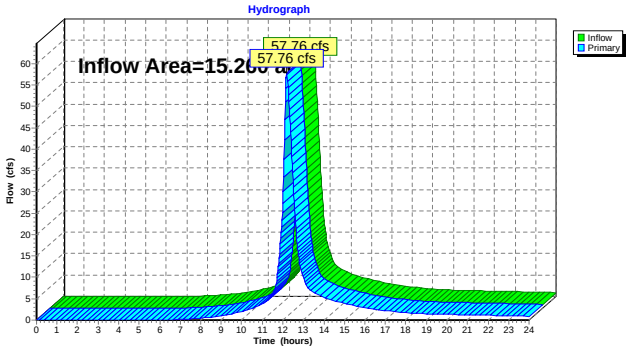


Link 69L: SW 14_SW 17

Inflow Area = 15.260 ac, Inflow Depth > 4.71" for RI 100yr Eastern event
Inflow = 57.76 cfs @ 12.19 hrs, Volume= 5.995 af
Primary = 57.76 cfs @ 12.19 hrs, Volume= 5.995 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 69L: SW 14_SW 17

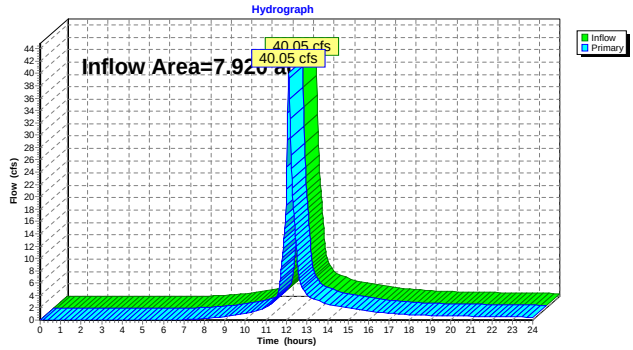


Link 70L: SW47_SW49

Inflow Area = 7.920 ac, Inflow Depth > 4.67" for RI 100yr Eastern event
Inflow = 40.05 cfs @ 12.11 hrs, Volume= 3.082 af
Primary = 40.05 cfs @ 12.11 hrs, Volume= 3.082 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 70L: SW47_SW49

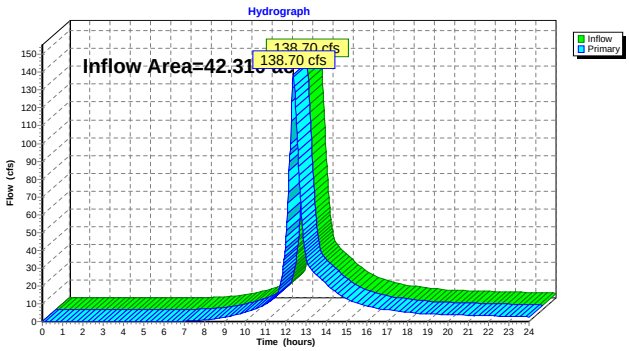


Link 71L: Elbow St

Inflow Area = 42.310 ac, Inflow Depth > 4.80" for RI 100yr Eastern event
Inflow = 138.70 cfs @ 12.37 hrs, Volume= 16.927 af
Primary = 138.70 cfs @ 12.37 hrs, Volume= 16.927 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 71L: Elbow St



Hydraflow – Pipe Capacity Analysis

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	66.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	31.25	2.66	24	1.91	83.26	82.00	83.61	82.35	0.00	0.00	Watershed 1
2	End	39.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	9.13	2.95	15	2.00	85.78	85.00	86.18	85.40	0.00	0.00	Watershed 2
3	End	161.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	20.25	2.66	24	0.80	99.29	98.00	99.64	98.35	0.00	0.00	Watershed 3
4	End	195.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	67.54	2.48	36	1.03	62.00	60.00	62.32	60.32	0.00	0.00	Watershed 4
5	End	48.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	7.01	3.15	12	2.29	115.10	114.00	115.52	114.42	0.00	0.00	Watershed 5
6	End	190.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	66.69	2.48	36	1.00	72.60	70.70	72.92	71.02	0.00	0.00	Watershed 6
7	End	30.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	4.63	3.15	12	1.00	75.30	75.00	75.72	75.42	0.00	0.00	Watershed 6d
8	End	11.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.79	3.15	12	3.64	73.40	73.00	73.82	73.42	0.00	0.00	Watershed 6e
9	End	182.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.21	2.75	12	0.38	114.70	114.00	115.23	114.42	0.00	0.00	Watershed 8
10	End	162.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.85	3.15	12	3.70	91.20	85.20	91.62	85.62	0.00	0.00	Watershed 9
11	End	91.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	23.71	2.66	24	1.10	93.00	92.00	93.35	92.35	0.00	0.00	Watershed 10
12	End	15.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	16.67	2.95	15	6.67	93.00	92.00	93.40	92.40	0.00	0.00	Watershed 11
13	End	42.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	7.77	3.15	12	4.76	82.30	80.30	82.72	80.72	0.00	0.00	Watershed 12
14	End	31.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.72	3.15	12	8.06	89.70	87.20	90.12	87.62	0.00	0.00	Watershed 13
15	End	182.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.53	3.15	12	7.56	126.96	113.20	127.38	113.62	0.00	0.00	Watershed 14
16	End	103.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	32.30	2.66	24	2.04	117.60	115.50	117.95	115.85	0.00	0.00	Watershed 15
17	End	80.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.64	2.95	15	0.76	120.30	119.69	120.70	120.09	0.00	0.00	Watershed 16
18	End	136.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.94	2.47	18	1.00	106.00	104.64	106.47	105.02	0.00	0.00	Watershed 17
19	End	64.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	83.37	2.48	36	1.56	63.00	62.00	63.32	62.32	0.00	0.00	Watershed 18
20	End	23.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	122.90	122.67	123.32	123.09	0.00	0.00	Watershed 19
21	End	32.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.66	12	1.00	101.00	100.68	101.57	101.10	0.00	0.00	Watershed 20

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	End	221.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	66.69	2.48	36	1.00	70.55	68.34	70.87	68.66	0.00	0.00	Watershed 21
23	End	51.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	8.05	2.82	18	0.59	58.30	58.00	58.68	58.38	0.00	0.00	Watershed 22
24	End	104.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	4.63	3.15	12	1.00	64.60	63.56	65.02	63.98	0.00	0.00	Watershed 23
25	End	193.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	80.60	78.67	81.02	79.09	0.00	0.00	Watershed 24
26	End	16.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	56.70	56.54	57.08	56.92	0.00	0.00	Watershed 25
27	End	40.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.25	11.46	4	1.00	60.40	60.00	66.80	60.33	0.00	0.00	Watershed 26
28	End	9.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.73	5.15	6	1.00	58.49	58.40	59.05	58.87	0.00	0.00	Watershed 27
29	End	6.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	12.10	3.15	12	6.83	56.50	56.09	56.92	56.51	0.00	0.00	Watershed 28
30	End	55.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	13.98	2.82	18	5.55	58.40	55.35	58.78	55.73	0.00	0.00	Watershed 29
31	End	127.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.24	2.61	10	1.00	59.90	58.63	60.95	59.07	0.00	0.00	Watershed 30
32	End	16.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	30.50	30.34	30.92	30.76	0.00	0.00	Watershed 31
33	End	400.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	16.52	0.63	18	7.75	55.50	24.50	56.63	56.51	0.00	0.00	Watershed 32
34	End	51.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.94	2.50	18	1.00	5.20	4.69	5.66	5.07	0.00	0.00	Watershed 33
35	End	36.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.71	2.49	12	0.72	3.20	2.94	3.86	3.36	0.00	0.00	Watershed 34
36	End	40.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.46	2.95	15	1.00	6.90	6.50	7.30	6.90	0.00	0.00	Watershed 35
37	End	91.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	41.01	2.56	30	1.00	4.60	3.69	4.93	4.02	0.00	0.00	Watershed 36
38	End	92.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	3.70	2.78	4.08	3.16	0.00	0.00	Watershed 37
39	End	243.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	8.39	2.95	15	1.00	4.80	2.37	5.20	2.77	0.00	0.00	Watershed 38
40	End	131.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.65	2.50	15	1.00	8.80	7.49	9.32	7.89	0.00	0.00	Watershed 39
41	End	215.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.73	5.15	6	1.00	22.50	20.35	24.61	20.82	0.00	0.00	Watershed 40
42	End	80.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.57	3.79	8	1.00	17.10	16.30	17.57	16.77	0.00	0.00	Watershed 41

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
43	End	67.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.73	5.15	6	1.00	12.00	11.33	13.00	11.80	0.00	0.00	Watershed 42
44	End	164.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	20.14	2.66	24	0.79	27.30	26.00	27.65	26.35	0.00	0.00	Watershed 43
45	End	67.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.56	5.15	6	1.00	44.50	43.83	46.31	44.30	0.00	0.00	Watershed 44
46	End	29.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.67	12	1.00	58.00	57.71	58.57	58.13	0.00	0.00	Watershed 45
47	End	133.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.50	12	1.00	57.00	55.67	57.65	56.09	0.00	0.00	Watershed 46
48	End	100.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.94	2.49	18	1.00	27.00	26.00	27.41	26.42	0.00	0.00	Watershed 47
49	End	52.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.60	12	1.00	45.20	44.68	45.80	45.10	0.00	0.00	Watershed 48
50	End	54.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.25	11.46	4	1.00	30.50	29.96	39.02	30.29	0.00	0.00	Watershed 50
51	End	19.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	51.30	51.11	51.68	51.49	0.00	0.00	Watershed 51
52	End	87.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	1.53	12	1.00	22.90	22.03	23.57	23.32	0.00	0.00	Watershed 52
53	End	72.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.63	3.15	12	1.04	22.50	21.75	22.92	22.17	0.00	0.00	Watershed 53
54	End	20.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	91.20	91.00	91.62	91.42	0.00	0.00	Watershed 54
55	End	72.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.58	3.79	8	1.01	90.58	89.85	91.05	90.32	0.00	0.00	Watershed 55
56	End	104.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	36.31	2.66	24	2.58	69.42	66.74	69.77	67.09	0.00	0.00	Watershed 56
57	End	24.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.69	12	1.00	62.30	62.06	62.86	62.48	0.00	0.00	Watershed 57
58	End	52.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.60	12	1.00	58.20	57.68	58.80	58.10	0.00	0.00	Watershed 58
59	End	278.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	174.2	2.33	54	0.78	49.28	47.10	49.57	47.39	0.00	0.00	Watershed 59
60	End	267.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	65.69	2.48	36	0.97	49.90	47.31	50.22	47.63	0.00	0.00	Watershed 60
61	End	121.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	20.40	2.66	24	2.55	40.60	37.52	40.95	37.87	0.00	0.00	Watershed 61
62	End	49.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.61	12	1.00	69.15	68.66	69.74	69.08	0.00	0.00	Watershed 62
63	End	93.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.65	2.52	15	1.00	6.40	5.47	6.92	5.87	0.00	0.00	Watershed 63

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
64	End	84.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	6.10	5.26	6.52	5.68	0.00	0.00	Watershed 64
65	End	20.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	126.60	126.40	126.98	126.78	0.00	0.00	Watershed 65
66	End	38.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.81	2.76	18	0.42	127.49	127.33	127.88	127.71	0.00	0.00	Watershed 66
67	End	111.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	4.68	2.26	18	0.20	128.64	128.42	129.19	128.80	0.00	0.00	Watershed 67

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	66.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	31.25	2.66	24	1.91	83.26	82.00	83.61	82.35	0.00	0.00	Watershed 1
2	End	39.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	9.13	2.95	15	2.00	85.78	85.00	86.18	85.40	0.00	0.00	Watershed 2
3	End	161.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	20.25	2.66	24	0.80	99.29	98.00	99.64	98.35	0.00	0.00	Watershed 3
4	End	195.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	67.54	2.48	36	1.03	62.00	60.00	62.32	60.32	0.00	0.00	Watershed 4
5	End	48.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	7.01	3.15	12	2.29	115.10	114.00	115.52	114.42	0.00	0.00	Watershed 5
6	End	190.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	66.69	2.48	36	1.00	72.60	70.70	72.92	71.02	0.00	0.00	Watershed 6
7	End	30.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	4.63	3.15	12	1.00	75.30	75.00	75.72	75.42	0.00	0.00	Watershed 6d
8	End	11.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.79	3.15	12	3.64	73.40	73.00	73.82	73.42	0.00	0.00	Watershed 6e
9	End	182.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.21	2.75	12	0.38	114.70	114.00	115.23	114.42	0.00	0.00	Watershed 8
10	End	162.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.85	3.15	12	3.70	91.20	85.20	91.62	85.62	0.00	0.00	Watershed 9
11	End	91.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	23.71	2.66	24	1.10	93.00	92.00	93.35	92.35	0.00	0.00	Watershed 10
12	End	15.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	16.67	2.95	15	6.67	93.00	92.00	93.40	92.40	0.00	0.00	Watershed 11
13	End	42.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	7.77	3.15	12	4.76	82.30	80.30	82.72	80.72	0.00	0.00	Watershed 12
14	End	31.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.72	3.15	12	8.06	89.70	87.20	90.12	87.62	0.00	0.00	Watershed 13
15	End	182.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.53	3.15	12	7.56	126.96	113.20	127.38	113.62	0.00	0.00	Watershed 14
16	End	103.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	32.30	2.66	24	2.04	117.60	115.50	117.95	115.85	0.00	0.00	Watershed 15
17	End	80.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.64	2.95	15	0.76	120.30	119.69	120.70	120.09	0.00	0.00	Watershed 16
18	End	136.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.94	2.47	18	1.00	106.00	104.64	106.47	105.02	0.00	0.00	Watershed 17
19	End	64.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	83.37	2.48	36	1.56	63.00	62.00	63.32	62.32	0.00	0.00	Watershed 18
20	End	23.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	122.90	122.67	123.32	123.09	0.00	0.00	Watershed 19
21	End	32.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.66	12	1.00	101.00	100.68	101.57	101.10	0.00	0.00	Watershed 20

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	End	221.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	66.69	2.48	36	1.00	70.55	68.34	70.87	68.66	0.00	0.00	Watershed 21
23	End	51.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	8.05	2.82	18	0.59	58.30	58.00	58.68	58.38	0.00	0.00	Watershed 22
24	End	104.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	4.63	3.15	12	1.00	64.60	63.56	65.02	63.98	0.00	0.00	Watershed 23
25	End	193.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	80.60	78.67	81.02	79.09	0.00	0.00	Watershed 24
26	End	16.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	56.70	56.54	57.08	56.92	0.00	0.00	Watershed 25
27	End	40.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.25	11.46	4	1.00	60.40	60.00	66.80	60.33	0.00	0.00	Watershed 26
28	End	9.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.73	5.15	6	1.00	58.49	58.40	59.05	58.87	0.00	0.00	Watershed 27
29	End	6.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	12.10	3.15	12	6.83	56.50	56.09	56.92	56.51	0.00	0.00	Watershed 28
30	End	55.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	13.98	2.82	18	5.55	58.40	55.35	58.78	55.73	0.00	0.00	Watershed 29
31	End	127.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.24	2.61	10	1.00	59.90	58.63	60.95	59.07	0.00	0.00	Watershed 30
32	End	16.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	30.50	30.34	30.92	30.76	0.00	0.00	Watershed 31
33	End	400.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	16.52	0.63	18	7.75	55.50	24.50	56.63	56.51	0.00	0.00	Watershed 32
34	End	51.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.94	2.50	18	1.00	5.20	4.69	5.66	5.07	0.00	0.00	Watershed 33
35	End	36.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.71	2.49	12	0.72	3.20	2.94	3.86	3.36	0.00	0.00	Watershed 34
36	End	40.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.46	2.95	15	1.00	6.90	6.50	7.30	6.90	0.00	0.00	Watershed 35
37	End	91.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	41.01	2.56	30	1.00	4.60	3.69	4.93	4.02	0.00	0.00	Watershed 36
38	End	92.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	3.70	2.78	4.08	3.16	0.00	0.00	Watershed 37
39	End	243.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	8.39	2.95	15	1.00	4.80	2.37	5.20	2.77	0.00	0.00	Watershed 38
40	End	131.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.65	2.50	15	1.00	8.80	7.49	9.32	7.89	0.00	0.00	Watershed 39
41	End	215.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.73	5.15	6	1.00	22.50	20.35	24.61	20.82	0.00	0.00	Watershed 40
42	End	80.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.57	3.79	8	1.00	17.10	16.30	17.57	16.77	0.00	0.00	Watershed 41

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
43	End	67.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.73	5.15	6	1.00	12.00	11.33	13.00	11.80	0.00	0.00	Watershed 42
44	End	164.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	20.14	2.66	24	0.79	27.30	26.00	27.65	26.35	0.00	0.00	Watershed 43
45	End	67.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.56	5.15	6	1.00	44.50	43.83	46.31	44.30	0.00	0.00	Watershed 44
46	End	29.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.67	12	1.00	58.00	57.71	58.57	58.13	0.00	0.00	Watershed 45
47	End	133.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.50	12	1.00	57.00	55.67	57.65	56.09	0.00	0.00	Watershed 46
48	End	100.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	5.94	2.49	18	1.00	27.00	26.00	27.41	26.42	0.00	0.00	Watershed 47
49	End	52.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.60	12	1.00	45.20	44.68	45.80	45.10	0.00	0.00	Watershed 48
50	End	54.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	0.25	11.46	4	1.00	30.50	29.96	39.02	30.29	0.00	0.00	Watershed 50
51	End	19.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	51.30	51.11	51.68	51.49	0.00	0.00	Watershed 51
52	End	87.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	1.53	12	1.00	22.90	22.03	23.57	23.32	0.00	0.00	Watershed 52
53	End	72.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.63	3.15	12	1.04	22.50	21.75	22.92	22.17	0.00	0.00	Watershed 53
54	End	20.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	91.20	91.00	91.62	91.42	0.00	0.00	Watershed 54
55	End	72.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	1.58	3.79	8	1.01	90.58	89.85	91.05	90.32	0.00	0.00	Watershed 55
56	End	104.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	36.31	2.66	24	2.58	69.42	66.74	69.77	67.09	0.00	0.00	Watershed 56
57	End	24.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.69	12	1.00	62.30	62.06	62.86	62.48	0.00	0.00	Watershed 57
58	End	52.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.60	12	1.00	58.20	57.68	58.80	58.10	0.00	0.00	Watershed 58
59	End	278.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	174.2	2.33	54	0.78	49.28	47.10	49.57	47.39	0.00	0.00	Watershed 59
60	End	267.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	65.69	2.48	36	0.97	49.90	47.31	50.22	47.63	0.00	0.00	Watershed 60
61	End	121.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	20.40	2.66	24	2.55	40.60	37.52	40.95	37.87	0.00	0.00	Watershed 61
62	End	49.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	2.01	2.61	12	1.00	69.15	68.66	69.74	69.08	0.00	0.00	Watershed 62
63	End	93.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.65	2.52	15	1.00	6.40	5.47	6.92	5.87	0.00	0.00	Watershed 63

Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
64	End	84.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	3.56	3.15	12	1.00	6.10	5.26	6.52	5.68	0.00	0.00	Watershed 64
65	End	20.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	10.50	2.82	18	1.00	126.60	126.40	126.98	126.78	0.00	0.00	Watershed 65
66	End	38.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	6.81	2.76	18	0.42	127.49	127.33	127.88	127.71	0.00	0.00	Watershed 66
67	End	111.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.00	4.68	2.26	18	0.20	128.64	128.42	129.19	128.80	0.00	0.00	Watershed 67

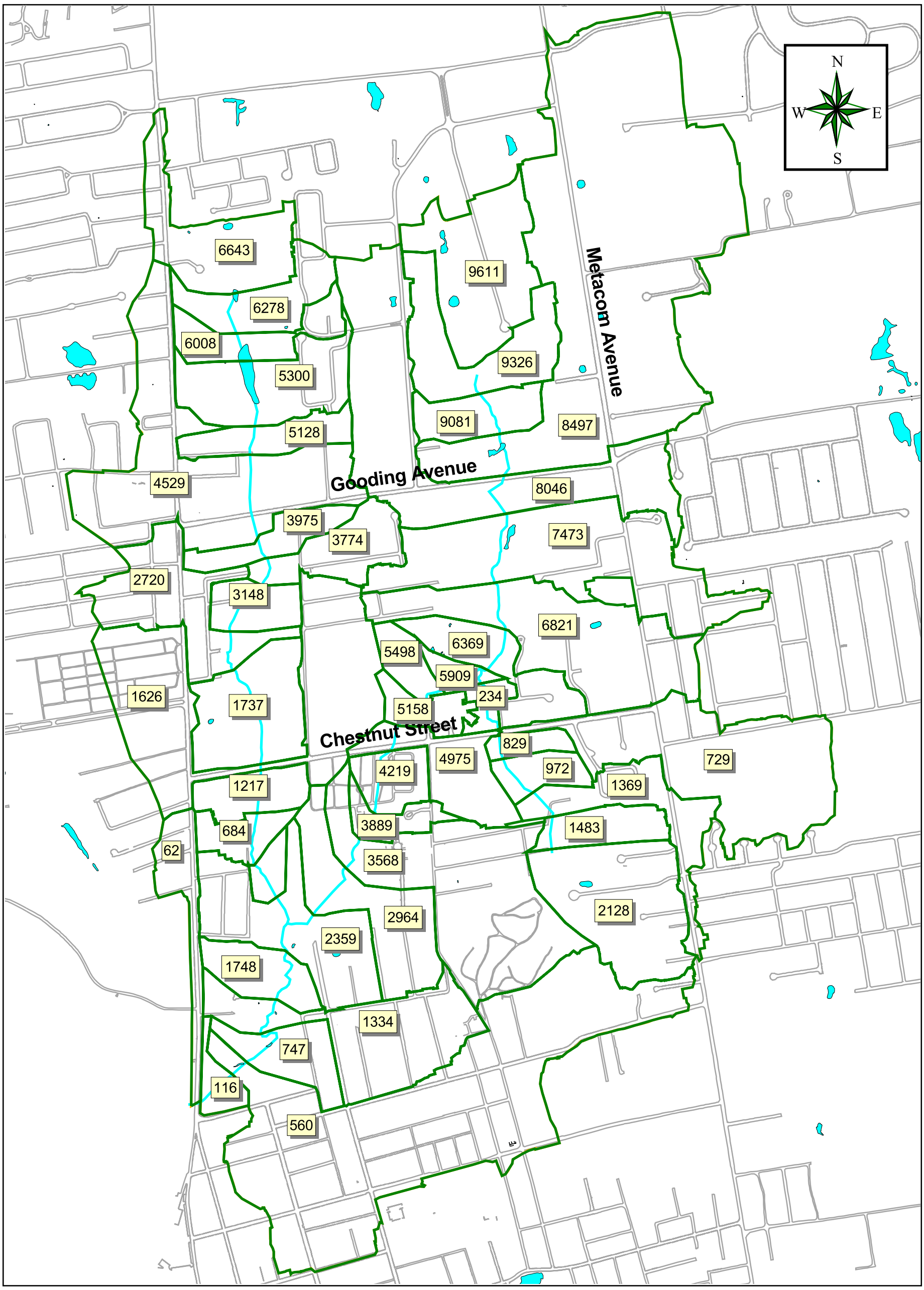
Project File: Pipe Capacity.stm | Number of lines: 67 | Run Date: 11-28-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Appendix B – Silver Creek Analysis

HydroCAD – 2, 10, and 100-year Storm Events

HEC-RAS



Legend

Silver Creek

Silver Creek Watersheds

Town of Bristol Rhode Island

Silver Creek

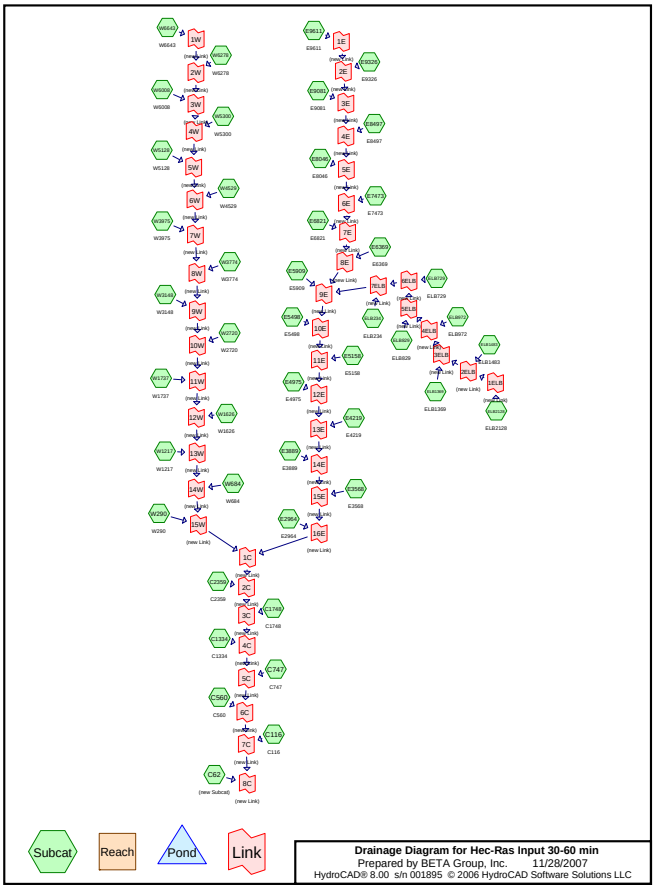
NOT TO SCALE

Appendix

Silver Creek Watersheds

HydroCAD – 2, 10, and 100-year Storm Events

2-Year Storm



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment C116: C116 Runoff Area=4.970 ac Runoff Depth=1.36"
Flow Length=450' Tc=25.8 min CN=77 Runoff=4.66 cfs 0.562 af

Subcatchment C1334: C1334 Runoff Area=35.190 ac Runoff Depth=1.77"
Flow Length=900' Slope=0.0200 '/' Tc=34.0 min CN=83 Runoff=38.94 cfs 5.205 af

Subcatchment C1748: C1748 Runoff Area=12.100 ac Runoff Depth=1.36"
Flow Length=850' Tc=33.5 min CN=77 Runoff=10.09 cfs 1.368 af

Subcatchment C2359: C2359 Runoff Area=32.610 ac Runoff Depth=1.70"
Flow Length=1,050' Slope=0.0400 '/' Tc=36.8 min CN=82 Runoff=33.21 cfs 4.621 af

Subcatchment C560: C560 Runoff Area=121.880 ac Runoff Depth=2.01"
Flow Length=4,800' Tc=73.9 min CN=86 Runoff=99.21 cfs 20.416 af

Subcatchment C62: (new Subcat) Runoff Area=12.170 ac Runoff Depth=1.77"
Flow Length=2,400' Tc=31.3 min CN=83 Runoff=13.99 cfs 1.800 af

Subcatchment C747: C747 Runoff Area=13.060 ac Runoff Depth=1.49"
Flow Length=700' Slope=0.0050 '/' Tc=58.8 min CN=79 Runoff=8.91 cfs 1.620 af

Subcatchment E2964: E2964 Runoff Area=25.940 ac Runoff Depth=1.36"
Flow Length=1,460' Slope=0.0400 '/' Tc=35.4 min CN=77 Runoff=21.05 cfs 2.933 af

Subcatchment E3568: E3568 Runoff Area=55.460 ac Runoff Depth=1.00"
Flow Length=2,790' Tc=55.8 min CN=71 Runoff=24.54 cfs 4.625 af

Subcatchment E3889: E3889 Runoff Area=6.520 ac Runoff Depth=1.36"
Flow Length=650' Tc=22.3 min CN=77 Runoff=6.51 cfs 0.737 af

Subcatchment E4219: E4219 Runoff Area=9.290 ac Runoff Depth=1.17"
Flow Length=800' Slope=0.0330 '/' Tc=24.2 min CN=74 Runoff=7.56 cfs 0.907 af

Subcatchment E4975: E4975 Runoff Area=17.350 ac Runoff Depth=1.42"
Flow Length=1,110' Slope=0.0250 '/' Tc=46.6 min CN=78 Runoff=12.87 cfs 2.056 af

Subcatchment E5158: E5158 Runoff Area=7.470 ac Runoff Depth=2.45"
Flow Length=500' Tc=17.1 min CN=91 Runoff=15.07 cfs 1.523 af

Subcatchment E5498: E5498 Runoff Area=6.670 ac Runoff Depth=1.77"
Flow Length=1,000' Tc=38.4 min CN=83 Runoff=6.95 cfs 0.986 af

Subcatchment E5909: E5909 Runoff Area=3.860 ac Runoff Depth=1.77"
Flow Length=450' Slope=0.0080 '/' Tc=52.8 min CN=83 Runoff=3.40 cfs 0.571 af

Subcatchment E6369: E6369 Runoff Area=17.580 ac Runoff Depth=1.36"
Flow Length=950' Tc=63.2 min CN=77 Runoff=10.36 cfs 1.988 af

Subcatchment E6821: E6821 Runoff Area=47.710 ac Runoff Depth=1.63"
Flow Length=2,042' Tc=62.2 min CN=81 Runoff=34.67 cfs 6.472 af

Subcatchment E7473: E7473 Runoff Area=56.050 ac Runoff Depth=1.56"
Flow Length=1,565' Tc=36.5 min CN=80 Runoff=52.19 cfs 7.274 af

Subcatchment E8046: E8046 Runoff Area=63.610 ac Runoff Depth=2.09"
Flow Length=3,435' Tc=57.2 min CN=87 Runoff=63.20 cfs 11.093 af

Subcatchment E8497: E8497 Runoff Area=161.630 ac Runoff Depth>1.42"
Flow Length=4,455' Tc=135.0 min CN=78 Runoff=60.02 cfs 19.150 af

Subcatchment E9081: E9081 Runoff Area=12.310 ac Runoff Depth=1.63"
Flow Length=575' Tc=22.5 min CN=81 Runoff=14.95 cfs 1.670 af

Subcatchment E9326: E9326 Runoff Area=24.170 ac Runoff Depth=1.17"
Flow Length=1,650' Tc=40.2 min CN=74 Runoff=15.55 cfs 2.359 af

Subcatchment E9611: E9611 Runoff Area=33.700 ac Runoff Depth=2.01"
Flow Length=1,650' Tc=53.6 min CN=86 Runoff=33.37 cfs 5.645 af

Subcatchment ELB1369: ELB1369 Runoff Area=19.910 ac Runoff Depth=1.56"
Flow Length=2,055' Tc=44.5 min CN=80 Runoff=16.75 cfs 2.584 af

Subcatchment ELB1483: ELB1483 Runoff Area=10.040 ac Runoff Depth=1.11"
Flow Length=1,125' Slope=0.0400 '/' Tc=38.1 min CN=73 Runoff=6.25 cfs 0.931 af

Subcatchment ELB2128: ELB2128 Runoff Area=36.550 ac Runoff Depth=1.49"
Flow Length=900' Tc=60.5 min CN=79 Runoff=24.61 cfs 4.534 af

Subcatchment ELB234: ELB234 Runoff Area=3.920 ac Runoff Depth=1.63"
Flow Length=400' Slope=0.0150 '/' Tc=26.4 min CN=81 Runoff=4.44 cfs 0.532 af

Subcatchment ELB729: ELB729 Runoff Area=53.530 ac Runoff Depth=1.49"
Flow Length=4,165' Tc=100.2 min CN=79 Runoff=25.77 cfs 6.641 af

Subcatchment ELB829: ELB829 Runoff Area=4.250 ac Runoff Depth=1.17"
Flow Length=750' Slope=0.0400 '/' Tc=31.8 min CN=74 Runoff=3.06 cfs 0.415 af

Subcatchment ELB972: ELB972 Runoff Area=7.430 ac Runoff Depth=1.17"
Flow Length=900' Slope=0.0400 '/' Tc=27.0 min CN=74 Runoff=5.77 cfs 0.725 af

Subcatchment W1217: W1217 Runoff Area=10.690 ac Runoff Depth=2.35"
Flow Length=650' Slope=0.0100 '/' Tc=17.0 min CN=90 Runoff=20.92 cfs 2.097 af

Subcatchment W1626: W1626 Runoff Area=60.580 ac Runoff Depth=1.29"
Flow Length=2,635' Tc=47.0 min CN=76 Runoff=40.23 cfs 6.529 af

Subcatchment W1737: W1737 Runoff Area=26.010 ac Runoff Depth=1.42"
Flow Length=1,150' Tc=47.9 min CN=78 Runoff=19.01 cfs 3.082 af

Subcatchment W2720: W2720 Runoff Area=27.950 ac Runoff Depth=1.70"
Flow Length=700' Tc=53.8 min CN=82 Runoff=23.28 cfs 3.960 af

Subcatchment W290: W290 Runoff Area=4.140 ac Runoff Depth=1.11"
Flow Length=650' Slope=0.0300 '/' Tc=28.3 min CN=73 Runoff=2.96 cfs 0.384 af

Subcatchment W3148: W3148 Runoff Area=9.510 ac Runoff Depth=1.23"
Flow Length=750' Tc=46.4 min CN=75 Runoff=6.01 cfs 0.976 af

Subcatchment W3774: W3774 Runoff Area=15.610 ac Runoff Depth=1.49"
Flow Length=1,200' Tc=31.3 min CN=79 Runoff=14.88 cfs 1.937 af

Subcatchment W3975: W3975 Runoff Area=9.970 ac Runoff Depth=2.45"
Flow Length=865' Tc=20.3 min CN=91 Runoff=18.85 cfs 2.033 af

Subcatchment W4529: W4529 Runoff Area=64.080 ac Runoff Depth=2.01"
Flow Length=3,200' Tc=51.2 min CN=86 Runoff=65.20 cfs 10.734 af

Subcatchment W5128: W5128 Runoff Area=11.350 ac Runoff Depth=2.18"
Flow Length=605' Slope=0.0200 '/' Tc=23.3 min CN=88 Runoff=18.24 cfs 2.060 af

Subcatchment W5300: W5300 Runoff Area=25.630 ac Runoff Depth=1.42"
Flow Length=925' Tc=30.7 min CN=78 Runoff=23.43 cfs 3.037 af

Subcatchment W6008: W6008 Runoff Area=12.580 ac Runoff Depth=1.42"
Flow Length=875' Tc=42.6 min CN=78 Runoff=9.79 cfs 1.491 af

Subcatchment W6278: W6278 Runoff Area=15.920 ac Runoff Depth=1.42"
Flow Length=1,350' Tc=25.8 min CN=78 Runoff=15.74 cfs 1.886 af

Subcatchment W6643: W6643 Runoff Area=25.890 ac Runoff Depth=1.93"
Flow Length=2,400' Tc=39.4 min CN=85 Runoff=29.05 cfs 4.163 af

Subcatchment W684: W684 Runoff Area=7.620 ac Runoff Depth=1.29"
Flow Length=650' Slope=0.0260 '/' Tc=36.2 min CN=76 Runoff=5.80 cfs 0.821 af

Link 1C: (new Link) Inflow=200.32 cfs 128.304 af
Primary=200.32 cfs 128.304 af

Link 1E: (new Link) Inflow=33.37 cfs 5.645 af
Primary=33.37 cfs 5.645 af

Link 1ELB: (new Link) Inflow=24.61 cfs 4.534 af
Primary=24.61 cfs 4.534 af

Link 1W: (new Link) Inflow=29.05 cfs 4.163 af
Primary=29.05 cfs 4.163 af

Link 2C: (new Link) delayed by 20.0 min Inflow=201.72 cfs 132.925 af
Primary=201.62 cfs 132.410 af

Link 2E: (new Link) delayed by 45.0 min Inflow=48.25 cfs 8.004 af
Primary=48.25 cfs 8.004 af

Link 2ELB: (new Link) delayed by 20.0 min Inflow=29.50 cfs 5.466 af
Primary=29.47 cfs 5.466 af

Link 2W: (new Link) delayed by 30.0 min Inflow=42.95 cfs 6.049 af
Primary=42.95 cfs 6.049 af

Link 3C: (new Link) delayed by 20.0 min Inflow=202.06 cfs 133.778 af
Primary=201.95 cfs 133.207 af

Link 3E: (new Link) delayed by 45.0 min Inflow=50.51 cfs 9.674 af
Primary=50.51 cfs 9.674 af

Link 3ELB: (new Link) delayed by 20.0 min Inflow=39.75 cfs 8.050 af
Primary=39.71 cfs 8.050 af

Link 3W: (new Link) delayed by 30.0 min Inflow=49.69 cfs 7.540 af
Primary=49.69 cfs 7.540 af

Link 4C: (new Link) delayed by 20.0 min Inflow=203.38 cfs 138.411 af
Primary=203.27 cfs 137.797 af

Link 4E: (new Link) delayed by 45.0 min Inflow=108.20 cfs 28.824 af
Primary=108.20 cfs 28.822 af

Link 4ELB: (new Link) delayed by 20.0 min Inflow=40.98 cfs 8.775 af
Primary=40.93 cfs 8.775 af

Link 4W: (new Link) delayed by 30.0 min Inflow=54.62 cfs 10.577 af
Primary=54.62 cfs 10.577 af

Link 5C: (new Link) Inflow=203.76 cfs 139.417 af
Primary=203.76 cfs 139.417 af

Link 5E: (new Link) delayed by 60.0 min Inflow=118.18 cfs 39.916 af
Primary=118.18 cfs 39.909 af

Link 5ELB: (new Link) delayed by 20.0 min Inflow=41.55 cfs 9.190 af
Primary=41.51 cfs 9.190 af

Link 5W: (new Link) delayed by 30.0 min Inflow=56.62 cfs 12.636 af
Primary=56.62 cfs 12.636 af

Link 6C: (new Link) Inflow=209.20 cfs 159.833 af
Primary=209.20 cfs 159.833 af

Link 6E: (new Link) delayed by 60.0 min Inflow=123.04 cfs 47.183 af
Primary=123.04 cfs 47.160 af

Link 6ELB: (new Link) delayed by 20.0 min Inflow=61.65 cfs 15.831 af
Primary=61.61 cfs 15.831 af

Link 6W: (new Link) delayed by 30.0 min Inflow=86.08 cfs 23.370 af
Primary=86.08 cfs 23.370 af

Link 7C: (new Link) Inflow=209.37 cfs 160.395 af
Primary=209.37 cfs 160.395 af

Link 7E: (new Link) delayed by 45.0 min Inflow=126.55 cfs 53.633 af
Primary=126.55 cfs 53.583 af

Link 7ELB: (new Link) delayed by 20.0 min Inflow=62.14 cfs 16.362 af
Primary=62.10 cfs 16.362 af

Link 7W: (new Link) delayed by 30.0 min Inflow=88.59 cfs 25.403 af
Primary=88.59 cfs 25.403 af

Link 8C: (new Link) Inflow=209.84 cfs 162.195 af
Primary=209.84 cfs 162.195 af

Link 8E: (new Link) delayed by 45.0 min Inflow=127.52 cfs 55.571 af
Primary=127.52 cfs 55.425 af

Link 8W: (new Link) delayed by 30.0 min Inflow=91.10 cfs 27.339 af
Primary=91.10 cfs 27.339 af

Link 9E: (new Link) delayed by 30.0 min Inflow=137.07 cfs 72.358 af
Primary=137.07 cfs 72.183 af

Link 9W: (new Link) delayed by 30.0 min Inflow=92.36 cfs 28.315 af
Primary=92.36 cfs 28.315 af

Link 10E: (new Link) delayed by 30.0 min Inflow=137.36 cfs 73.170 af
Primary=137.36 cfs 72.943 af

Link 10W: (new Link) delayed by 30.0 min Inflow=96.29 cfs 32.276 af
Primary=96.29 cfs 32.276 af

Link 11E: (new Link) delayed by 30.0 min Inflow=137.71 cfs 74.466 af
Primary=137.71 cfs 74.199 af

Link 11W: (new Link) delayed by 30.0 min Inflow=98.96 cfs 35.357 af
Primary=98.96 cfs 35.356 af

Link 12E: (new Link) delayed by 30.0 min Inflow=138.33 cfs 76.255 af
Primary=138.33 cfs 75.944 af

Link 12W: (new Link) delayed by 30.0 min Inflow=104.06 cfs 41.885 af
Primary=104.06 cfs 41.876 af

Link 13E: (new Link) delayed by 30.0 min Inflow=138.61 cfs 76.851 af
Primary=138.61 cfs 76.489 af

Link 13W: (new Link) delayed by 30.0 min Inflow=104.95 cfs 43.974 af
Primary=104.95 cfs 43.935 af

Link 14E: (new Link) delayed by 30.0 min Inflow=138.81 cfs 77.227 af
Primary=138.81 cfs 76.823 af

Link 14W: (new Link) delayed by 30.0 min Inflow=105.39 cfs 44.756 af
Primary=105.39 cfs 44.695 af

Link 15E: (new Link) delayed by 30.0 min Inflow=140.25 cfs 81.448 af
Primary=140.25 cfs 80.960 af

Link 15W: (new Link) delayed by 30.0 min Inflow=105.59 cfs 45.079 af
Primary=105.59 cfs 44.991 af

Link 16E: (new Link) delayed by 30.0 min Inflow=141.34 cfs 83.893 af
Primary=141.34 cfs 83.313 af

Total Runoff Area = 1,244.460 ac Runoff Volume = 167.132 af Average Runoff Depth = 1.61"
68.71% Pervious Area = 855.023 ac 31.29% Impervious Area = 389.437 ac

Subcatchment C116: C116

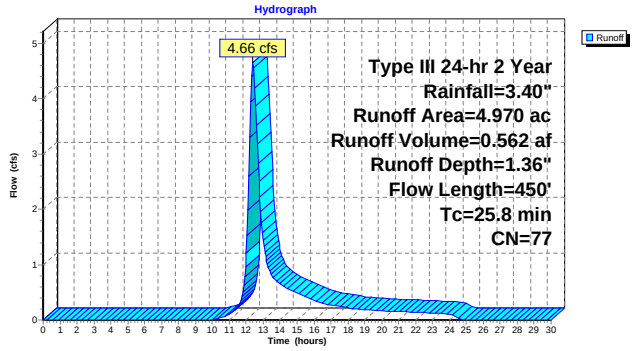
Runoff = 4.66 cfs @ 12.38 hrs, Volume= 0.562 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
4.970	77	Brush, Poor, HSG C
4.970		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
8.5	300	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.8	450	Total			

Subcatchment C116: C116



Subcatchment C1334: C1334

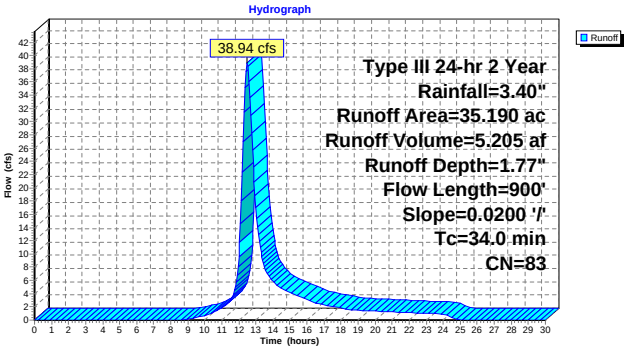
Runoff = 38.94 cfs @ 12.48 hrs, Volume= 5.205 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
2.520	94	Urban commercial, 85% imp, HSG C
2.450	81	1/3 acre lots, 30% imp, HSG C
2.510	74	>75% Grass cover, Good, HSG C
27.710	83	1/4 acre lots, 38% imp, HSG C
35.190	83	Weighted Average
21.783		Pervious Area
13.407		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	150	0.0200	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.7	400	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.2	350	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	900	Total			

Subcatchment C1334: C1334



Subcatchment C1748: C1748

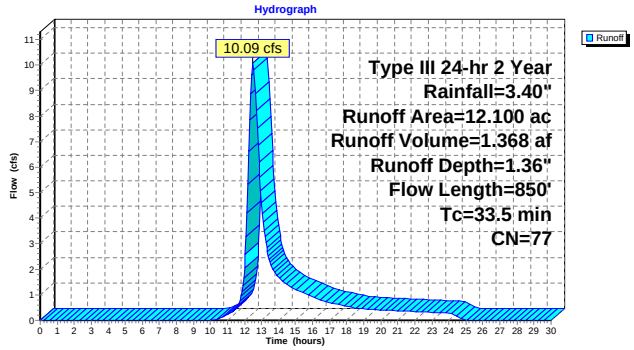
Runoff = 10.09 cfs @ 12.49 hrs, Volume= 1.368 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
1.420	94	Urban commercial, 85% imp, HSG C
2.560	83	1/4 acre lots, 38% imp, HSG C
2.020	74	>75% Grass cover, Good, HSG C
3.600	70	Brush, Fair, HSG C
2.500	74	>75% Grass cover, Good, HSG C
12.100	77	Weighted Average
9.920		Pervious Area
2.180		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	150	0.0270	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.5	450	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.0	250	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.5	850	Total			

Subcatchment C1748: C1748



Subcatchment C2359: C2359

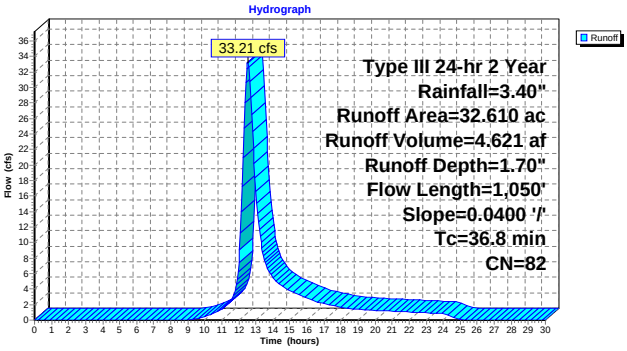
Runoff = 33.21 cfs @ 12.52 hrs, Volume= 4.621 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
8.300	91	Urban industrial, 72% imp, HSG C
2.000	77	Brush, Fair, HSG D
7.540	70	Brush, Fair, HSG C
14.770	83	1/4 acre lots, 38% imp, HSG C
32.610	82	Weighted Average
21.021		Pervious Area
11.589		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
15.0	900	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.8	1,050	Total			

Subcatchment C2359: C2359



Subcatchment C560: C560

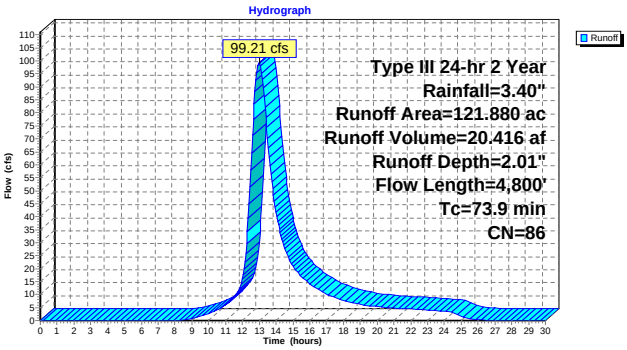
Runoff = 99.21 cfs @ 13.00 hrs, Volume= 20.416 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
19.710	94	Urban commercial, 85% imp, HSG C
1.910	74	>75% Grass cover, Good, HSG C
1.250	73	Woods, Fair, HSG C
2.630	74	>75% Grass cover, Good, HSG C
7.880	70	1/2 acre lots, 25% imp, HSG B
9.060	60	Woods, Fair, HSG B
79.440	90	1/8 acre lots, 65% imp, HSG C
121.880	86	Weighted Average
51.520		Pervious Area
70.360		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1	200	0.0380	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
14.5	850	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	225	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.1	1,700	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.7	1,100	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	300	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.1	425	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
73.9	4,800	Total			

Subcatchment C560: C560



Subcatchment C62: (new Subcat)

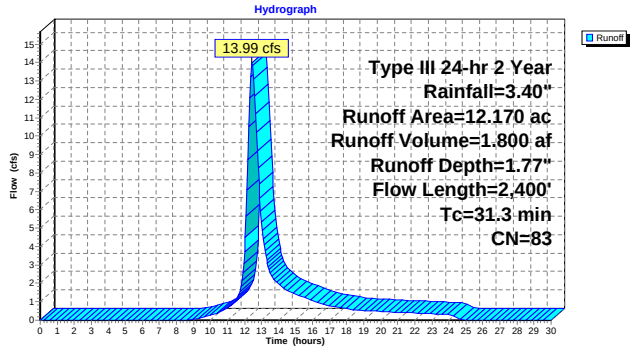
Runoff = 13.99 cfs @ 12.44 hrs, Volume= 1.800 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
12.170	83	1/4 acre lots, 38% imp, HSG C
7.545		Pervious Area
4.625		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	200	0.0400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.4	2,000	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
31.3	2,400	Total			

Subcatchment C62: (new Subcat)



Subcatchment C747: C747

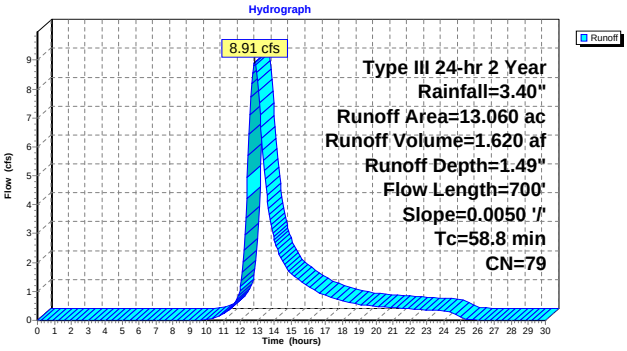
Runoff = 8.91 cfs @ 12.83 hrs, Volume= 1.620 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
2.870	90	1/8 acre lots, 65% imp, HSG C
2.010	83	1/4 acre lots, 38% imp, HSG C
4.720	74	>75% Grass cover, Good, HSG C
0.560	94	Urban commercial, 85% imp, HSG C
2.900	70	Brush, Fair, HSG C
13.060	79	Weighted Average
9.955		Pervious Area
3.105		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0	200	0.0050	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
16.8	500	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
58.8	700	Total			

Subcatchment C747: C747



Subcatchment E2964: E2964

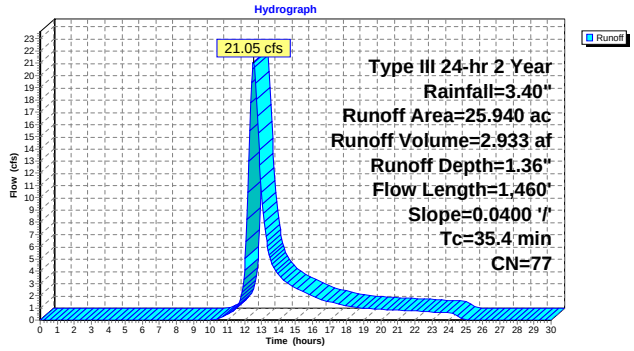
Runoff = 21.05 cfs @ 12.52 hrs, Volume= 2.933 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
12.450	81	1/3 acre lots, 30% imp, HSG C
13.490	73	Woods, Fair, HSG C
25.940	77	Weighted Average
22.205		Pervious Area
3.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	1,110	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.4	1,460	Total			

Subcatchment E2964: E2964



Subcatchment E3568: E3568

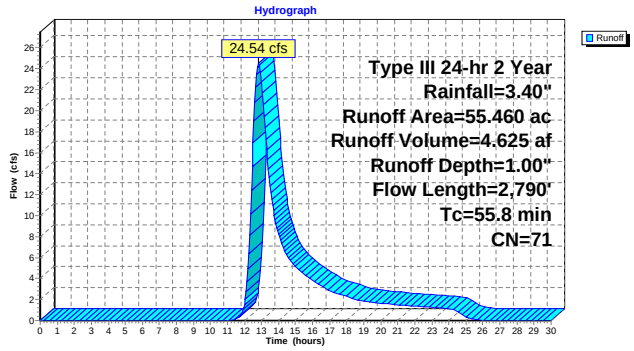
Runoff = 24.54 cfs @ 12.83 hrs, Volume= 4.625 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
1.850	74	>75% Grass cover, Good, HSG C
12.510	61	>75% Grass cover, Good, HSG B
20.920	83	1/4 acre lots, 38% imp, HSG C
13.320	60	Woods, Fair, HSG B
6.860	73	Woods, Fair, HSG C
55.460	71	Weighted Average
47.510		Pervious Area
7.950		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
9.8	590	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	810	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.1	440	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	800	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
55.8	2,790	Total			

Subcatchment E3568: E3568



Subcatchment E3889: E3889

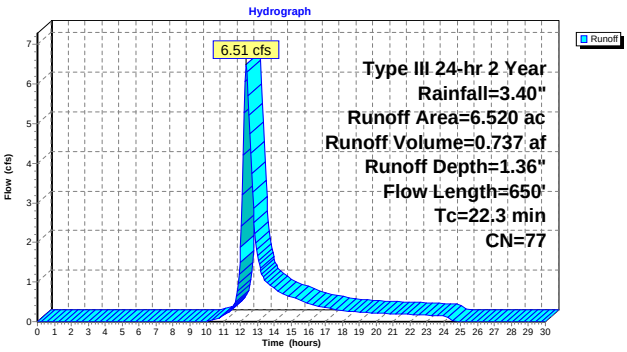
Runoff = 6.51 cfs @ 12.32 hrs, Volume= 0.737 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
2.290	83	1/4 acre lots, 38% imp, HSG C
4.230	74	>75% Grass cover, Good, HSG C
6.520	77	Weighted Average
5.650		Pervious Area
0.870		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.0	500	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.3	650	Total			

Subcatchment E3889: E3889



Subcatchment E4219: E4219

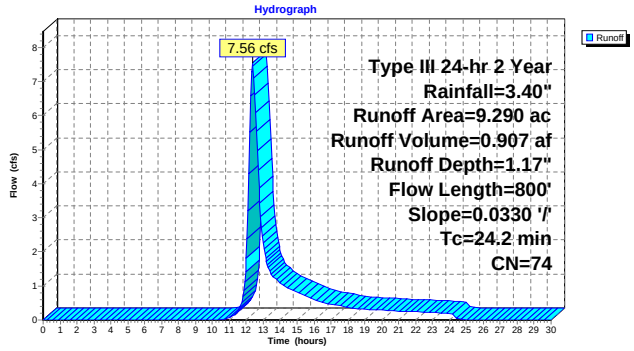
Runoff = 7.56 cfs @ 12.36 hrs, Volume= 0.907 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
9.290	74	>75% Grass cover, Good, HSG C
9.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.5	650	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	800	Total			

Subcatchment E4219: E4219



Subcatchment E4975: E4975

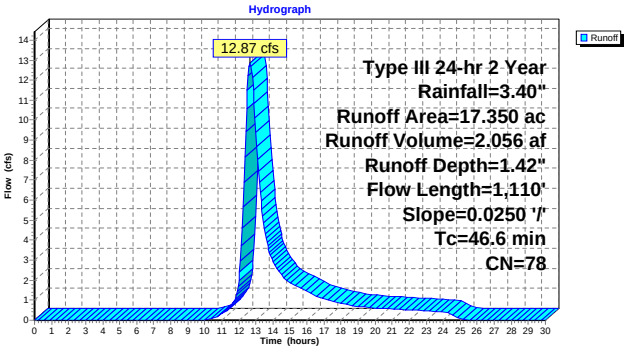
Runoff = 12.87 cfs @ 12.67 hrs, Volume= 2.056 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
4.910	91	Urban industrial, 72% imp, HSG C
12.440	73	Woods, Fair, HSG C
17.350	78	Weighted Average
13.815		Pervious Area
3.535		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
20.2	960	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
46.6	1,110	Total			

Subcatchment E4975: E4975



Subcatchment E5158: E5158

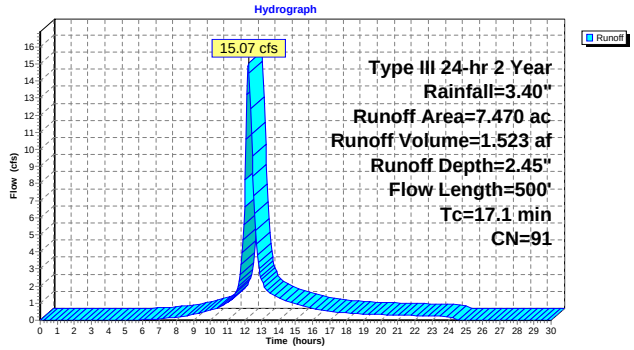
Runoff = 15.07 cfs @ 12.23 hrs, Volume= 1.523 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
1.900	82	Woods/grass comb., Poor, HSG C
5.570	94	Urban commercial, 85% imp, HSG C
7.470	91	Weighted Average
2.736		Pervious Area
4.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	150	0.0300	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
5.9	350	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.1	500	Total			

Subcatchment E5158: E5158



Subcatchment E5498: E5498

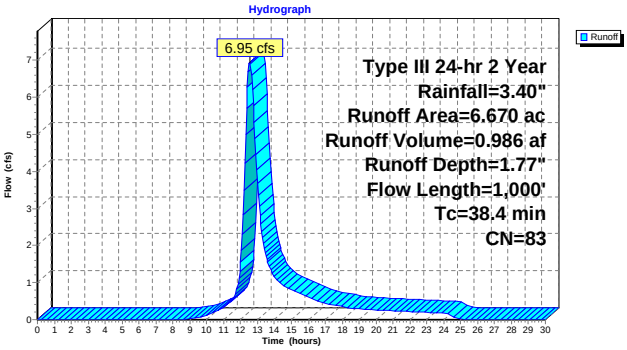
Runoff = 6.95 cfs @ 12.54 hrs, Volume= 0.986 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
2.620	94	Urban commercial, 85% imp, HSG C
4.050	76	Woods/grass comb., Fair, HSG C
6.670	83	Weighted Average
4.443		Pervious Area
2.227		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
23.9	850	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
38.4	1,000	Total			

Subcatchment E5498: E5498



Subcatchment E5909: E5909

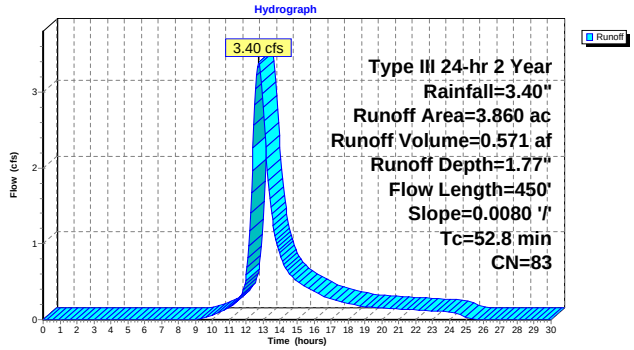
Runoff = 3.40 cfs @ 12.73 hrs, Volume= 0.571 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
1.480	94	Urban commercial, 85% imp, HSG C
2.380	76	Woods/grass comb., Fair, HSG C
3.860	83	Weighted Average
2.602		Pervious Area
1.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.6	150	0.0080	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
11.2	300	0.0080	0.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
52.8	450	Total			

Subcatchment E5909: E5909



Subcatchment E6369: E6369

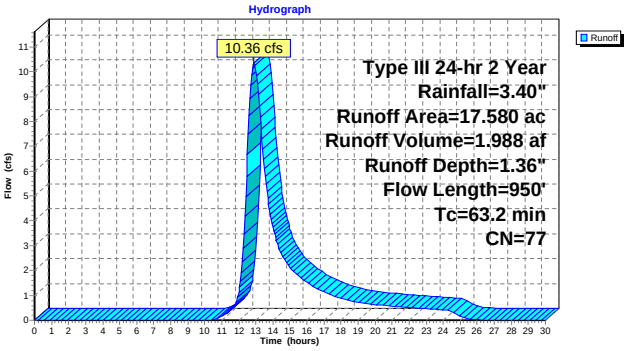
Runoff = 10.36 cfs @ 12.88 hrs, Volume= 1.988 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
8.290	73	Woods, Fair, HSG C
9.290	81	1/3 acre lots, 30% imp, HSG C
17.580	77	Weighted Average
14.793		Pervious Area
2.787		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
48.7	800	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
63.2	950	Total			

Subcatchment E6369: E6369



Subcatchment E6821: E6821

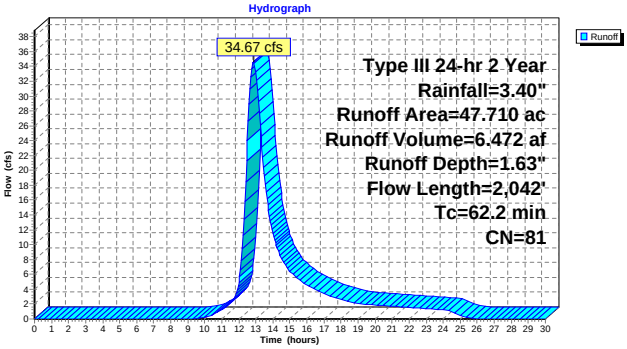
Runoff = 34.67 cfs @ 12.86 hrs, Volume= 6.472 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
8.430	83	1/4 acre lots, 38% imp, HSG C
11.040	81	1/3 acre lots, 30% imp, HSG C
4.790	83	1/4 acre lots, 38% imp, HSG C
9.780	91	Urban industrial, 72% imp, HSG C
13.670	73	Woods, Fair, HSG C
47.710	81	Weighted Average
32.333		Pervious Area
15.377		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	150	0.1000	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.1	100	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	365	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.0	430	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
20.0					**Direct Entry, Small Detention Pond**
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0180	2.01		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.8	472	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
62.2	2,042	Total			

Subcatchment E6821: E6821



Subcatchment E7473: E7473

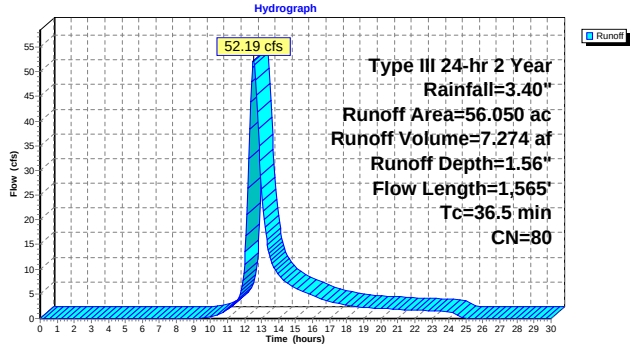
Runoff = 52.19 cfs @ 12.52 hrs, Volume= 7.274 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
5.660	83	1/4 acre lots, 38% imp, HSG C
9.690	91	Urban industrial, 72% imp, HSG C
18.120	83	1/4 acre lots, 38% imp, HSG C
22.580	73	Woods, Fair, HSG C
56.050	80	Weighted Average
40.037		Pervious Area
16.013		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	200	0.0600	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.9	300	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.9	1,065	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.5	1,565	Total			

Subcatchment E7473: E7473



Subcatchment E8046: E8046

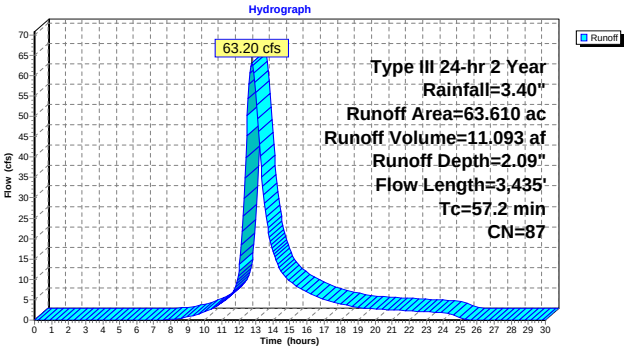
Runoff = 63.20 cfs @ 12.77 hrs, Volume= 11.093 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
36.960	91	Urban industrial, 72% imp, HSG C
2.300	83	1/4 acre lots, 38% imp, HSG C
10.840	94	Urban commercial, 85% imp, HSG C
13.510	70	Brush, Fair, HSG C
63.610	87	Weighted Average
26.911		Pervious Area
36.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0250	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
15.3	2,275	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
24.4	1,010	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
57.2	3,435	Total			

Subcatchment E8046: E8046



Subcatchment E8497: E8497

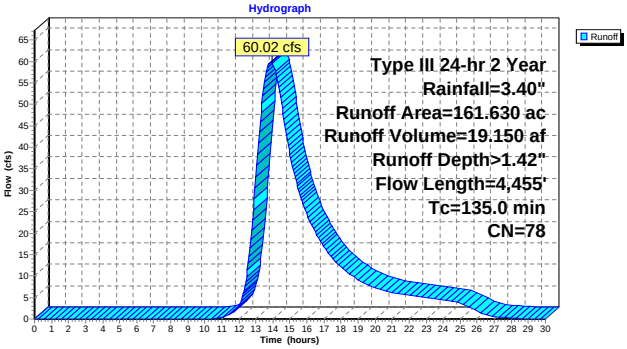
Runoff = 60.02 cfs @ 13.92 hrs, Volume= 19.150 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
15.850	83	1/4 acre lots, 38% imp, HSG C
16.520	81	1/3 acre lots, 30% imp, HSG C
13.150	94	Urban commercial, 85% imp, HSG C
8.270	83	1/4 acre lots, 38% imp, HSG C
7.790	94	Urban commercial, 85% imp, HSG C
0.850	94	Urban commercial, 85% imp, HSG C
5.500	91	Urban industrial, 72% imp, HSG C
93.700	72	Woods/grass comb., Good, HSG C
161.630	78	Weighted Average
125.027		Pervious Area
36.603		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	150	0.0120	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
9.4	650	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.1	700	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.0					**Direct Entry, Detention Pond**
28.8	1,430	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.6	400	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
15.0					**Direct Entry, Small Pond**
10.6	1,125	0.0140	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
135.0	4,455	Total			

Subcatchment E8497: E8497



Subcatchment E9081: E9081

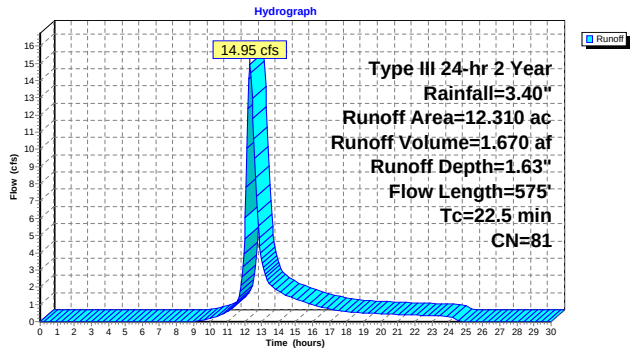
Runoff = 14.95 cfs @ 12.32 hrs, Volume= 1.670 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
6.640	70	Brush, Fair, HSG C
5.670	94	Urban commercial, 85% imp, HSG C
12.310	81	Weighted Average
7.491		Pervious Area
4.819		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	150	0.0350	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
12.0	425	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.5	575	Total			

Subcatchment E9081: E9081



Subcatchment E9326: E9326

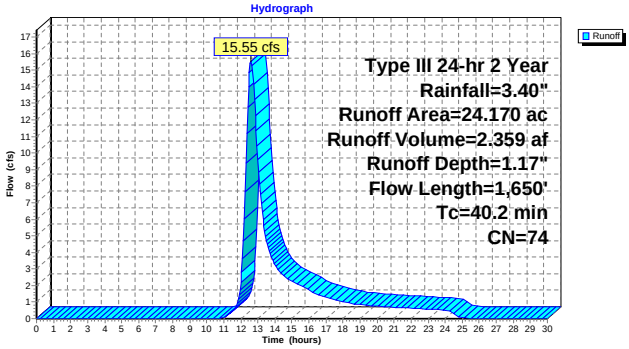
Runoff = 15.55 cfs @ 12.60 hrs, Volume= 2.359 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
4.140	94	Urban commercial, 85% imp, HSG C
20.030	70	Brush, Fair, HSG C
24.170	74	Weighted Average
20.651		Pervious Area
3.519		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.8	150	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.4	200	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.0	1,300	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
40.2	1,650	Total			

Subcatchment E9326: E9326



Subcatchment E9611: E9611

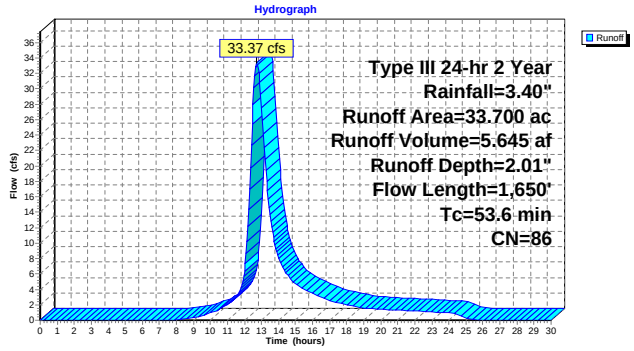
Runoff = 33.37 cfs @ 12.72 hrs, Volume= 5.645 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
12.370	72	Woods/grass comb., Good, HSG C
21.330	94	Urban commercial, 85% imp, HSG C
33.700	86	Weighted Average
15.569		Pervious Area
18.131		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
37.3	1,500	0.0180	0.67		**Shallow Concentrated Flow, Two ponds add some time** Woodland Kv= 5.0 fps
53.6	1,650	Total			

Subcatchment E9611: E9611



Subcatchment ELB1369: ELB1369

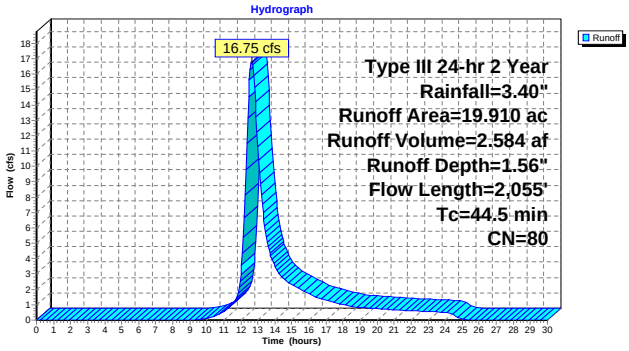
Runoff = 16.75 cfs @ 12.63 hrs, Volume= 2.584 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
17.390	81	1/3 acre lots, 30% imp, HSG C
2.520	70	Brush, Fair, HSG C
19.910	80	Weighted Average
14.693		Pervious Area
5.217		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
12.0	575	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	1,330	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
44.5	2,055	Total			

Subcatchment ELB1369: ELB1369



Subcatchment ELB1483: ELB1483

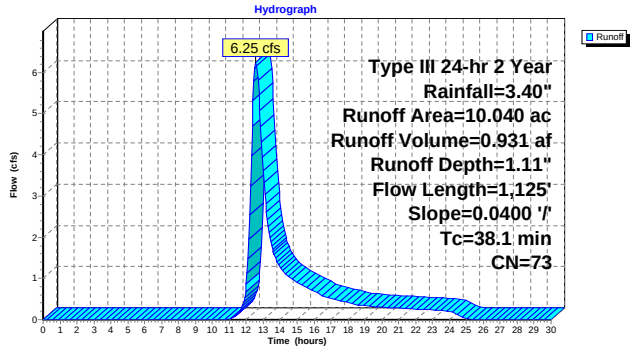
Runoff = 6.25 cfs @ 12.57 hrs, Volume= 0.931 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
7.570	70	Brush, Fair, HSG C
2.470	81	1/3 acre lots, 30% imp, HSG C
10.040	73	Weighted Average
9.299		Pervious Area
0.741		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
16.3	975	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
38.1	1,125	Total			

Subcatchment ELB1483: ELB1483



Subcatchment ELB2128: ELB2128

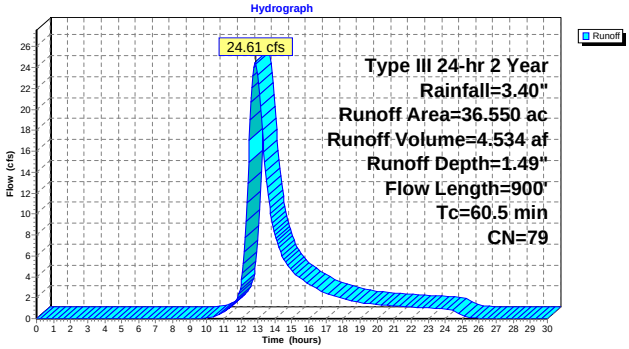
Runoff = 24.61 cfs @ 12.85 hrs, Volume= 4.534 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
6.960	90	1/8 acre lots, 65% imp, HSG C
4.870	60	Woods, Fair, HSG B
4.870	73	Woods, Fair, HSG C
19.850	81	1/3 acre lots, 30% imp, HSG C
36.550	79	Weighted Average
26.071		Pervious Area
10.479		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.2	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.40"
10.3	750	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
60.5	900	Total			

Subcatchment ELB2128: ELB2128



Subcatchment ELB234: ELB234

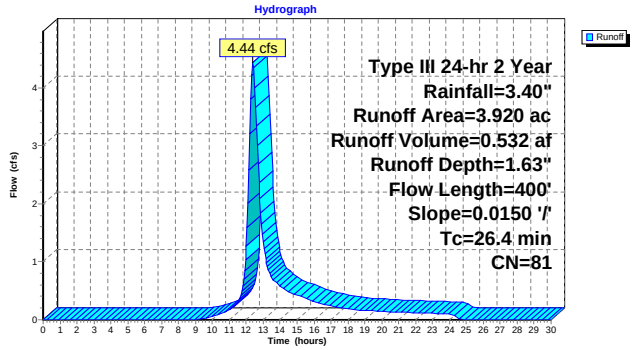
Runoff = 4.44 cfs @ 12.38 hrs, Volume= 0.532 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
3.920	81	1/3 acre lots, 30% imp, HSG C
2.744		Pervious Area
1.176		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	150	0.0150	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
4.9	250	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
26.4	400	Total			

Subcatchment ELB234: ELB234



Subcatchment ELB729: ELB729

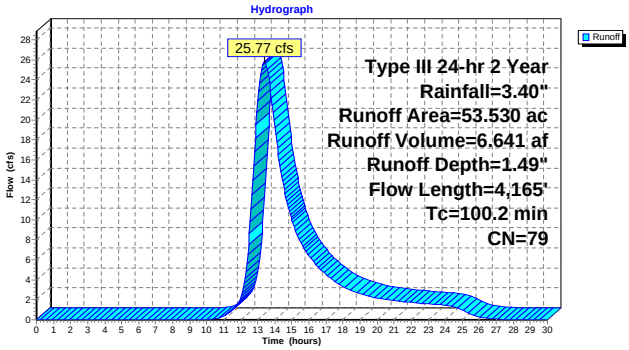
Runoff = 25.77 cfs @ 13.37 hrs, Volume= 6.641 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
11.760	94	Urban commercial, 85% imp, HSG C
26.080	71	Meadow, non-grazed, HSG C
15.690	81	1/3 acre lots, 30% imp, HSG C
53.530	79	Weighted Average
38.827		Pervious Area
14.703		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.0	150	0.0020	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
41.8	1,010	0.0020	0.40		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
18.9	1,455	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.5	1,550	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
100.2	4,165	Total			

Subcatchment ELB729: ELB729



Subcatchment ELB829: ELB829

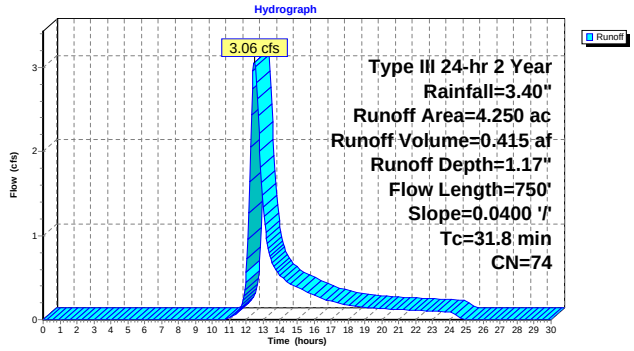
Runoff = 3.06 cfs @ 12.48 hrs, Volume= 0.415 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
0.750	81	1/3 acre lots, 30% imp, HSG C
3.500	73	Woods, Fair, HSG C
4.250	74	Weighted Average
4.025		Pervious Area
0.225		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.8	750	Total			

Subcatchment ELB829: ELB829



Subcatchment ELB972: ELB972

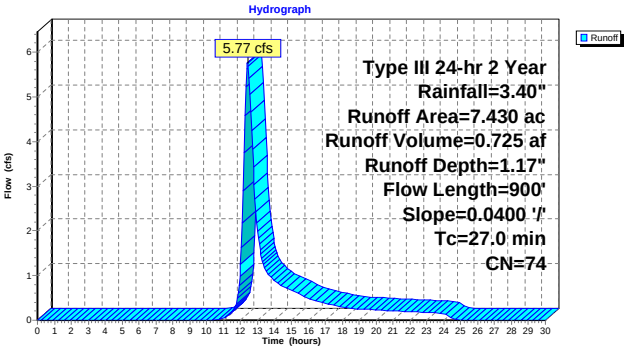
Runoff = 5.77 cfs @ 12.41 hrs, Volume= 0.725 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
1.000	81	1/3 acre lots, 30% imp, HSG C
6.430	73	Woods, Fair, HSG C
7.430	74	Weighted Average
7.130		Pervious Area
0.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
12.5	750	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.0	900	Total			

Subcatchment ELB972: ELB972



Subcatchment W1217: W1217

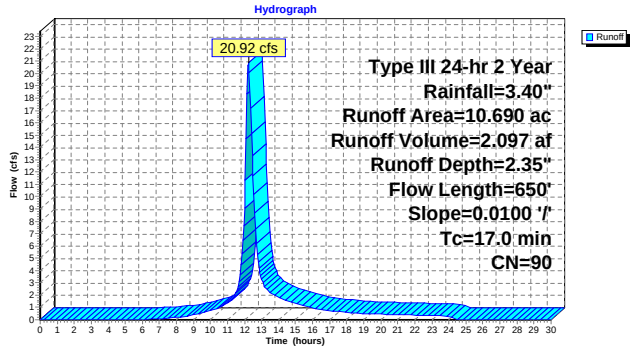
Runoff = 20.92 cfs @ 12.23 hrs, Volume= 2.097 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
10.690	90	1/8 acre lots, 65% imp, HSG C
3.742		Pervious Area
6.949		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.5	550	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.0	650	Total			

Subcatchment W1217: W1217



Subcatchment W1626: W1626

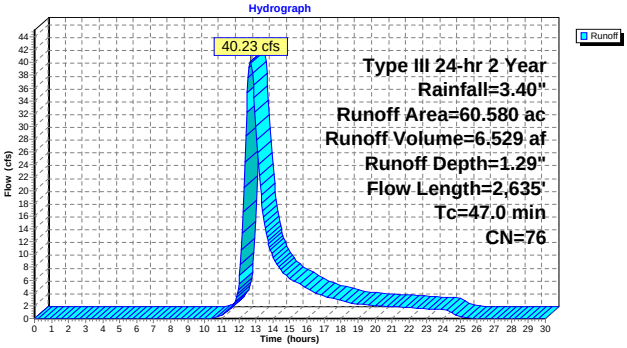
Runoff = 40.23 cfs @ 12.68 hrs, Volume= 6.529 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
20.360	81	1/3 acre lots, 30% imp, HSG C
40.220	74	>75% Grass cover, Good, HSG C
60.580	76	Weighted Average
54.472		Pervious Area
6.108		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	200	0.0230	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
14.9	950	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.4	810	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.9	675	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
47.0	2,635	Total			

Subcatchment W1626: W1626



Subcatchment W1737: W1737

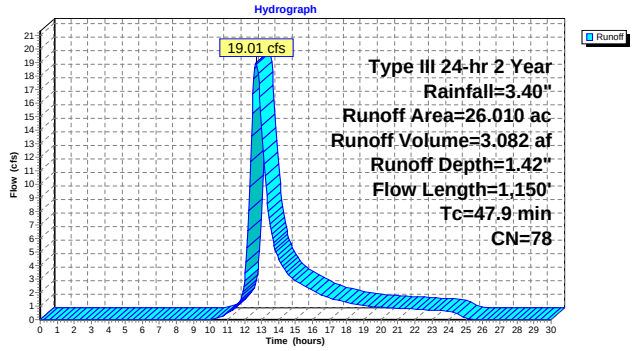
Runoff = 19.01 cfs @ 12.68 hrs, Volume= 3.082 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
18.140	76	Woods/grass comb., Fair, HSG C
7.870	83	1/4 acre lots, 38% imp, HSG C
26.010	78	Weighted Average
23.019		Pervious Area
2.991		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
21.5	1,000	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
47.9	1,150	Total			

Subcatchment W1737: W1737



Subcatchment W2720: W2720

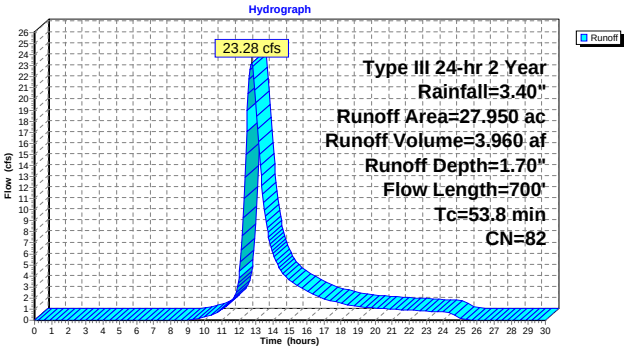
Runoff = 23.28 cfs @ 12.75 hrs, Volume= 3.960 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
3.790	73	Woods, Fair, HSG C
24.160	83	1/4 acre lots, 38% imp, HSG C
27.950	82	Weighted Average
18.769		Pervious Area
9.181		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
36.3	100	0.0050	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
17.5	600	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
53.8	700	Total			

Subcatchment W2720: W2720



Subcatchment W290: W290

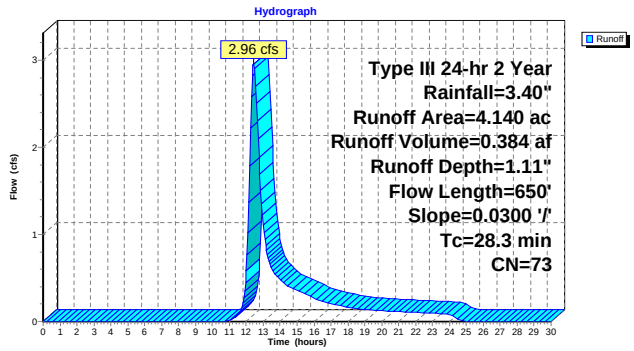
Runoff = 2.96 cfs @ 12.43 hrs, Volume= 0.384 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
4.140	73	Woods, Fair, HSG C
4.140		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.6	550	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.3	650	Total			

Subcatchment W290: W290



Subcatchment W3148: W3148

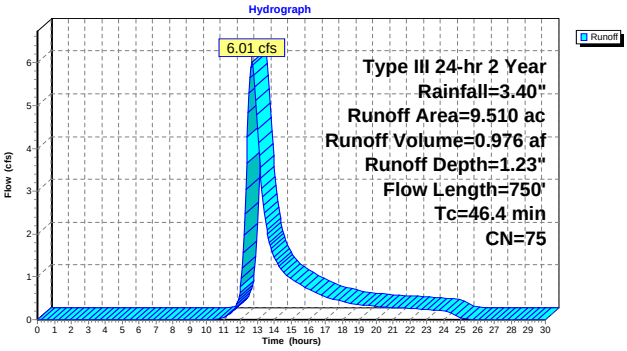
Runoff = 6.01 cfs @ 12.67 hrs, Volume= 0.976 af, Depth= 1.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
2.120	83	1/4 acre lots, 38% imp, HSG C
7.390	73	Woods, Fair, HSG C
9.510	75	Weighted Average
8.704		Pervious Area
0.806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
20.0	600	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
46.4	750	Total			

Subcatchment W3148: W3148



Subcatchment W3774: W3774

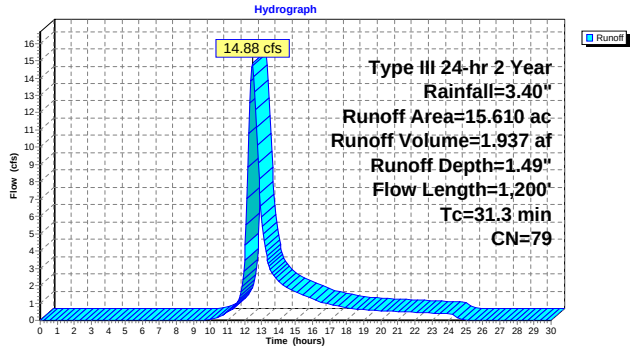
Runoff = 14.88 cfs @ 12.45 hrs, Volume= 1.937 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
1.990	94	Urban commercial, 85% imp, HSG C
8.790	81	1/3 acre lots, 30% imp, HSG C
4.830	70	Brush, Fair, HSG C
15.610	79	Weighted Average
11.282		Pervious Area
4.329		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.2	600	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.8	450	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.3	1,200	Total			

Subcatchment W3774: W3774



Subcatchment W3975: W3975

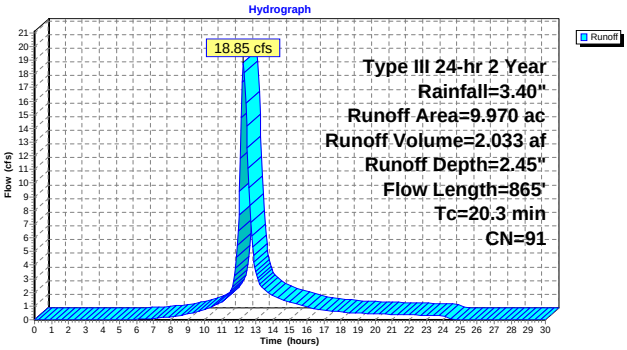
Runoff = 18.85 cfs @ 12.27 hrs, Volume= 2.033 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
9.970	91	Urban industrial, 72% imp, HSG C
2.792		Pervious Area
7.178		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	150	0.0250	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
8.3	715	0.0080	1.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
20.3	865	Total			

Subcatchment W3975: W3975



Subcatchment W4529: W4529

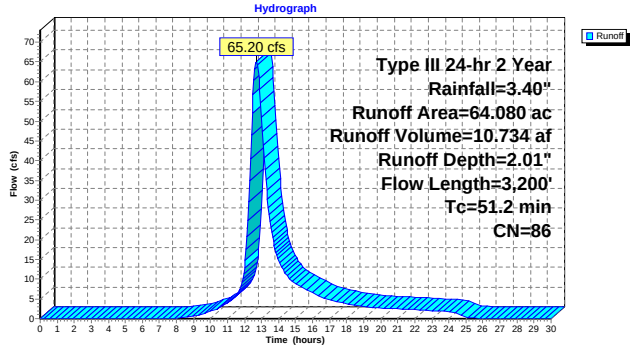
Runoff = 65.20 cfs @ 12.70 hrs, Volume= 10.734 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
25.860	94	Urban commercial, 85% imp, HSG C
38.220	81	1/3 acre lots, 30% imp, HSG C
64.080	86	Weighted Average
30.633		Pervious Area
33.447		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	200	0.0050	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.2	2,250	0.0130	2.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.2	750	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
51.2	3,200	Total			

Subcatchment W4529: W4529



Subcatchment W5128: W5128

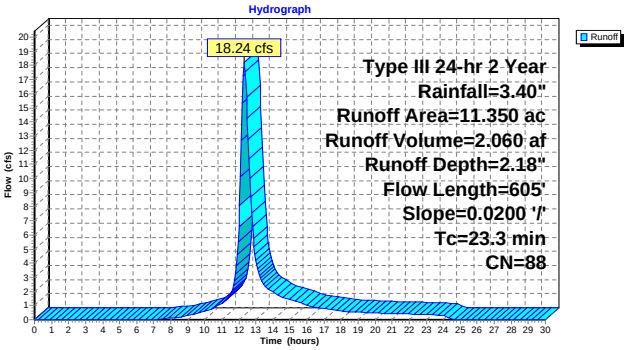
Runoff = 18.24 cfs @ 12.32 hrs, Volume= 2.060 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
4.320	83	1/4 acre lots, 38% imp, HSG C
7.030	91	Urban industrial, 72% imp, HSG C
11.350	88	Weighted Average
4.647		Pervious Area
6.703		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	200	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
6.8	405	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.3	605	Total			

Subcatchment W5128: W5128



Subcatchment W5300: W5300

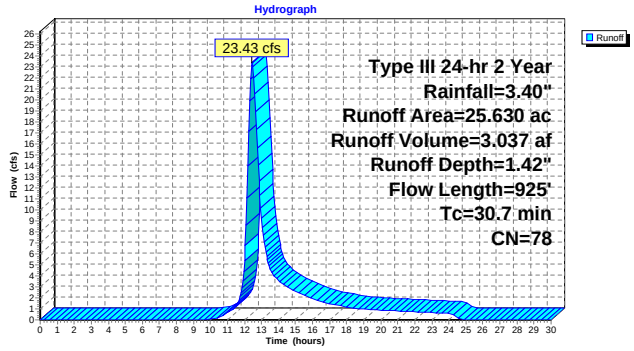
Runoff = 23.43 cfs @ 12.45 hrs, Volume= 3.037 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
14.570	73	Woods, Fair, HSG C
9.660	83	1/4 acre lots, 38% imp, HSG C
1.400	94	Urban commercial, 85% imp, HSG C
25.630	78	Weighted Average
20.769		Pervious Area
4.861		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
15.1	775	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.7	925	Total			

Subcatchment W5300: W5300



Subcatchment W6008: W6008

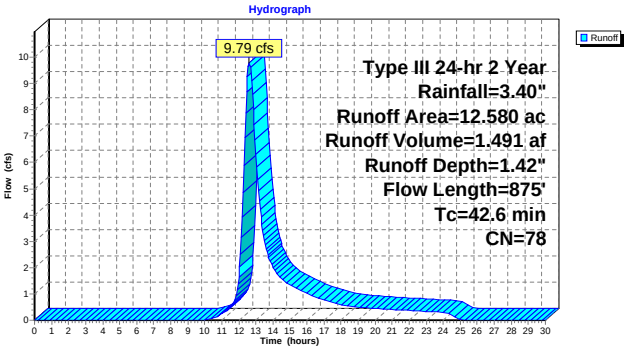
Runoff = 9.79 cfs @ 12.61 hrs, Volume= 1.491 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
6.890	73	Woods, Fair, HSG C
5.690	83	1/4 acre lots, 38% imp, HSG C
12.580	78	Weighted Average
10.418		Pervious Area
2.162		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0050	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
19.7	725	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
42.6	875	Total			

Subcatchment W6008: W6008



Subcatchment W6278: W6278

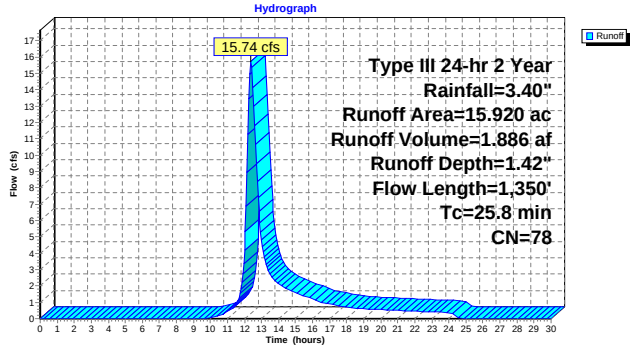
Runoff = 15.74 cfs @ 12.37 hrs, Volume= 1.886 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
7.730	73	Woods, Fair, HSG C
8.190	83	1/4 acre lots, 38% imp, HSG C
15.920	78	Weighted Average
12.808		Pervious Area
3.112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	150	0.0250	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.9	600	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.9	600	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.8	1,350	Total			

Subcatchment W6278: W6278



Subcatchment W6643: W6643

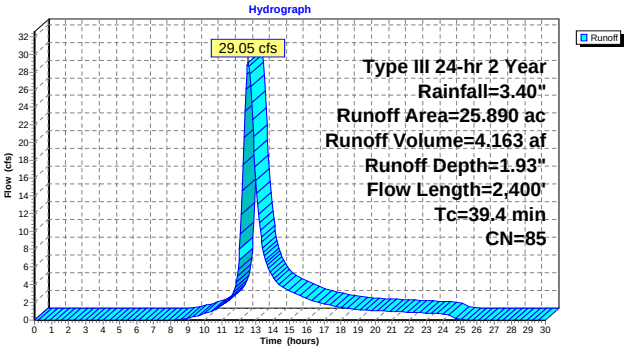
Runoff = 29.05 cfs @ 12.55 hrs, Volume= 4.163 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
14.500	86	Pasture/grassland/range, Poor, HSG C
11.390	83	1/4 acre lots, 38% imp, HSG C
25.890	85	Weighted Average
21.562		Pervious Area
4.328		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
11.2	1,500	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	750	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
39.4	2,400	Total			

Subcatchment W6643: W6643



Subcatchment W684: W684

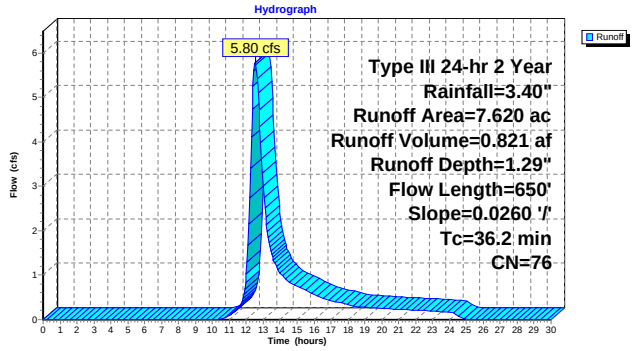
Runoff = 5.80 cfs @ 12.53 hrs, Volume= 0.821 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

Area (ac)	CN	Description
2.420	83	1/4 acre lots, 38% imp, HSG C
5.200	73	Woods, Fair, HSG C
7.620	76	Weighted Average
6.700		Pervious Area
0.920		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0260	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.3	500	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	650	Total			

Subcatchment W684: W684

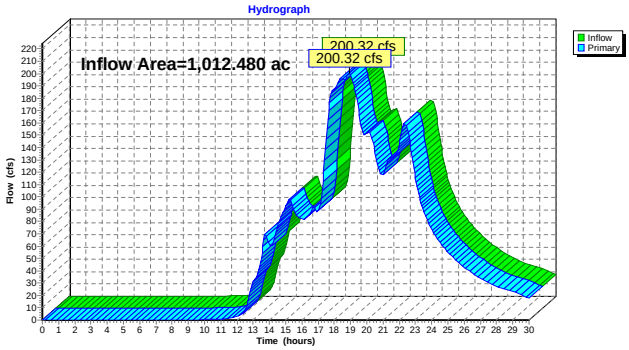


Link 1C: (new Link)

Inflow Area = 1,012.480 ac, Inflow Depth > 1.52" for 2 Year event
Inflow = 200.32 cfs @ 18.92 hrs, Volume= 128.304 af
Primary = 200.32 cfs @ 18.92 hrs, Volume= 128.304 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1C: (new Link)

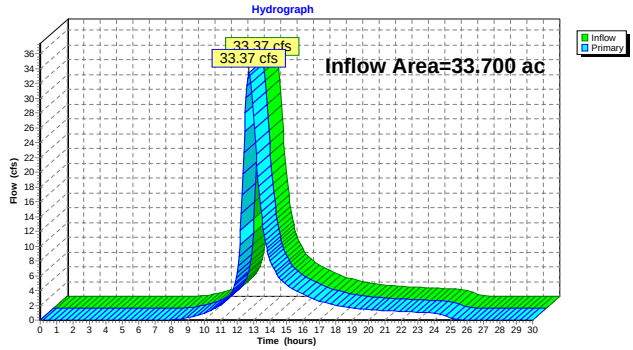


Link 1E: (new Link)

Inflow Area = 33.700 ac, Inflow Depth = 2.01" for 2 Year event
Inflow = 33.37 cfs @ 12.72 hrs, Volume= 5.645 af
Primary = 33.37 cfs @ 12.72 hrs, Volume= 5.645 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1E: (new Link)

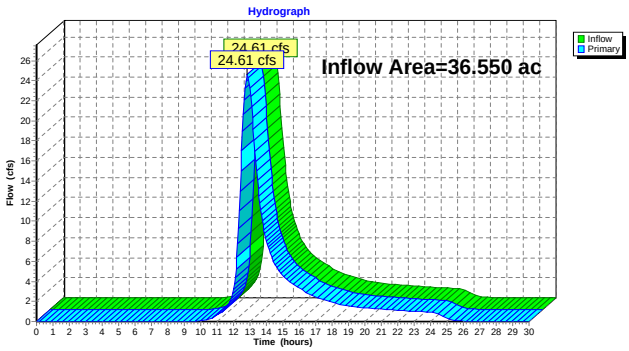


Link 1ELB: (new Link)

Inflow Area = 36.550 ac, Inflow Depth = 1.49" for 2 Year event
Inflow = 24.61 cfs @ 12.85 hrs, Volume= 4.534 af
Primary = 24.61 cfs @ 12.85 hrs, Volume= 4.534 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1ELB: (new Link)

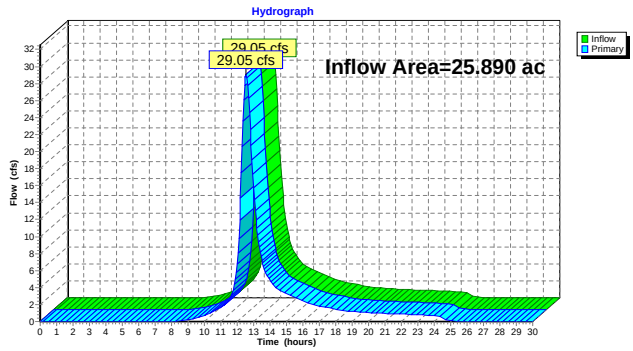


Link 1W: (new Link)

Inflow Area = 25.890 ac, Inflow Depth = 1.93" for 2 Year event
Inflow = 29.05 cfs @ 12.55 hrs, Volume= 4.163 af
Primary = 29.05 cfs @ 12.55 hrs, Volume= 4.163 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1W: (new Link)

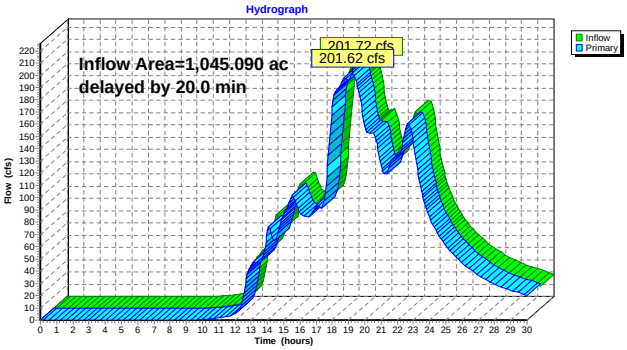


Link 2C: (new Link)

Inflow Area = 1,045.090 ac, Inflow Depth > 1.53" for 2 Year event
Inflow = 201.72 cfs @ 18.92 hrs, Volume= 132.925 af
Primary = 201.62 cfs @ 19.25 hrs, Volume= 132.410 af, Atten= 0%, Lag= 19.9 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2C: (new Link)

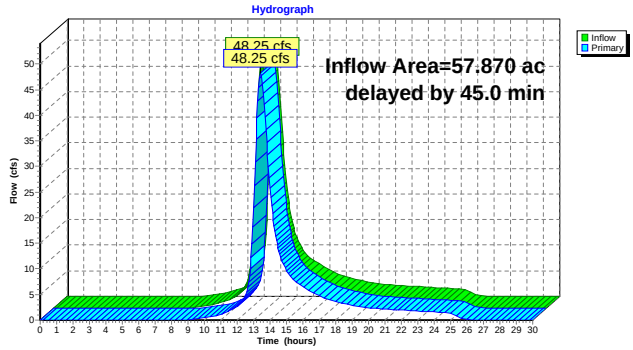


Link 2E: (new Link)

Inflow Area = 57.870 ac, Inflow Depth = 1.66" for 2 Year event
Inflow = 48.25 cfs @ 12.68 hrs, Volume= 8.004 af
Primary = 48.25 cfs @ 13.43 hrs, Volume= 8.004 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2E: (new Link)

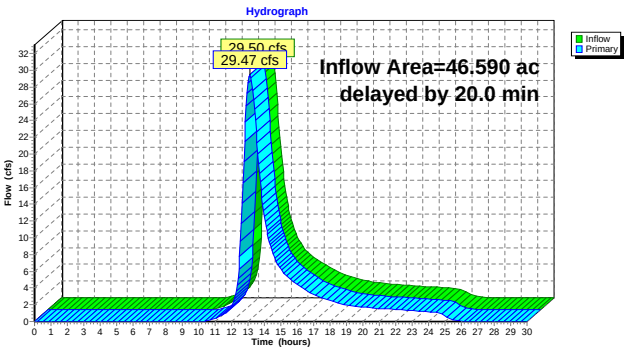


Link 2ELB: (new Link)

Inflow Area = 46.590 ac, Inflow Depth = 1.41" for 2 Year event
Inflow = 29.50 cfs @ 12.79 hrs, Volume= 5.466 af
Primary = 29.47 cfs @ 13.12 hrs, Volume= 5.466 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2ELB: (new Link)

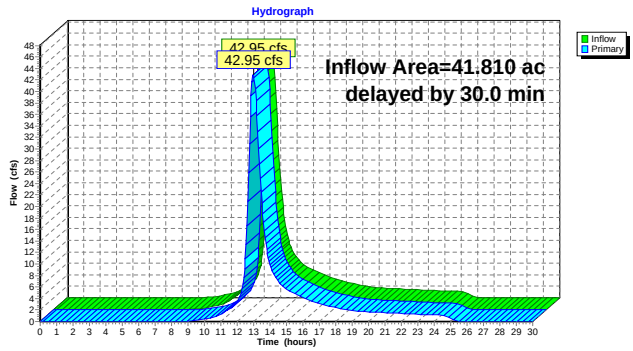


Link 2W: (new Link)

Inflow Area = 41.810 ac, Inflow Depth = 1.74" for 2 Year event
Inflow = 42.95 cfs @ 12.48 hrs, Volume= 6.049 af
Primary = 42.95 cfs @ 12.98 hrs, Volume= 6.049 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2W: (new Link)

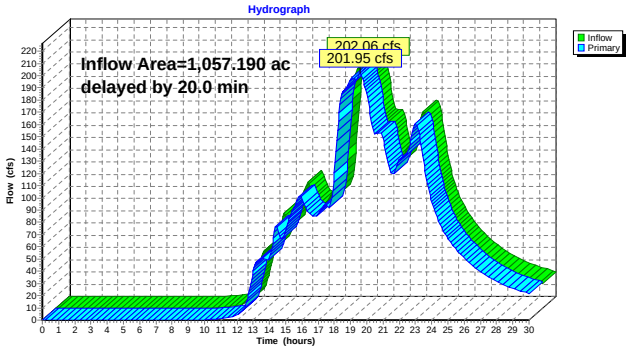


Link 3C: (new Link)

Inflow Area = 1,057.190 ac, Inflow Depth > 1.52" for 2 Year event
Inflow = 202.06 cfs @ 19.25 hrs, Volume= 133.778 af
Primary = 201.95 cfs @ 19.58 hrs, Volume= 133.207 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3C: (new Link)

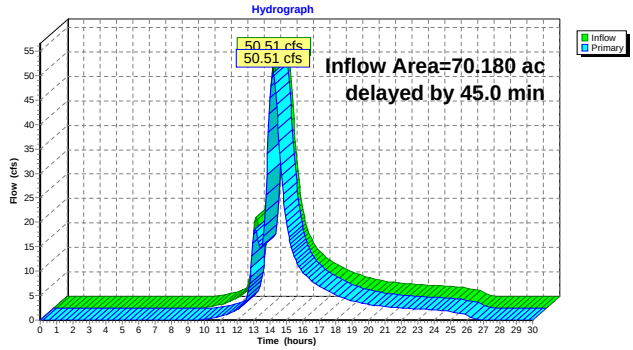


Link 3E: (new Link)

Inflow Area = 70.180 ac, Inflow Depth = 1.65" for 2 Year event
Inflow = 50.51 cfs @ 13.43 hrs, Volume= 9.674 af
Primary = 50.51 cfs @ 14.18 hrs, Volume= 9.674 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3E: (new Link)

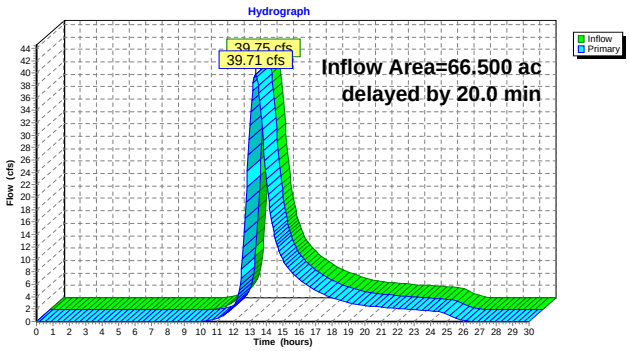


Link 3ELB: (new Link)

Inflow Area = 66.500 ac, Inflow Depth = 1.45" for 2 Year event
Inflow = 39.75 cfs @ 13.00 hrs, Volume= 8.050 af
Primary = 39.71 cfs @ 13.34 hrs, Volume= 8.050 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3ELB: (new Link)

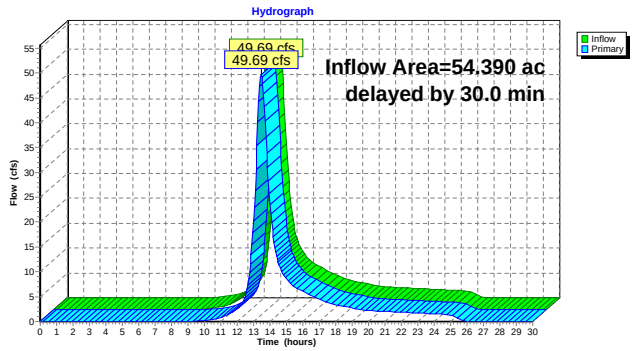


Link 3W: (new Link)

Inflow Area = 54.390 ac, Inflow Depth = 1.66" for 2 Year event
Inflow = 49.69 cfs @ 12.95 hrs, Volume= 7.540 af
Primary = 49.69 cfs @ 13.45 hrs, Volume= 7.540 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3W: (new Link)

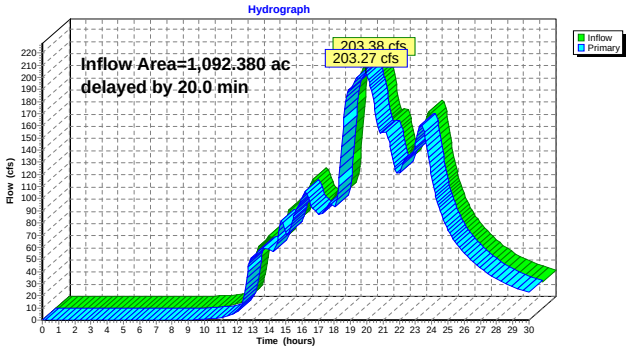


Link 4C: (new Link)

Inflow Area = 1,092.380 ac, Inflow Depth > 1.52" for 2 Year event
Inflow = 203.38 cfs @ 19.58 hrs, Volume= 138.411 af
Primary = 203.27 cfs @ 19.91 hrs, Volume= 137.797 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4C: (new Link)

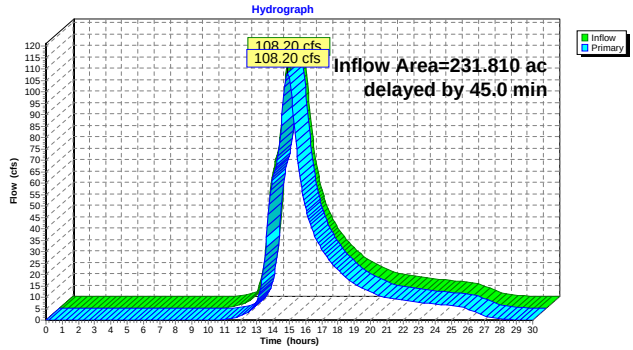


Link 4E: (new Link)

Inflow Area = 231.810 ac, Inflow Depth > 1.49" for 2 Year event
Inflow = 108.20 cfs @ 14.13 hrs, Volume= 28.824 af
Primary = 108.20 cfs @ 14.88 hrs, Volume= 28.822 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4E: (new Link)

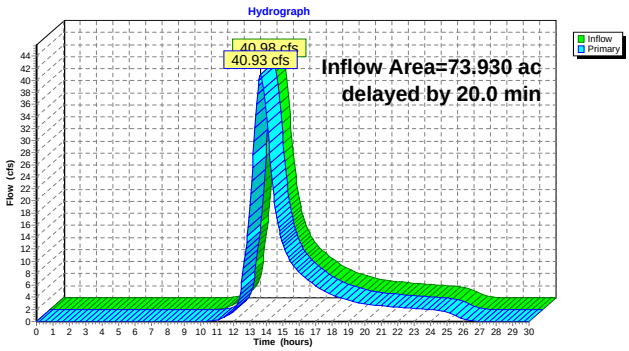


Link 4ELB: (new Link)

Inflow Area = 73.930 ac, Inflow Depth = 1.42" for 2 Year event
Inflow = 40.98 cfs @ 13.33 hrs, Volume= 8.775 af
Primary = 40.93 cfs @ 13.66 hrs, Volume= 8.775 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4ELB: (new Link)

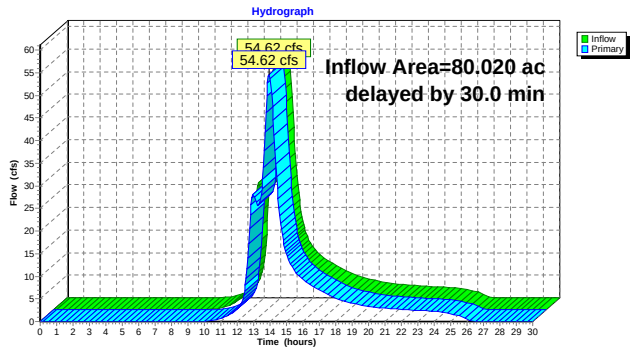


Link 4W: (new Link)

Inflow Area = 80.020 ac, Inflow Depth = 1.59" for 2 Year event
Inflow = 54.62 cfs @ 13.44 hrs, Volume= 10.577 af
Primary = 54.62 cfs @ 13.94 hrs, Volume= 10.577 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4W: (new Link)

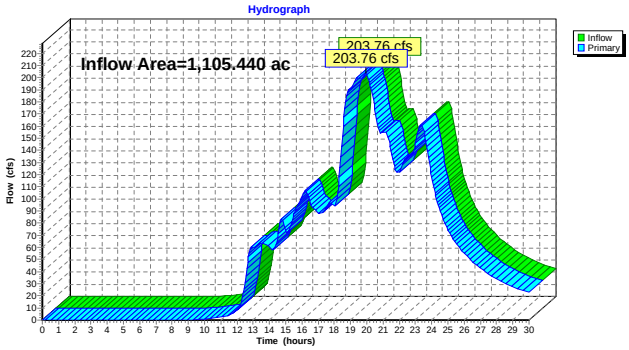


Link 5C: (new Link)

Inflow Area = 1,105.440 ac, Inflow Depth > 1.51" for 2 Year event
Inflow = 203.76 cfs @ 19.91 hrs, Volume= 139.417 af
Primary = 203.76 cfs @ 19.91 hrs, Volume= 139.417 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5C: (new Link)

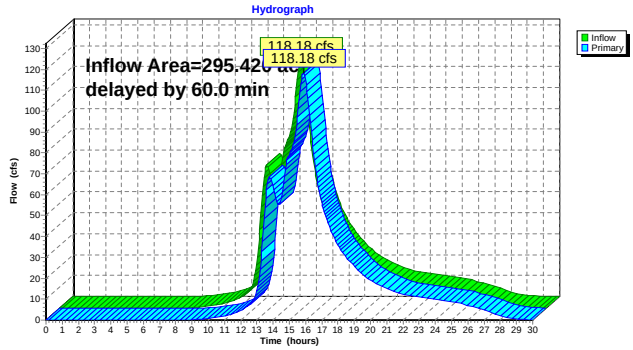


Link 5E: (new Link)

Inflow Area = 295.420 ac, Inflow Depth > 1.62" for 2 Year event
Inflow = 118.18 cfs @ 14.87 hrs, Volume= 39.916 af
Primary = 118.18 cfs @ 15.87 hrs, Volume= 39.909 af, Atten= 0%, Lag= 60.0 min

Primary outflow = Inflow delayed by 60.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5E: (new Link)

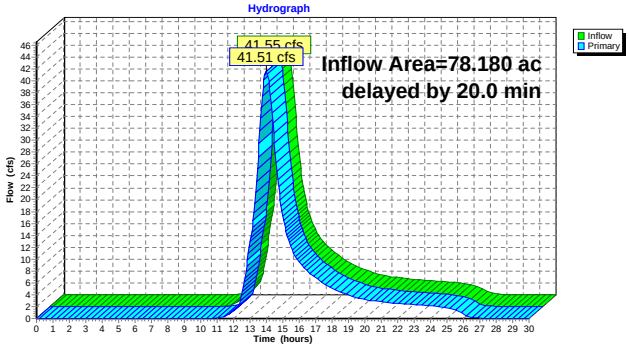


Link 5ELB: (new Link)

Inflow Area = 78.180 ac, Inflow Depth = 1.41" for 2 Year event
Inflow = 41.55 cfs @ 13.66 hrs, Volume= 9.190 af
Primary = 41.51 cfs @ 13.99 hrs, Volume= 9.190 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5ELB: (new Link)

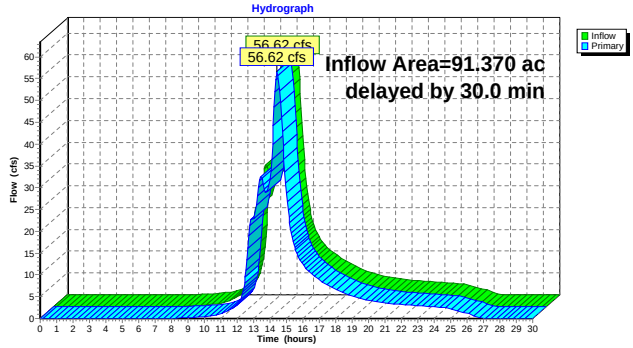


Link 5W: (new Link)

Inflow Area = 91.370 ac, Inflow Depth = 1.66" for 2 Year event
Inflow = 56.62 cfs @ 13.94 hrs, Volume= 12.636 af
Primary = 56.62 cfs @ 14.44 hrs, Volume= 12.636 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5W: (new Link)

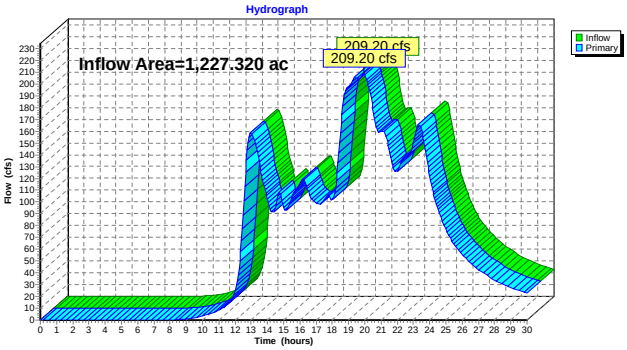


Link 6C: (new Link)

Inflow Area = 1,227.320 ac, Inflow Depth > 1.56" for 2 Year event
Inflow = 209.20 cfs @ 19.91 hrs, Volume= 159.833 af
Primary = 209.20 cfs @ 19.91 hrs, Volume= 159.833 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6C: (new Link)

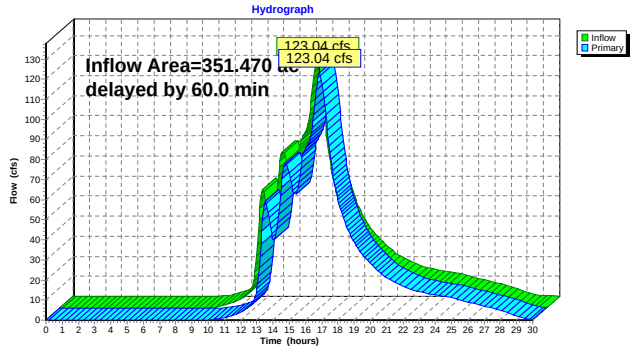


Link 6E: (new Link)

Inflow Area = 351.470 ac, Inflow Depth > 1.61" for 2 Year event
Inflow = 123.04 cfs @ 15.86 hrs, Volume= 47.183 af
Primary = 123.04 cfs @ 16.86 hrs, Volume= 47.160 af, Atten= 0%, Lag= 60.0 min

Primary outflow = Inflow delayed by 60.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6E: (new Link)

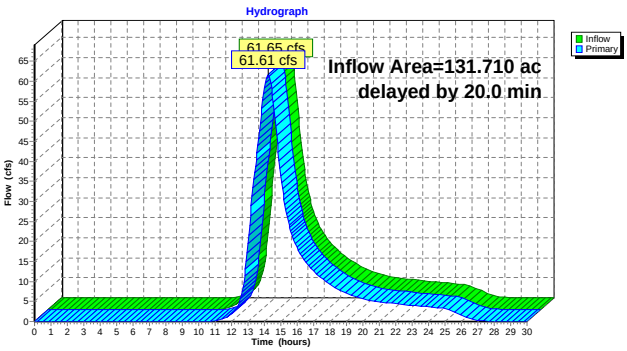


Link 6ELB: (new Link)

Inflow Area = 131.710 ac, Inflow Depth = 1.44" for 2 Year event
Inflow = 61.65 cfs @ 13.89 hrs, Volume= 15.831 af
Primary = 61.61 cfs @ 14.22 hrs, Volume= 15.831 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6ELB: (new Link)

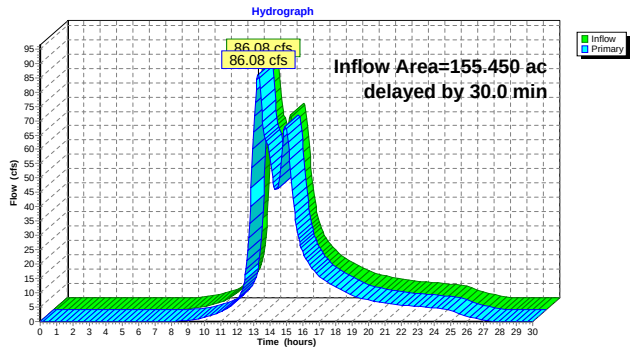


Link 6W: (new Link)

Inflow Area = 155.450 ac, Inflow Depth = 1.80" for 2 Year event
Inflow = 86.08 cfs @ 12.77 hrs, Volume= 23.370 af
Primary = 86.08 cfs @ 13.27 hrs, Volume= 23.370 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6W: (new Link)

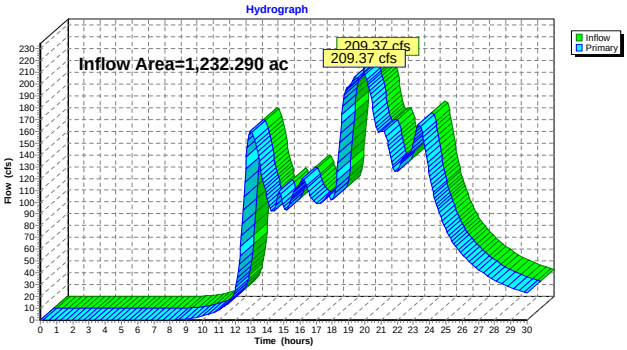


Link 7C: (new Link)

Inflow Area = 1,232.290 ac, Inflow Depth > 1.56" for 2 Year event
Inflow = 209.37 cfs @ 19.91 hrs, Volume= 160.395 af
Primary = 209.37 cfs @ 19.91 hrs, Volume= 160.395 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7C: (new Link)

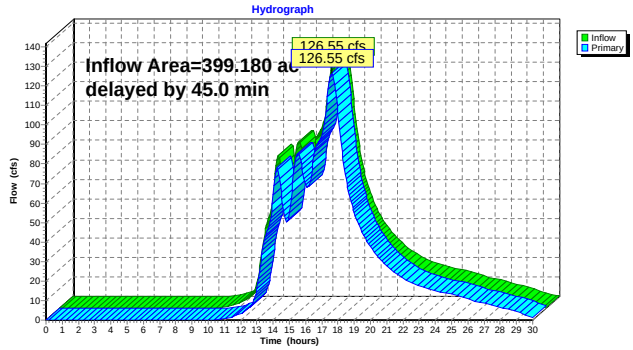


Link 7E: (new Link)

Inflow Area = 399.180 ac, Inflow Depth > 1.61" for 2 Year event
Inflow = 126.55 cfs @ 16.86 hrs, Volume= 53.633 af
Primary = 126.55 cfs @ 17.61 hrs, Volume= 53.583 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7E: (new Link)

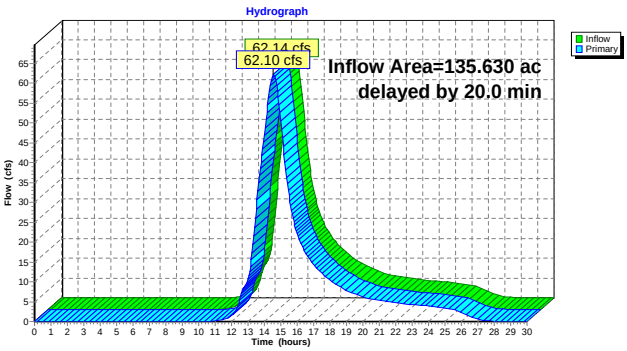


Link 7ELB: (new Link)

Inflow Area = 135.630 ac, Inflow Depth = 1.45" for 2 Year event
Inflow = 62.14 cfs @ 14.22 hrs, Volume= 16.362 af
Primary = 62.10 cfs @ 14.55 hrs, Volume= 16.362 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7ELB: (new Link)

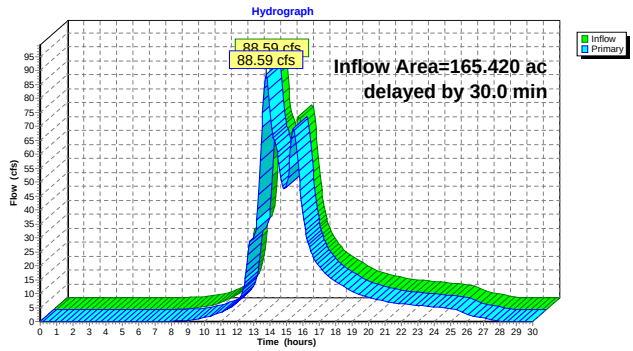


Link 7W: (new Link)

Inflow Area = 165.420 ac, Inflow Depth = 1.84" for 2 Year event
Inflow = 88.59 cfs @ 13.27 hrs, Volume= 25.403 af
Primary = 88.59 cfs @ 13.77 hrs, Volume= 25.403 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7W: (new Link)

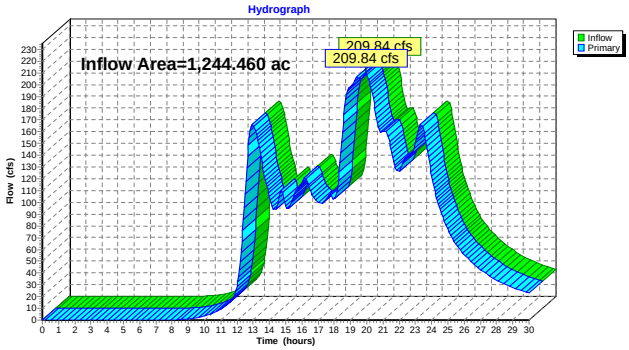


Link 8C: (new Link)

Inflow Area = 1,244.460 ac, Inflow Depth > 1.56" for 2 Year event
Inflow = 209.84 cfs @ 19.91 hrs, Volume= 162.195 af
Primary = 209.84 cfs @ 19.91 hrs, Volume= 162.195 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8C: (new Link)

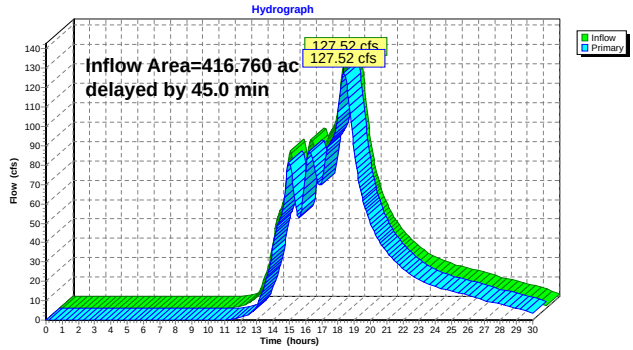


Link 8E: (new Link)

Inflow Area = 416.760 ac, Inflow Depth > 1.60" for 2 Year event
Inflow = 127.52 cfs @ 17.61 hrs, Volume= 55.571 af
Primary = 127.52 cfs @ 18.36 hrs, Volume= 55.425 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8E: (new Link)

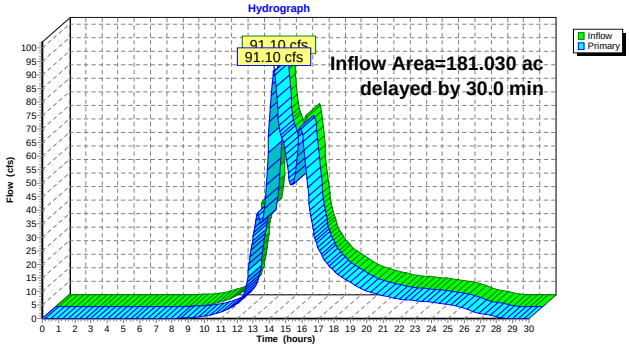


Link 8W: (new Link)

Inflow Area = 181.030 ac, Inflow Depth = 1.81" for 2 Year event
Inflow = 91.10 cfs @ 13.77 hrs, Volume= 27.339 af
Primary = 91.10 cfs @ 14.27 hrs, Volume= 27.339 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8W: (new Link)

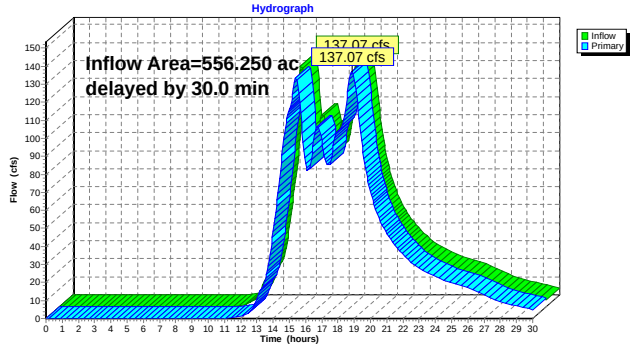


Link 9E: (new Link)

Inflow Area = 556.250 ac, Inflow Depth > 1.56" for 2 Year event
Inflow = 137.07 cfs @ 18.35 hrs, Volume= 72.358 af
Primary = 137.07 cfs @ 18.85 hrs, Volume= 72.183 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9E: (new Link)

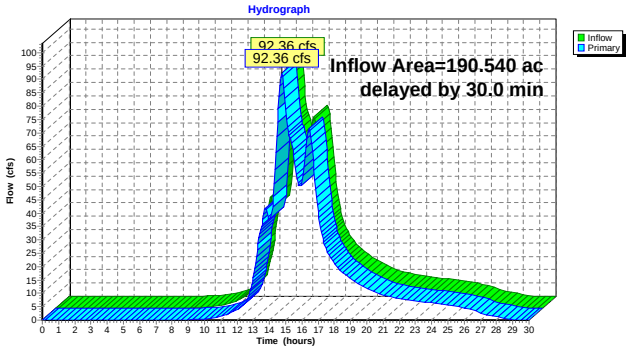


Link 9W: (new Link)

Inflow Area = 190.540 ac, Inflow Depth = 1.78" for 2 Year event
Inflow = 92.36 cfs @ 14.27 hrs, Volume= 28.315 af
Primary = 92.36 cfs @ 14.77 hrs, Volume= 28.315 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9W: (new Link)

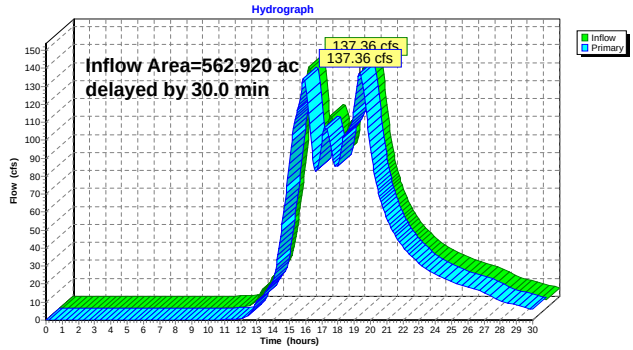


Link 10E: (new Link)

Inflow Area = 562.920 ac, Inflow Depth > 1.56" for 2 Year event
Inflow = 137.36 cfs @ 18.85 hrs, Volume= 73.170 af
Primary = 137.36 cfs @ 19.35 hrs, Volume= 72.943 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10E: (new Link)

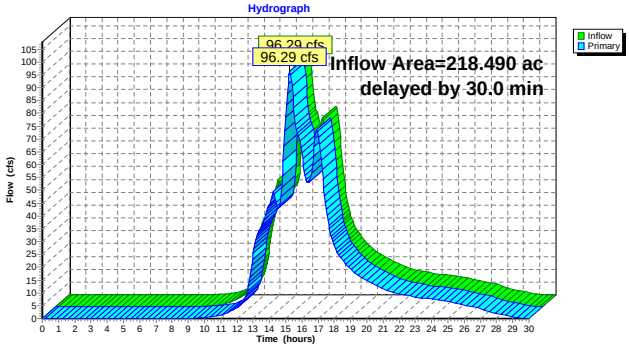


Link 10W: (new Link)

Inflow Area = 218.490 ac, Inflow Depth = 1.77" for 2 Year event
Inflow = 96.29 cfs @ 14.76 hrs, Volume= 32.276 af
Primary = 96.29 cfs @ 15.26 hrs, Volume= 32.276 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10W: (new Link)

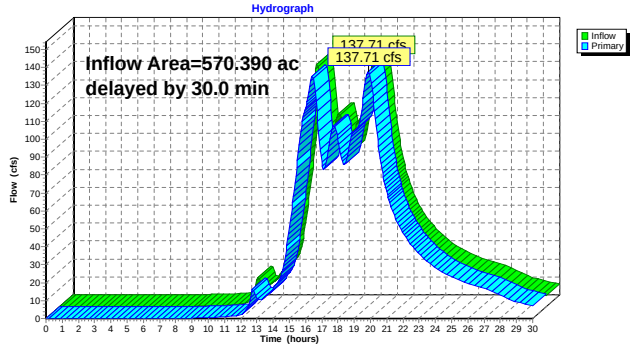


Link 11E: (new Link)

Inflow Area = 570.390 ac, Inflow Depth > 1.57" for 2 Year event
Inflow = 137.71 cfs @ 19.35 hrs, Volume= 74.466 af
Primary = 137.71 cfs @ 19.85 hrs, Volume= 74.199 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 11E: (new Link)

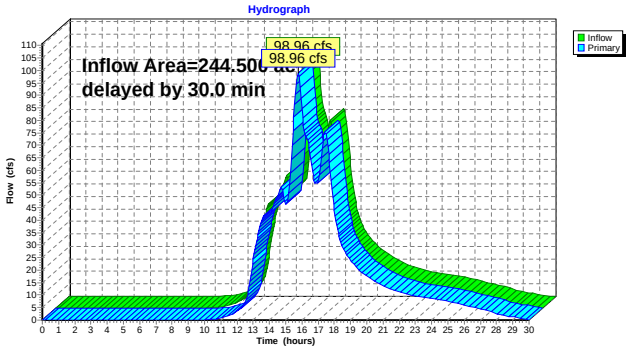


Link 11W: (new Link)

Inflow Area = 244.500 ac, Inflow Depth > 1.74" for 2 Year event
Inflow = 98.96 cfs @ 15.26 hrs, Volume= 35.357 af
Primary = 98.96 cfs @ 15.76 hrs, Volume= 35.356 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 11W: (new Link)

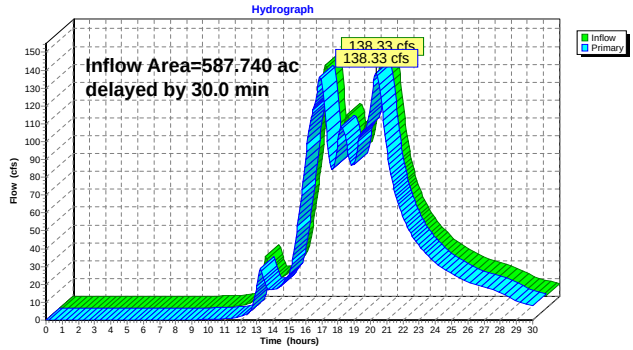


Link 12E: (new Link)

Inflow Area = 587.740 ac, Inflow Depth > 1.56" for 2 Year event
Inflow = 138.33 cfs @ 19.85 hrs, Volume= 76.255 af
Primary = 138.33 cfs @ 20.35 hrs, Volume= 75.944 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 12E: (new Link)

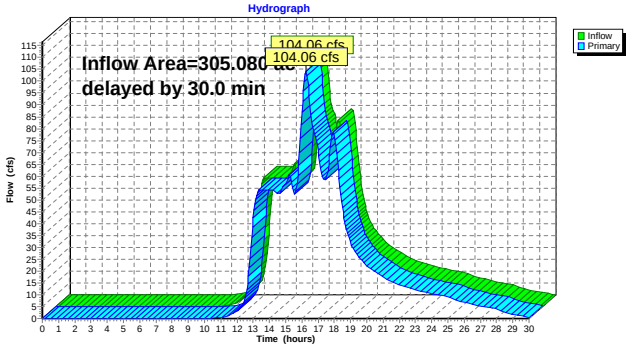


Link 12W: (new Link)

Inflow Area = 305.080 ac, Inflow Depth > 1.65" for 2 Year event
Inflow = 104.06 cfs @ 15.76 hrs, Volume= 41.885 af
Primary = 104.06 cfs @ 16.26 hrs, Volume= 41.876 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 12W: (new Link)

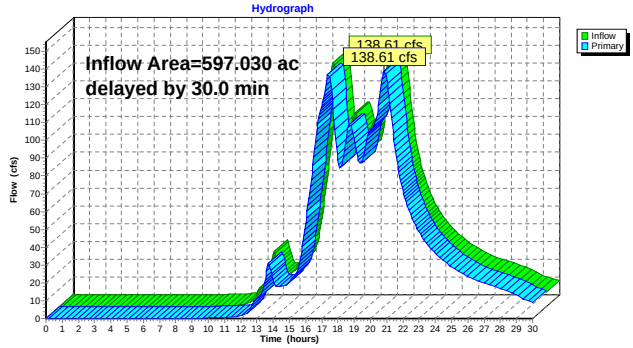


Link 13E: (new Link)

Inflow Area = 597.030 ac, Inflow Depth > 1.54" for 2 Year event
Inflow = 138.61 cfs @ 20.35 hrs, Volume= 76.851 af
Primary = 138.61 cfs @ 20.85 hrs, Volume= 76.489 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 13E: (new Link)

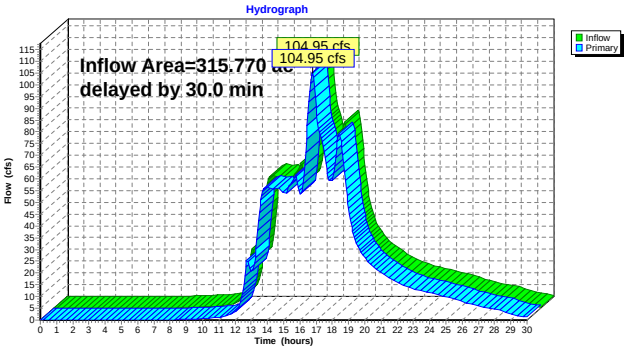


Link 13W: (new Link)

Inflow Area = 315.770 ac, Inflow Depth > 1.67" for 2 Year event
Inflow = 104.95 cfs @ 16.26 hrs, Volume= 43.974 af
Primary = 104.95 cfs @ 16.76 hrs, Volume= 43.935 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 13W: (new Link)

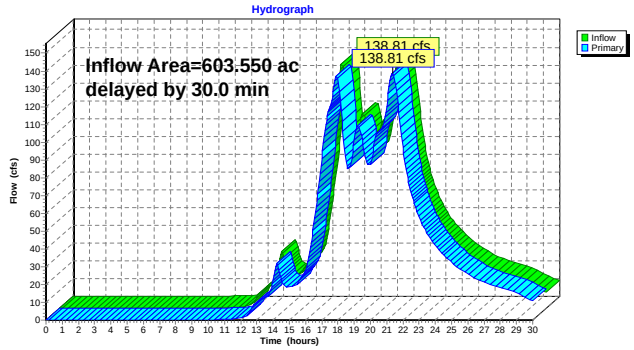


Link 14E: (new Link)

Inflow Area = 603.550 ac, Inflow Depth > 1.54" for 2 Year event
Inflow = 138.81 cfs @ 20.85 hrs, Volume= 77.227 af
Primary = 138.81 cfs @ 21.35 hrs, Volume= 76.823 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 14E: (new Link)

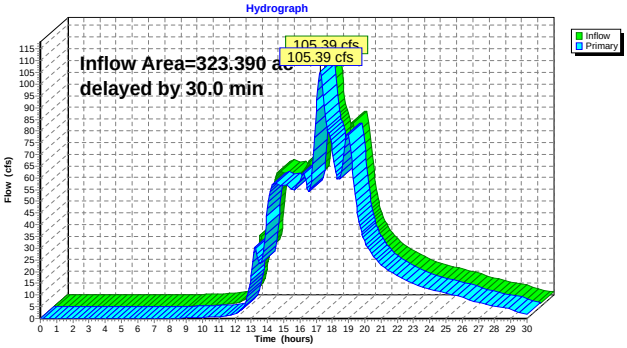


Link 14W: (new Link)

Inflow Area = 323.390 ac, Inflow Depth > 1.66" for 2 Year event
Inflow = 105.39 cfs @ 16.76 hrs, Volume= 44.756 af
Primary = 105.39 cfs @ 17.26 hrs, Volume= 44.695 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 14W: (new Link)

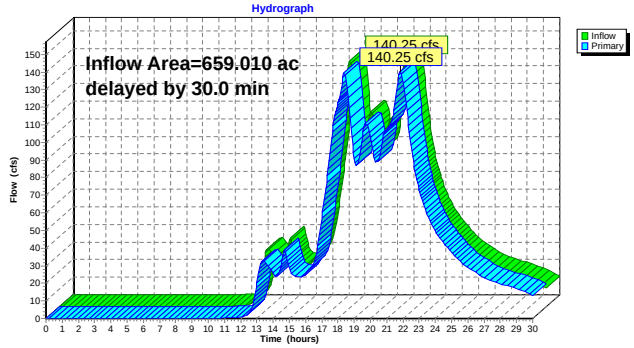


Link 15E: (new Link)

Inflow Area = 659.010 ac, Inflow Depth > 1.48" for 2 Year event
Inflow = 140.25 cfs @ 21.35 hrs, Volume= 81.448 af
Primary = 140.25 cfs @ 21.85 hrs, Volume= 80.960 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 15E: (new Link)

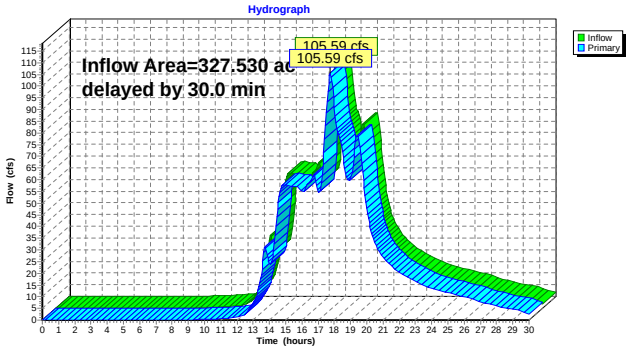


Link 15W: (new Link)

Inflow Area = 327.530 ac, Inflow Depth > 1.65" for 2 Year event
Inflow = 105.59 cfs @ 17.26 hrs, Volume= 45.079 af
Primary = 105.59 cfs @ 17.76 hrs, Volume= 44.991 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 15W: (new Link)

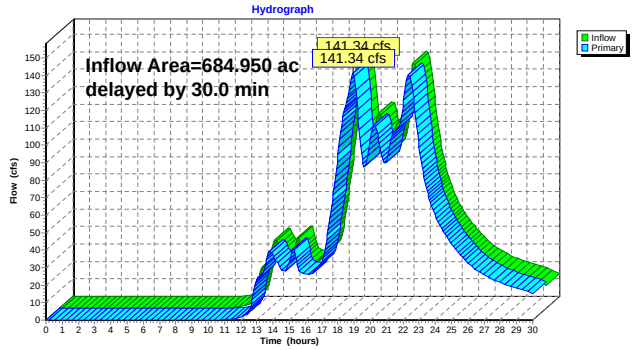


Link 16E: (new Link)

Inflow Area = 684.950 ac, Inflow Depth > 1.47" for 2 Year event
Inflow = 141.34 cfs @ 18.41 hrs, Volume= 83.893 af
Primary = 141.34 cfs @ 18.91 hrs, Volume= 83.313 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 16E: (new Link)



10-Year Storm

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment C116: C116 Runoff Area=4.970 ac Runoff Depth=2.54"
Flow Length=450' Tc=25.8 min CN=77 Runoff=8.92 cfs 1.052 af

Subcatchment C1334: C1334 Runoff Area=35.190 ac Runoff Depth=3.08"
Flow Length=900' Slope=0.0200 '/' Tc=34.0 min CN=83 Runoff=67.65 cfs 9.043 af

Subcatchment C1748: C1748 Runoff Area=12.100 ac Runoff Depth=2.54"
Flow Length=850' Tc=33.5 min CN=77 Runoff=19.30 cfs 2.561 af

Subcatchment C2359: C2359 Runoff Area=32.610 ac Runoff Depth=2.99"
Flow Length=1,050' Slope=0.0400 '/' Tc=36.8 min CN=82 Runoff=58.54 cfs 8.125 af

Subcatchment C560: C560 Runoff Area=121.880 ac Runoff Depth=3.37"
Flow Length=4,800' Tc=73.9 min CN=86 Runoff=165.56 cfs 34.266 af

Subcatchment C62: (new Subcat) Runoff Area=12.170 ac Runoff Depth=3.08"
Flow Length=2,400' Tc=31.3 min CN=83 Runoff=24.30 cfs 3.127 af

Subcatchment C747: C747 Runoff Area=13.060 ac Runoff Depth=2.72"
Flow Length=700' Slope=0.0050 '/' Tc=58.8 min CN=79 Runoff=16.51 cfs 2.956 af

Subcatchment E2964: E2964 Runoff Area=25.940 ac Runoff Depth=2.54"
Flow Length=1,460' Slope=0.0400 '/' Tc=35.4 min CN=77 Runoff=40.26 cfs 5.490 af

Subcatchment E3568: E3568 Runoff Area=55.460 ac Runoff Depth=2.04"
Flow Length=2,790' Tc=55.8 min CN=71 Runoff=53.22 cfs 9.434 af

Subcatchment E3889: E3889 Runoff Area=6.520 ac Runoff Depth=2.54"
Flow Length=650' Tc=22.3 min CN=77 Runoff=12.46 cfs 1.380 af

Subcatchment E4219: E4219 Runoff Area=9.290 ac Runoff Depth=2.28"
Flow Length=800' Slope=0.0330 '/' Tc=24.2 min CN=74 Runoff=15.32 cfs 1.769 af

Subcatchment E4975: E4975 Runoff Area=17.350 ac Runoff Depth=2.63"
Flow Length=1,110' Slope=0.0250 '/' Tc=46.6 min CN=78 Runoff=24.22 cfs 3.798 af

Subcatchment E5158: E5158 Runoff Area=7.470 ac Runoff Depth=3.89"
Flow Length=500' Tc=17.1 min CN=91 Runoff=23.46 cfs 2.418 af

Subcatchment E5498: E5498 Runoff Area=6.670 ac Runoff Depth=3.08"
Flow Length=1,000' Tc=38.4 min CN=83 Runoff=12.09 cfs 1.714 af

Subcatchment E5909: E5909 Runoff Area=3.860 ac Runoff Depth=3.08"
Flow Length=450' Slope=0.0080 '/' Tc=52.8 min CN=83 Runoff=5.91 cfs 0.992 af

Subcatchment E6369: E6369 Runoff Area=17.580 ac Runoff Depth=2.54"
Flow Length=950' Tc=63.2 min CN=77 Runoff=19.94 cfs 3.720 af

Subcatchment E6821: E6821 Runoff Area=47.710 ac Runoff Depth=2.90"
Flow Length=2,042' Tc=62.2 min CN=81 Runoff=62.26 cfs 11.519 af

Subcatchment E7473: E7473 Runoff Area=56.050 ac Runoff Depth=2.81"
Flow Length=1,565' Tc=36.5 min CN=80 Runoff=94.89 cfs 13.105 af

Subcatchment E8046: E8046 Runoff Area=63.610 ac Runoff Depth=3.47"
Flow Length=3,435' Tc=57.2 min CN=87 Runoff=103.91 cfs 18.411 af

Subcatchment E8497: E8497 Runoff Area=161.630 ac Runoff Depth>2.63"
Flow Length=4,455' Tc=135.0 min CN=78 Runoff=113.68 cfs 35.383 af

Subcatchment E9081: E9081 Runoff Area=12.310 ac Runoff Depth=2.90"
Flow Length=575' Tc=22.5 min CN=81 Runoff=26.78 cfs 2.972 af

Subcatchment E9326: E9326 Runoff Area=24.170 ac Runoff Depth=2.28"
Flow Length=1,650' Tc=40.2 min CN=74 Runoff=31.53 cfs 4.602 af

Subcatchment E9611: E9611 Runoff Area=33.700 ac Runoff Depth=3.37"
Flow Length=1,650' Tc=53.6 min CN=86 Runoff=55.63 cfs 9.475 af

Subcatchment ELB1369: ELB1369 Runoff Area=19.910 ac Runoff Depth=2.81"
Flow Length=2,055' Tc=44.5 min CN=80 Runoff=30.52 cfs 4.655 af

Subcatchment ELB1483: ELB1483 Runoff Area=10.040 ac Runoff Depth=2.20"
Flow Length=1,125' Slope=0.0400 '/' Tc=38.1 min CN=73 Runoff=12.92 cfs 1.843 af

Subcatchment ELB2128: ELB2128 Runoff Area=36.550 ac Runoff Depth=2.72"
Flow Length=900' Tc=60.5 min CN=79 Runoff=45.59 cfs 8.272 af

Subcatchment ELB234: ELB234 Runoff Area=3.920 ac Runoff Depth=2.90"
Flow Length=400' Slope=0.0150 '/' Tc=26.4 min CN=81 Runoff=7.96 cfs 0.946 af

Subcatchment ELB729: ELB729 Runoff Area=53.530 ac Runoff Depth=2.72"
Flow Length=4,165' Tc=100.2 min CN=79 Runoff=47.98 cfs 12.115 af

Subcatchment ELB829: ELB829 Runoff Area=4.250 ac Runoff Depth=2.28"
Flow Length=750' Slope=0.0400 '/' Tc=31.8 min CN=74 Runoff=6.21 cfs 0.809 af

Subcatchment ELB972: ELB972 Runoff Area=7.430 ac Runoff Depth=2.28"
Flow Length=900' Slope=0.0400 '/' Tc=27.0 min CN=74 Runoff=11.68 cfs 1.415 af

Subcatchment W1217: W1217 Runoff Area=10.690 ac Runoff Depth=3.78"
Flow Length=650' Slope=0.0100 '/' Tc=17.0 min CN=90 Runoff=32.96 cfs 3.367 af

Subcatchment W1626: W1626 Runoff Area=60.580 ac Runoff Depth=2.45"
Flow Length=2,635' Tc=47.0 min CN=76 Runoff=78.36 cfs 12.385 af

Subcatchment W1737: W1737 Runoff Area=26.010 ac Runoff Depth=2.63"
Flow Length=1,150' Tc=47.9 min CN=78 Runoff=35.77 cfs 5.694 af

Subcatchment W2720: W2720 Runoff Area=27.950 ac Runoff Depth=2.99"
Flow Length=700' Tc=53.8 min CN=82 Runoff=41.11 cfs 6.964 af

Subcatchment W290: W290 Runoff Area=4.140 ac Runoff Depth=2.20"
Flow Length=650' Slope=0.0300 '/' Tc=28.3 min CN=73 Runoff=6.12 cfs 0.760 af

Subcatchment W3148: W3148 Runoff Area=9.510 ac Runoff Depth=2.37"
Flow Length=750' Tc=46.4 min CN=75 Runoff=11.96 cfs 1.877 af

Subcatchment W3774: W3774 Runoff Area=15.610 ac Runoff Depth=2.72"
Flow Length=1,200' Tc=31.3 min CN=79 Runoff=27.50 cfs 3.533 af

Subcatchment W3975: W3975 Runoff Area=9.970 ac Runoff Depth=3.89"
Flow Length=865' Tc=20.3 min CN=91 Runoff=29.34 cfs 3.228 af

Subcatchment W4529: W4529 Runoff Area=64.080 ac Runoff Depth=3.37"
Flow Length=3,200' Tc=51.2 min CN=86 Runoff=108.61 cfs 18.016 af

Subcatchment W5128: W5128 Runoff Area=11.350 ac Runoff Depth=3.57"
Flow Length=605' Slope=0.0200 '/' Tc=23.3 min CN=88 Runoff=29.51 cfs 3.380 af

Subcatchment W5300: W5300 Runoff Area=25.630 ac Runoff Depth=2.63"
Flow Length=925' Tc=30.7 min CN=78 Runoff=44.05 cfs 5.611 af

Subcatchment W6008: W6008 Runoff Area=12.580 ac Runoff Depth=2.63"
Flow Length=875' Tc=42.6 min CN=78 Runoff=18.42 cfs 2.754 af

Subcatchment W6278: W6278 Runoff Area=15.920 ac Runoff Depth=2.63"
Flow Length=1,350' Tc=25.8 min CN=78 Runoff=29.61 cfs 3.485 af

Subcatchment W6643: W6643 Runoff Area=25.890 ac Runoff Depth=3.28"
Flow Length=2,400' Tc=39.4 min CN=85 Runoff=49.03 cfs 7.067 af

Subcatchment W684: W684 Runoff Area=7.620 ac Runoff Depth=2.45"
Flow Length=650' Slope=0.0260 '/' Tc=36.2 min CN=76 Runoff=11.30 cfs 1.558 af

Link 1C: (new Link) Inflow=361.96 cfs 230.741 af
Primary=361.96 cfs 230.741 af

Link 1E: (new Link) Inflow=55.63 cfs 9.475 af
Primary=55.63 cfs 9.475 af

Link 1ELB: (new Link) Inflow=45.59 cfs 8.272 af
Primary=45.59 cfs 8.272 af

Link 1W: (new Link) Inflow=49.03 cfs 7.067 af
Primary=49.03 cfs 7.067 af

Link 2C: (new Link) delayed by 20.0 min Inflow=364.17 cfs 238.866 af
Primary=363.99 cfs 238.045 af

Link 2E: (new Link) delayed by 45.0 min Inflow=85.58 cfs 14.077 af
Primary=85.58 cfs 14.077 af

Link 2ELB: (new Link) delayed by 20.0 min Inflow=55.72 cfs 10.114 af
Primary=55.66 cfs 10.114 af

Link 2W: (new Link) delayed by 30.0 min Inflow=75.23 cfs 10.553 af
Primary=75.23 cfs 10.553 af

Link 3C: (new Link) delayed by 20.0 min Inflow=364.73 cfs 240.606 af
Primary=364.52 cfs 239.694 af

Link 3E: (new Link) delayed by 45.0 min Inflow=89.35 cfs 17.049 af
Primary=89.35 cfs 17.049 af

Link 3ELB: (new Link) delayed by 20.0 min Inflow=74.55 cfs 14.770 af
Primary=74.48 cfs 14.770 af

Link 3W: (new Link) delayed by 30.0 min Inflow=87.73 cfs 13.307 af
Primary=87.73 cfs 13.307 af

Link 4C: (new Link) delayed by 20.0 min Inflow=366.76 cfs 248.738 af
Primary=366.56 cfs 247.758 af

Link 4E: (new Link) delayed by 45.0 min Inflow=197.84 cfs 52.431 af
Primary=197.84 cfs 52.428 af

Link 4ELB: (new Link) delayed by 20.0 min Inflow=76.84 cfs 16.184 af
Primary=76.76 cfs 16.184 af

Link 4W: (new Link) delayed by 30.0 min Inflow=96.41 cfs 18.917 af
Primary=96.41 cfs 18.917 af

Link 5C: (new Link) Inflow=367.35 cfs 250.714 af
Primary=367.35 cfs 250.714 af

Link 5E: (new Link) delayed by 60.0 min Inflow=213.45 cfs 70.839 af
Primary=213.45 cfs 70.827 af

Link 5ELB: (new Link) delayed by 20.0 min Inflow=77.89 cfs 16.993 af
Primary=77.82 cfs 16.993 af

Link 5W: (new Link) delayed by 30.0 min Inflow=99.50 cfs 22.298 af
Primary=99.50 cfs 22.298 af

Link 6C: (new Link) Inflow=375.71 cfs 284.980 af
Primary=375.71 cfs 284.980 af

Link 6E: (new Link) delayed by 60.0 min Inflow=221.44 cfs 83.933 af
Primary=221.44 cfs 83.896 af

Link 6ELB: (new Link) delayed by 20.0 min Inflow=114.92 cfs 29.108 af
Primary=114.84 cfs 29.108 af

Link 6W: (new Link) delayed by 30.0 min Inflow=146.04 cfs 40.314 af
Primary=146.04 cfs 40.314 af

Link 7C: (new Link) Inflow=375.99 cfs 286.032 af
Primary=375.99 cfs 286.032 af

Link 7E: (new Link) delayed by 45.0 min Inflow=227.12 cfs 95.414 af
Primary=227.12 cfs 95.335 af

Link 7ELB: (new Link) delayed by 20.0 min Inflow=115.72 cfs 30.054 af
Primary=115.64 cfs 30.054 af

Link 7W: (new Link) delayed by 30.0 min Inflow=149.83 cfs 43.542 af
Primary=149.83 cfs 43.542 af

Link 8C: (new Link) Inflow=376.74 cfs 289.159 af
Primary=376.74 cfs 289.159 af

Link 8E: (new Link) delayed by 45.0 min Inflow=228.75 cfs 99.055 af
Primary=228.75 cfs 98.821 af

Link 8W: (new Link) delayed by 30.0 min Inflow=154.07 cfs 47.074 af
Primary=154.07 cfs 47.074 af

Link 9E: (new Link) delayed by 30.0 min Inflow=247.86 cfs 129.868 af
Primary=247.86 cfs 129.586 af

Link 9W: (new Link) delayed by 30.0 min Inflow=156.28 cfs 48.951 af
Primary=156.28 cfs 48.951 af

Link 10E: (new Link) delayed by 30.0 min Inflow=249.00 cfs 131.300 af
Primary=249.00 cfs 130.936 af

Link 10W: (new Link) delayed by 30.0 min Inflow=162.65 cfs 55.915 af
Primary=162.65 cfs 55.915 af

Link 11E: (new Link) delayed by 30.0 min Inflow=250.08 cfs 133.354 af
Primary=250.08 cfs 132.926 af

Link 11W: (new Link) delayed by 30.0 min Inflow=167.12 cfs 61.609 af
Primary=167.12 cfs 61.607 af

Link 12E: (new Link) delayed by 30.0 min Inflow=252.16 cfs 136.724 af
Primary=252.16 cfs 136.226 af

Link 12W: (new Link) delayed by 30.0 min Inflow=175.79 cfs 73.992 af
Primary=175.79 cfs 73.979 af

Link 13E: (new Link) delayed by 30.0 min Inflow=252.98 cfs 137.995 af
Primary=252.98 cfs 137.419 af

Link 13W: (new Link) delayed by 30.0 min Inflow=177.13 cfs 77.346 af
Primary=177.13 cfs 77.285 af

Link 14E: (new Link) delayed by 30.0 min Inflow=253.52 cfs 138.799 af
Primary=253.52 cfs 138.156 af

Link 14W: (new Link) delayed by 30.0 min Inflow=177.88 cfs 78.843 af
Primary=177.88 cfs 78.747 af

Link 15E: (new Link) delayed by 30.0 min Inflow=257.65 cfs 147.590 af
Primary=257.65 cfs 146.811 af

Link 15W: (new Link) delayed by 30.0 min Inflow=178.21 cfs 79.507 af
Primary=178.21 cfs 79.368 af

Link 16E: (new Link) delayed by 30.0 min Inflow=259.41 cfs 152.300 af
Primary=259.41 cfs 151.373 af

Total Runoff Area = 1,244.460 ac Runoff Volume = 297.045 af Average Runoff Depth = 2.86"
68.71% Pervious Area = 855.023 ac 31.29% Impervious Area = 389.437 ac

Subcatchment C116: C116

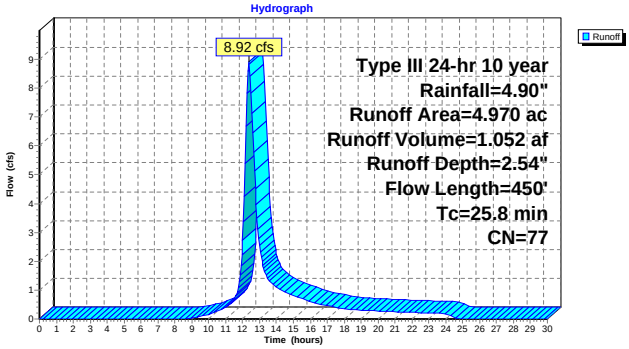
Runoff = 8.92 cfs @ 12.36 hrs, Volume= 1.052 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
4.970	77	Brush, Poor, HSG C
4.970		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
8.5	300	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.8	450	Total			

Subcatchment C116: C116



Subcatchment C1334: C1334

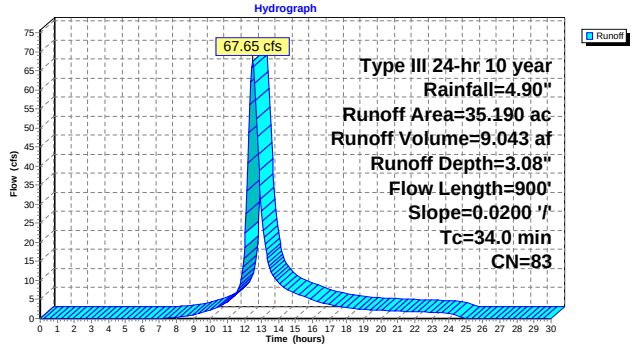
Runoff = 67.65 cfs @ 12.47 hrs, Volume= 9.043 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
2.520	94	Urban commercial, 85% imp, HSG C
2.450	81	1/3 acre lots, 30% imp, HSG C
2.510	74	>75% Grass cover, Good, HSG C
27.710	83	1/4 acre lots, 38% imp, HSG C
35.190	83	Weighted Average
21.783		Pervious Area
13.407		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	150	0.0200	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.7	400	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.2	350	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	900	Total			

Subcatchment C1334: C1334



Subcatchment C1748: C1748

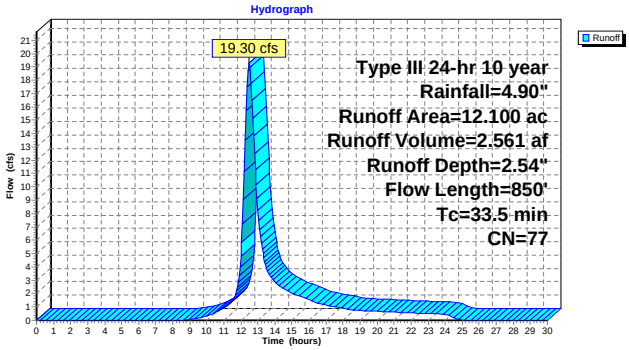
Runoff = 19.30 cfs @ 12.47 hrs, Volume= 2.561 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
1.420	94	Urban commercial, 85% imp, HSG C
2.560	83	1/4 acre lots, 38% imp, HSG C
2.020	74	>75% Grass cover, Good, HSG C
3.600	70	Brush, Fair, HSG C
2.500	74	>75% Grass cover, Good, HSG C
12.100	77	Weighted Average
9.920		Pervious Area
2.180		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	150	0.0270	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.5	450	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.0	250	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.5	850	Total			

Subcatchment C1748: C1748



Subcatchment C2359: C2359

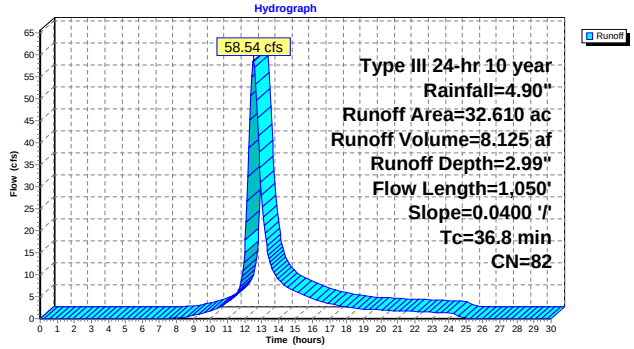
Runoff = 58.54 cfs @ 12.51 hrs, Volume= 8.125 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
8.300	91	Urban industrial, 72% imp, HSG C
2.000	77	Brush, Fair, HSG D
7.540	70	Brush, Fair, HSG C
14.770	83	1/4 acre lots, 38% imp, HSG C
32.610	82	Weighted Average
21.021		Pervious Area
11.589		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
15.0	900	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.8	1,050	Total			

Subcatchment C2359: C2359



Subcatchment C560: C560

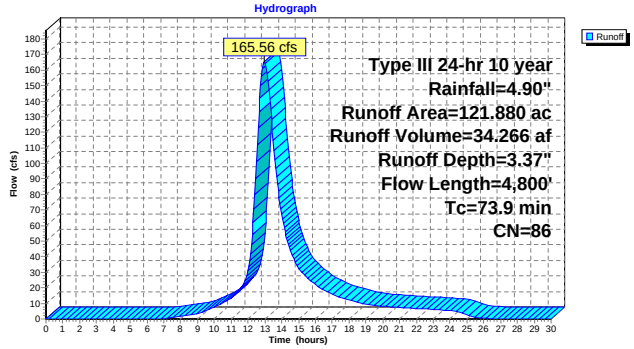
Runoff = 165.56 cfs @ 12.98 hrs, Volume= 34.266 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
19.710	94	Urban commercial, 85% imp, HSG C
1.910	74	>75% Grass cover, Good, HSG C
1.250	73	Woods, Fair, HSG C
2.630	74	>75% Grass cover, Good, HSG C
7.880	70	1/2 acre lots, 25% imp, HSG B
9.060	60	Woods, Fair, HSG B
79.440	90	1/8 acre lots, 65% imp, HSG C
121.880	86	Weighted Average
51.520		Pervious Area
70.360		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1	200	0.0380	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
14.5	850	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	225	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.1	1,700	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.7	1,100	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	300	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.1	425	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
73.9	4,800	Total			

Subcatchment C560: C560



Subcatchment C62: (new Subcat)

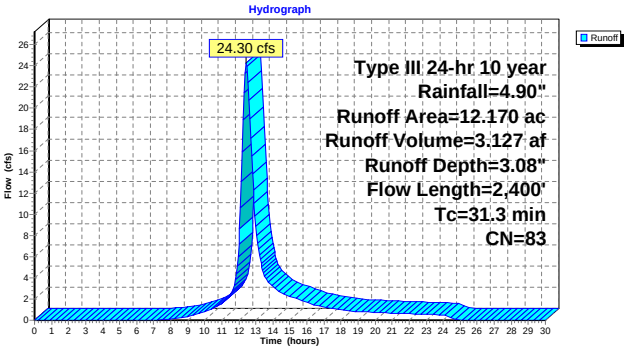
Runoff = 24.30 cfs @ 12.43 hrs, Volume= 3.127 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
12.170	83	1/4 acre lots, 38% imp, HSG C
7.545		Pervious Area
4.625		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	200	0.0400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.4	2,000	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
31.3	2,400	Total			

Subcatchment C62: (new Subcat)



Subcatchment C747: C747

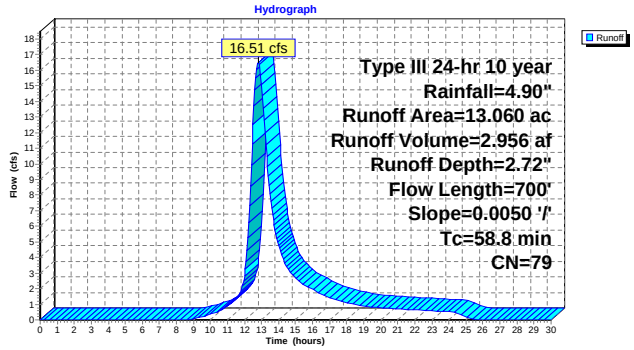
Runoff = 16.51 cfs @ 12.80 hrs, Volume= 2.956 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
2.870	90	1/8 acre lots, 65% imp, HSG C
2.010	83	1/4 acre lots, 38% imp, HSG C
4.720	74	>75% Grass cover, Good, HSG C
0.560	94	Urban commercial, 85% imp, HSG C
2.900	70	Brush, Fair, HSG C
13.060	79	Weighted Average
9.955		Pervious Area
3.105		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0	200	0.0050	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
16.8	500	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
58.8	700	Total			

Subcatchment C747: C747



Subcatchment E2964: E2964

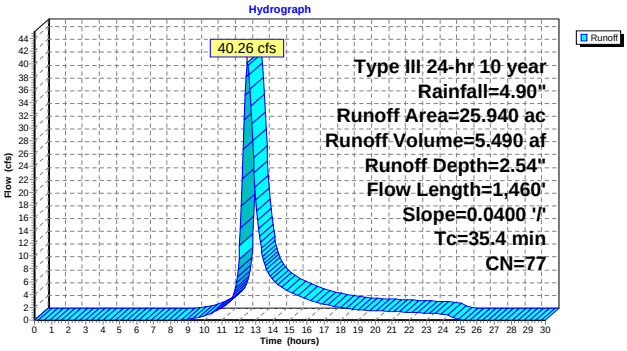
Runoff = 40.26 cfs @ 12.50 hrs, Volume= 5.490 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
12.450	81	1/3 acre lots, 30% imp, HSG C
13.490	73	Woods, Fair, HSG C
25.940	77	Weighted Average
22.205		Pervious Area
3.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	1,110	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.4	1,460	Total			

Subcatchment E2964: E2964



Subcatchment E3568: E3568

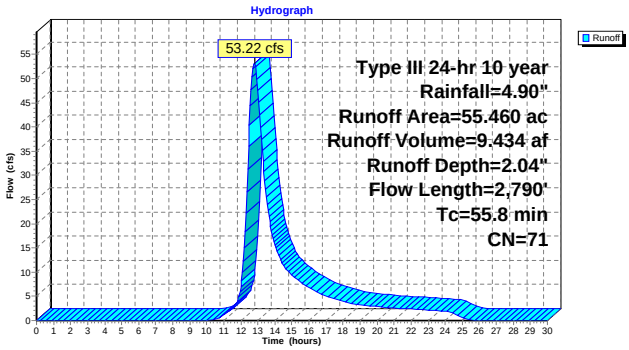
Runoff = 53.22 cfs @ 12.79 hrs, Volume= 9.434 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
1.850	74	>75% Grass cover, Good, HSG C
12.510	61	>75% Grass cover, Good, HSG B
20.920	83	1/4 acre lots, 38% imp, HSG C
13.320	60	Woods, Fair, HSG B
6.860	73	Woods, Fair, HSG C
55.460	71	Weighted Average
47.510		Pervious Area
7.950		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
9.8	590	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	810	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.1	440	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	800	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
55.8	2,790	Total			

Subcatchment E3568: E3568



Subcatchment E3889: E3889

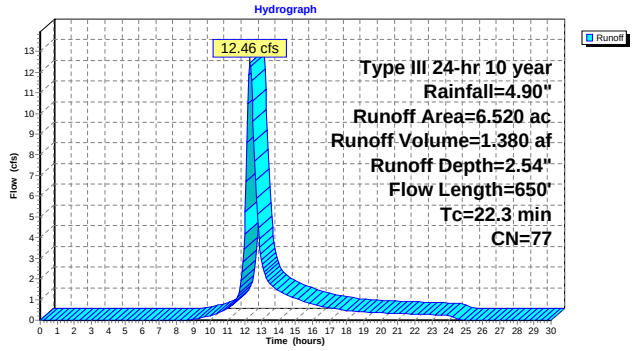
Runoff = 12.46 cfs @ 12.31 hrs, Volume= 1.380 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
2.290	83	1/4 acre lots, 38% imp, HSG C
4.230	74	>75% Grass cover, Good, HSG C
6.520	77	Weighted Average
5.650		Pervious Area
0.870		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.0	500	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.3	650	Total			

Subcatchment E3889: E3889



Subcatchment E4219: E4219

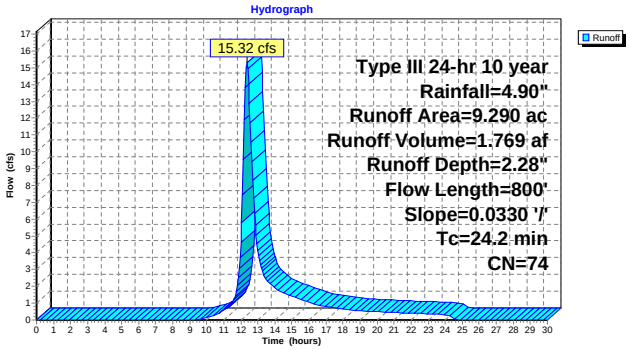
Runoff = 15.32 cfs @ 12.35 hrs, Volume= 1.769 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
9.290	74	>75% Grass cover, Good, HSG C
9.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.5	650	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	800	Total			

Subcatchment E4219: E4219



Subcatchment E4975: E4975

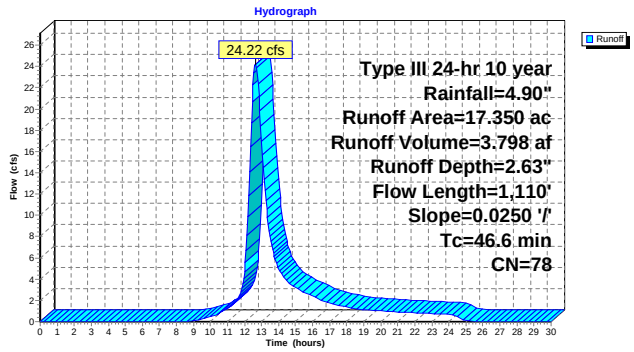
Runoff = 24.22 cfs @ 12.65 hrs, Volume= 3.798 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
4.910	91	Urban industrial, 72% imp, HSG C
12.440	73	Woods, Fair, HSG C
17.350	78	Weighted Average
13.815		Pervious Area
3.535		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
20.2	960	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
46.6	1,110	Total			

Subcatchment E4975: E4975



Subcatchment E5158: E5158

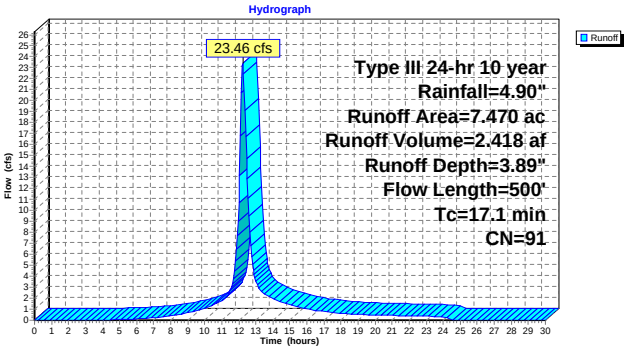
Runoff = 23.46 cfs @ 12.23 hrs, Volume= 2.418 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
1.900	82	Woods/grass comb., Poor, HSG C
5.570	94	Urban commercial, 85% imp, HSG C
7.470	91	Weighted Average
2.736		Pervious Area
4.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	150	0.0300	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
5.9	350	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.1	500	Total			

Subcatchment E5158: E5158



Subcatchment E5498: E5498

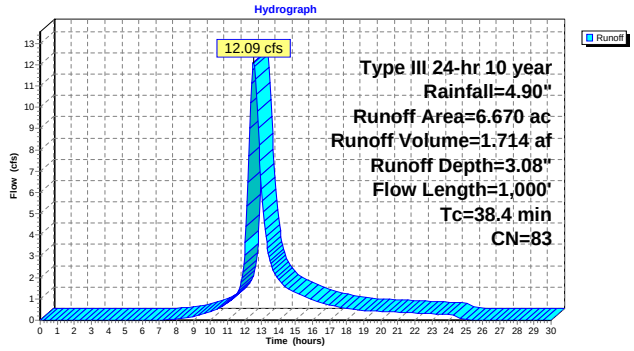
Runoff = 12.09 cfs @ 12.52 hrs, Volume= 1.714 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
2.620	94	Urban commercial, 85% imp, HSG C
4.050	76	Woods/grass comb., Fair, HSG C
6.670	83	Weighted Average
4.443		Pervious Area
2.227		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
23.9	850	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
38.4	1,000	Total			

Subcatchment E5498: E5498



Subcatchment E5909: E5909

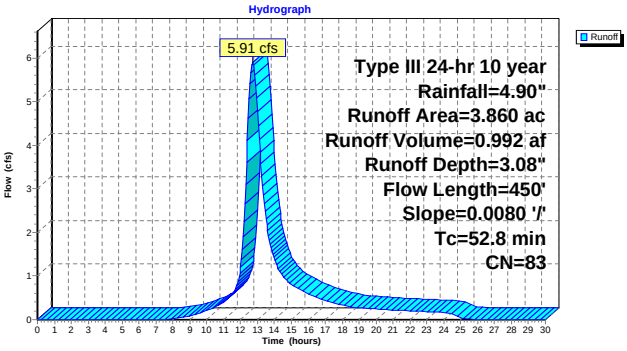
Runoff = 5.91 cfs @ 12.72 hrs, Volume= 0.992 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
1.480	94	Urban commercial, 85% imp, HSG C
2.380	76	Woods/grass comb., Fair, HSG C
3.860	83	Weighted Average
2.602		Pervious Area
1.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.6	150	0.0080	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
11.2	300	0.0080	0.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
52.8	450	Total			

Subcatchment E5909: E5909



Subcatchment E6369: E6369

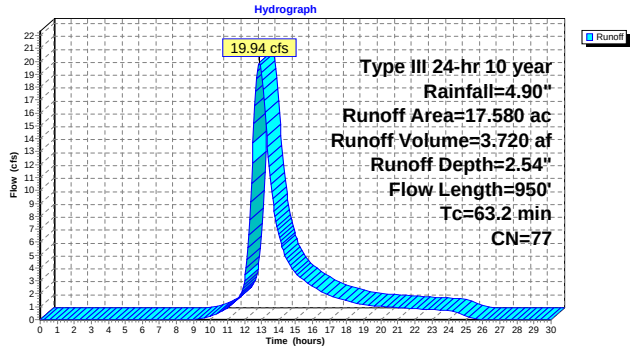
Runoff = 19.94 cfs @ 12.86 hrs, Volume= 3.720 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
8.290	73	Woods, Fair, HSG C
9.290	81	1/3 acre lots, 30% imp, HSG C
17.580	77	Weighted Average
14.793		Pervious Area
2.787		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
48.7	800	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
63.2	950	Total			

Subcatchment E6369: E6369



Subcatchment E6821: E6821

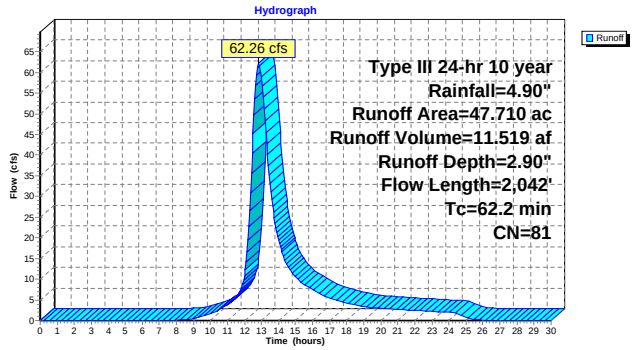
Runoff = 62.26 cfs @ 12.83 hrs, Volume= 11.519 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
8.430	83	1/4 acre lots, 38% imp, HSG C
11.040	81	1/3 acre lots, 30% imp, HSG C
4.790	83	1/4 acre lots, 38% imp, HSG C
9.780	91	Urban industrial, 72% imp, HSG C
13.670	73	Woods, Fair, HSG C
47.710	81	Weighted Average
32.333		Pervious Area
15.377		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	150	0.1000	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.1	100	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	365	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.0	430	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
20.0					**Direct Entry, Small Detention Pond**
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0180	2.01		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.8	472	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
62.2	2,042	Total			

Subcatchment E6821: E6821



Subcatchment E7473: E7473

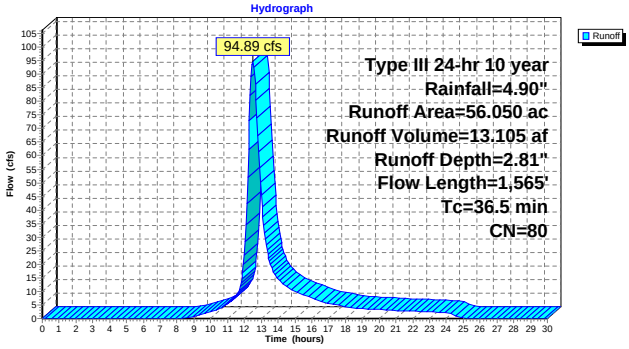
Runoff = 94.89 cfs @ 12.51 hrs, Volume= 13.105 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
5.660	83	1/4 acre lots, 38% imp, HSG C
9.690	91	Urban industrial, 72% imp, HSG C
18.120	83	1/4 acre lots, 38% imp, HSG C
22.580	73	Woods, Fair, HSG C
56.050	80	Weighted Average
40.037		Pervious Area
16.013		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	200	0.0600	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.9	300	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.9	1,065	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.5	1,565	Total			

Subcatchment E7473: E7473



Subcatchment E8046: E8046

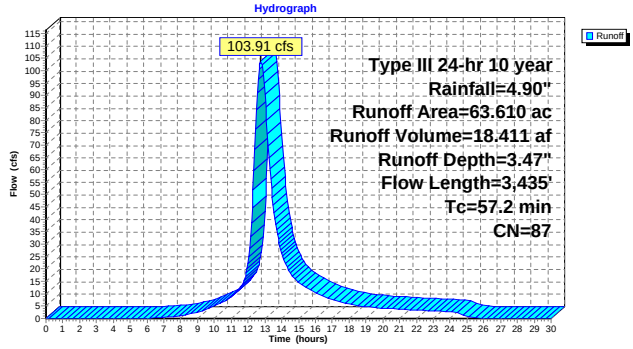
Runoff = 103.91 cfs @ 12.76 hrs, Volume= 18.411 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
36.960	91	Urban industrial, 72% imp, HSG C
2.300	83	1/4 acre lots, 38% imp, HSG C
10.840	94	Urban commercial, 85% imp, HSG C
13.510	70	Brush, Fair, HSG C
63.610	87	Weighted Average
26.911		Pervious Area
36.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0250	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
15.3	2,275	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
24.4	1,010	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
57.2	3,435	Total			

Subcatchment E8046: E8046



Subcatchment E8497: E8497

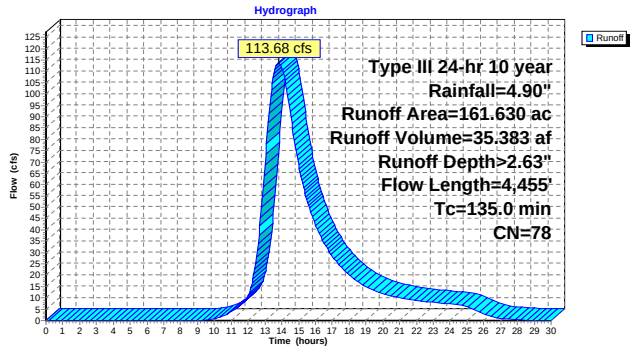
Runoff = 113.68 cfs @ 13.81 hrs, Volume= 35.383 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
15.850	83	1/4 acre lots, 38% imp, HSG C
16.520	81	1/3 acre lots, 30% imp, HSG C
13.150	94	Urban commercial, 85% imp, HSG C
8.270	83	1/4 acre lots, 38% imp, HSG C
7.790	94	Urban commercial, 85% imp, HSG C
0.850	94	Urban commercial, 85% imp, HSG C
5.500	91	Urban industrial, 72% imp, HSG C
93.700	72	Woods/grass comb., Good, HSG C
161.630	78	Weighted Average
125.027		Pervious Area
36.603		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	150	0.0120	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
9.4	650	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.1	700	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.0					**Direct Entry, Detention Pond**
28.8	1,430	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.6	400	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
15.0					**Direct Entry, Small Pond**
10.6	1,125	0.0140	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
135.0	4,455	Total			

Subcatchment E8497: E8497



Subcatchment E9081: E9081

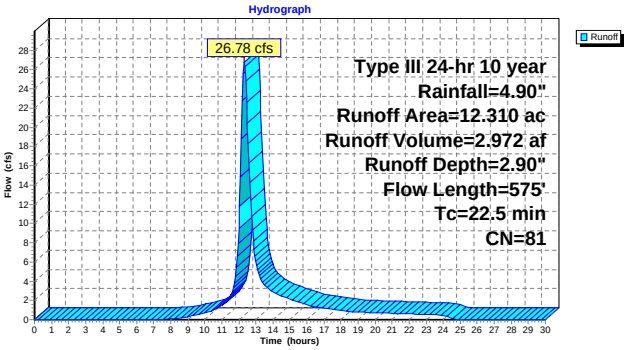
Runoff = 26.78 cfs @ 12.31 hrs, Volume= 2.972 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
6.640	70	Brush, Fair, HSG C
5.670	94	Urban commercial, 85% imp, HSG C
12.310	81	Weighted Average
7.491		Pervious Area
4.819		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	150	0.0350	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
12.0	425	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.5	575	Total			

Subcatchment E9081: E9081



Subcatchment E9326: E9326

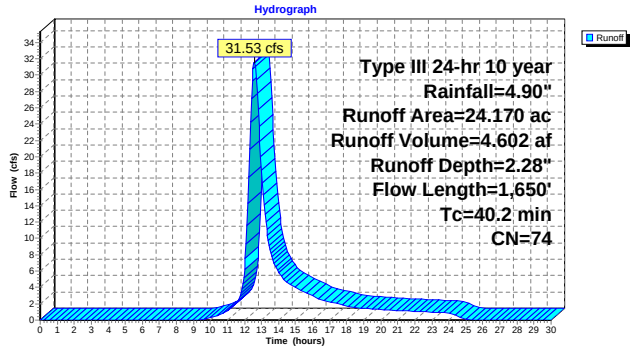
Runoff = 31.53 cfs @ 12.57 hrs, Volume= 4.602 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
4.140	94	Urban commercial, 85% imp, HSG C
20.030	70	Brush, Fair, HSG C
24.170	74	Weighted Average
20.651		Pervious Area
3.519		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.8	150	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.4	200	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.0	1,300	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
40.2	1,650	Total			

Subcatchment E9326: E9326



Subcatchment E9611: E9611

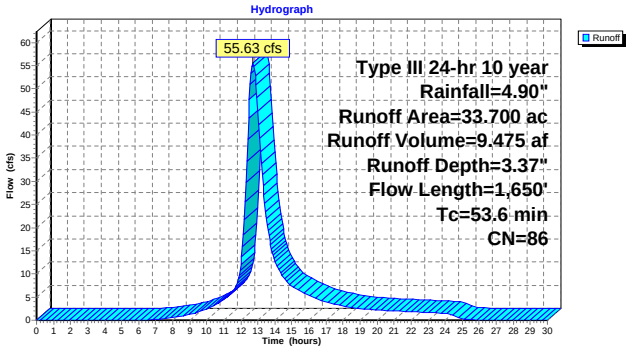
Runoff = 55.63 cfs @ 12.71 hrs, Volume= 9.475 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
12.370	72	Woods/grass comb., Good, HSG C
21.330	94	Urban commercial, 85% imp, HSG C
33.700	86	Weighted Average
15.569		Pervious Area
18.131		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
37.3	1,500	0.0180	0.67		**Shallow Concentrated Flow, Two ponds add some time** Woodland Kv= 5.0 fps
53.6	1,650	Total			

Subcatchment E9611: E9611



Subcatchment ELB1369: ELB1369

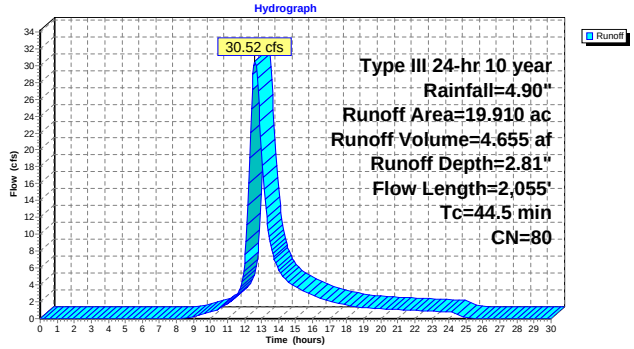
Runoff = 30.52 cfs @ 12.61 hrs, Volume= 4.655 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
17.390	81	1/3 acre lots, 30% imp, HSG C
2.520	70	Brush, Fair, HSG C
19.910	80	Weighted Average
14.693		Pervious Area
5.217		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
12.0	575	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	1,330	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
44.5	2,055	Total			

Subcatchment ELB1369: ELB1369



Subcatchment ELB1483: ELB1483

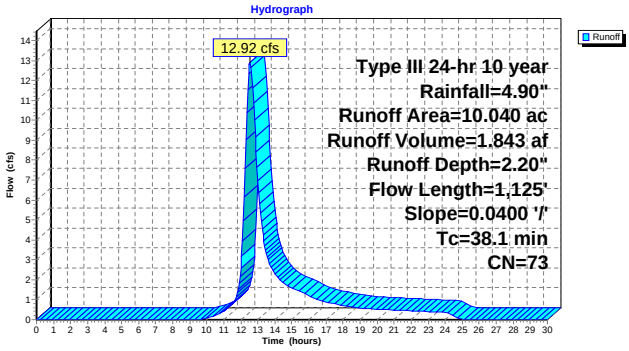
Runoff = 12.92 cfs @ 12.55 hrs, Volume= 1.843 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
7.570	70	Brush, Fair, HSG C
2.470	81	1/3 acre lots, 30% imp, HSG C
10.040	73	Weighted Average
9.299		Pervious Area
0.741		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
16.3	975	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
38.1	1,125	Total			

Subcatchment ELB1483: ELB1483



Subcatchment ELB2128: ELB2128

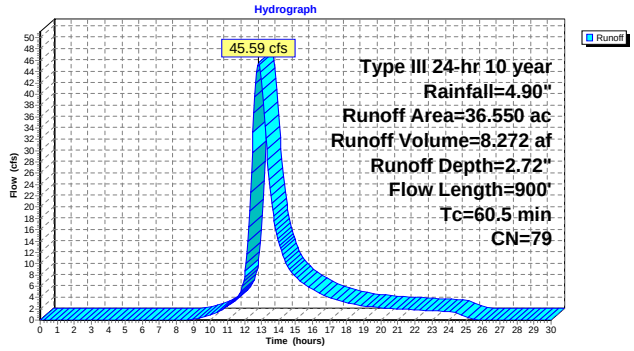
Runoff = 45.59 cfs @ 12.83 hrs, Volume= 8.272 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
6.960	90	1/8 acre lots, 65% imp, HSG C
4.870	60	Woods, Fair, HSG B
4.870	73	Woods, Fair, HSG C
19.850	81	1/3 acre lots, 30% imp, HSG C
36.550	79	Weighted Average
26.071		Pervious Area
10.479		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.2	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.40"
10.3	750	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
60.5	900	Total			

Subcatchment ELB2128: ELB2128



Subcatchment ELB234: ELB234

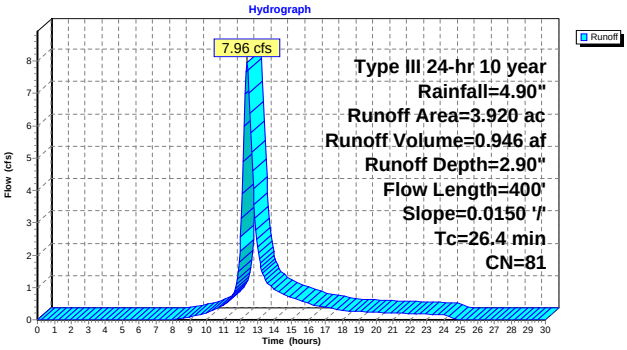
Runoff = 7.96 cfs @ 12.37 hrs, Volume= 0.946 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
3.920	81	1/3 acre lots, 30% imp, HSG C
2.744		Pervious Area
1.176		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	150	0.0150	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
4.9	250	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
26.4	400	Total			

Subcatchment ELB234: ELB234



Subcatchment ELB729: ELB729

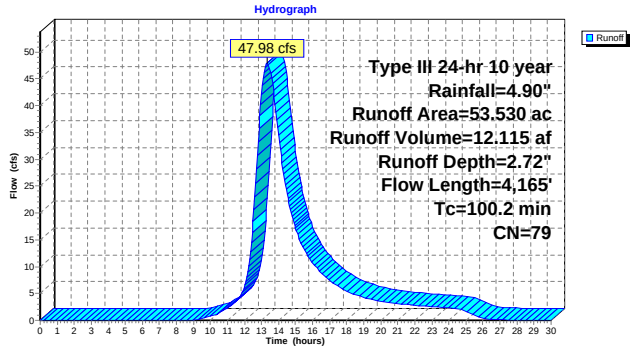
Runoff = 47.98 cfs @ 13.33 hrs, Volume= 12.115 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
11.760	94	Urban commercial, 85% imp, HSG C
26.080	71	Meadow, non-grazed, HSG C
15.690	81	1/3 acre lots, 30% imp, HSG C
53.530	79	Weighted Average
38.827		Pervious Area
14.703		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.0	150	0.0020	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
41.8	1,010	0.0020	0.40		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
18.9	1,455	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.5	1,550	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
100.2	4,165	Total			

Subcatchment ELB729: ELB729



Subcatchment ELB829: ELB829

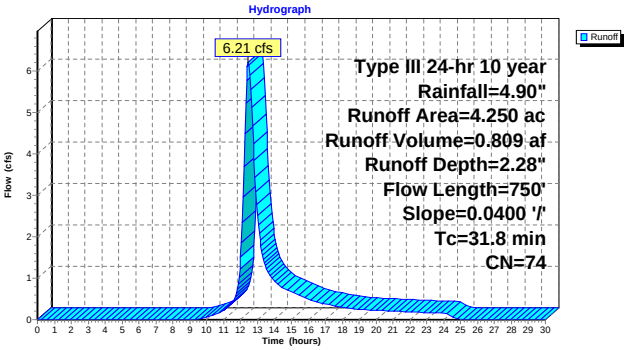
Runoff = 6.21 cfs @ 12.46 hrs, Volume= 0.809 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
0.750	81	1/3 acre lots, 30% imp, HSG C
3.500	73	Woods, Fair, HSG C
4.250	74	Weighted Average
4.025		Pervious Area
0.225		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.8	750	Total			

Subcatchment ELB829: ELB829



Subcatchment ELB972: ELB972

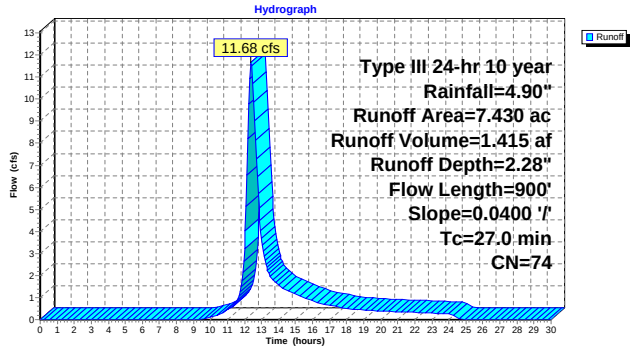
Runoff = 11.68 cfs @ 12.39 hrs, Volume= 1.415 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
1.000	81	1/3 acre lots, 30% imp, HSG C
6.430	73	Woods, Fair, HSG C
7.430	74	Weighted Average
7.130		Pervious Area
0.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
12.5	750	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.0	900	Total			

Subcatchment ELB972: ELB972



Subcatchment W1217: W1217

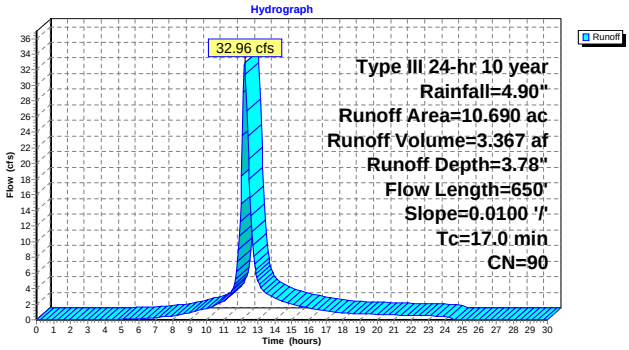
Runoff = 32.96 cfs @ 12.23 hrs, Volume= 3.367 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
10.690	90	1/8 acre lots, 65% imp, HSG C
3.742		Pervious Area
6.949		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.5	550	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.0	650	Total			

Subcatchment W1217: W1217



Subcatchment W1626: W1626

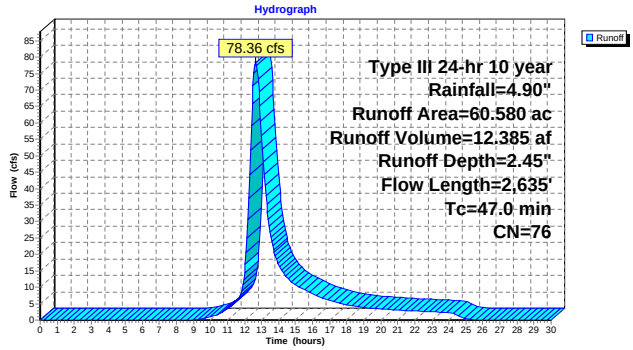
Runoff = 78.36 cfs @ 12.66 hrs, Volume= 12.385 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
20.360	81	1/3 acre lots, 30% imp, HSG C
40.220	74	>75% Grass cover, Good, HSG C
60.580	76	Weighted Average
54.472		Pervious Area
6.108		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	200	0.0230	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
14.9	950	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.4	810	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.9	675	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
47.0	2,635	Total			

Subcatchment W1626: W1626



Subcatchment W1737: W1737

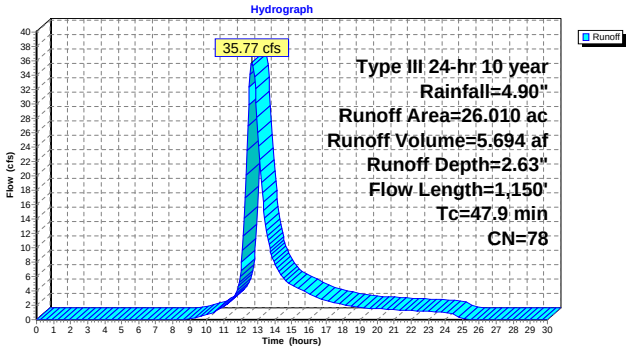
Runoff = 35.77 cfs @ 12.66 hrs, Volume= 5.694 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
18.140	76	Woods/grass comb., Fair, HSG C
7.870	83	1/4 acre lots, 38% imp, HSG C
26.010	78	Weighted Average
23.019		Pervious Area
2.991		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
21.5	1,000	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
47.9	1,150	Total			

Subcatchment W1737: W1737



Subcatchment W2720: W2720

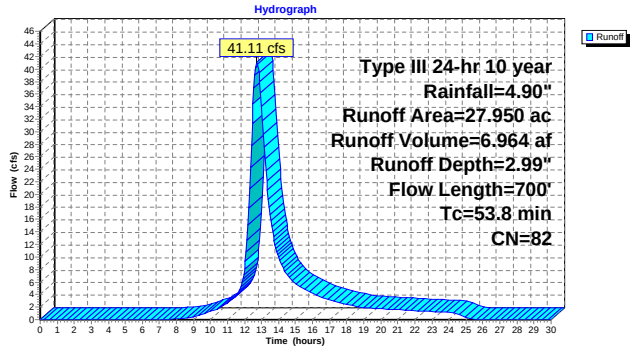
Runoff = 41.11 cfs @ 12.73 hrs, Volume= 6.964 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
3.790	73	Woods, Fair, HSG C
24.160	83	1/4 acre lots, 38% imp, HSG C
27.950	82	Weighted Average
18.769		Pervious Area
9.181		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
36.3	100	0.0050	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
17.5	600	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
53.8	700	Total			

Subcatchment W2720: W2720



Subcatchment W290: W290

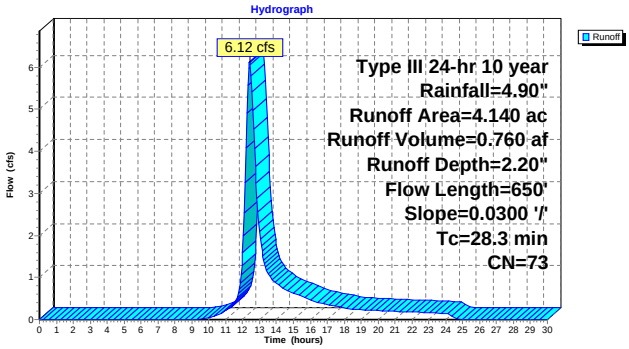
Runoff = 6.12 cfs @ 12.41 hrs, Volume= 0.760 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
4.140	73	Woods, Fair, HSG C
4.140		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.6	550	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.3	650	Total			

Subcatchment W290: W290



Subcatchment W3148: W3148

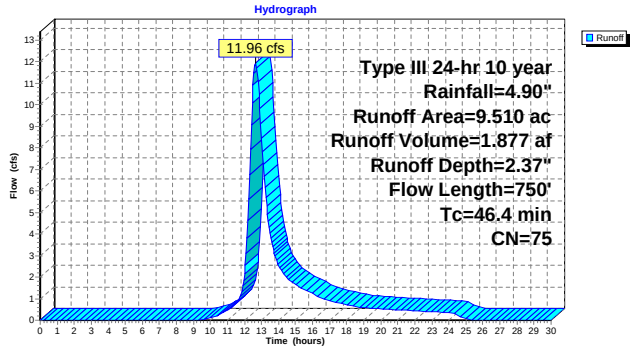
Runoff = 11.96 cfs @ 12.65 hrs, Volume= 1.877 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
2.120	83	1/4 acre lots, 38% imp, HSG C
7.390	73	Woods, Fair, HSG C
9.510	75	Weighted Average
8.704		Pervious Area
0.806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
20.0	600	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
46.4	750	Total			

Subcatchment W3148: W3148



Subcatchment W3774: W3774

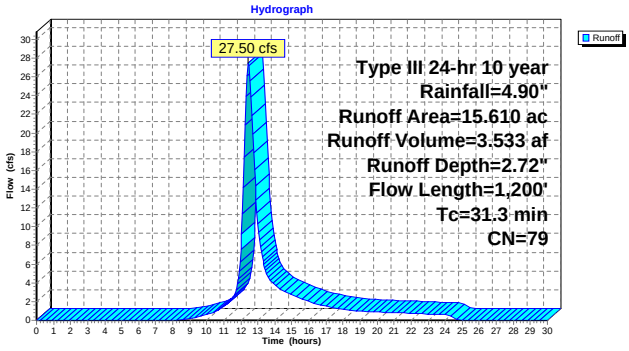
Runoff = 27.50 cfs @ 12.44 hrs, Volume= 3.533 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
1.990	94	Urban commercial, 85% imp, HSG C
8.790	81	1/3 acre lots, 30% imp, HSG C
4.830	70	Brush, Fair, HSG C
15.610	79	Weighted Average
11.282		Pervious Area
4.329		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.2	600	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.8	450	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.3	1,200	Total			

Subcatchment W3774: W3774



Subcatchment W3975: W3975

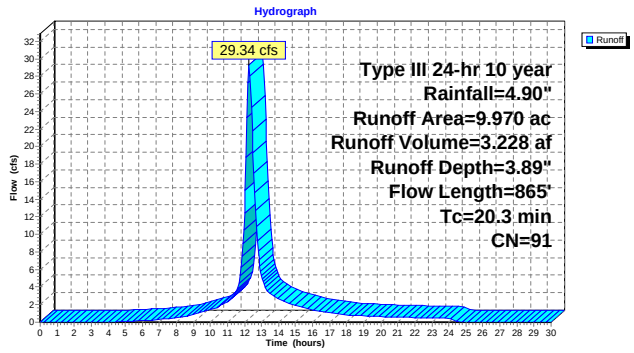
Runoff = 29.34 cfs @ 12.27 hrs, Volume= 3.228 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
9.970	91	Urban industrial, 72% imp, HSG C
2.792		Pervious Area
7.178		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	150	0.0250	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
8.3	715	0.0080	1.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
20.3	865	Total			

Subcatchment W3975: W3975



Subcatchment W4529: W4529

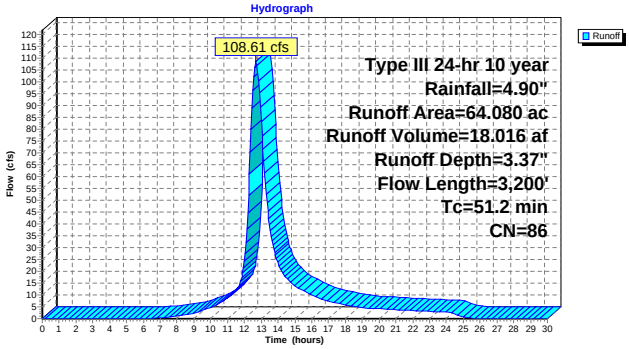
Runoff = 108.61 cfs @ 12.69 hrs, Volume= 18.016 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
25.860	94	Urban commercial, 85% imp, HSG C
38.220	81	1/3 acre lots, 30% imp, HSG C
64.080	86	Weighted Average
30.633		Pervious Area
33.447		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	200	0.0050	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.2	2,250	0.0130	2.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.2	750	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
51.2	3,200	Total			

Subcatchment W4529: W4529



Subcatchment W5128: W5128

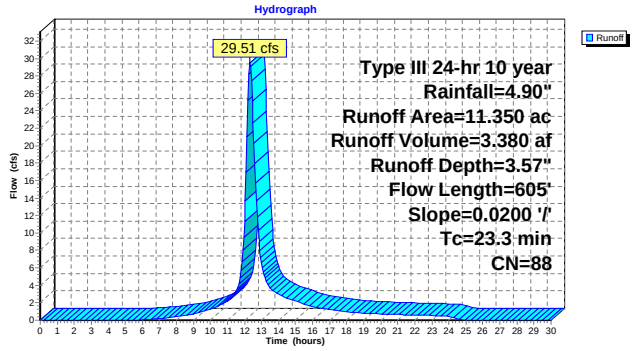
Runoff = 29.51 cfs @ 12.31 hrs, Volume= 3.380 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
4.320	83	1/4 acre lots, 38% imp, HSG C
7.030	91	Urban industrial, 72% imp, HSG C
11.350	88	Weighted Average
4.647		Pervious Area
6.703		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	200	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
6.8	405	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.3	605	Total			

Subcatchment W5128: W5128



Subcatchment W5300: W5300

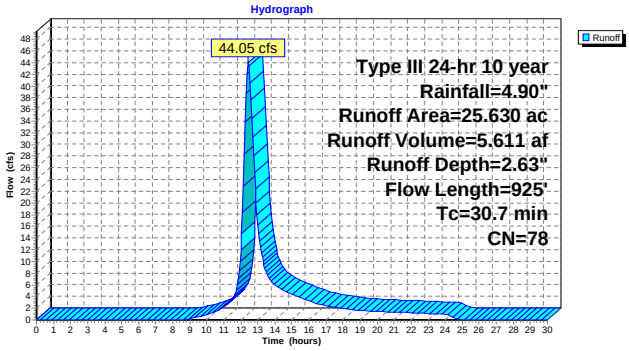
Runoff = 44.05 cfs @ 12.43 hrs, Volume= 5.611 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
14.570	73	Woods, Fair, HSG C
9.660	83	1/4 acre lots, 38% imp, HSG C
1.400	94	Urban commercial, 85% imp, HSG C
25.630	78	Weighted Average
20.769		Pervious Area
4.861		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
15.1	775	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.7	925	Total			

Subcatchment W5300: W5300



Subcatchment W6008: W6008

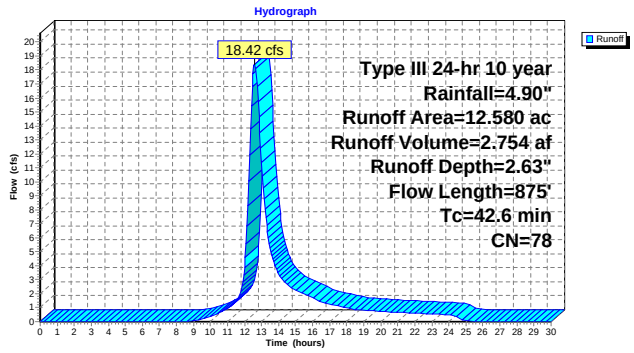
Runoff = 18.42 cfs @ 12.59 hrs, Volume= 2.754 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
6.890	73	Woods, Fair, HSG C
5.690	83	1/4 acre lots, 38% imp, HSG C
12.580	78	Weighted Average
10.418		Pervious Area
2.162		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0050	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
19.7	725	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
42.6	875	Total			

Subcatchment W6008: W6008



Subcatchment W6278: W6278

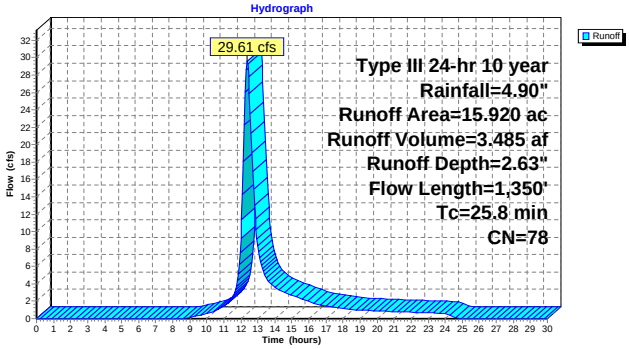
Runoff = 29.61 cfs @ 12.36 hrs, Volume= 3.485 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
7.730	73	Woods, Fair, HSG C
8.190	83	1/4 acre lots, 38% imp, HSG C
15.920	78	Weighted Average
12.808		Pervious Area
3.112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	150	0.0250	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.9	600	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.9	600	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.8	1,350	Total			

Subcatchment W6278: W6278



Subcatchment W6643: W6643

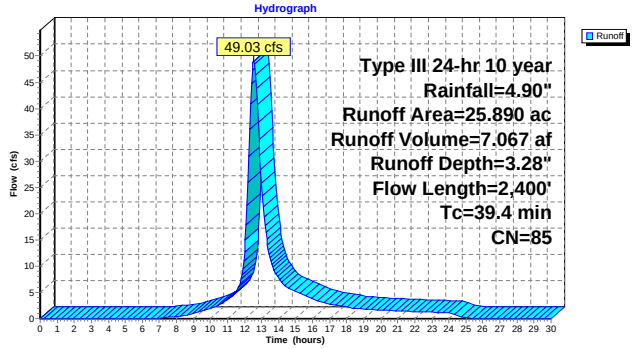
Runoff = 49.03 cfs @ 12.54 hrs, Volume= 7.067 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
14.500	86	Pasture/grassland/range, Poor, HSG C
11.390	83	1/4 acre lots, 38% imp, HSG C
25.890	85	Weighted Average
21.562		Pervious Area
4.328		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
11.2	1,500	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	750	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
39.4	2,400	Total			

Subcatchment W6643: W6643



Subcatchment W684: W684

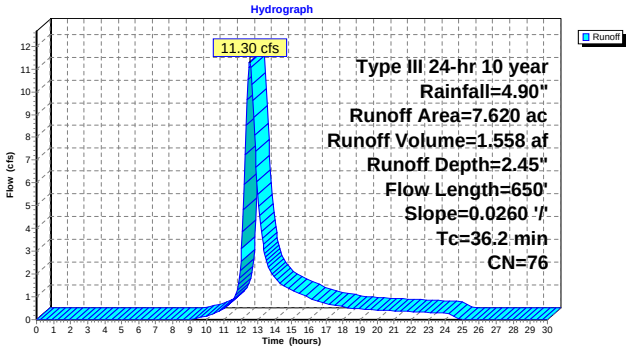
Runoff = 11.30 cfs @ 12.51 hrs, Volume= 1.558 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.90"

Area (ac)	CN	Description
2.420	83	1/4 acre lots, 38% imp, HSG C
5.200	73	Woods, Fair, HSG C
7.620	76	Weighted Average
6.700		Pervious Area
0.920		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0260	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.3	500	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	650	Total			

Subcatchment W684: W684

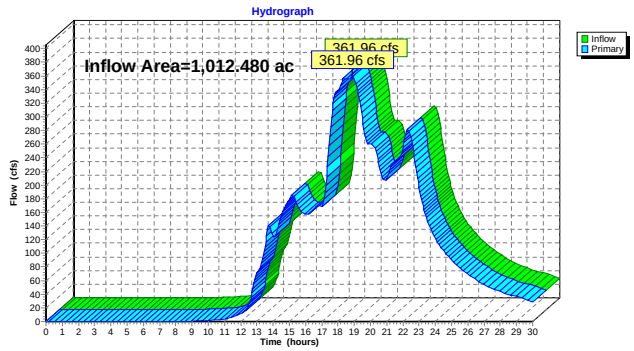


Link 1C: (new Link)

Inflow Area = 1,012.480 ac, Inflow Depth > 2.73" for 10 year event
Inflow = 361.96 cfs @ 18.89 hrs, Volume= 230.741 af
Primary = 361.96 cfs @ 18.89 hrs, Volume= 230.741 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1C: (new Link)

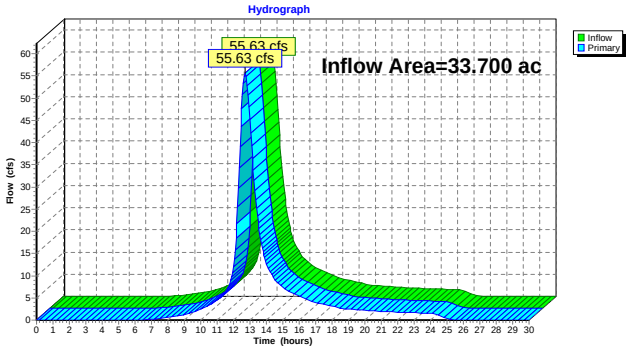


Link 1E: (new Link)

Inflow Area = 33.700 ac, Inflow Depth = 3.37" for 10 year event
Inflow = 55.63 cfs @ 12.71 hrs, Volume= 9.475 af
Primary = 55.63 cfs @ 12.71 hrs, Volume= 9.475 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1E: (new Link)

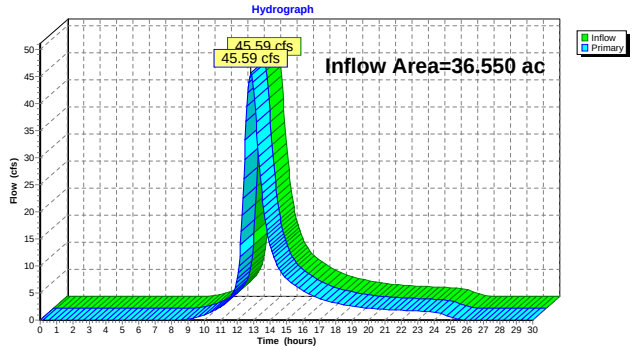


Link 1ELB: (new Link)

Inflow Area = 36.550 ac, Inflow Depth = 2.72" for 10 year event
Inflow = 45.59 cfs @ 12.83 hrs, Volume= 8.272 af
Primary = 45.59 cfs @ 12.83 hrs, Volume= 8.272 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1ELB: (new Link)

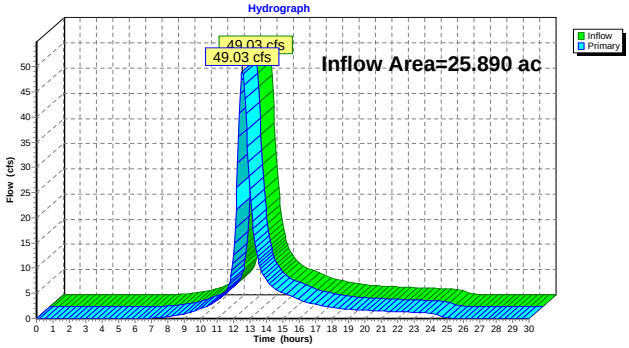


Link 1W: (new Link)

Inflow Area = 25.890 ac, Inflow Depth = 3.28" for 10 year event
Inflow = 49.03 cfs @ 12.54 hrs, Volume= 7.067 af
Primary = 49.03 cfs @ 12.54 hrs, Volume= 7.067 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1W: (new Link)

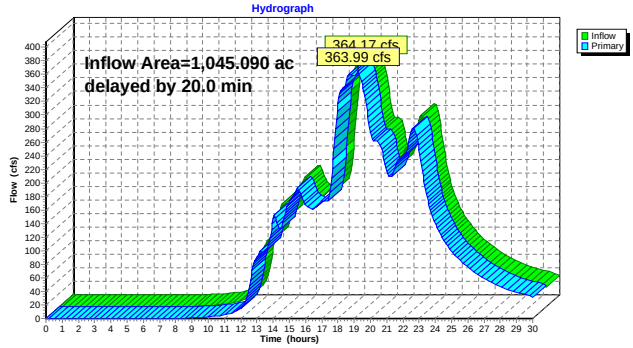


Link 2C: (new Link)

Inflow Area = 1,045.090 ac, Inflow Depth > 2.74" for 10 year event
Inflow = 364.17 cfs @ 18.89 hrs, Volume= 238.866 af
Primary = 363.99 cfs @ 19.23 hrs, Volume= 238.045 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2C: (new Link)

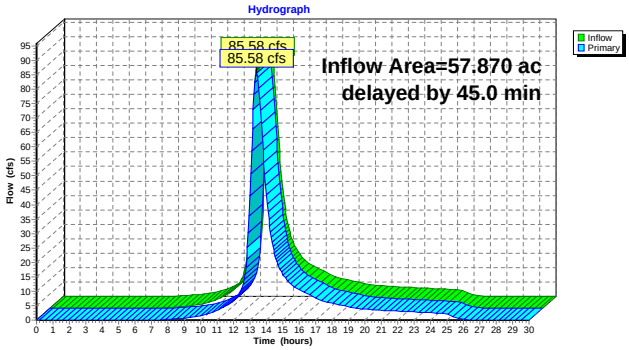


Link 2E: (new Link)

Inflow Area = 57.870 ac, Inflow Depth = 2.92" for 10 year event
Inflow = 85.58 cfs @ 12.66 hrs, Volume= 14.077 af
Primary = 85.58 cfs @ 13.41 hrs, Volume= 14.077 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2E: (new Link)

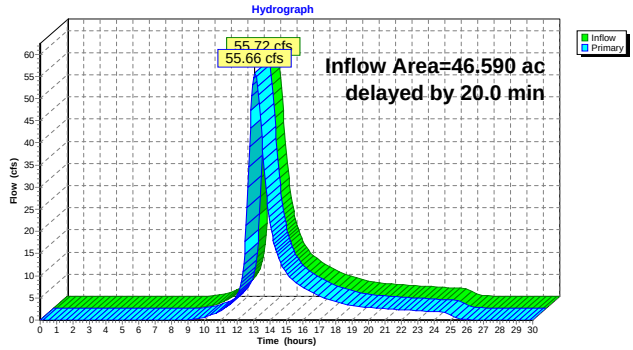


Link 2ELB: (new Link)

Inflow Area = 46.590 ac, Inflow Depth = 2.61" for 10 year event
Inflow = 55.72 cfs @ 12.75 hrs, Volume= 10.114 af
Primary = 55.66 cfs @ 13.08 hrs, Volume= 10.114 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2ELB: (new Link)

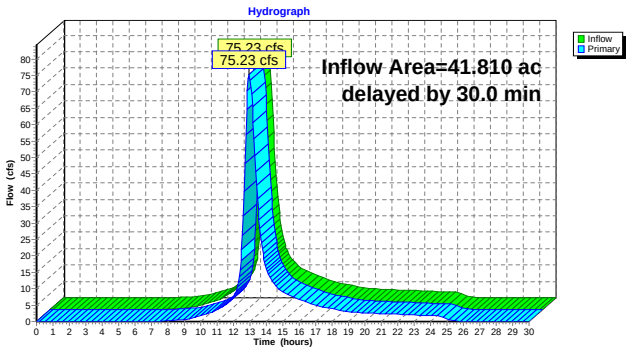


Link 2W: (new Link)

Inflow Area = 41.810 ac, Inflow Depth = 3.03" for 10 year event
Inflow = 75.23 cfs @ 12.46 hrs, Volume= 10.553 af
Primary = 75.23 cfs @ 12.96 hrs, Volume= 10.553 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2W: (new Link)

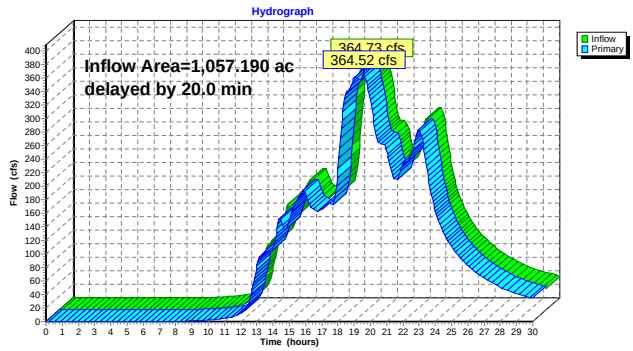


Link 3C: (new Link)

Inflow Area = 1,057.190 ac, Inflow Depth > 2.73" for 10 year event
Inflow = 364.73 cfs @ 19.23 hrs, Volume= 240.606 af
Primary = 364.52 cfs @ 19.56 hrs, Volume= 239.694 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3C: (new Link)

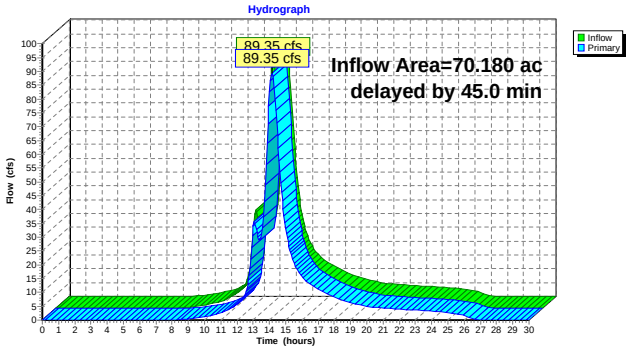


Link 3E: (new Link)

Inflow Area = 70.180 ac, Inflow Depth = 2.92" for 10 year event
Inflow = 89.35 cfs @ 13.40 hrs, Volume= 17.049 af
Primary = 89.35 cfs @ 14.15 hrs, Volume= 17.049 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3E: (new Link)

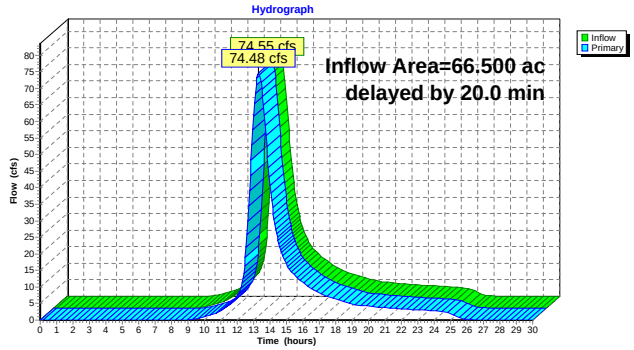


Link 3ELB: (new Link)

Inflow Area = 66.500 ac, Inflow Depth = 2.67" for 10 year event
Inflow = 74.55 cfs @ 12.97 hrs, Volume= 14.770 af
Primary = 74.48 cfs @ 13.31 hrs, Volume= 14.770 af, Atten= 0%, Lag= 19.9 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3ELB: (new Link)

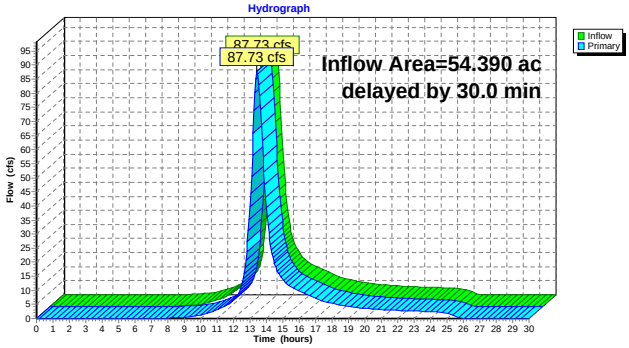


Link 3W: (new Link)

Inflow Area = 54.390 ac, Inflow Depth = 2.94" for 10 year event
Inflow = 87.73 cfs @ 12.93 hrs, Volume= 13.307 af
Primary = 87.73 cfs @ 13.43 hrs, Volume= 13.307 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3W: (new Link)

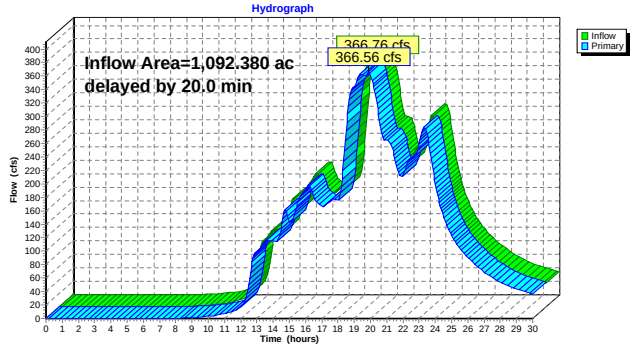


Link 4C: (new Link)

Inflow Area = 1,092.380 ac, Inflow Depth > 2.73" for 10 year event
Inflow = 366.76 cfs @ 19.56 hrs, Volume= 248.738 af
Primary = 366.56 cfs @ 19.89 hrs, Volume= 247.758 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4C: (new Link)

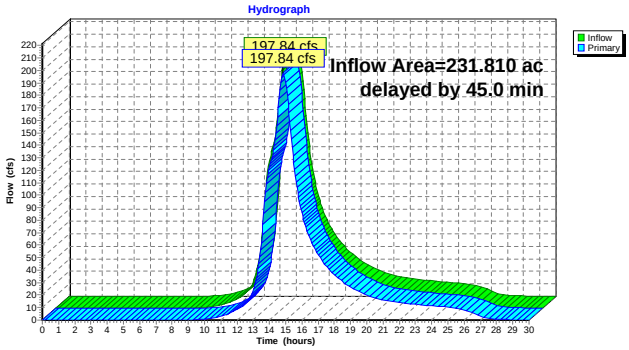


Link 4E: (new Link)

Inflow Area = 231.810 ac, Inflow Depth > 2.71" for 10 year event
Inflow = 197.84 cfs @ 14.10 hrs, Volume= 52.431 af
Primary = 197.84 cfs @ 14.85 hrs, Volume= 52.428 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4E: (new Link)

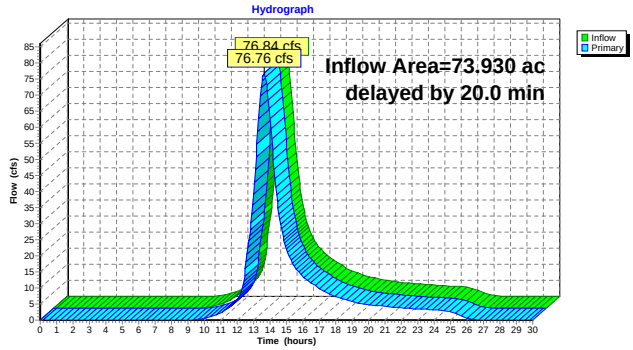


Link 4ELB: (new Link)

Inflow Area = 73.930 ac, Inflow Depth = 2.63" for 10 year event
Inflow = 76.84 cfs @ 13.30 hrs, Volume= 16.184 af
Primary = 76.76 cfs @ 13.63 hrs, Volume= 16.184 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4ELB: (new Link)

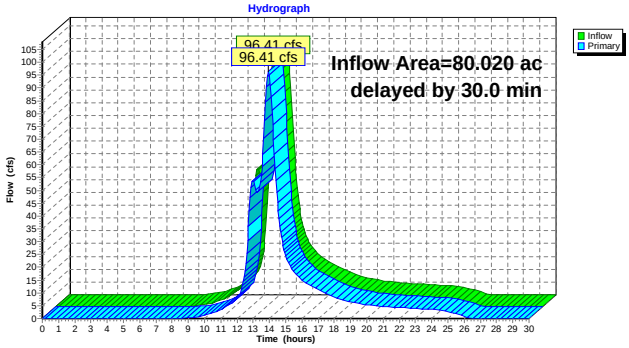


Link 4W: (new Link)

Inflow Area = 80.020 ac, Inflow Depth = 2.84" for 10 year event
Inflow = 96.41 cfs @ 13.42 hrs, Volume= 18.917 af
Primary = 96.41 cfs @ 13.92 hrs, Volume= 18.917 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4W: (new Link)

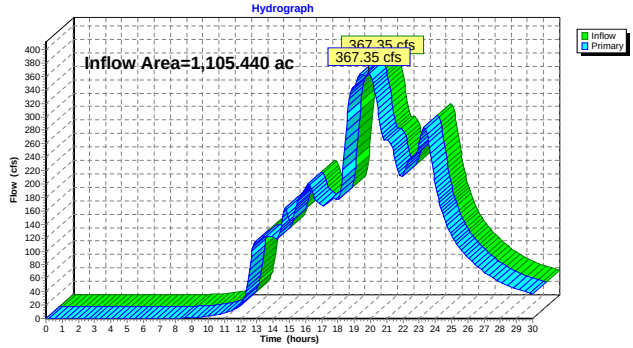


Link 5C: (new Link)

Inflow Area = 1,105.440 ac, Inflow Depth > 2.72" for 10 year event
Inflow = 367.35 cfs @ 19.89 hrs, Volume= 250.714 af
Primary = 367.35 cfs @ 19.89 hrs, Volume= 250.714 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5C: (new Link)

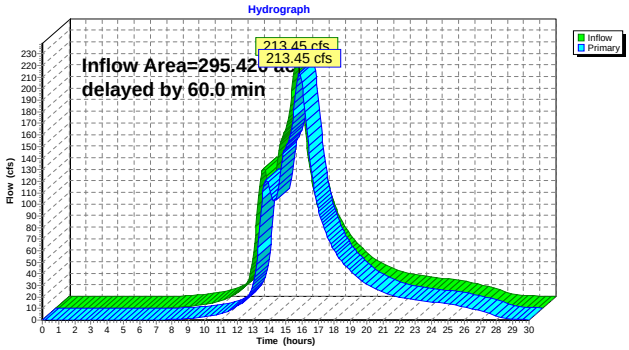


Link 5E: (new Link)

Inflow Area = 295.420 ac, Inflow Depth > 2.88" for 10 year event
Inflow = 213.45 cfs @ 14.84 hrs, Volume= 70.839 af
Primary = 213.45 cfs @ 15.84 hrs, Volume= 70.827 af, Atten= 0%, Lag= 60.0 min

Primary outflow = Inflow delayed by 60.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5E: (new Link)

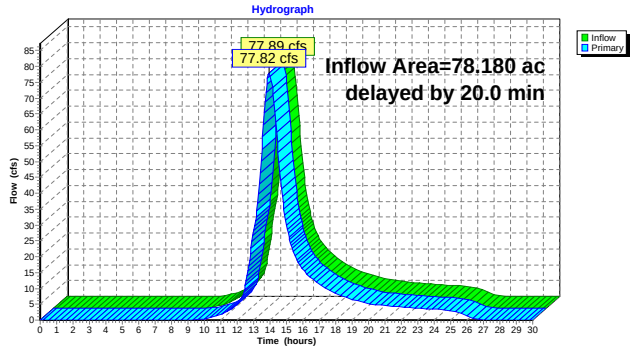


Link 5ELB: (new Link)

Inflow Area = 78.180 ac, Inflow Depth = 2.61" for 10 year event
Inflow = 77.89 cfs @ 13.63 hrs, Volume= 16.993 af
Primary = 77.82 cfs @ 13.96 hrs, Volume= 16.993 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5ELB: (new Link)

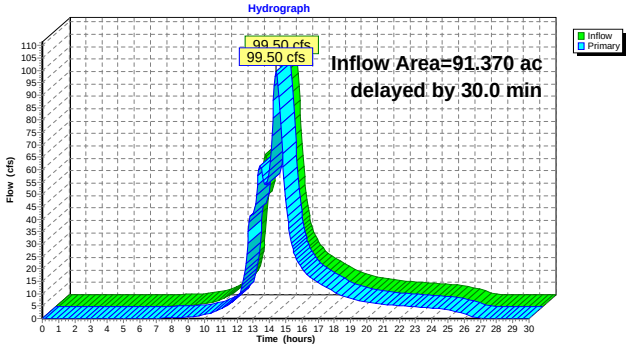


Link 5W: (new Link)

Inflow Area = 91.370 ac, Inflow Depth = 2.93" for 10 year event
Inflow = 99.50 cfs @ 13.92 hrs, Volume= 22.298 af
Primary = 99.50 cfs @ 14.42 hrs, Volume= 22.298 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5W: (new Link)

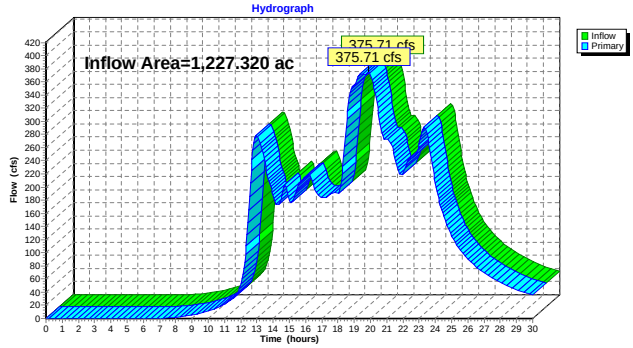


Link 6C: (new Link)

Inflow Area = 1,227.320 ac, Inflow Depth > 2.79" for 10 year event
Inflow = 375.71 cfs @ 19.89 hrs, Volume= 284.980 af
Primary = 375.71 cfs @ 19.89 hrs, Volume= 284.980 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6C: (new Link)

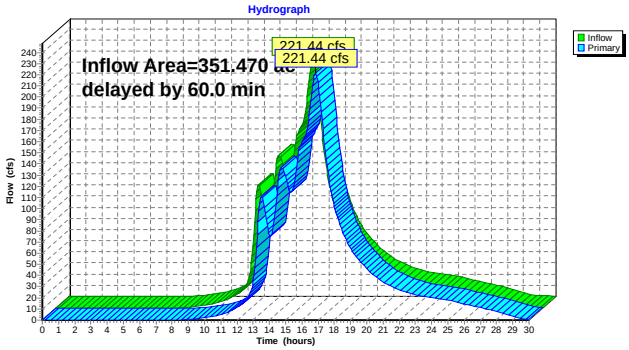


Link 6E: (new Link)

Inflow Area = 351.470 ac, Inflow Depth > 2.87" for 10 year event
Inflow = 221.44 cfs @ 15.83 hrs, Volume= 83.933 af
Primary = 221.44 cfs @ 16.83 hrs, Volume= 83.896 af, Atten= 0%, Lag= 60.0 min

Primary outflow = Inflow delayed by 60.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6E: (new Link)

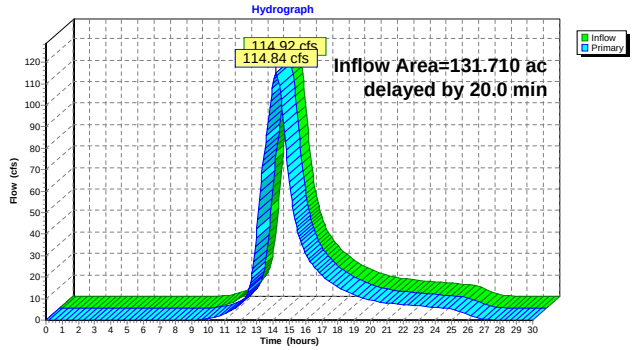


Link 6ELB: (new Link)

Inflow Area = 131.710 ac, Inflow Depth = 2.65" for 10 year event
Inflow = 114.92 cfs @ 13.86 hrs, Volume= 29.108 af
Primary = 114.84 cfs @ 14.19 hrs, Volume= 29.108 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6ELB: (new Link)

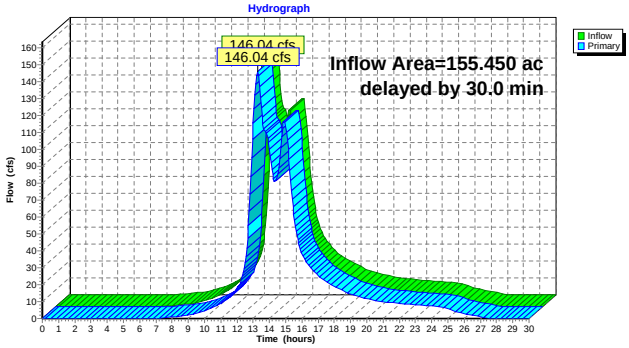


Link 6W: (new Link)

Inflow Area = 155.450 ac, Inflow Depth = 3.11" for 10 year event
Inflow = 146.04 cfs @ 12.77 hrs, Volume= 40.314 af
Primary = 146.04 cfs @ 13.27 hrs, Volume= 40.314 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6W: (new Link)

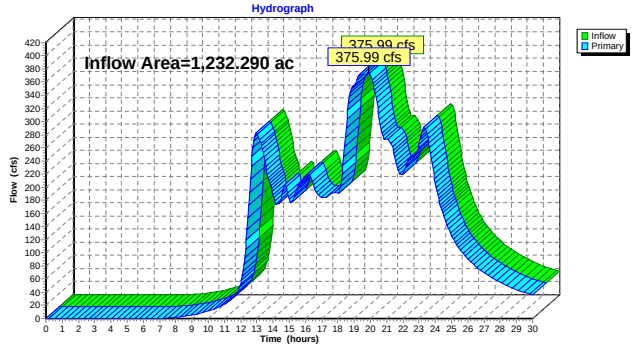


Link 7C: (new Link)

Inflow Area = 1,232.290 ac, Inflow Depth > 2.79" for 10 year event
Inflow = 375.99 cfs @ 19.89 hrs, Volume= 286.032 af
Primary = 375.99 cfs @ 19.89 hrs, Volume= 286.032 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7C: (new Link)

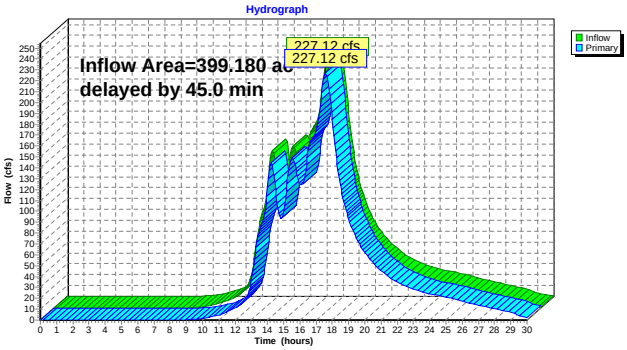


Link 7E: (new Link)

Inflow Area = 399.180 ac, Inflow Depth > 2.87" for 10 year event
Inflow = 227.12 cfs @ 16.83 hrs, Volume= 95.414 af
Primary = 227.12 cfs @ 17.58 hrs, Volume= 95.335 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7E: (new Link)

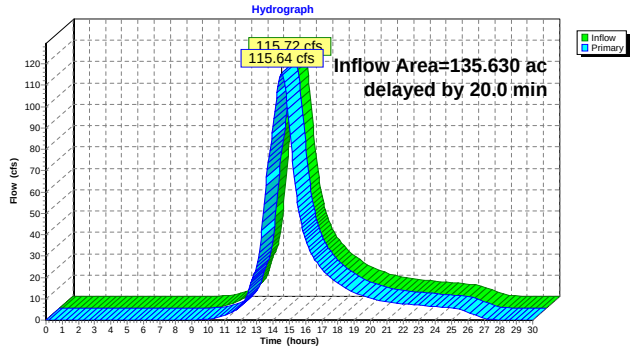


Link 7ELB: (new Link)

Inflow Area = 135.630 ac, Inflow Depth = 2.66" for 10 year event
Inflow = 115.72 cfs @ 14.19 hrs, Volume= 30.054 af
Primary = 115.64 cfs @ 14.52 hrs, Volume= 30.054 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7ELB: (new Link)

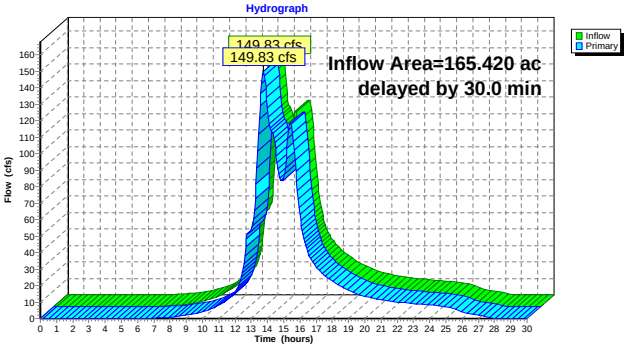


Link 7W: (new Link)

Inflow Area = 165.420 ac, Inflow Depth = 3.16" for 10 year event
Inflow = 149.83 cfs @ 13.26 hrs, Volume= 43.542 af
Primary = 149.83 cfs @ 13.76 hrs, Volume= 43.542 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7W: (new Link)

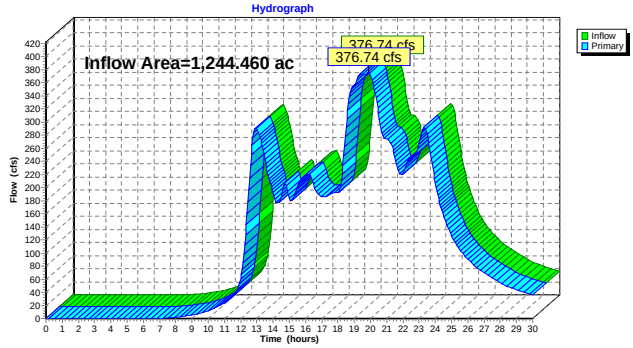


Link 8C: (new Link)

Inflow Area = 1,244.460 ac, Inflow Depth > 2.79" for 10 year event
Inflow = 376.74 cfs @ 19.89 hrs, Volume= 289.159 af
Primary = 376.74 cfs @ 19.89 hrs, Volume= 289.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8C: (new Link)

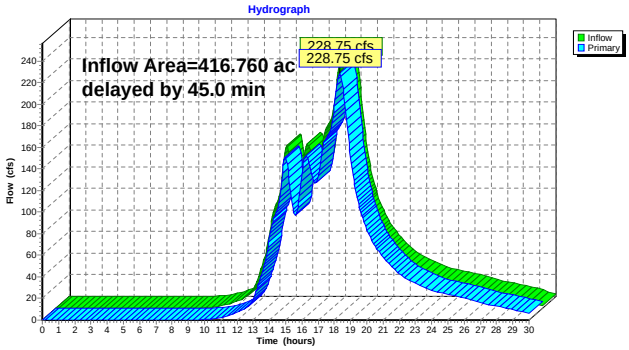


Link 8E: (new Link)

Inflow Area = 416.760 ac, Inflow Depth > 2.85" for 10 year event
Inflow = 228.75 cfs @ 17.58 hrs, Volume= 99.055 af
Primary = 228.75 cfs @ 18.33 hrs, Volume= 98.821 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8E: (new Link)

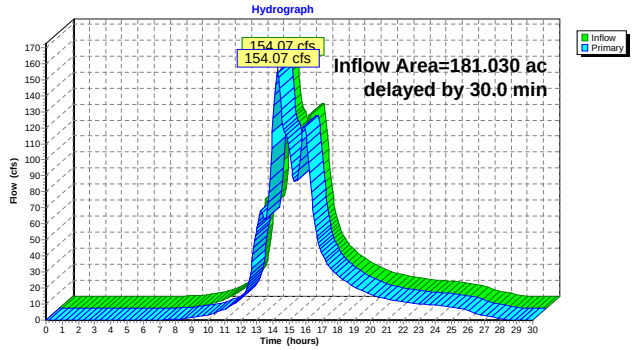


Link 8W: (new Link)

Inflow Area = 181.030 ac, Inflow Depth = 3.12" for 10 year event
Inflow = 154.07 cfs @ 13.76 hrs, Volume= 47.074 af
Primary = 154.07 cfs @ 14.26 hrs, Volume= 47.074 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8W: (new Link)

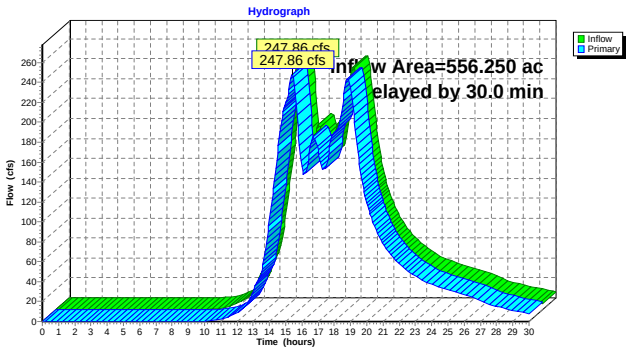


Link 9E: (new Link)

Inflow Area = 556.250 ac, Inflow Depth > 2.80" for 10 year event
Inflow = 247.86 cfs @ 14.89 hrs, Volume= 129.868 af
Primary = 247.86 cfs @ 15.39 hrs, Volume= 129.586 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9E: (new Link)

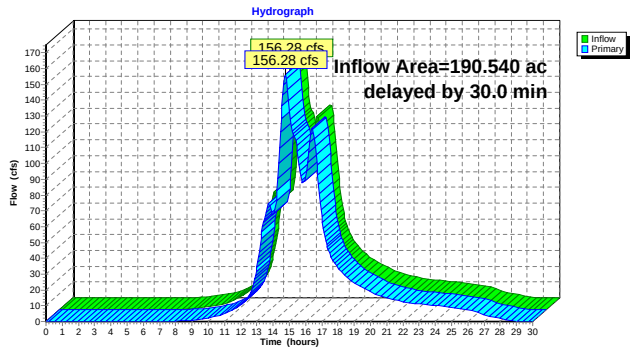


Link 9W: (new Link)

Inflow Area = 190.540 ac, Inflow Depth = 3.08" for 10 year event
Inflow = 156.28 cfs @ 14.26 hrs, Volume= 48.951 af
Primary = 156.28 cfs @ 14.76 hrs, Volume= 48.951 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9W: (new Link)

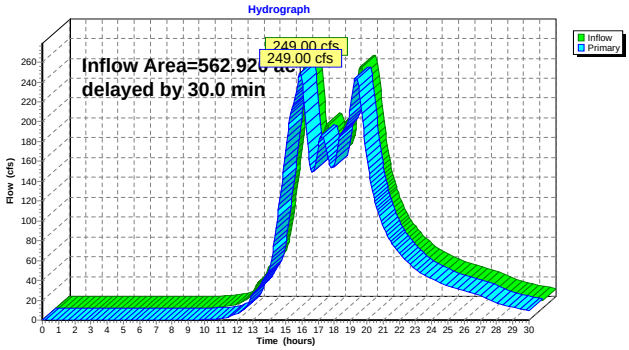


Link 10E: (new Link)

Inflow Area = 562.920 ac, Inflow Depth > 2.80" for 10 year event
Inflow = 249.00 cfs @ 15.39 hrs, Volume= 131.300 af
Primary = 249.00 cfs @ 15.89 hrs, Volume= 130.936 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10E: (new Link)

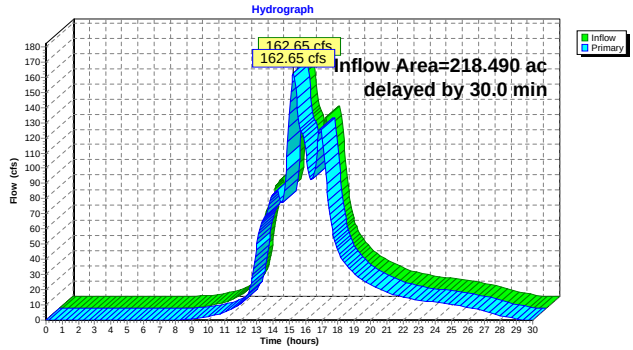


Link 10W: (new Link)

Inflow Area = 218.490 ac, Inflow Depth = 3.07" for 10 year event
Inflow = 162.65 cfs @ 14.76 hrs, Volume= 55.915 af
Primary = 162.65 cfs @ 15.26 hrs, Volume= 55.915 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10W: (new Link)

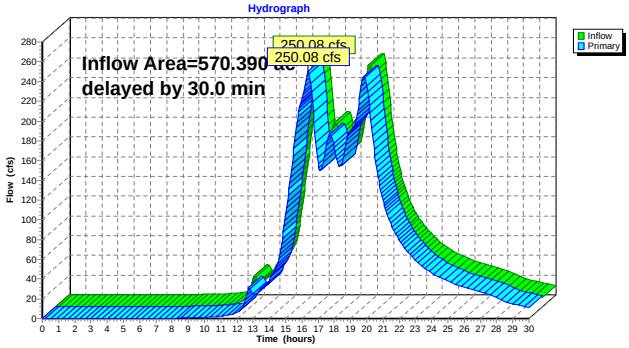


Link 11E: (new Link)

Inflow Area = 570.390 ac, Inflow Depth > 2.81" for 10 year event
Inflow = 250.08 cfs @ 15.89 hrs, Volume= 133.354 af
Primary = 250.08 cfs @ 16.39 hrs, Volume= 132.926 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 11E: (new Link)

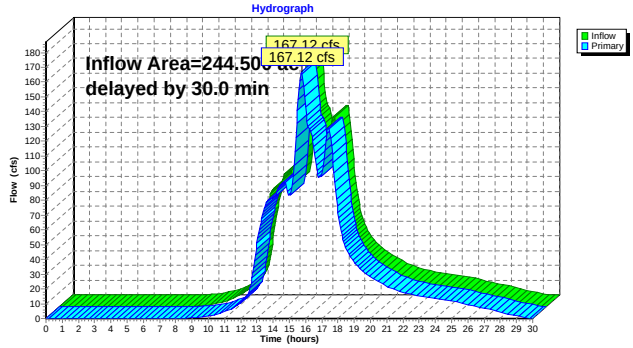


Link 11W: (new Link)

Inflow Area = 244.500 ac, Inflow Depth > 3.02" for 10 year event
Inflow = 167.12 cfs @ 15.26 hrs, Volume= 61.609 af
Primary = 167.12 cfs @ 15.76 hrs, Volume= 61.607 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 11W: (new Link)

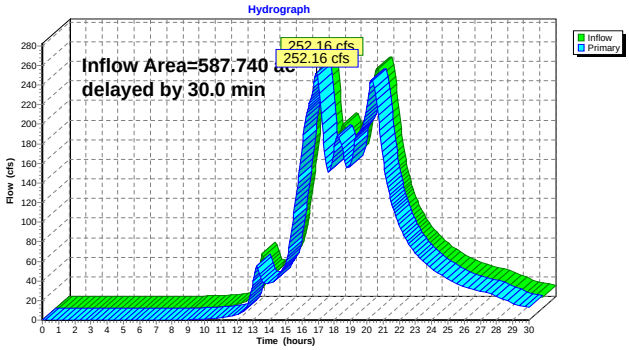


Link 12E: (new Link)

Inflow Area = 587.740 ac, Inflow Depth > 2.79" for 10 year event
Inflow = 252.16 cfs @ 16.39 hrs, Volume= 136.724 af
Primary = 252.16 cfs @ 16.89 hrs, Volume= 136.226 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 12E: (new Link)

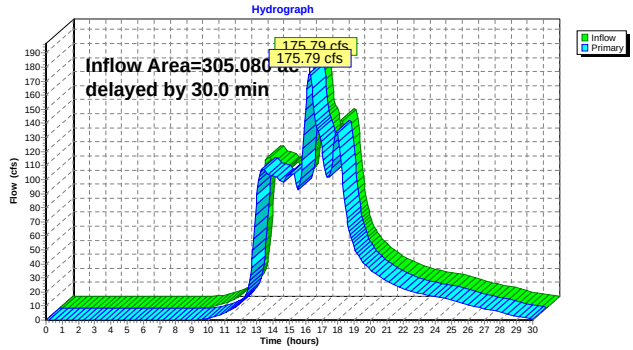


Link 12W: (new Link)

Inflow Area = 305.080 ac, Inflow Depth > 2.91" for 10 year event
Inflow = 175.79 cfs @ 15.75 hrs, Volume= 73.992 af
Primary = 175.79 cfs @ 16.25 hrs, Volume= 73.979 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 12W: (new Link)

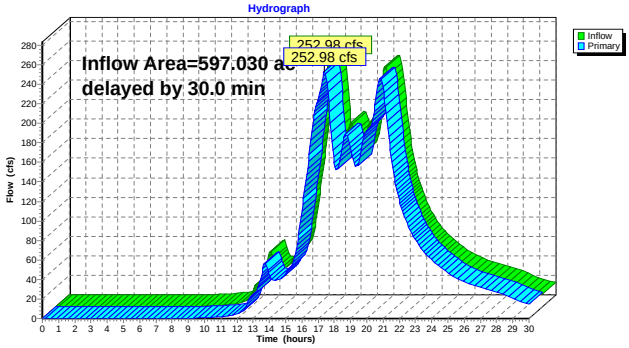


Link 13E: (new Link)

Inflow Area = 597.030 ac, Inflow Depth > 2.77" for 10 year event
Inflow = 252.98 cfs @ 16.89 hrs, Volume= 137.995 af
Primary = 252.98 cfs @ 17.39 hrs, Volume= 137.419 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 13E: (new Link)

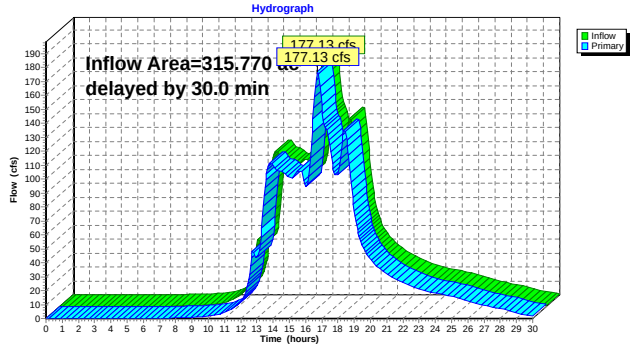


Link 13W: (new Link)

Inflow Area = 315.770 ac, Inflow Depth > 2.94" for 10 year event
Inflow = 177.13 cfs @ 16.25 hrs, Volume= 77.346 af
Primary = 177.13 cfs @ 16.75 hrs, Volume= 77.285 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 13W: (new Link)

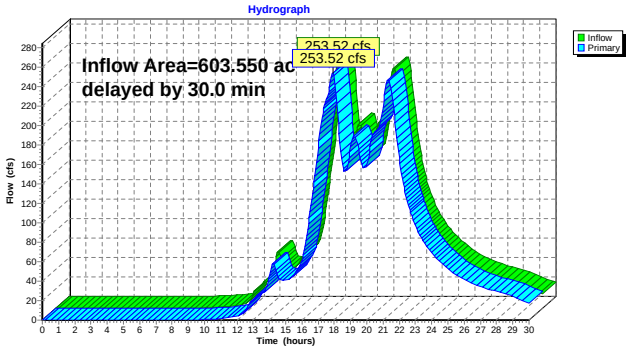


Link 14E: (new Link)

Inflow Area = 603.550 ac, Inflow Depth > 2.76" for 10 year event
Inflow = 253.52 cfs @ 17.39 hrs, Volume= 138.799 af
Primary = 253.52 cfs @ 17.89 hrs, Volume= 138.156 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 14E: (new Link)

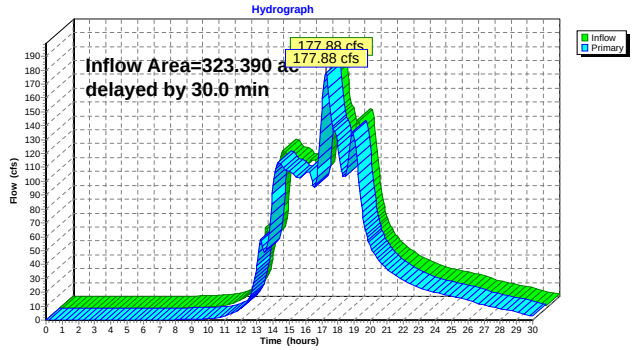


Link 14W: (new Link)

Inflow Area = 323.390 ac, Inflow Depth > 2.93" for 10 year event
Inflow = 177.88 cfs @ 16.75 hrs, Volume= 78.843 af
Primary = 177.88 cfs @ 17.25 hrs, Volume= 78.747 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 14W: (new Link)

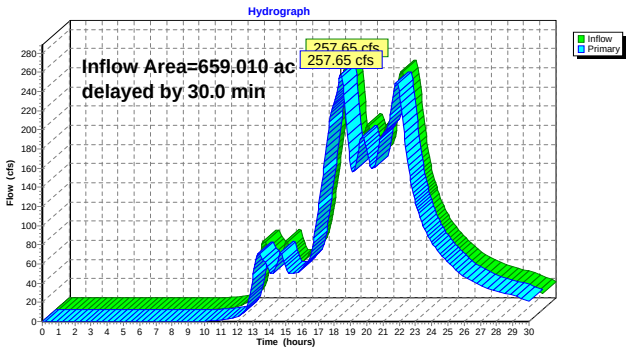


Link 15E: (new Link)

Inflow Area = 659.010 ac, Inflow Depth > 2.69" for 10 year event
Inflow = 257.65 cfs @ 17.89 hrs, Volume= 147.590 af
Primary = 257.65 cfs @ 18.39 hrs, Volume= 146.811 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 15E: (new Link)

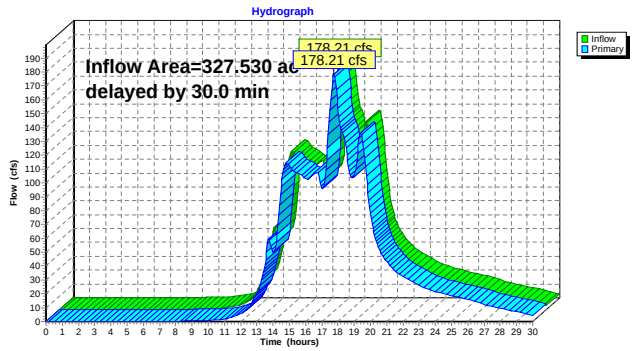


Link 15W: (new Link)

Inflow Area = 327.530 ac, Inflow Depth > 2.91" for 10 year event
Inflow = 178.21 cfs @ 17.25 hrs, Volume= 79.507 af
Primary = 178.21 cfs @ 17.75 hrs, Volume= 79.368 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 15W: (new Link)

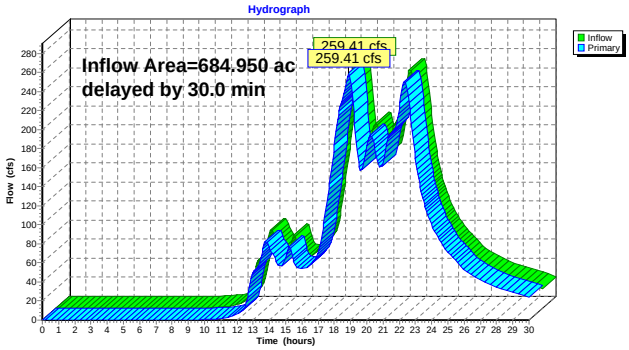


Link 16E: (new Link)

Inflow Area = 684.950 ac, Inflow Depth > 2.67" for 10 year event
Inflow = 259.41 cfs @ 18.39 hrs, Volume= 152.300 af
Primary = 259.41 cfs @ 18.89 hrs, Volume= 151.373 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 16E: (new Link)



100-Year Storm

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment C116: C116 Runoff Area=4.970 ac Runoff Depth=4.46"
Flow Length=450' Tc=25.8 min CN=77 Runoff=15.66 cfs 1.845 af

Subcatchment C1334: C1334 Runoff Area=35.190 ac Runoff Depth=5.12"
Flow Length=900' Slope=0.0200 '/' Tc=34.0 min CN=83 Runoff=110.94 cfs 15.021 af

Subcatchment C1748: C1748 Runoff Area=12.100 ac Runoff Depth=4.46"
Flow Length=850' Tc=33.5 min CN=77 Runoff=33.86 cfs 4.493 af

Subcatchment C2359: C2359 Runoff Area=32.610 ac Runoff Depth=5.01"
Flow Length=1,050' Slope=0.0400 '/' Tc=36.8 min CN=82 Runoff=97.04 cfs 13.615 af

Subcatchment C560: C560 Runoff Area=121.880 ac Runoff Depth=5.46"
Flow Length=4,800' Tc=73.9 min CN=86 Runoff=264.20 cfs 55.475 af

Subcatchment C62: (new Subcat) Runoff Area=12.170 ac Runoff Depth=5.12"
Flow Length=2,400' Tc=31.3 min CN=83 Runoff=39.88 cfs 5.195 af

Subcatchment C747: C747 Runoff Area=13.060 ac Runoff Depth=4.68"
Flow Length=700' Slope=0.0050 '/' Tc=58.8 min CN=79 Runoff=28.36 cfs 5.089 af

Subcatchment E2964: E2964 Runoff Area=25.940 ac Runoff Depth=4.46"
Flow Length=1,460' Slope=0.0400 '/' Tc=35.4 min CN=77 Runoff=70.62 cfs 9.632 af

Subcatchment E3568: E3568 Runoff Area=55.460 ac Runoff Depth=3.81"
Flow Length=2,790' Tc=55.8 min CN=71 Runoff=101.31 cfs 17.598 af

Subcatchment E3889: E3889 Runoff Area=6.520 ac Runoff Depth=4.46"
Flow Length=650' Tc=22.3 min CN=77 Runoff=21.86 cfs 2.421 af

Subcatchment E4219: E4219 Runoff Area=9.290 ac Runoff Depth=4.13"
Flow Length=800' Slope=0.0330 '/' Tc=24.2 min CN=74 Runoff=27.91 cfs 3.197 af

Subcatchment E4975: E4975 Runoff Area=17.350 ac Runoff Depth=4.57"
Flow Length=1,110' Slope=0.0250 '/' Tc=46.6 min CN=78 Runoff=42.03 cfs 6.601 af

Subcatchment E5158: E5158 Runoff Area=7.470 ac Runoff Depth=6.04"
Flow Length=500' Tc=17.1 min CN=91 Runoff=35.72 cfs 3.758 af

Subcatchment E5498: E5498 Runoff Area=6.670 ac Runoff Depth=5.12"
Flow Length=1,000' Tc=38.4 min CN=83 Runoff=19.83 cfs 2.847 af

Subcatchment E5909: E5909 Runoff Area=3.860 ac Runoff Depth=5.12"
Flow Length=450' Slope=0.0080 '/' Tc=52.8 min CN=83 Runoff=9.70 cfs 1.648 af

Subcatchment E6369: E6369 Runoff Area=17.580 ac Runoff Depth=4.46"
Flow Length=950' Tc=63.2 min CN=77 Runoff=35.08 cfs 6.528 af

Subcatchment E6821: E6821 Runoff Area=47.710 ac Runoff Depth=4.90"
Flow Length=2,042' Tc=62.2 min CN=81 Runoff=104.76 cfs 19.474 af

Subcatchment E7473: E7473 Runoff Area=56.050 ac Runoff Depth=4.79"
Flow Length=1,565' Tc=36.5 min CN=80 Runoff=160.77 cfs 22.358 af

Subcatchment E8046: E8046 Runoff Area=63.610 ac Runoff Depth=5.58"
Flow Length=3,435' Tc=57.2 min CN=87 Runoff=163.96 cfs 29.558 af

Subcatchment E8497: E8497 Runoff Area=161.630 ac Runoff Depth>4.57"
Flow Length=4,455' Tc=135.0 min CN=78 Runoff=198.62 cfs 61.493 af

Subcatchment E9081: E9081 Runoff Area=12.310 ac Runoff Depth=4.90"
Flow Length=575' Tc=22.5 min CN=81 Runoff=44.85 cfs 5.025 af

Subcatchment E9326: E9326 Runoff Area=24.170 ac Runoff Depth=4.13"
Flow Length=1,650' Tc=40.2 min CN=74 Runoff=57.47 cfs 8.317 af

Subcatchment E9611: E9611 Runoff Area=33.700 ac Runoff Depth=5.46"
Flow Length=1,650' Tc=53.6 min CN=86 Runoff=88.64 cfs 15.339 af

Subcatchment ELB1369: ELB1369 Runoff Area=19.910 ac Runoff Depth=4.79"
Flow Length=2,055' Tc=44.5 min CN=80 Runoff=51.75 cfs 7.942 af

Subcatchment ELB1483: ELB1483 Runoff Area=10.040 ac Runoff Depth=4.02"
Flow Length=1,125' Slope=0.0400 '/' Tc=38.1 min CN=73 Runoff=23.86 cfs 3.365 af

Subcatchment ELB2128: ELB2128 Runoff Area=36.550 ac Runoff Depth=4.68"
Flow Length=900' Tc=60.5 min CN=79 Runoff=78.21 cfs 14.242 af

Subcatchment ELB234: ELB234 Runoff Area=3.920 ac Runoff Depth=4.90"
Flow Length=400' Slope=0.0150 '/' Tc=26.4 min CN=81 Runoff=13.34 cfs 1.600 af

Subcatchment ELB729: ELB729 Runoff Area=53.530 ac Runoff Depth=4.68"
Flow Length=4,165' Tc=100.2 min CN=79 Runoff=82.75 cfs 20.859 af

Subcatchment ELB829: ELB829 Runoff Area=4.250 ac Runoff Depth=4.13"
Flow Length=750' Slope=0.0400 '/' Tc=31.8 min CN=74 Runoff=11.30 cfs 1.462 af

Subcatchment ELB972: ELB972 Runoff Area=7.430 ac Runoff Depth=4.13"
Flow Length=900' Slope=0.0400 '/' Tc=27.0 min CN=74 Runoff=21.30 cfs 2.557 af

Subcatchment W1217: W1217 Runoff Area=10.690 ac Runoff Depth=5.92"
Flow Length=650' Slope=0.0100 '/' Tc=17.0 min CN=90 Runoff=50.64 cfs 5.275 af

Subcatchment W1626: W1626 Runoff Area=60.580 ac Runoff Depth=4.35"
Flow Length=2,635' Tc=47.0 min CN=76 Runoff=139.30 cfs 21.942 af

Subcatchment W1737: W1737 Runoff Area=26.010 ac Runoff Depth=4.57"
Flow Length=1,150' Tc=47.9 min CN=78 Runoff=62.09 cfs 9.896 af

Subcatchment W2720: W2720 Runoff Area=27.950 ac Runoff Depth=5.01"
Flow Length=700' Tc=53.8 min CN=82 Runoff=68.20 cfs 11.669 af

Subcatchment W290: W290 Runoff Area=4.140 ac Runoff Depth=4.02"
Flow Length=650' Slope=0.0300 '/' Tc=28.3 min CN=73 Runoff=11.31 cfs 1.387 af

Subcatchment W3148: W3148 Runoff Area=9.510 ac Runoff Depth=4.24"
Flow Length=750' Tc=46.4 min CN=75 Runoff=21.52 cfs 3.358 af

Subcatchment W3774: W3774 Runoff Area=15.610 ac Runoff Depth=4.68"
Flow Length=1,200' Tc=31.3 min CN=79 Runoff=47.12 cfs 6.083 af

Subcatchment W3975: W3975 Runoff Area=9.970 ac Runoff Depth=6.04"
Flow Length=865' Tc=20.3 min CN=91 Runoff=44.56 cfs 5.016 af

Subcatchment W4529: W4529 Runoff Area=64.080 ac Runoff Depth=5.46"
Flow Length=3,200' Tc=51.2 min CN=86 Runoff=172.96 cfs 29.167 af

Subcatchment W5128: W5128 Runoff Area=11.350 ac Runoff Depth=5.69"
Flow Length=605' Slope=0.0200 '/' Tc=23.3 min CN=88 Runoff=46.03 cfs 5.382 af

Subcatchment W5300: W5300 Runoff Area=25.630 ac Runoff Depth=4.57"
Flow Length=925' Tc=30.7 min CN=78 Runoff=76.41 cfs 9.751 af

Subcatchment W6008: W6008 Runoff Area=12.580 ac Runoff Depth=4.57"
Flow Length=875' Tc=42.6 min CN=78 Runoff=31.96 cfs 4.786 af

Subcatchment W6278: W6278 Runoff Area=15.920 ac Runoff Depth=4.57"
Flow Length=1,350' Tc=25.8 min CN=78 Runoff=51.32 cfs 6.057 af

Subcatchment W6643: W6643 Runoff Area=25.890 ac Runoff Depth=5.35"
Flow Length=2,400' Tc=39.4 min CN=85 Runoff=78.78 cfs 11.539 af

Subcatchment W684: W684 Runoff Area=7.620 ac Runoff Depth=4.35"
Flow Length=650' Slope=0.0260 '/' Tc=36.2 min CN=76 Runoff=20.07 cfs 2.760 af

Link 1C: (new Link) Inflow=615.29 cfs 393.889 af
Primary=615.29 cfs 393.889 af

Link 1E: (new Link) Inflow=88.64 cfs 15.339 af
Primary=88.64 cfs 15.339 af

Link 1ELB: (new Link) Inflow=78.21 cfs 14.242 af
Primary=78.21 cfs 14.242 af

Link 1W: (new Link) Inflow=78.78 cfs 11.539 af
Primary=78.78 cfs 11.539 af

Link 2C: (new Link) delayed by 20.0 min Inflow=618.97 cfs 407.503 af
Primary=618.67 cfs 406.236 af

Link 2E: (new Link) delayed by 45.0 min Inflow=143.08 cfs 23.656 af
Primary=143.08 cfs 23.656 af

Link 2ELB: (new Link) delayed by 20.0 min Inflow=97.18 cfs 17.607 af
Primary=97.03 cfs 17.607 af

Link 2W: (new Link) delayed by 30.0 min Inflow=124.27 cfs 17.596 af
Primary=124.27 cfs 17.596 af

Link 3C: (new Link) delayed by 20.0 min Inflow=619.89 cfs 410.729 af
Primary=619.65 cfs 409.321 af

Link 3E: (new Link) delayed by 45.0 min Inflow=149.10 cfs 28.681 af
Primary=149.10 cfs 28.681 af

Link 3ELB: (new Link) delayed by 20.0 min Inflow=129.22 cfs 25.549 af
Primary=129.10 cfs 25.549 af

Link 3W: (new Link) delayed by 30.0 min Inflow=145.94 cfs 22.382 af
Primary=145.94 cfs 22.382 af

Link 4C: (new Link) delayed by 20.0 min Inflow=623.25 cfs 424.342 af
Primary=622.98 cfs 422.830 af

Link 4E: (new Link) delayed by 45.0 min Inflow=337.53 cfs 90.174 af
Primary=337.53 cfs 90.170 af

Link 4ELB: (new Link) delayed by 20.0 min Inflow=133.17 cfs 28.106 af
Primary=133.04 cfs 28.106 af

Link 4W: (new Link) delayed by 30.0 min Inflow=160.14 cfs 32.134 af
Primary=160.14 cfs 32.134 af

Link 5C: (new Link) Inflow=624.29 cfs 427.919 af
Primary=624.29 cfs 427.919 af

Link 5E: (new Link) delayed by 60.0 min Inflow=361.40 cfs 119.727 af
Primary=361.40 cfs 119.709 af

Link 5ELB: (new Link) delayed by 20.0 min Inflow=134.96 cfs 29.568 af
Primary=134.83 cfs 29.568 af

Link 5W: (new Link) delayed by 30.0 min Inflow=164.82 cfs 37.516 af
Primary=164.82 cfs 37.516 af

Link 6C: (new Link) Inflow=637.70 cfs 483.394 af
Primary=637.70 cfs 483.394 af

Link 6E: (new Link) delayed by 60.0 min Inflow=373.98 cfs 142.068 af
Primary=373.98 cfs 142.010 af

Link 6ELB: (new Link) delayed by 20.0 min Inflow=198.33 cfs 50.427 af
Primary=198.19 cfs 50.427 af

Link 6W: (new Link) delayed by 30.0 min Inflow=236.39 cfs 66.683 af
Primary=236.39 cfs 66.683 af

Link 7C: (new Link) Inflow=638.16 cfs 485.239 af
Primary=638.16 cfs 485.239 af

Link 7E: (new Link) delayed by 45.0 min Inflow=382.86 cfs 161.484 af
Primary=382.86 cfs 161.361 af

Link 7ELB: (new Link) delayed by 20.0 min Inflow=199.58 cfs 52.027 af
Primary=199.45 cfs 52.027 af

Link 7W: (new Link) delayed by 30.0 min Inflow=242.05 cfs 71.698 af
Primary=242.05 cfs 71.698 af

Link 8C: (new Link) Inflow=639.36 cfs 490.434 af
Primary=639.36 cfs 490.434 af

Link 8E: (new Link) delayed by 45.0 min Inflow=385.46 cfs 167.889 af
Primary=385.46 cfs 167.526 af

Link 8W: (new Link) delayed by 30.0 min Inflow=248.83 cfs 77.781 af
Primary=248.83 cfs 77.781 af

Link 9E: (new Link) delayed by 30.0 min Inflow=427.56 cfs 221.200 af
Primary=427.56 cfs 220.763 af

Link 9W: (new Link) delayed by 30.0 min Inflow=252.48 cfs 81.139 af
Primary=252.48 cfs 81.139 af

Link 10E: (new Link) delayed by 30.0 min Inflow=429.34 cfs 223.611 af
Primary=429.34 cfs 223.045 af

Link 10W: (new Link) delayed by 30.0 min Inflow=262.44 cfs 92.808 af
Primary=262.44 cfs 92.808 af

Link 11E: (new Link) delayed by 30.0 min Inflow=430.93 cfs 226.803 af
Primary=430.93 cfs 226.138 af

Link 11W: (new Link) delayed by 30.0 min Inflow=269.57 cfs 102.704 af
Primary=269.57 cfs 102.701 af

Link 12E: (new Link) delayed by 30.0 min Inflow=434.24 cfs 232.739 af
Primary=434.24 cfs 231.969 af

Link 12W: (new Link) delayed by 30.0 min Inflow=283.55 cfs 124.644 af
Primary=283.55 cfs 124.623 af

Link 13E: (new Link) delayed by 30.0 min Inflow=435.58 cfs 235.166 af
Primary=435.58 cfs 234.277 af

Link 13W: (new Link) delayed by 30.0 min Inflow=285.53 cfs 129.898 af
Primary=285.53 cfs 129.805 af

Link 14E: (new Link) delayed by 30.0 min Inflow=436.44 cfs 236.698 af
Primary=436.44 cfs 235.704 af

Link 14W: (new Link) delayed by 30.0 min Inflow=286.74 cfs 132.565 af
Primary=286.74 cfs 132.417 af

Link 15E: (new Link) delayed by 30.0 min Inflow=443.30 cfs 253.303 af
Primary=443.30 cfs 252.099 af

Link 15W: (new Link) delayed by 30.0 min Inflow=287.29 cfs 133.805 af
Primary=287.29 cfs 133.592 af

Link 16E: (new Link) delayed by 30.0 min Inflow=446.09 cfs 261.731 af
Primary=446.09 cfs 260.297 af

Total Runoff Area = 1,244.460 ac Runoff Volume = 502.623 af Average Runoff Depth = 4.85"
68.71% Pervious Area = 855.023 ac 31.29% Impervious Area = 389.437 ac

Subcatchment C116: C116

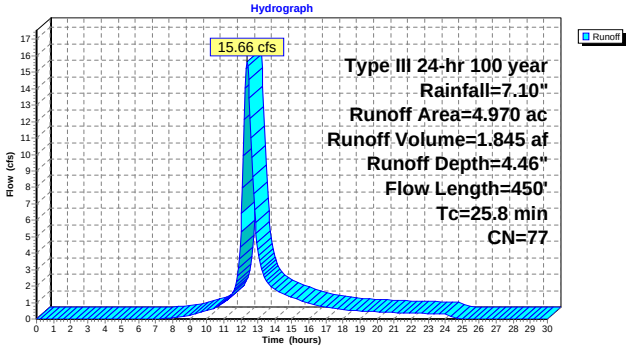
Runoff = 15.66 cfs @ 12.35 hrs, Volume= 1.845 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
4.970	77	Brush, Poor, HSG C
4.970		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	150	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
8.5	300	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.8	450	Total			

Subcatchment C116: C116



Subcatchment C1334: C1334

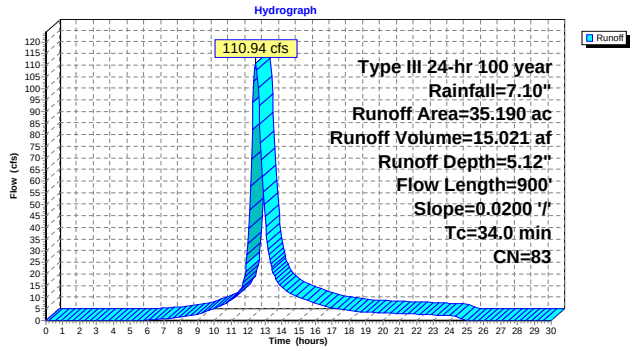
Runoff = 110.94 cfs @ 12.46 hrs, Volume= 15.021 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
2.520	94	Urban commercial, 85% imp, HSG C
2.450	81	1/3 acre lots, 30% imp, HSG C
2.510	74	>75% Grass cover, Good, HSG C
27.710	83	1/4 acre lots, 38% imp, HSG C
35.190	83	Weighted Average
21.783		Pervious Area
13.407		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	150	0.0200	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.7	400	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.2	350	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	900	Total			

Subcatchment C1334: C1334



Subcatchment C1748: C1748

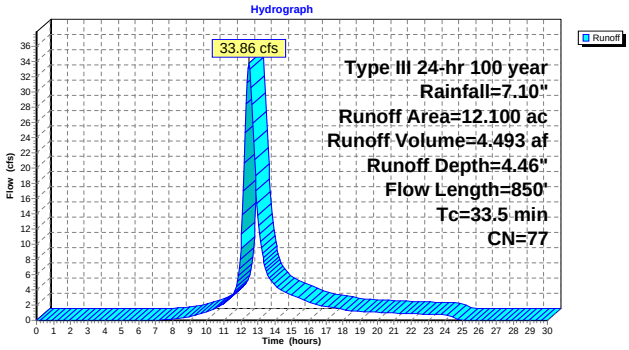
Runoff = 33.86 cfs @ 12.46 hrs, Volume= 4.493 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
1.420	94	Urban commercial, 85% imp, HSG C
2.560	83	1/4 acre lots, 38% imp, HSG C
2.020	74	>75% Grass cover, Good, HSG C
3.600	70	Brush, Fair, HSG C
2.500	74	>75% Grass cover, Good, HSG C
12.100	77	Weighted Average
9.920		Pervious Area
2.180		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	150	0.0270	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.5	450	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.0	250	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
33.5	850	Total			

Subcatchment C1748: C1748



Subcatchment C2359: C2359

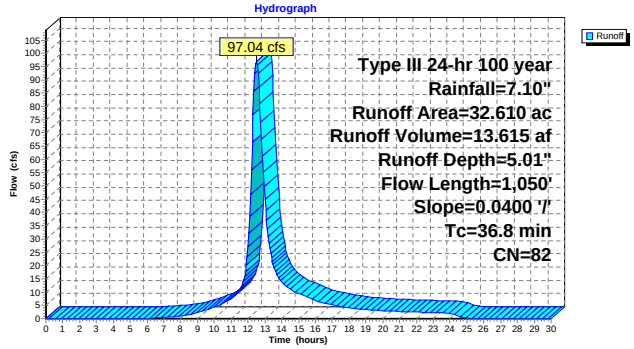
Runoff = 97.04 cfs @ 12.50 hrs, Volume= 13.615 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
8.300	91	Urban industrial, 72% imp, HSG C
2.000	77	Brush, Fair, HSG D
7.540	70	Brush, Fair, HSG C
14.770	83	1/4 acre lots, 38% imp, HSG C
32.610	82	Weighted Average
21.021		Pervious Area
11.589		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
15.0	900	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.8	1,050	Total			

Subcatchment C2359: C2359



Subcatchment C560: C560

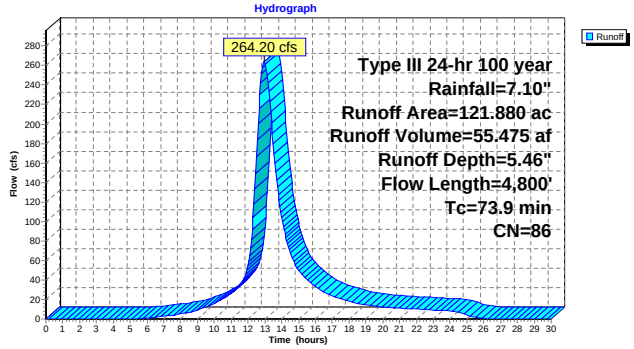
Runoff = 264.20 cfs @ 12.96 hrs, Volume= 55.475 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
19.710	94	Urban commercial, 85% imp, HSG C
1.910	74	>75% Grass cover, Good, HSG C
1.250	73	Woods, Fair, HSG C
2.630	74	>75% Grass cover, Good, HSG C
7.880	70	1/2 acre lots, 25% imp, HSG B
9.060	60	Woods, Fair, HSG B
79.440	90	1/8 acre lots, 65% imp, HSG C
121.880	86	Weighted Average
51.520		Pervious Area
70.360		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1	200	0.0380	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
14.5	850	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	225	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.1	1,700	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.7	1,100	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	300	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.1	425	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
73.9	4,800	Total			

Subcatchment C560: C560



Subcatchment C62: (new Subcat)

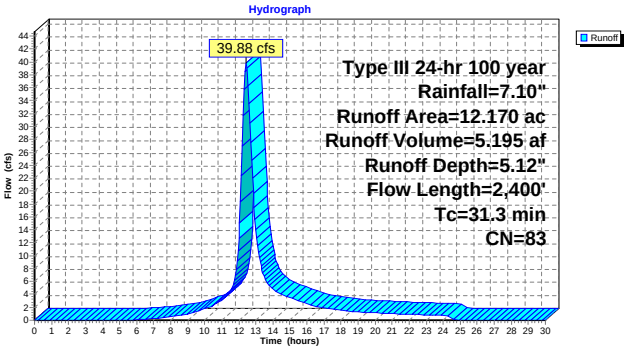
Runoff = 39.88 cfs @ 12.42 hrs, Volume= 5.195 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
12.170	83	1/4 acre lots, 38% imp, HSG C
7.545		Pervious Area
4.625		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	200	0.0400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.4	2,000	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
31.3	2,400	Total			

Subcatchment C62: (new Subcat)



Subcatchment C747: C747

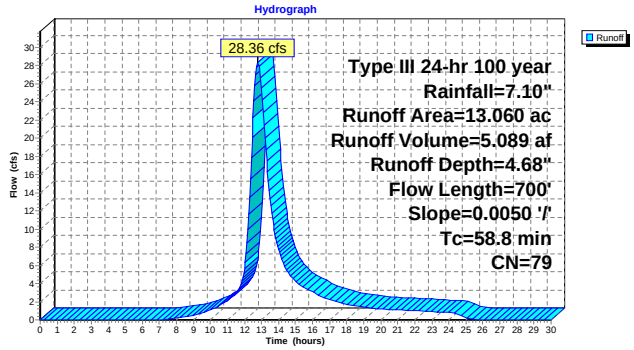
Runoff = 28.36 cfs @ 12.78 hrs, Volume= 5.089 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
2.870	90	1/8 acre lots, 65% imp, HSG C
2.010	83	1/4 acre lots, 38% imp, HSG C
4.720	74	>75% Grass cover, Good, HSG C
0.560	94	Urban commercial, 85% imp, HSG C
2.900	70	Brush, Fair, HSG C
13.060	79	Weighted Average
9.955		Pervious Area
3.105		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0	200	0.0050	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
16.8	500	0.0050	0.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
58.8	700	Total			

Subcatchment C747: C747



Subcatchment E2964: E2964

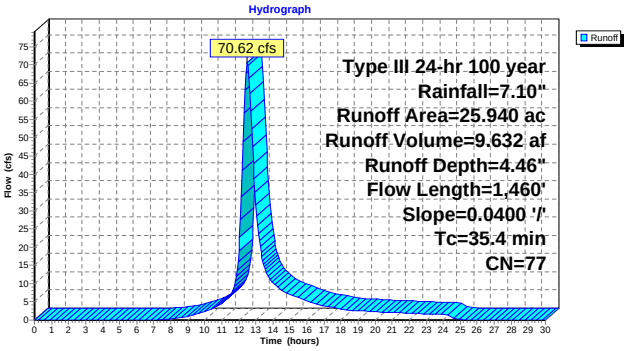
Runoff = 70.62 cfs @ 12.49 hrs, Volume= 9.632 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
12.450	81	1/3 acre lots, 30% imp, HSG C
13.490	73	Woods, Fair, HSG C
25.940	77	Weighted Average
22.205		Pervious Area
3.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	1,110	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.4	1,460	Total			

Subcatchment E2964: E2964



Subcatchment E3568: E3568

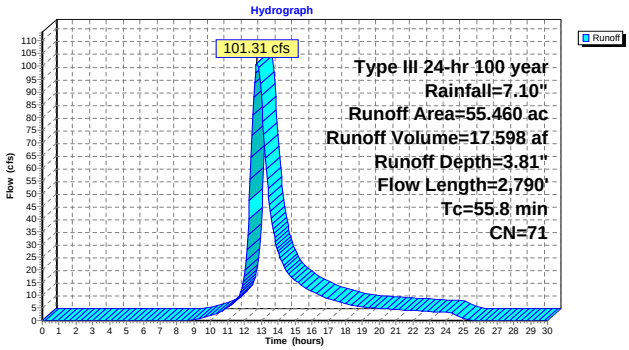
Runoff = 101.31 cfs @ 12.76 hrs, Volume= 17.598 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
1.850	74	>75% Grass cover, Good, HSG C
12.510	61	>75% Grass cover, Good, HSG B
20.920	83	1/4 acre lots, 38% imp, HSG C
13.320	60	Woods, Fair, HSG B
6.860	73	Woods, Fair, HSG C
55.460	71	Weighted Average
47.510		Pervious Area
7.950		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
9.8	590	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	810	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.1	440	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	800	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
55.8	2,790	Total			

Subcatchment E3568: E3568



Subcatchment E3889: E3889

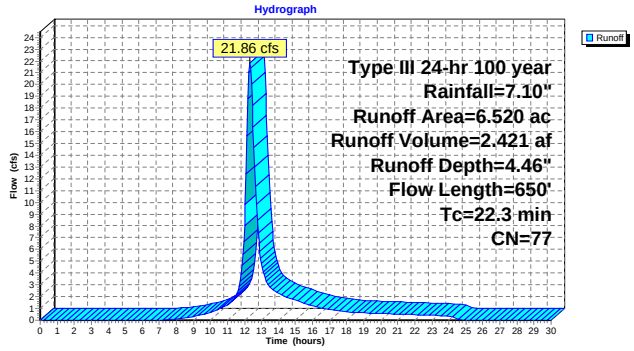
Runoff = 21.86 cfs @ 12.31 hrs, Volume= 2.421 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
2.290	83	1/4 acre lots, 38% imp, HSG C
4.230	74	>75% Grass cover, Good, HSG C
6.520	77	Weighted Average
5.650		Pervious Area
0.870		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
6.0	500	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.3	650	Total			

Subcatchment E3889: E3889



Subcatchment E4219: E4219

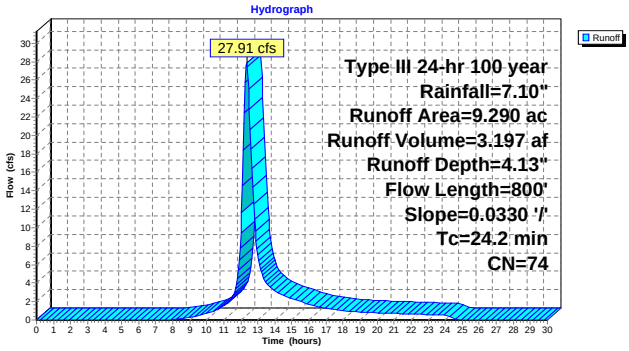
Runoff = 27.91 cfs @ 12.34 hrs, Volume= 3.197 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
9.290	74	>75% Grass cover, Good, HSG C
9.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.5	650	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	800	Total			

Subcatchment E4219: E4219



Subcatchment E4975: E4975

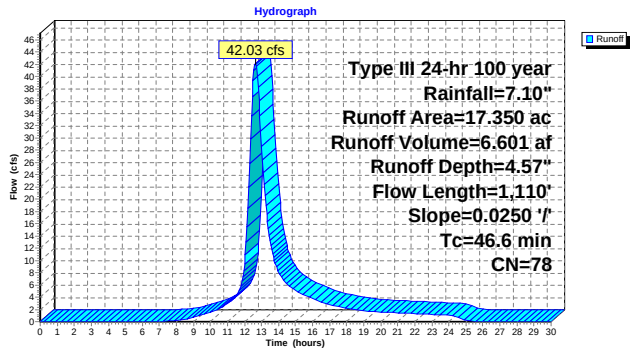
Runoff = 42.03 cfs @ 12.63 hrs, Volume= 6.601 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
4.910	91	Urban industrial, 72% imp, HSG C
12.440	73	Woods, Fair, HSG C
17.350	78	Weighted Average
13.815		Pervious Area
3.535		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
20.2	960	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
46.6	1,110	Total			

Subcatchment E4975: E4975



Subcatchment E5158: E5158

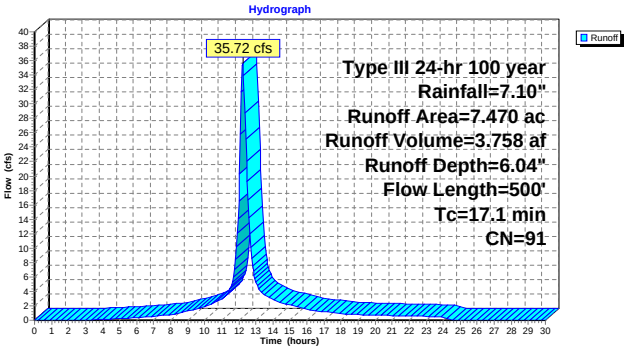
Runoff = 35.72 cfs @ 12.22 hrs, Volume= 3.758 af, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
1.900	82	Woods/grass comb., Poor, HSG C
5.570	94	Urban commercial, 85% imp, HSG C
7.470	91	Weighted Average
2.736		Pervious Area
4.735		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	150	0.0300	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
5.9	350	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.1	500	Total			

Subcatchment E5158: E5158



Subcatchment E5498: E5498

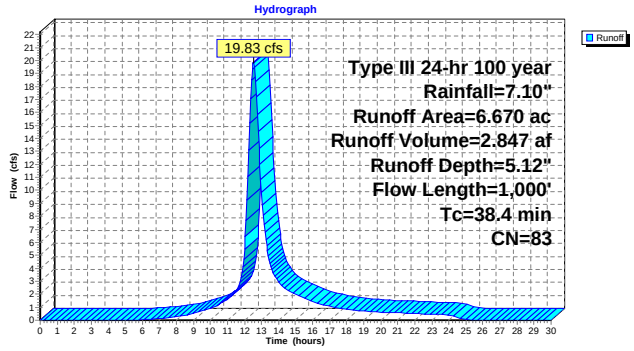
Runoff = 19.83 cfs @ 12.51 hrs, Volume= 2.847 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
2.620	94	Urban commercial, 85% imp, HSG C
4.050	76	Woods/grass comb., Fair, HSG C
6.670	83	Weighted Average
4.443		Pervious Area
2.227		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
23.9	850	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
38.4	1,000	Total			

Subcatchment E5498: E5498



Subcatchment E5909: E5909

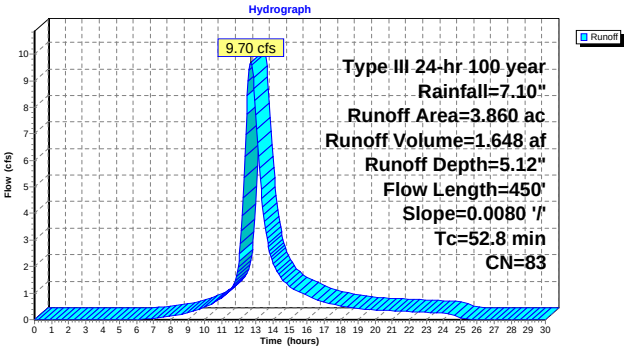
Runoff = 9.70 cfs @ 12.70 hrs, Volume= 1.648 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
1.480	94	Urban commercial, 85% imp, HSG C
2.380	76	Woods/grass comb., Fair, HSG C
3.860	83	Weighted Average
2.602		Pervious Area
1.258		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.6	150	0.0080	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
11.2	300	0.0080	0.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
52.8	450	Total			

Subcatchment E5909: E5909



Subcatchment E6369: E6369

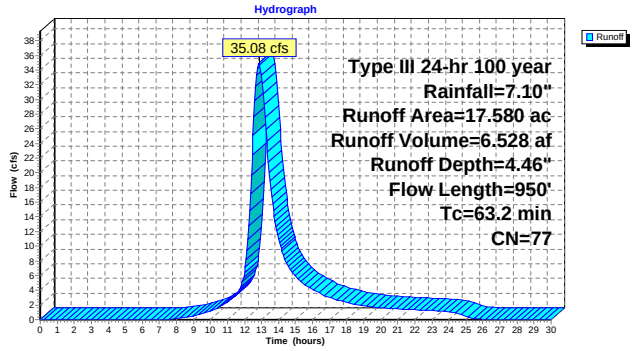
Runoff = 35.08 cfs @ 12.85 hrs, Volume= 6.528 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
8.290	73	Woods, Fair, HSG C
9.290	81	1/3 acre lots, 30% imp, HSG C
17.580	77	Weighted Average
14.793		Pervious Area
2.787		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
48.7	800	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
63.2	950	Total			

Subcatchment E6369: E6369



Subcatchment E6821: E6821

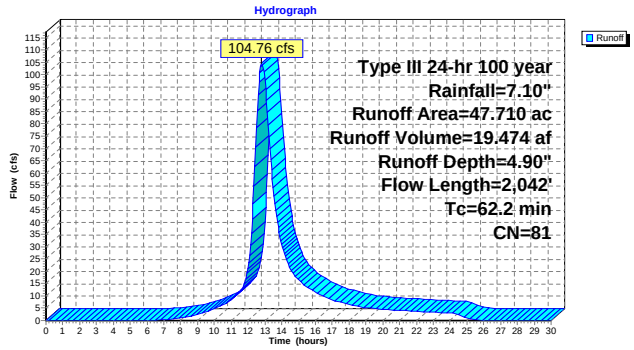
Runoff = 104.76 cfs @ 12.82 hrs, Volume= 19.474 af, Depth= 4.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
8.430	83	1/4 acre lots, 38% imp, HSG C
11.040	81	1/3 acre lots, 30% imp, HSG C
4.790	83	1/4 acre lots, 38% imp, HSG C
9.780	91	Urban industrial, 72% imp, HSG C
13.670	73	Woods, Fair, HSG C
47.710	81	Weighted Average
32.333		Pervious Area
15.377		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	150	0.1000	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.1	100	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.1	365	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.0	430	0.0090	1.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
20.0					**Direct Entry, Small Detention Pond**
2.4	200	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	325	0.0180	2.01		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.8	472	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
62.2	2,042	Total			

Subcatchment E6821: E6821



Subcatchment E7473: E7473

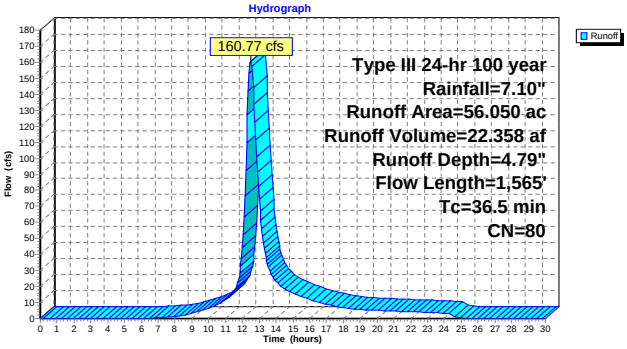
Runoff = 160.77 cfs @ 12.50 hrs, Volume= 22.358 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
5.660	83	1/4 acre lots, 38% imp, HSG C
9.690	91	Urban industrial, 72% imp, HSG C
18.120	83	1/4 acre lots, 38% imp, HSG C
22.580	73	Woods, Fair, HSG C
56.050	80	Weighted Average
40.037		Pervious Area
16.013		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	200	0.0600	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.9	300	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.9	1,065	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.5	1,565	Total			

Subcatchment E7473: E7473



Subcatchment E8046: E8046

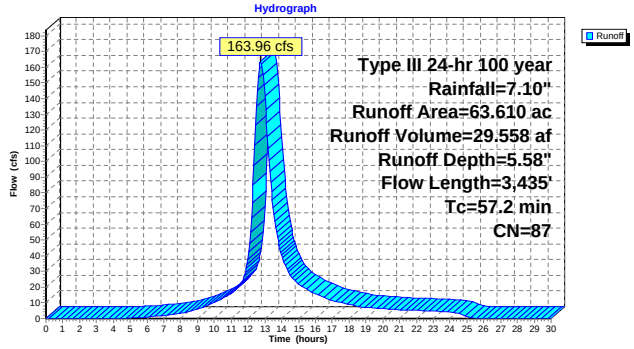
Runoff = 163.96 cfs @ 12.75 hrs, Volume= 29.558 af, Depth= 5.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
36.960	91	Urban industrial, 72% imp, HSG C
2.300	83	1/4 acre lots, 38% imp, HSG C
10.840	94	Urban commercial, 85% imp, HSG C
13.510	70	Brush, Fair, HSG C
63.610	87	Weighted Average
26.911		Pervious Area
36.699		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0250	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
15.3	2,275	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
24.4	1,010	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
57.2	3,435	Total			

Subcatchment E8046: E8046



Subcatchment E8497: E8497

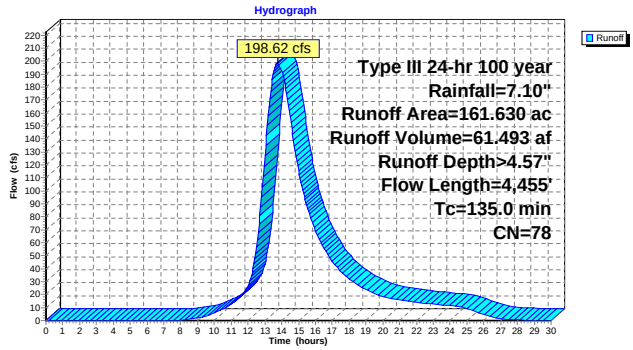
Runoff = 198.62 cfs @ 13.78 hrs, Volume= 61.493 af, Depth> 4.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
15.850	83	1/4 acre lots, 38% imp, HSG C
16.520	81	1/3 acre lots, 30% imp, HSG C
13.150	94	Urban commercial, 85% imp, HSG C
8.270	83	1/4 acre lots, 38% imp, HSG C
7.790	94	Urban commercial, 85% imp, HSG C
0.850	94	Urban commercial, 85% imp, HSG C
5.500	91	Urban industrial, 72% imp, HSG C
93.700	72	Woods/grass comb., Good, HSG C
161.630	78	Weighted Average
125.027		Pervious Area
36.603		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	150	0.0120	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
9.4	650	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.1	700	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.0					**Direct Entry, Detention Pond**
28.8	1,430	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.6	400	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
15.0					**Direct Entry, Small Pond**
10.6	1,125	0.0140	1.77		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
135.0	4,455	Total			

Subcatchment E8497: E8497



Subcatchment E9081: E9081

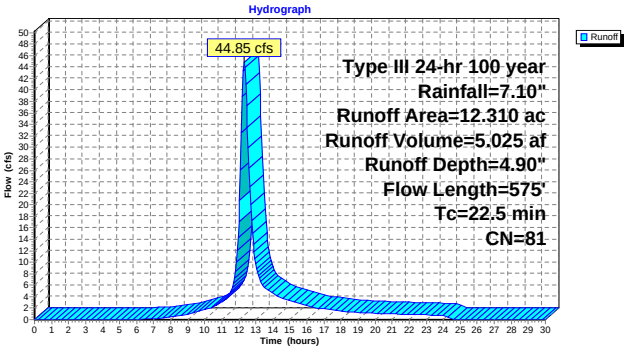
Runoff = 44.85 cfs @ 12.31 hrs, Volume= 5.025 af, Depth= 4.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
6.640	70	Brush, Fair, HSG C
5.670	94	Urban commercial, 85% imp, HSG C
12.310	81	Weighted Average
7.491		Pervious Area
4.819		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	150	0.0350	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
12.0	425	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.5	575	Total			

Subcatchment E9081: E9081



Subcatchment E9326: E9326

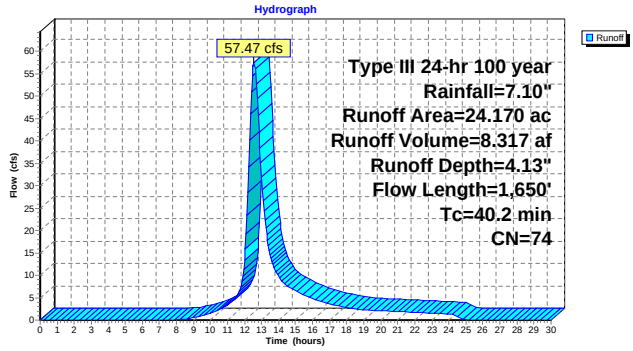
Runoff = 57.47 cfs @ 12.56 hrs, Volume= 8.317 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
4.140	94	Urban commercial, 85% imp, HSG C
20.030	70	Brush, Fair, HSG C
24.170	74	Weighted Average
20.651		Pervious Area
3.519		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.8	150	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.4	200	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.0	1,300	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
40.2	1,650	Total			

Subcatchment E9326: E9326



Subcatchment E9611: E9611

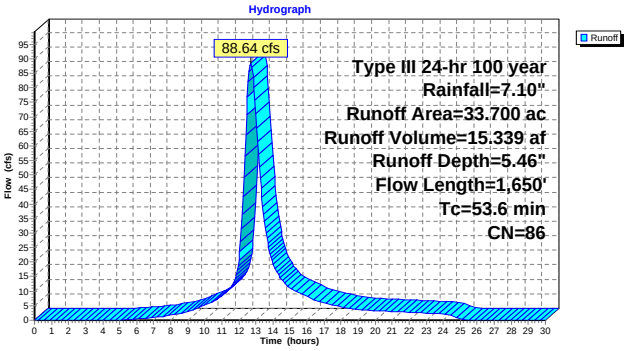
Runoff = 88.64 cfs @ 12.70 hrs, Volume= 15.339 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
12.370	72	Woods/grass comb., Good, HSG C
21.330	94	Urban commercial, 85% imp, HSG C
33.700	86	Weighted Average
15.569		Pervious Area
18.131		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
37.3	1,500	0.0180	0.67		**Shallow Concentrated Flow, Two ponds add some time** Woodland Kv= 5.0 fps
53.6	1,650	Total			

Subcatchment E9611: E9611



Subcatchment ELB1369: ELB1369

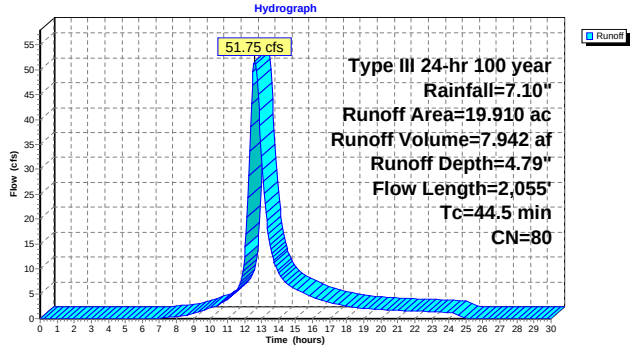
Runoff = 51.75 cfs @ 12.60 hrs, Volume= 7.942 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
17.390	81	1/3 acre lots, 30% imp, HSG C
2.520	70	Brush, Fair, HSG C
19.910	80	Weighted Average
14.693		Pervious Area
5.217		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
12.0	575	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.9	1,330	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
44.5	2,055	Total			

Subcatchment ELB1369: ELB1369



Subcatchment ELB1483: ELB1483

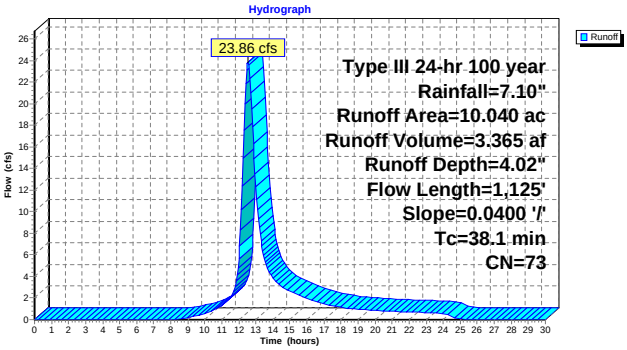
Runoff = 23.86 cfs @ 12.53 hrs, Volume= 3.365 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
7.570	70	Brush, Fair, HSG C
2.470	81	1/3 acre lots, 30% imp, HSG C
10.040	73	Weighted Average
9.299		Pervious Area
0.741		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
16.3	975	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
38.1	1,125	Total			

Subcatchment ELB1483: ELB1483



Subcatchment ELB2128: ELB2128

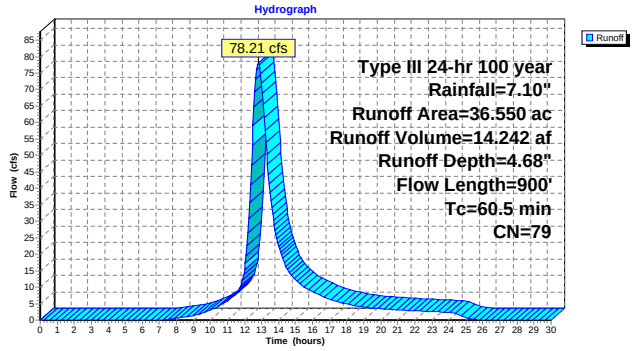
Runoff = 78.21 cfs @ 12.82 hrs, Volume= 14.242 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
6.960	90	1/8 acre lots, 65% imp, HSG C
4.870	60	Woods, Fair, HSG B
4.870	73	Woods, Fair, HSG C
19.850	81	1/3 acre lots, 30% imp, HSG C
36.550	79	Weighted Average
26.071		Pervious Area
10.479		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.2	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.40"
10.3	750	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
60.5	900	Total			

Subcatchment ELB2128: ELB2128



Subcatchment ELB234: ELB234

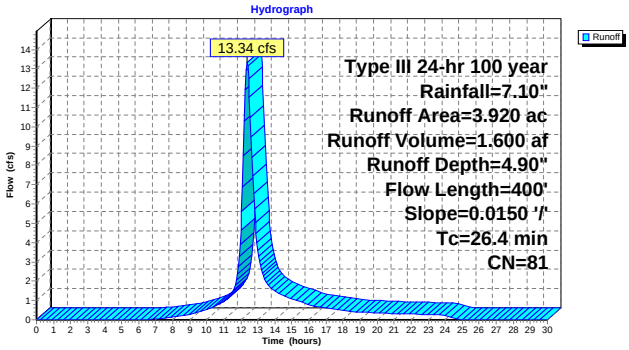
Runoff = 13.34 cfs @ 12.36 hrs, Volume= 1.600 af, Depth= 4.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
3.920	81	1/3 acre lots, 30% imp, HSG C
2.744		Pervious Area
1.176		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	150	0.0150	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
4.9	250	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
26.4	400	Total			

Subcatchment ELB234: ELB234



Subcatchment ELB729: ELB729

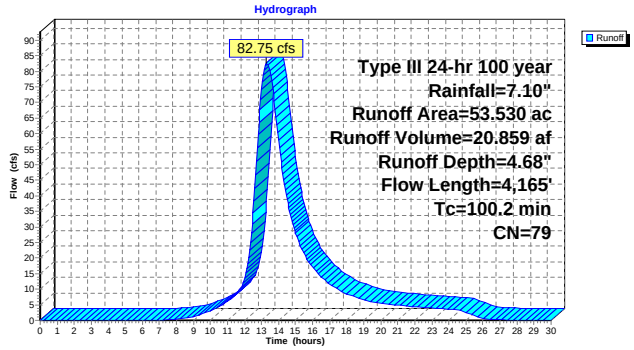
Runoff = 82.75 cfs @ 13.28 hrs, Volume= 20.859 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
11.760	94	Urban commercial, 85% imp, HSG C
26.080	71	Meadow, non-grazed, HSG C
15.690	81	1/3 acre lots, 30% imp, HSG C
53.530	79	Weighted Average
38.827		Pervious Area
14.703		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.0	150	0.0020	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
41.8	1,010	0.0020	0.40		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
18.9	1,455	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.5	1,550	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
100.2	4,165	Total			

Subcatchment ELB729: ELB729



Subcatchment ELB829: ELB829

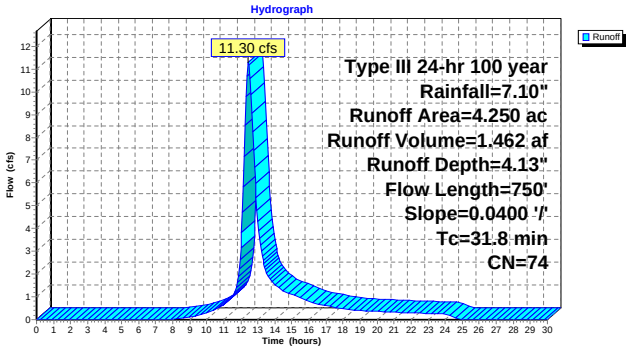
Runoff = 11.30 cfs @ 12.44 hrs, Volume= 1.462 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
0.750	81	1/3 acre lots, 30% imp, HSG C
3.500	73	Woods, Fair, HSG C
4.250	74	Weighted Average
4.025		Pervious Area
0.225		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.8	750	Total			

Subcatchment ELB829: ELB829



Subcatchment ELB972: ELB972

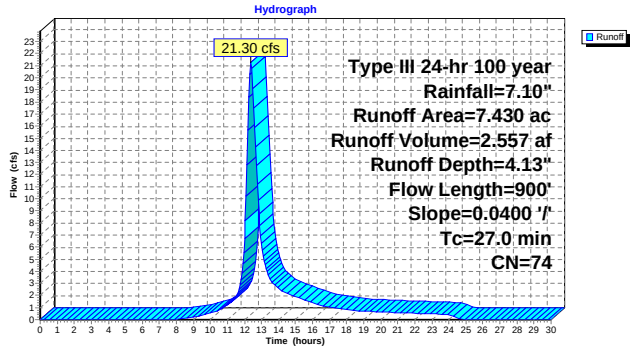
Runoff = 21.30 cfs @ 12.37 hrs, Volume= 2.557 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
1.000	81	1/3 acre lots, 30% imp, HSG C
6.430	73	Woods, Fair, HSG C
7.430	74	Weighted Average
7.130		Pervious Area
0.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
12.5	750	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.0	900	Total			

Subcatchment ELB972: ELB972



Subcatchment W1217: W1217

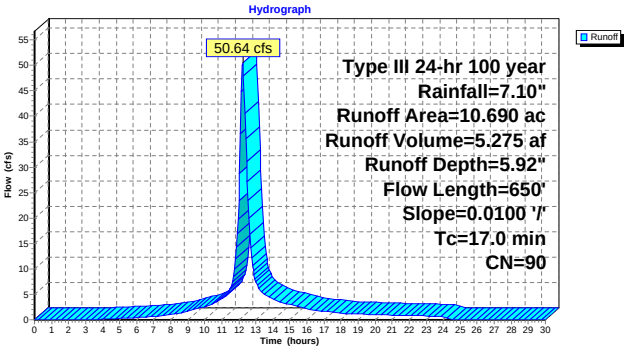
Runoff = 50.64 cfs @ 12.22 hrs, Volume= 5.275 af, Depth= 5.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
10.690	90	1/8 acre lots, 65% imp, HSG C
3.742		Pervious Area
6.949		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.5	550	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.0	650	Total			

Subcatchment W1217: W1217



Subcatchment W1626: W1626

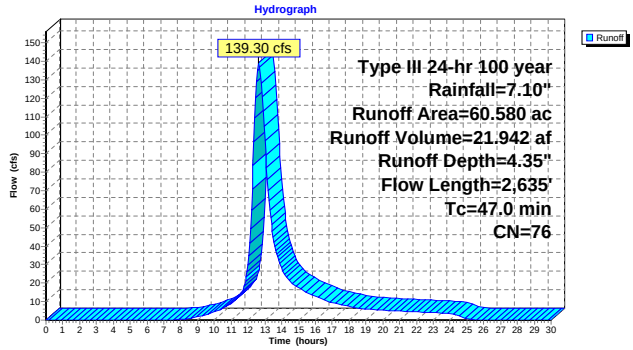
Runoff = 139.30 cfs @ 12.64 hrs, Volume= 21.942 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
20.360	81	1/3 acre lots, 30% imp, HSG C
40.220	74	>75% Grass cover, Good, HSG C
60.580	76	Weighted Average
54.472		Pervious Area
6.108		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	200	0.0230	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
14.9	950	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.4	810	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.9	675	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
47.0	2,635	Total			

Subcatchment W1626: W1626



Subcatchment W1737: W1737

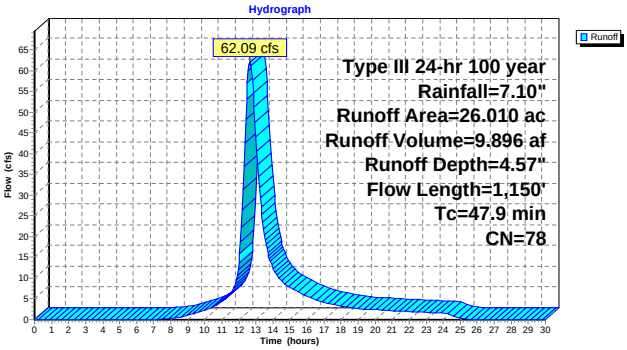
Runoff = 62.09 cfs @ 12.65 hrs, Volume= 9.896 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
18.140	76	Woods/grass comb., Fair, HSG C
7.870	83	1/4 acre lots, 38% imp, HSG C
26.010	78	Weighted Average
23.019		Pervious Area
2.991		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
21.5	1,000	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
47.9	1,150	Total			

Subcatchment W1737: W1737



Subcatchment W2720: W2720

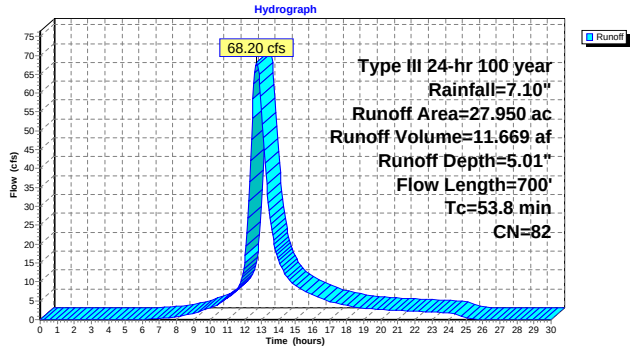
Runoff = 68.20 cfs @ 12.72 hrs, Volume= 11.669 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
3.790	73	Woods, Fair, HSG C
24.160	83	1/4 acre lots, 38% imp, HSG C
27.950	82	Weighted Average
18.769		Pervious Area
9.181		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
36.3	100	0.0050	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
17.5	600	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
53.8	700	Total			

Subcatchment W2720: W2720



Subcatchment W290: W290

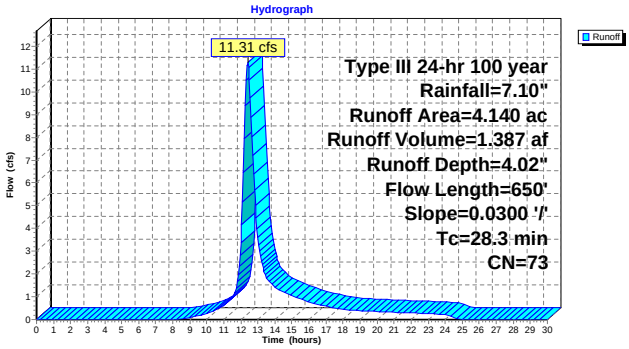
Runoff = 11.31 cfs @ 12.39 hrs, Volume= 1.387 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
4.140	73	Woods, Fair, HSG C
4.140		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.6	550	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.3	650	Total			

Subcatchment W290: W290



Subcatchment W3148: W3148

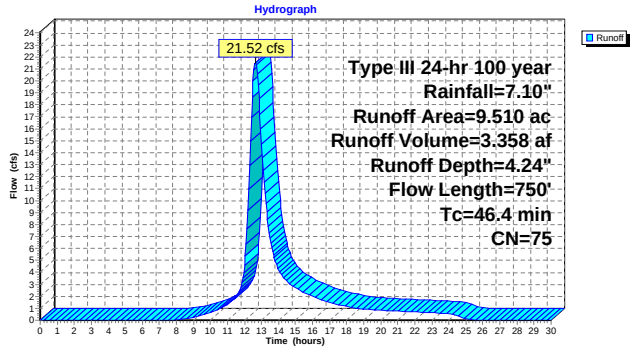
Runoff = 21.52 cfs @ 12.64 hrs, Volume= 3.358 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
2.120	83	1/4 acre lots, 38% imp, HSG C
7.390	73	Woods, Fair, HSG C
9.510	75	Weighted Average
8.704		Pervious Area
0.806		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	150	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
20.0	600	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
46.4	750	Total			

Subcatchment W3148: W3148



Subcatchment W3774: W3774

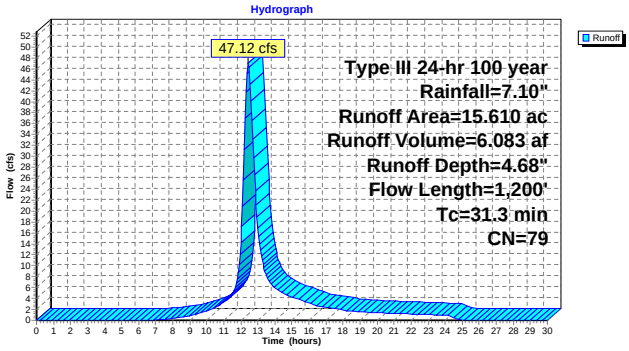
Runoff = 47.12 cfs @ 12.43 hrs, Volume= 6.083 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
1.990	94	Urban commercial, 85% imp, HSG C
8.790	81	1/3 acre lots, 30% imp, HSG C
4.830	70	Brush, Fair, HSG C
15.610	79	Weighted Average
11.282		Pervious Area
4.329		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	150	0.0300	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
8.2	600	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.8	450	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
31.3	1,200	Total			

Subcatchment W3774: W3774



Subcatchment W3975: W3975

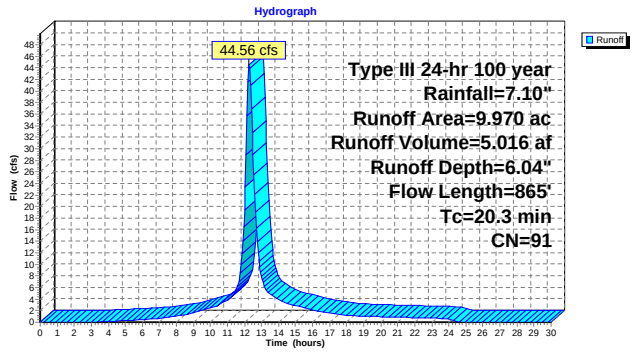
Runoff = 44.56 cfs @ 12.27 hrs, Volume= 5.016 af, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
9.970	91	Urban industrial, 72% imp, HSG C
2.792		Pervious Area
7.178		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	150	0.0250	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
8.3	715	0.0080	1.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
20.3	865	Total			

Subcatchment W3975: W3975



Subcatchment W4529: W4529

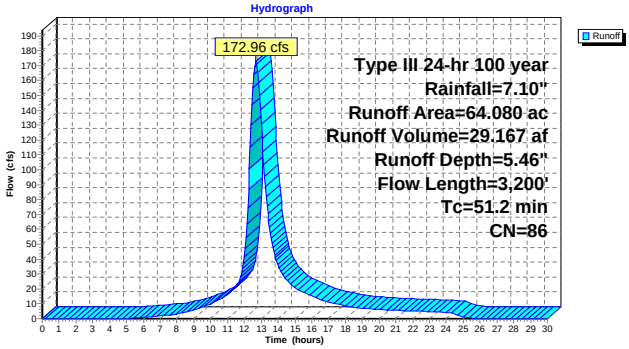
Runoff = 172.96 cfs @ 12.68 hrs, Volume= 29.167 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
25.860	94	Urban commercial, 85% imp, HSG C
38.220	81	1/3 acre lots, 30% imp, HSG C
64.080	86	Weighted Average
30.633		Pervious Area
33.447		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	200	0.0050	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.2	2,250	0.0130	2.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.2	750	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
51.2	3,200	Total			

Subcatchment W4529: W4529



Subcatchment W5128: W5128

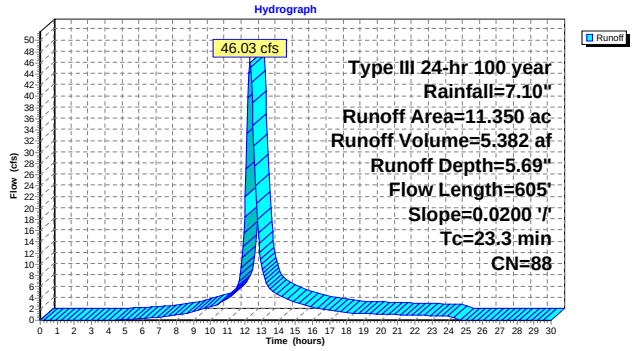
Runoff = 46.03 cfs @ 12.31 hrs, Volume= 5.382 af, Depth= 5.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
4.320	83	1/4 acre lots, 38% imp, HSG C
7.030	91	Urban industrial, 72% imp, HSG C
11.350	88	Weighted Average
4.647		Pervious Area
6.703		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	200	0.0200	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
6.8	405	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.3	605	Total			

Subcatchment W5128: W5128



Subcatchment W5300: W5300

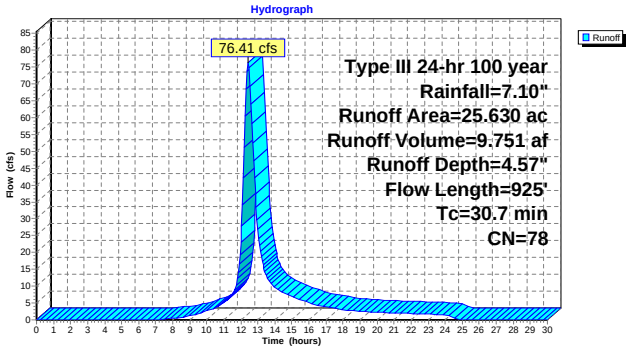
Runoff = 76.41 cfs @ 12.42 hrs, Volume= 9.751 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
14.570	73	Woods, Fair, HSG C
9.660	83	1/4 acre lots, 38% imp, HSG C
1.400	94	Urban commercial, 85% imp, HSG C
25.630	78	Weighted Average
20.769		Pervious Area
4.861		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
15.1	775	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
30.7	925	Total			

Subcatchment W5300: W5300



Subcatchment W6008: W6008

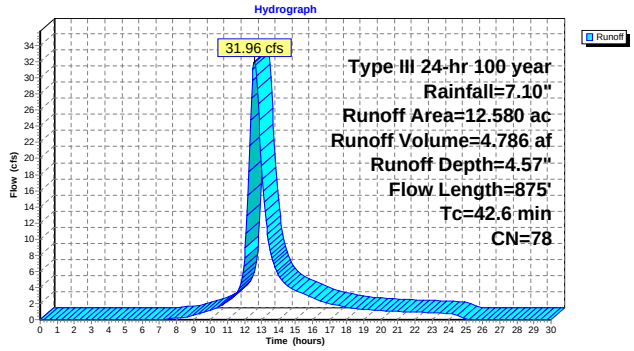
Runoff = 31.96 cfs @ 12.58 hrs, Volume= 4.786 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
6.890	73	Woods, Fair, HSG C
5.690	83	1/4 acre lots, 38% imp, HSG C
12.580	78	Weighted Average
10.418		Pervious Area
2.162		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0050	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
19.7	725	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
42.6	875	Total			

Subcatchment W6008: W6008



Subcatchment W6278: W6278

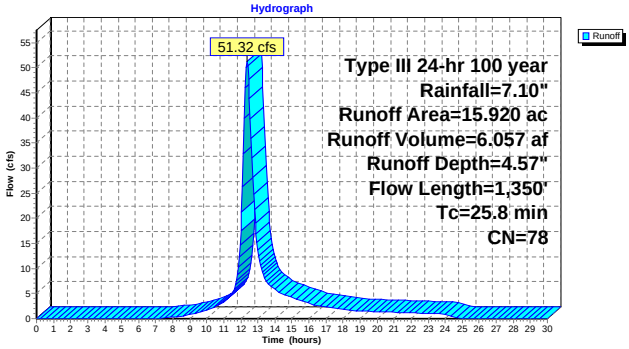
Runoff = 51.32 cfs @ 12.35 hrs, Volume= 6.057 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
7.730	73	Woods, Fair, HSG C
8.190	83	1/4 acre lots, 38% imp, HSG C
15.920	78	Weighted Average
12.808		Pervious Area
3.112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	150	0.0250	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.9	600	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.9	600	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.8	1,350	Total			

Subcatchment W6278: W6278



Subcatchment W6643: W6643

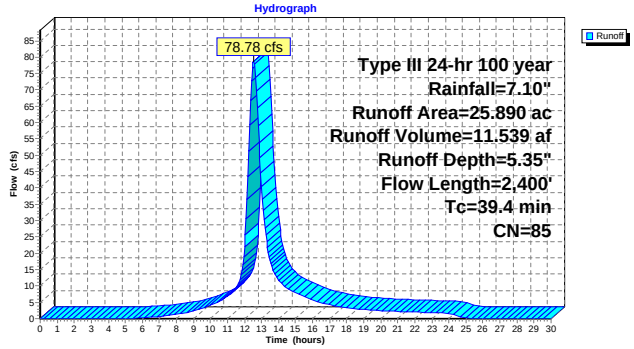
Runoff = 78.78 cfs @ 12.53 hrs, Volume= 11.539 af, Depth= 5.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
14.500	86	Pasture/grassland/range, Poor, HSG C
11.390	83	1/4 acre lots, 38% imp, HSG C
25.890	85	Weighted Average
21.562		Pervious Area
4.328		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	150	0.0130	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
11.2	1,500	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	750	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
39.4	2,400	Total			

Subcatchment W6643: W6643



Subcatchment W684: W684

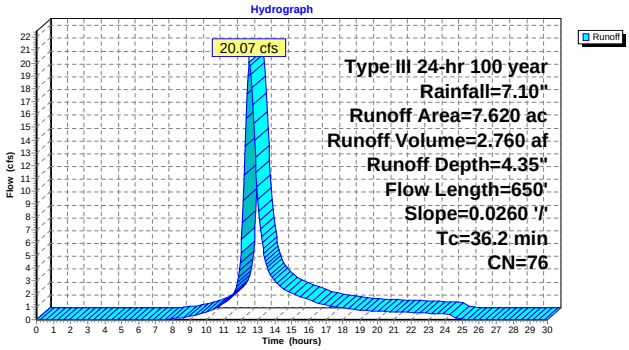
Runoff = 20.07 cfs @ 12.50 hrs, Volume= 2.760 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
2.420	83	1/4 acre lots, 38% imp, HSG C
5.200	73	Woods, Fair, HSG C
7.620	76	Weighted Average
6.700		Pervious Area
0.920		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0260	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
10.3	500	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	650	Total			

Subcatchment W684: W684

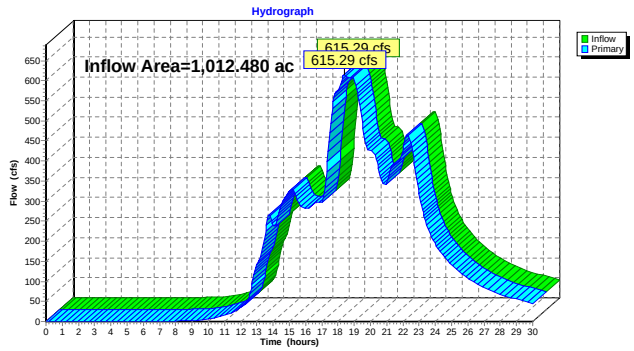


Link 1C: (new Link)

Inflow Area = 1,012.480 ac, Inflow Depth > 4.67" for 100 year event
Inflow = 615.29 cfs @ 18.40 hrs, Volume= 393.889 af
Primary = 615.29 cfs @ 18.40 hrs, Volume= 393.889 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1C: (new Link)

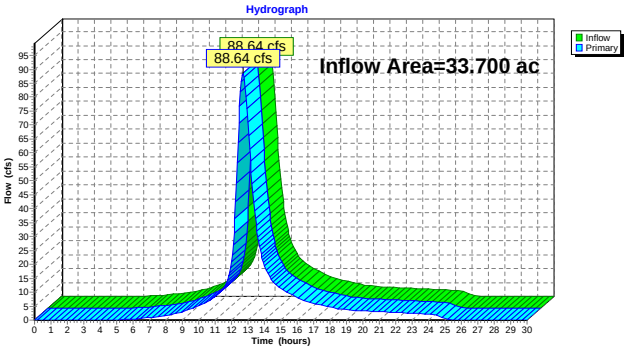


Link 1E: (new Link)

Inflow Area = 33.700 ac, Inflow Depth = 5.46" for 100 year event
Inflow = 88.64 cfs @ 12.70 hrs, Volume= 15.339 af
Primary = 88.64 cfs @ 12.70 hrs, Volume= 15.339 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1E: (new Link)

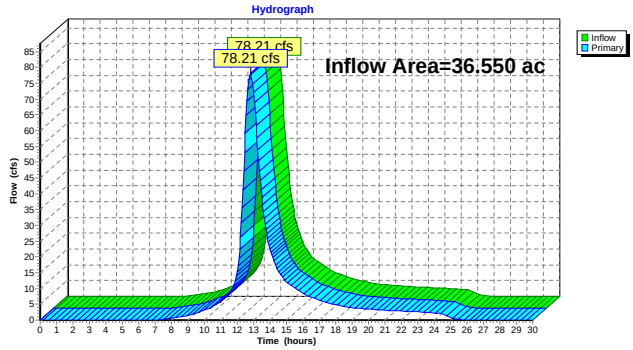


Link 1ELB: (new Link)

Inflow Area = 36.550 ac, Inflow Depth = 4.68" for 100 year event
Inflow = 78.21 cfs @ 12.82 hrs, Volume= 14.242 af
Primary = 78.21 cfs @ 12.82 hrs, Volume= 14.242 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1ELB: (new Link)

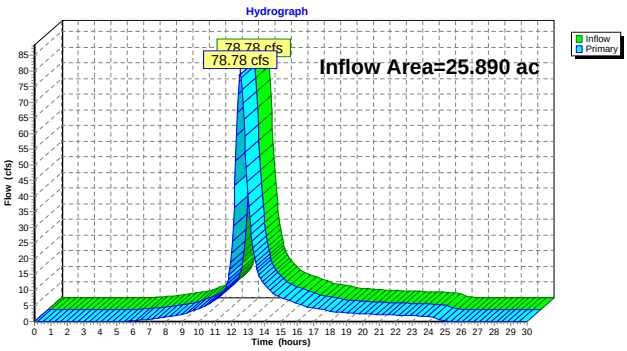


Link 1W: (new Link)

Inflow Area = 25.890 ac, Inflow Depth = 5.35" for 100 year event
Inflow = 78.78 cfs @ 12.53 hrs, Volume= 11.539 af
Primary = 78.78 cfs @ 12.53 hrs, Volume= 11.539 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1W: (new Link)

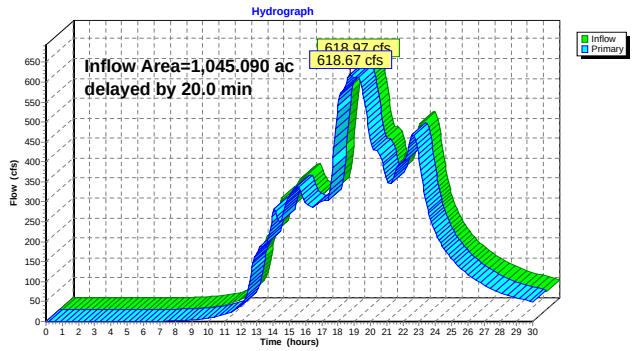


Link 2C: (new Link)

Inflow Area = 1,045.090 ac, Inflow Depth > 4.68" for 100 year event
Inflow = 618.97 cfs @ 18.40 hrs, Volume= 407.503 af
Primary = 618.67 cfs @ 18.73 hrs, Volume= 406.236 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2C: (new Link)

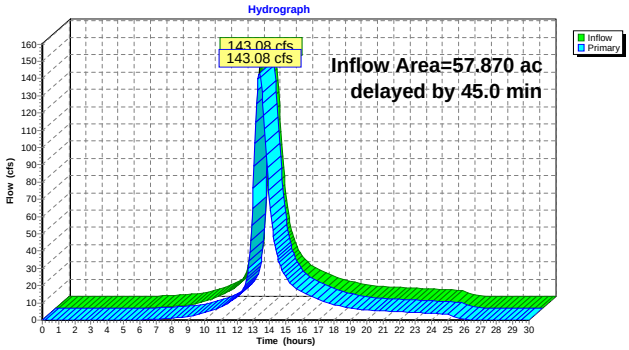


Link 2E: (new Link)

Inflow Area = 57.870 ac, Inflow Depth = 4.91" for 100 year event
Inflow = 143.08 cfs @ 12.64 hrs, Volume= 23.656 af
Primary = 143.08 cfs @ 13.39 hrs, Volume= 23.656 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2E: (new Link)

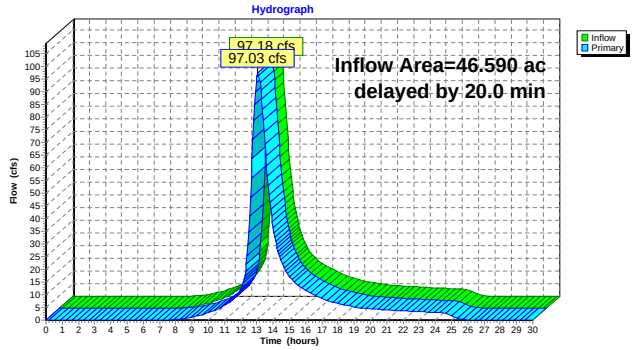


Link 2ELB: (new Link)

Inflow Area = 46.590 ac, Inflow Depth = 4.53" for 100 year event
Inflow = 97.18 cfs @ 12.72 hrs, Volume= 17.607 af
Primary = 97.03 cfs @ 13.06 hrs, Volume= 17.607 af, Atten= 0%, Lag= 20.3 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2ELB: (new Link)

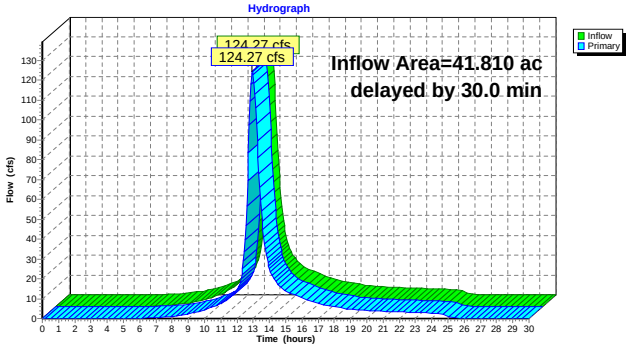


Link 2W: (new Link)

Inflow Area = 41.810 ac, Inflow Depth = 5.05" for 100 year event
Inflow = 124.27 cfs @ 12.45 hrs, Volume= 17.596 af
Primary = 124.27 cfs @ 12.95 hrs, Volume= 17.596 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2W: (new Link)

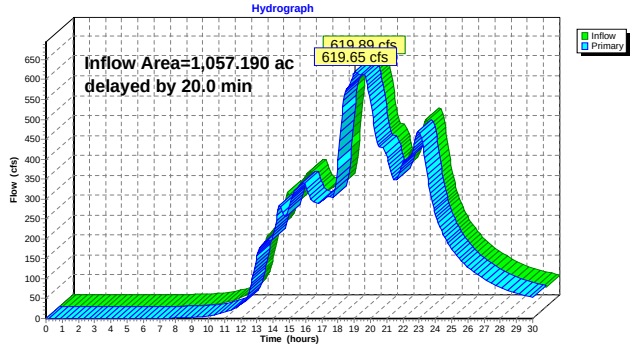


Link 3C: (new Link)

Inflow Area = 1,057.190 ac, Inflow Depth > 4.66" for 100 year event
Inflow = 619.89 cfs @ 18.73 hrs, Volume= 410.729 af
Primary = 619.65 cfs @ 19.06 hrs, Volume= 409.321 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3C: (new Link)

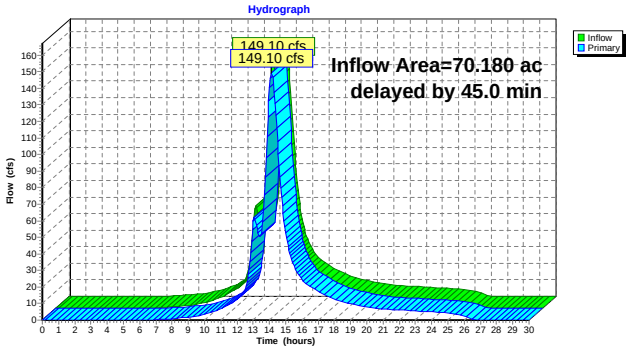


Link 3E: (new Link)

Inflow Area = 70.180 ac, Inflow Depth = 4.90" for 100 year event
Inflow = 149.10 cfs @ 13.38 hrs, Volume= 28.681 af
Primary = 149.10 cfs @ 14.13 hrs, Volume= 28.681 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3E: (new Link)

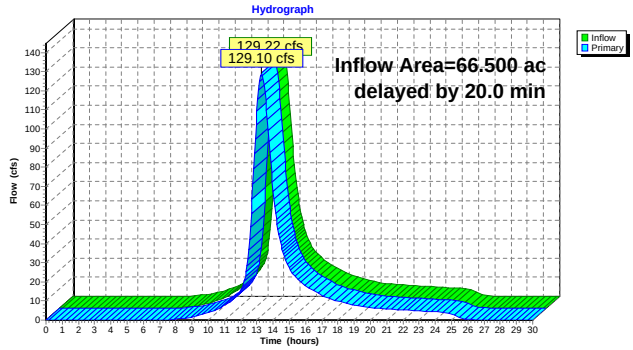


Link 3ELB: (new Link)

Inflow Area = 66.500 ac, Inflow Depth = 4.61" for 100 year event
Inflow = 129.22 cfs @ 12.95 hrs, Volume= 25.549 af
Primary = 129.10 cfs @ 13.28 hrs, Volume= 25.549 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3ELB: (new Link)

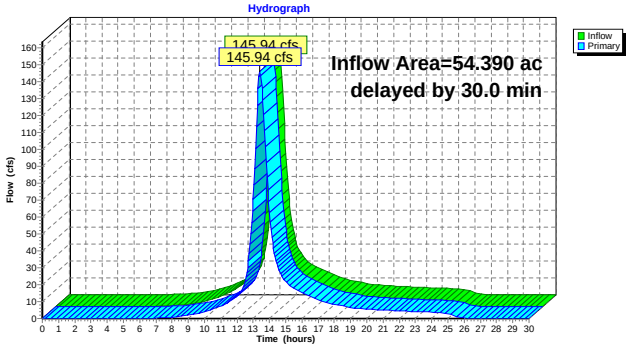


Link 3W: (new Link)

Inflow Area = 54.390 ac, Inflow Depth = 4.94" for 100 year event
Inflow = 145.94 cfs @ 12.92 hrs, Volume= 22.382 af
Primary = 145.94 cfs @ 13.42 hrs, Volume= 22.382 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3W: (new Link)

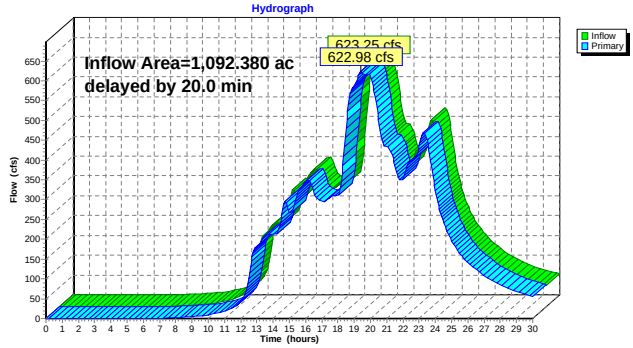


Link 4C: (new Link)

Inflow Area = 1,092.380 ac, Inflow Depth > 4.66" for 100 year event
Inflow = 623.25 cfs @ 19.06 hrs, Volume= 424.342 af
Primary = 622.98 cfs @ 19.40 hrs, Volume= 422.830 af, Atten= 0%, Lag= 20.1 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4C: (new Link)

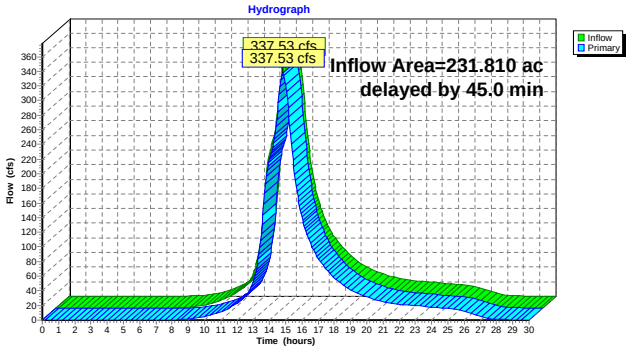


Link 4E: (new Link)

Inflow Area = 231.810 ac, Inflow Depth > 4.67" for 100 year event
Inflow = 337.53 cfs @ 14.08 hrs, Volume= 90.174 af
Primary = 337.53 cfs @ 14.83 hrs, Volume= 90.170 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4E: (new Link)

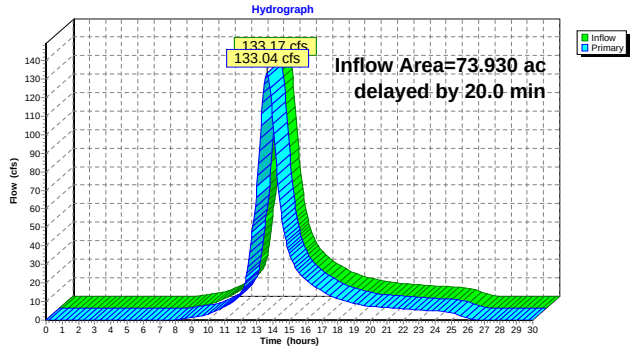


Link 4ELB: (new Link)

Inflow Area = 73.930 ac, Inflow Depth = 4.56" for 100 year event
Inflow = 133.17 cfs @ 13.27 hrs, Volume= 28.106 af
Primary = 133.04 cfs @ 13.61 hrs, Volume= 28.106 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4ELB: (new Link)

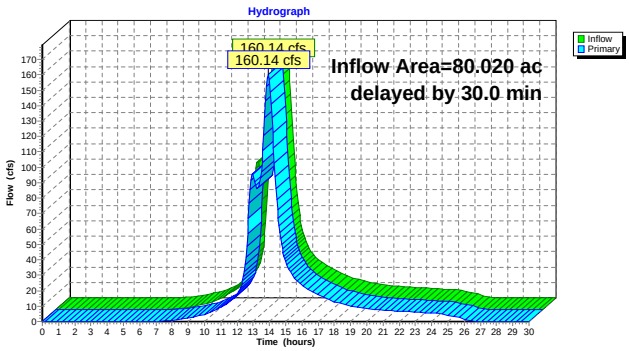


Link 4W: (new Link)

Inflow Area = 80.020 ac, Inflow Depth = 4.82" for 100 year event
Inflow = 160.14 cfs @ 13.41 hrs, Volume= 32.134 af
Primary = 160.14 cfs @ 13.91 hrs, Volume= 32.134 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4W: (new Link)

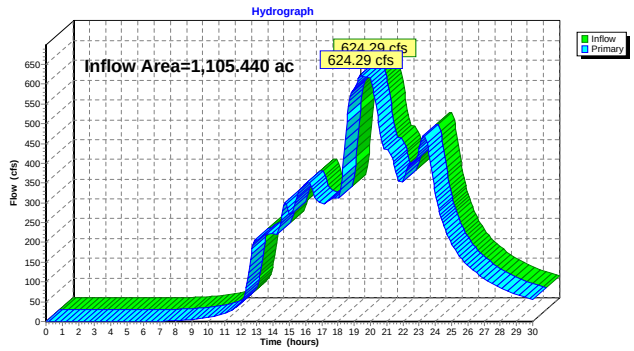


Link 5C: (new Link)

Inflow Area = 1,105.440 ac, Inflow Depth > 4.65" for 100 year event
Inflow = 624.29 cfs @ 19.40 hrs, Volume= 427.919 af
Primary = 624.29 cfs @ 19.40 hrs, Volume= 427.919 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5C: (new Link)

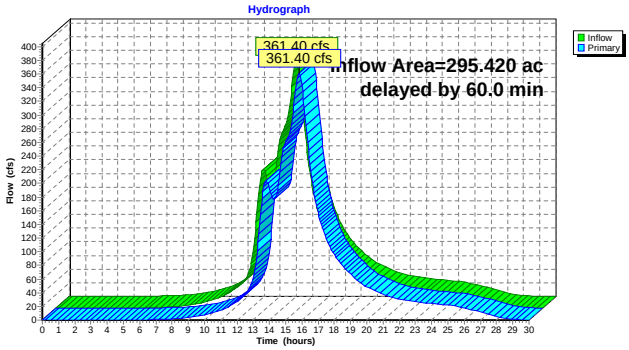


Link 5E: (new Link)

Inflow Area = 295.420 ac, Inflow Depth > 4.86" for 100 year event
Inflow = 361.40 cfs @ 14.82 hrs, Volume= 119.727 af
Primary = 361.40 cfs @ 15.82 hrs, Volume= 119.709 af, Atten= 0%, Lag= 60.0 min

Primary outflow = Inflow delayed by 60.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5E: (new Link)

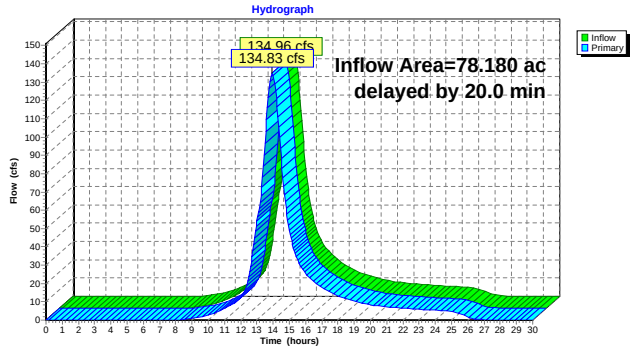


Link 5ELB: (new Link)

Inflow Area = 78.180 ac, Inflow Depth = 4.54" for 100 year event
Inflow = 134.96 cfs @ 13.61 hrs, Volume= 29.568 af
Primary = 134.83 cfs @ 13.94 hrs, Volume= 29.568 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5ELB: (new Link)

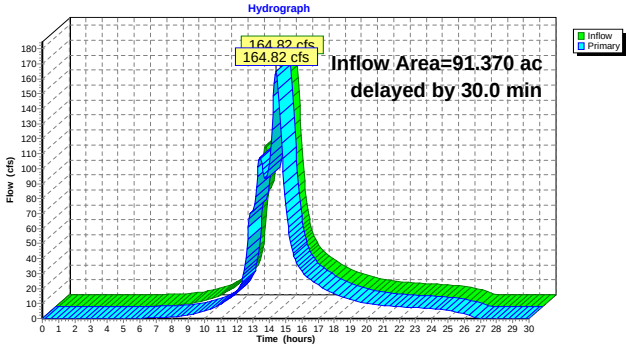


Link 5W: (new Link)

Inflow Area = 91.370 ac, Inflow Depth = 4.93" for 100 year event
Inflow = 164.82 cfs @ 13.90 hrs, Volume= 37.516 af
Primary = 164.82 cfs @ 14.40 hrs, Volume= 37.516 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5W: (new Link)

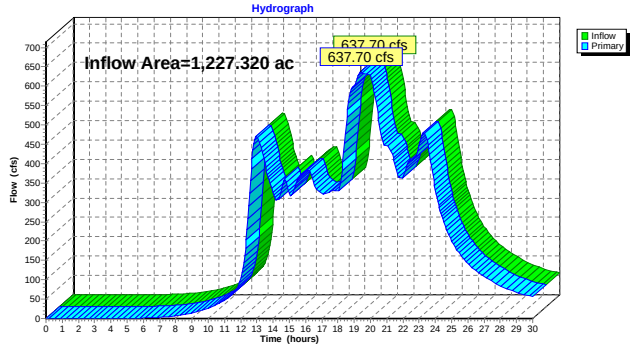


Link 6C: (new Link)

Inflow Area = 1,227.320 ac, Inflow Depth > 4.73" for 100 year event
Inflow = 637.70 cfs @ 19.40 hrs, Volume= 483.394 af
Primary = 637.70 cfs @ 19.40 hrs, Volume= 483.394 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6C: (new Link)

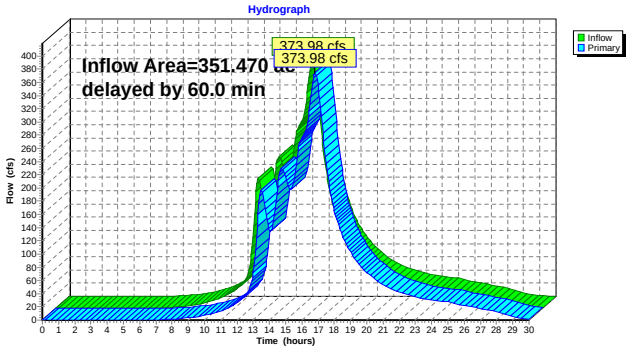


Link 6E: (new Link)

Inflow Area = 351.470 ac, Inflow Depth > 4.85" for 100 year event
Inflow = 373.98 cfs @ 15.81 hrs, Volume= 142.068 af
Primary = 373.98 cfs @ 16.81 hrs, Volume= 142.010 af, Atten= 0%, Lag= 60.0 min

Primary outflow = Inflow delayed by 60.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6E: (new Link)

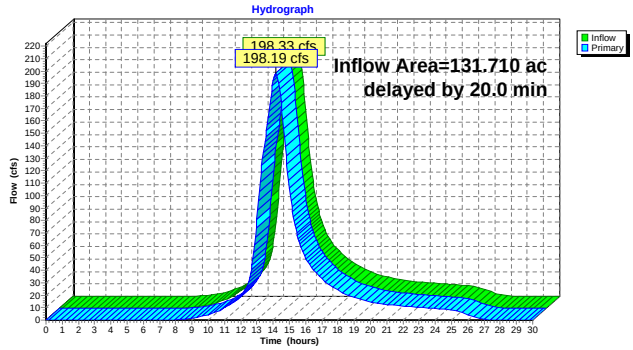


Link 6ELB: (new Link)

Inflow Area = 131.710 ac, Inflow Depth = 4.59" for 100 year event
Inflow = 198.33 cfs @ 13.83 hrs, Volume= 50.427 af
Primary = 198.19 cfs @ 14.17 hrs, Volume= 50.427 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6ELB: (new Link)

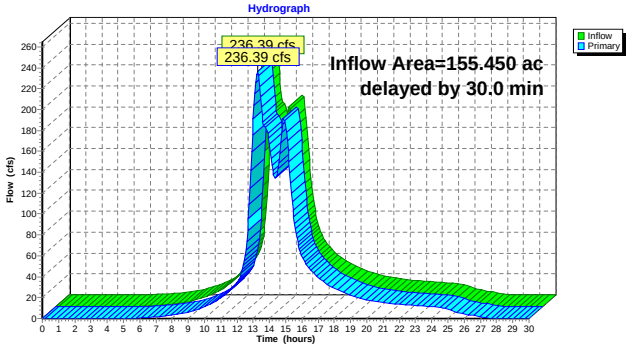


Link 6W: (new Link)

Inflow Area = 155.450 ac, Inflow Depth = 5.15" for 100 year event
Inflow = 236.39 cfs @ 12.76 hrs, Volume= 66.683 af
Primary = 236.39 cfs @ 13.26 hrs, Volume= 66.683 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 6W: (new Link)

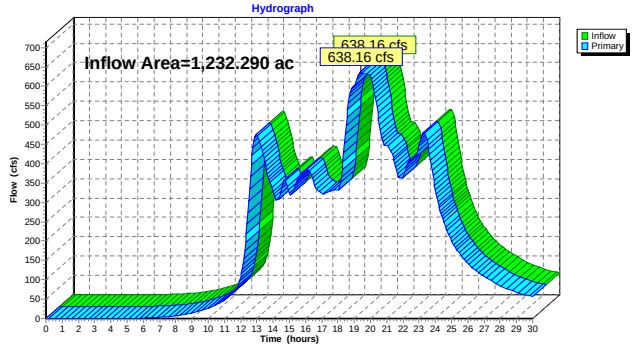


Link 7C: (new Link)

Inflow Area = 1,232.290 ac, Inflow Depth > 4.73" for 100 year event
Inflow = 638.16 cfs @ 19.40 hrs, Volume= 485.239 af
Primary = 638.16 cfs @ 19.40 hrs, Volume= 485.239 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7C: (new Link)

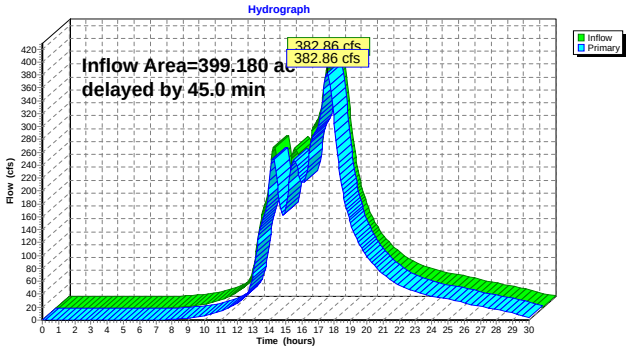


Link 7E: (new Link)

Inflow Area = 399.180 ac, Inflow Depth > 4.85" for 100 year event
Inflow = 382.86 cfs @ 16.81 hrs, Volume= 161.484 af
Primary = 382.86 cfs @ 17.56 hrs, Volume= 161.361 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7E: (new Link)

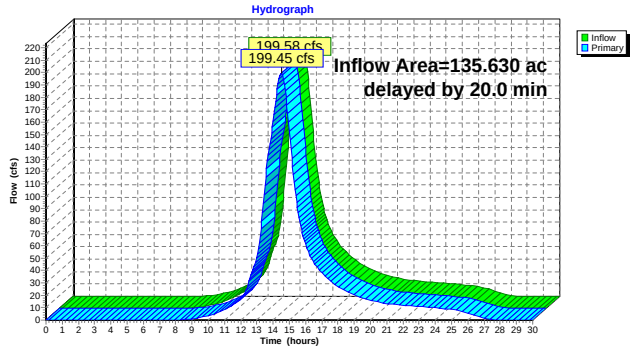


Link 7ELB: (new Link)

Inflow Area = 135.630 ac, Inflow Depth = 4.60" for 100 year event
Inflow = 199.58 cfs @ 14.16 hrs, Volume= 52.027 af
Primary = 199.45 cfs @ 14.50 hrs, Volume= 52.027 af, Atten= 0%, Lag= 20.0 min

Primary outflow = Inflow delayed by 20.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7ELB: (new Link)

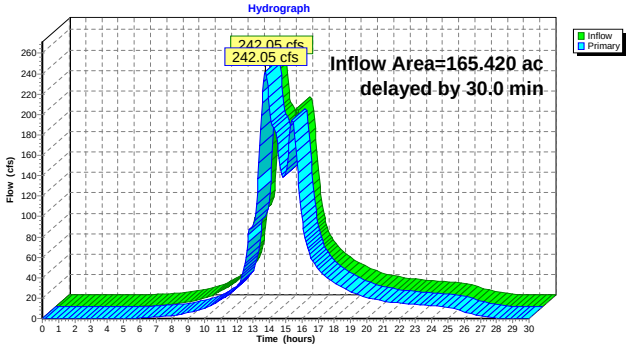


Link 7W: (new Link)

Inflow Area = 165.420 ac, Inflow Depth = 5.20" for 100 year event
Inflow = 242.05 cfs @ 13.26 hrs, Volume= 71.698 af
Primary = 242.05 cfs @ 13.76 hrs, Volume= 71.698 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7W: (new Link)

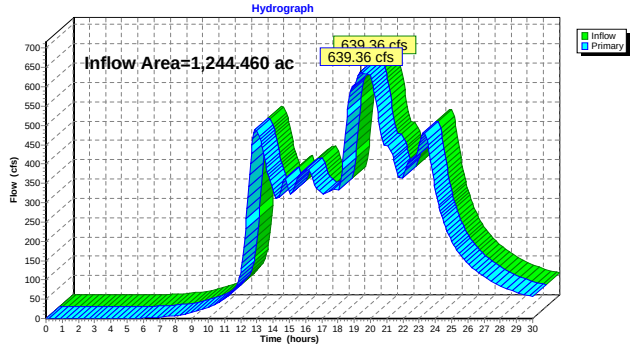


Link 8C: (new Link)

Inflow Area = 1,244.460 ac, Inflow Depth > 4.73" for 100 year event
Inflow = 639.36 cfs @ 19.40 hrs, Volume= 490.434 af
Primary = 639.36 cfs @ 19.40 hrs, Volume= 490.434 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8C: (new Link)

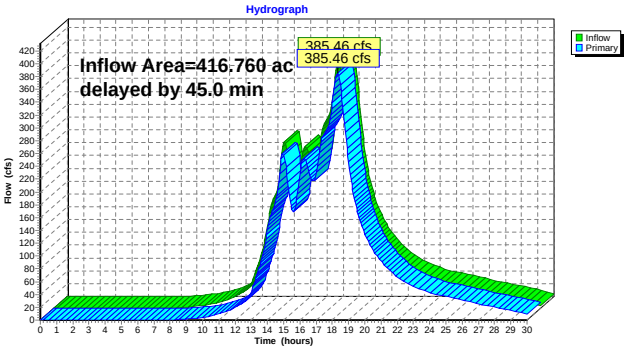


Link 8E: (new Link)

Inflow Area = 416.760 ac, Inflow Depth > 4.83" for 100 year event
Inflow = 385.46 cfs @ 17.56 hrs, Volume= 167.889 af
Primary = 385.46 cfs @ 18.31 hrs, Volume= 167.526 af, Atten= 0%, Lag= 45.0 min

Primary outflow = Inflow delayed by 45.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8E: (new Link)

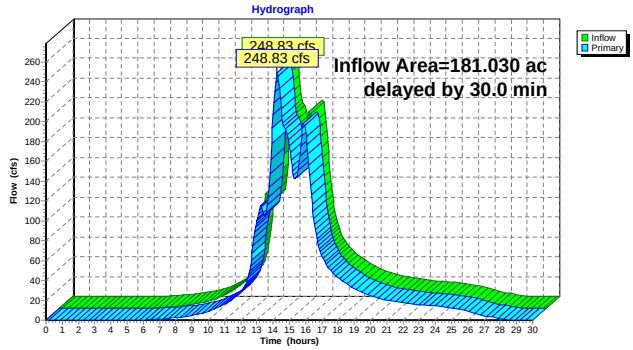


Link 8W: (new Link)

Inflow Area = 181.030 ac, Inflow Depth = 5.16" for 100 year event
Inflow = 248.83 cfs @ 13.76 hrs, Volume= 77.781 af
Primary = 248.83 cfs @ 14.26 hrs, Volume= 77.781 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 8W: (new Link)

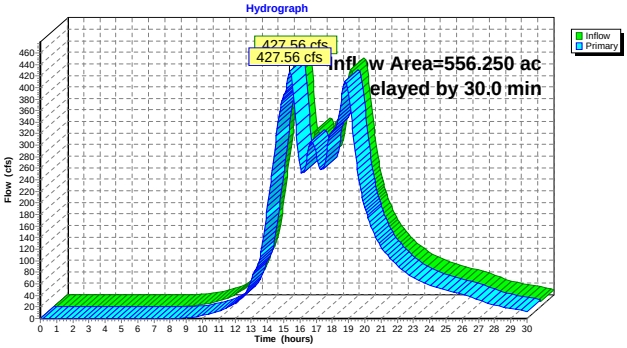


Link 9E: (new Link)

Inflow Area = 556.250 ac, Inflow Depth > 4.77" for 100 year event
Inflow = 427.56 cfs @ 14.88 hrs, Volume= 221.200 af
Primary = 427.56 cfs @ 15.38 hrs, Volume= 220.763 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9E: (new Link)

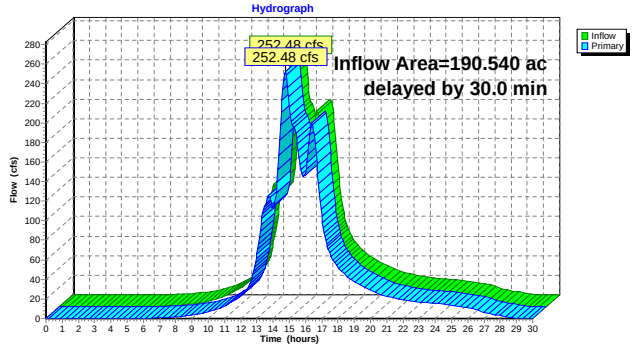


Link 9W: (new Link)

Inflow Area = 190.540 ac, Inflow Depth = 5.11" for 100 year event
Inflow = 252.48 cfs @ 14.25 hrs, Volume= 81.139 af
Primary = 252.48 cfs @ 14.75 hrs, Volume= 81.139 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9W: (new Link)

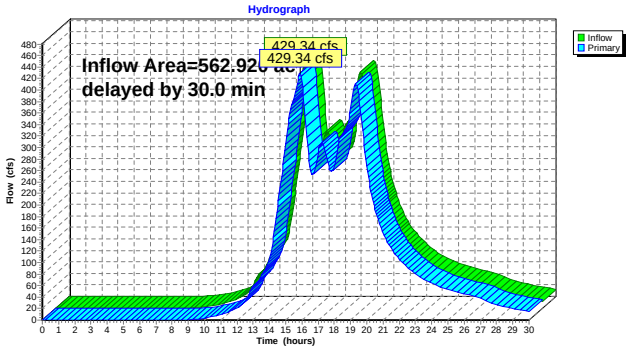


Link 10E: (new Link)

Inflow Area = 562.920 ac, Inflow Depth > 4.77" for 100 year event
Inflow = 429.34 cfs @ 15.38 hrs, Volume= 223.611 af
Primary = 429.34 cfs @ 15.88 hrs, Volume= 223.045 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10E: (new Link)

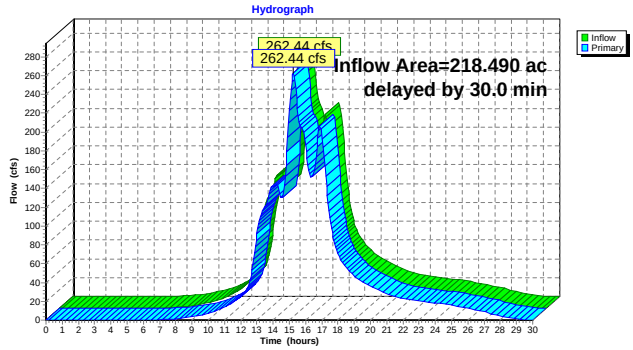


Link 10W: (new Link)

Inflow Area = 218.490 ac, Inflow Depth = 5.10" for 100 year event
Inflow = 262.44 cfs @ 14.75 hrs, Volume= 92.808 af
Primary = 262.44 cfs @ 15.25 hrs, Volume= 92.808 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10W: (new Link)

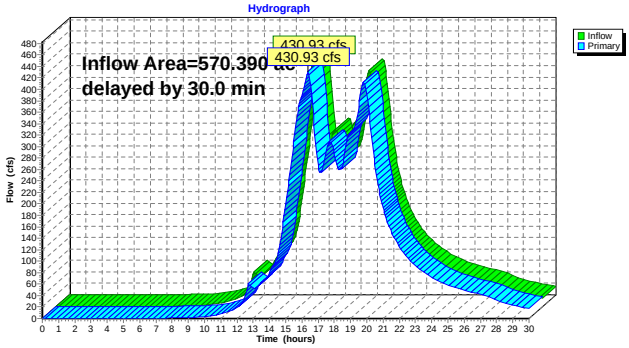


Link 11E: (new Link)

Inflow Area = 570.390 ac, Inflow Depth > 4.77" for 100 year event
Inflow = 430.93 cfs @ 15.88 hrs, Volume= 226.803 af
Primary = 430.93 cfs @ 16.38 hrs, Volume= 226.138 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 11E: (new Link)

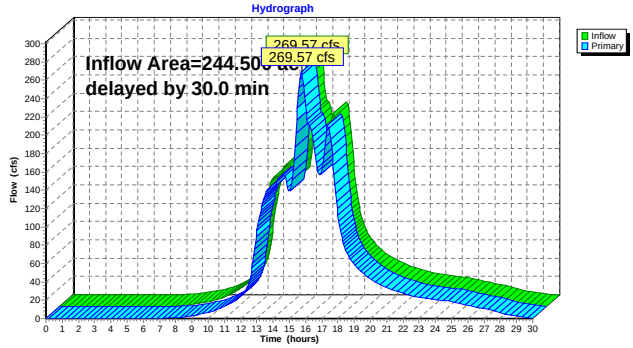


Link 11W: (new Link)

Inflow Area = 244.500 ac, Inflow Depth > 5.04" for 100 year event
Inflow = 269.57 cfs @ 15.25 hrs, Volume= 102.704 af
Primary = 269.57 cfs @ 15.75 hrs, Volume= 102.701 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 11W: (new Link)

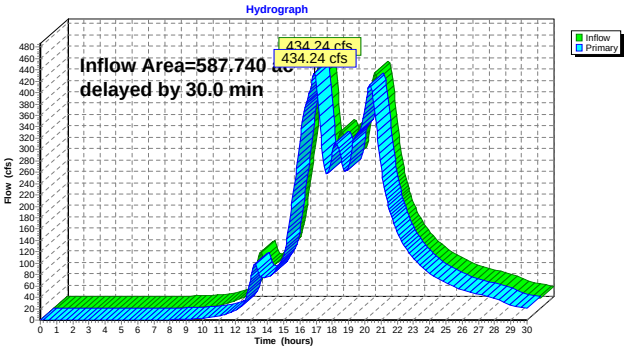


Link 12E: (new Link)

Inflow Area = 587.740 ac, Inflow Depth > 4.75" for 100 year event
Inflow = 434.24 cfs @ 16.38 hrs, Volume= 232.739 af
Primary = 434.24 cfs @ 16.88 hrs, Volume= 231.969 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 12E: (new Link)

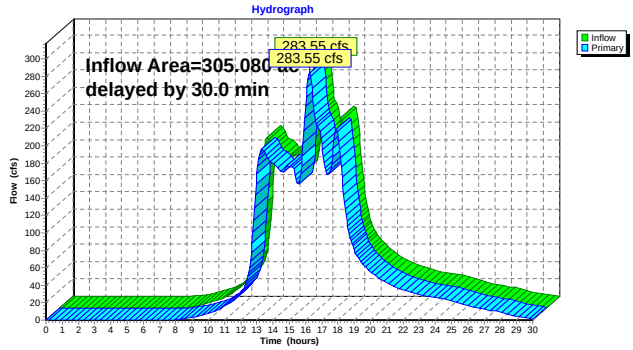


Link 12W: (new Link)

Inflow Area = 305.080 ac, Inflow Depth > 4.90" for 100 year event
Inflow = 283.55 cfs @ 15.75 hrs, Volume= 124.644 af
Primary = 283.55 cfs @ 16.25 hrs, Volume= 124.623 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 12W: (new Link)

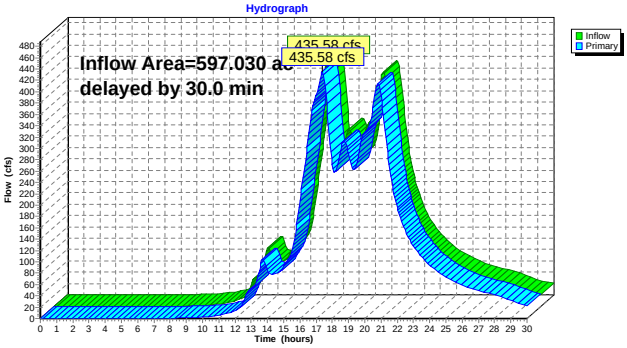


Link 13E: (new Link)

Inflow Area = 597.030 ac, Inflow Depth > 4.73" for 100 year event
Inflow = 435.58 cfs @ 16.88 hrs, Volume= 235.166 af
Primary = 435.58 cfs @ 17.38 hrs, Volume= 234.277 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 13E: (new Link)

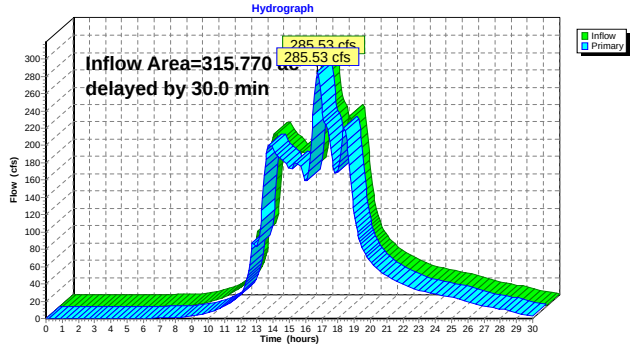


Link 13W: (new Link)

Inflow Area = 315.770 ac, Inflow Depth > 4.94" for 100 year event
Inflow = 285.53 cfs @ 16.25 hrs, Volume= 129.898 af
Primary = 285.53 cfs @ 16.75 hrs, Volume= 129.805 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 13W: (new Link)

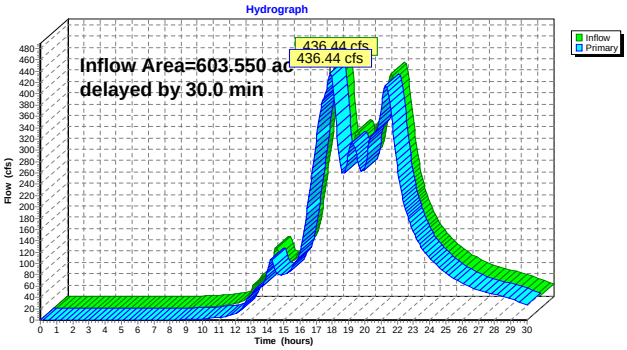


Link 14E: (new Link)

Inflow Area = 603.550 ac, Inflow Depth > 4.71" for 100 year event
Inflow = 436.44 cfs @ 17.38 hrs, Volume= 236.698 af
Primary = 436.44 cfs @ 17.88 hrs, Volume= 235.704 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 14E: (new Link)

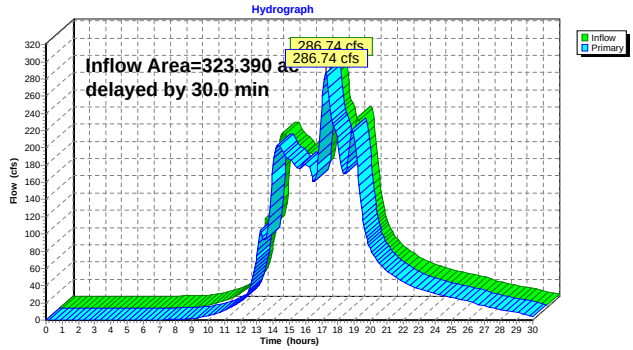


Link 14W: (new Link)

Inflow Area = 323.390 ac, Inflow Depth > 4.92" for 100 year event
Inflow = 286.74 cfs @ 16.75 hrs, Volume= 132.565 af
Primary = 286.74 cfs @ 17.25 hrs, Volume= 132.417 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 14W: (new Link)

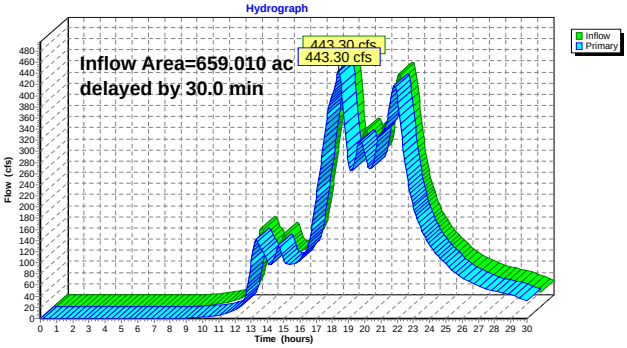


Link 15E: (new Link)

Inflow Area = 659.010 ac, Inflow Depth > 4.61" for 100 year event
Inflow = 443.30 cfs @ 17.88 hrs, Volume= 253.303 af
Primary = 443.30 cfs @ 18.38 hrs, Volume= 252.099 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 15E: (new Link)

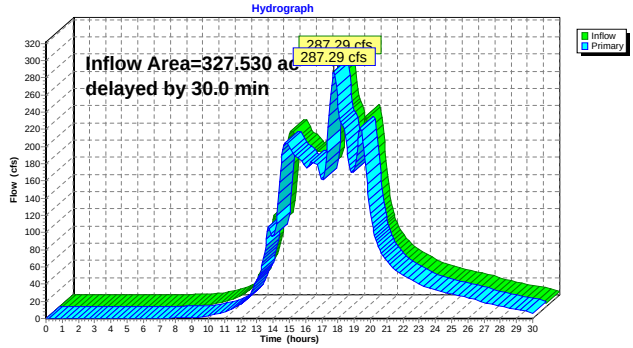


Link 15W: (new Link)

Inflow Area = 327.530 ac, Inflow Depth > 4.90" for 100 year event
Inflow = 287.29 cfs @ 17.25 hrs, Volume= 133.805 af
Primary = 287.29 cfs @ 17.75 hrs, Volume= 133.592 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 15W: (new Link)

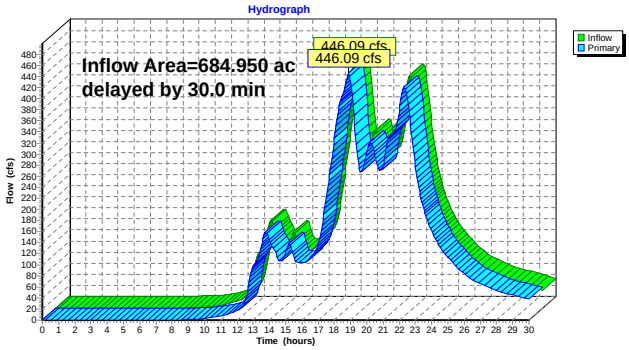


Link 16E: (new Link)

Inflow Area = 684.950 ac, Inflow Depth > 4.59" for 100 year event
Inflow = 446.09 cfs @ 18.38 hrs, Volume= 261.731 af
Primary = 446.09 cfs @ 18.88 hrs, Volume= 260.297 af, Atten= 0%, Lag= 30.0 min

Primary outflow = Inflow delayed by 30.0 min, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 16E: (new Link)



HEC-RAS

HEC-RAS Plan: Existing 2 Year No Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	29.05	85.39	85.70	85.70	85.78	0.016606	2.32	12.53	75.26	1.00
W Silver Creek	Western	6278	PF 1	42.95	79.41	79.82	79.82	79.93	0.015739	2.59	16.58	80.94	1.01
W Silver Creek	Western	6008	PF 1	49.69	74.00	74.14	74.14	74.21	0.017655	2.09	23.72	173.60	1.00
W Silver Creek	Western	5772	PF 1	49.69	70.99	71.63	71.47	71.67	0.003094	1.59	31.18	93.15	0.49
W Silver Creek	Western	5534	PF 1	49.69	70.00	70.14	70.14	70.21	0.017640	2.10	23.64	171.99	1.00
W Silver Creek	Western	5300	PF 1	54.62	65.36	65.82	65.82	65.99	0.013310	3.29	16.62	50.10	1.01
W Silver Creek	Western	5128	PF 1	56.62	59.00	62.90	60.22	62.92	0.000115	1.05	53.84	23.52	0.12
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	86.08	50.36	53.42	51.41	53.44	0.000131	1.05	82.15	42.36	0.13
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	88.59	46.53	49.34		49.39	0.000441	1.89	46.85	24.01	0.24
W Silver Creek	Western	3744	PF 1	91.10	48.00	49.13		49.20	0.002080	2.11	43.27	63.02	0.45
W Silver Creek	Western	3565	PF 1	91.10	48.00	48.51	48.43	48.59	0.006403	2.25	40.47	124.29	0.70
W Silver Creek	Western	3148	PF 1	92.36	44.00	44.80	44.80	45.06	0.011562	4.12	22.41	43.24	1.01
W Silver Creek	Western	2720	PF 1	96.29	38.00	39.38	39.26	39.67	0.006930	4.37	22.03	26.35	0.84
W Silver Creek	Western	2428	PF 1	96.29	36.00	36.79	36.79	37.02	0.012142	3.85	24.99	55.32	1.01
W Silver Creek	Western	2028	PF 1	96.29	30.00	30.58	30.58	30.75	0.013389	3.30	29.14	87.48	1.01
W Silver Creek	Western	1737	PF 1	98.96	24.00	28.45	24.84	28.45	0.000003	0.21	646.43	337.23	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	104.06	24.00	25.01	25.01	25.42	0.010039	5.12	20.32	25.24	1.01
W Silver Creek	Western	1430	PF 1	104.06	20.00	21.88	21.88	22.42	0.009868	5.89	17.68	16.93	1.02
W Silver Creek	Western	1217	PF 1	104.95	18.00	19.74	19.74	20.20	0.009860	5.39	19.46	21.94	1.01
W Silver Creek	Western	952	PF 1	104.95	16.00	16.64	16.64	16.84	0.012625	3.62	29.03	72.87	1.01
W Silver Creek	Western	684	PF 1	105.39	10.00	11.35	11.35	11.81	0.009756	5.42	19.44	21.65	1.01
W Silver Creek	Western	539	PF 1	105.39	8.37	8.91	8.91	9.07	0.014138	3.13	33.70	114.43	1.02
W Silver Creek	Western	290	PF 1	105.59	4.89	5.25	5.25	5.37	0.014800	2.70	39.16	171.93	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	33.37	76.00	76.49	76.49	76.64	0.014099	3.07	10.88	37.92	1.01
Silver Creek	Eastern Reach 1	9326	PF 1	48.25	72.00	72.36	72.36	72.49	0.014183	2.89	16.69	63.94	1.00
Silver Creek	Eastern Reach 1	9081	PF 1	50.51	67.88	68.23	68.23	68.32	0.015699	2.46	20.53	108.08	0.99
Silver Creek	Eastern Reach 1	8854	PF 1	50.51	64.00	64.18	64.18	64.26	0.016660	2.28	22.16	136.87	1.00
Silver Creek	Eastern Reach 1	8483.331	PF 1	108.20	58.85	63.68	60.21	63.68	0.000004	0.18	692.38	444.23	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	108.20	58.36	60.34		60.35	0.000469	0.82	131.64	257.53	0.20
Silver Creek	Eastern Reach 1	8046	PF 1	118.18	58.14	60.35		60.35	0.000002	0.12	962.04	649.45	0.02
Silver Creek	Eastern Reach 1	7473	PF 1	123.04	56.00	60.35		60.35	0.000000	0.07	2112.36	841.97	0.01
Silver Creek	Eastern Reach 1	7029	PF 1	123.04	56.00	60.35		60.35	0.000001	0.16	2019.06	999.82	0.02
Silver Creek	Eastern Reach 1	6821	PF 1	126.55	56.00	60.35		60.35	0.000001	0.16	1798.14	1009.71	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	126.55	56.00	60.35		60.35	0.000002	0.20	1544.63	1067.08	0.02
Silver Creek	Eastern Reach 1	6369	PF 1	127.52	56.00	60.35		60.35	0.000001	0.12	1992.73	990.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	137.07	56.00	60.35	57.04	60.35	0.000006	0.29	1016.12	927.27	0.03
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	137.07	54.00	55.54	55.43	56.07	0.007053	5.84	23.46	17.44	0.89
Silver Creek	Eastern Reach 3	5498	PF 1	137.36	52.00	55.74	53.25	55.79	0.000207	1.67	82.19	27.64	0.17
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	137.36	48.00	49.25	49.25	49.79	0.009306	5.88	23.37	22.04	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	137.71	46.00	46.64	46.64	46.94	0.011015	4.39	31.39	53.14	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	138.33	36.93	44.96	38.57	44.96	0.000001	0.16	1334.64	603.67	0.01
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	138.61	22.03	25.32	25.32	25.91	0.010424	6.16	22.50	19.94	1.02
Silver Creek	Eastern Reach 3	3889	PF 1	138.81	14.00	15.22	15.22	15.56	0.010712	4.68	29.67	44.62	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	140.25	8.00	9.16	8.89	9.28	0.003543	2.79	50.34	71.83	0.59
Silver Creek	Eastern Reach 3	3263	PF 1	140.25	6.62	7.21	7.21	7.39	0.013241	3.37	41.63	120.41	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	141.34	3.90	4.59		4.61	0.000677	1.05	134.83	241.41	0.25
Silver Creek	Salt Marsh	2400	PF 1	201.65	2.00	4.59		4.59	0.000009	0.26	779.51	434.31	0.03
Silver Creek	Salt Marsh	2089	PF 1	201.65	0.65	4.59		4.59	0.000005	0.24	834.26	349.03	0.03
Silver Creek	Salt Marsh	1789	PF 1	202.06	0.55	4.59		4.59	0.000015	0.40	499.89	218.60	0.05
Silver Creek	Salt Marsh	1735	PF 1	202.06	0.60	4.58		4.59	0.000016	0.42	487.86	224.15	0.05
Silver Creek	Salt Marsh	1716	PF 1	202.06	0.60	4.58	2.37	4.59	0.000050	0.69	308.90	169.99	0.08
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	202.06	0.60	4.58		4.59	0.000051	0.68	308.69	169.94	0.08
Silver Creek	Salt Marsh	1659	PF 1	202.06	0.60	4.58		4.58	0.000016	0.42	486.83	223.93	0.05
Silver Creek	Salt Marsh	1594	PF 1	202.06	-0.02	4.58		4.58	0.000007	0.40	841.59	354.21	0.03
Silver Creek	Salt Marsh	1389	PF 1	203.37	0.32	4.58		4.58	0.000014	0.50	1029.01	592.07	0.05
Silver Creek	Salt Marsh	913	PF 1	203.37	0.50	4.56		4.57	0.000042	0.59	369.69	260.23	0.08
Silver Creek	Salt Marsh	787	PF 1	203.81	0.09	4.56		4.57	0.000014	0.46	447.51	167.78	0.05
Silver Creek	Salt Marsh	600	PF 1	209.20	0.40	4.56		4.56	0.000008	0.38	561.03	201.98	0.04
Silver Creek	Salt Marsh	344	PF 1	209.20	0.00	4.56		4.56	0.000002	0.21	988.55	269.31	0.02
Silver Creek	Salt Marsh	157	PF 1	209.40	-0.60	4.55	0.90	4.56	0.000043	0.87	439.06	499.20	0.08
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	209.40	0.58	4.37		4.39	0.000089	1.19	246.67	284.72	0.12
Silver Creek	Salt Marsh	62	PF 1	209.84	0.70	4.36		4.39	0.000121	1.35	228.30	273.95	0.13
Silver Creek	Salt Marsh	47	PF 1	209.84	0.70	4.29	2.39	4.38	0.000786	2.54	134.04	278.18	0.31
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	209.84	-0.98	0.97	0.97	1.55	0.009472	6.09	34.45	30.72	1.01
Elbow	Reach 1	2128	PF 1	24.61	99.32	99.51	99.51	99.58	0.017459	2.23	12.02	85.98	1.01
Elbow	Reach 1	1857	PF 1	24.61	92.62	93.01	93.01	93.11	0.015369	2.55	9.65	47.45	1.00
Elbow	Reach 1	1483	PF 1	29.47	80.58	81.37	81.37	81.59	0.012353	3.81	7.73	17.56	1.01
Elbow	Reach 1	1369	PF 1	39.71	76.00	76.75	76.75	76.96	0.012410	3.75	10.60	24.83	1.01
Elbow	Reach 1	1114	PF 1	39.71	69.80	70.25	70.25	70.37	0.014520	2.71	14.76	67.76	0.99
Elbow	Reach 1	972	PF 1	40.93	66.00	66.83	66.83	66.97	0.014154	2.93	13.95	52.18	1.00
Elbow	Reach 1	829	PF 1	41.51	62.50	66.37	63.85	66.38	0.000016	0.30	166.12	189.35	0.04
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	61.61	62.00	64.17	64.17	64.33	0.005015	3.52	27.30	98.67	0.69
Elbow	Reach 1	479	PF 1	61.61	60.00	60.66	60.66	60.86	0.012889	3.53	17.46	46.11	1.01
Elbow	Reach 1	234	PF 1	62.10	58.00	60.35		60.35	0.000002	0.14	506.96	359.28	0.02

HEC-RAS Plan: Existing 2 Year with Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	29.05	85.39	85.70	85.70	85.78	0.016606	2.32	12.53	75.26	1.00
W Silver Creek	Western	6278	PF 1	42.95	79.41	79.82	79.82	79.93	0.015739	2.59	16.58	80.94	1.01
W Silver Creek	Western	6008	PF 1	49.69	74.00	74.14	74.14	74.21	0.017655	2.09	23.72	173.60	1.00
W Silver Creek	Western	5772	PF 1	49.69	70.99	71.63	71.47	71.67	0.003094	1.59	31.18	93.15	0.49
W Silver Creek	Western	5534	PF 1	49.69	70.00	70.14	70.14	70.21	0.017640	2.10	23.64	171.99	1.00
W Silver Creek	Western	5300	PF 1	54.62	65.36	65.82	65.82	65.99	0.013310	3.29	16.62	50.10	1.01
W Silver Creek	Western	5128	PF 1	56.62	59.00	62.90	60.22	62.92	0.000115	1.05	53.84	23.52	0.12
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	86.08	50.36	53.42	51.41	53.44	0.000131	1.05	82.15	42.36	0.13
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	88.59	46.53	49.34		49.39	0.000441	1.89	46.85	24.01	0.24
W Silver Creek	Western	3744	PF 1	91.10	48.00	49.13		49.20	0.002080	2.11	43.27	63.02	0.45
W Silver Creek	Western	3565	PF 1	91.10	48.00	48.51	48.43	48.59	0.006403	2.25	40.47	124.29	0.70
W Silver Creek	Western	3148	PF 1	92.36	44.00	44.80	44.80	45.06	0.011562	4.12	22.41	43.24	1.01
W Silver Creek	Western	2720	PF 1	96.29	38.00	39.38	39.26	39.67	0.006930	4.37	22.03	26.35	0.84
W Silver Creek	Western	2428	PF 1	96.29	36.00	36.79	36.79	37.02	0.012142	3.85	24.99	55.32	1.01
W Silver Creek	Western	2028	PF 1	96.29	30.00	30.58	30.58	30.75	0.013389	3.30	29.14	87.48	1.01
W Silver Creek	Western	1737	PF 1	98.96	24.00	28.45	24.84	28.45	0.000003	0.21	646.43	337.23	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	104.06	24.00	25.01	25.01	25.42	0.010039	5.12	20.32	25.24	1.01
W Silver Creek	Western	1430	PF 1	104.06	20.00	21.88	21.88	22.42	0.009868	5.89	17.68	16.93	1.02
W Silver Creek	Western	1217	PF 1	104.95	18.00	19.74	19.74	20.20	0.009860	5.39	19.46	21.94	1.01
W Silver Creek	Western	952	PF 1	104.95	16.00	16.64	16.64	16.84	0.012625	3.62	29.03	72.87	1.01
W Silver Creek	Western	684	PF 1	105.39	10.00	11.35	11.35	11.81	0.009756	5.42	19.44	21.65	1.01
W Silver Creek	Western	539	PF 1	105.39	8.37	8.91	8.91	9.07	0.014138	3.13	33.70	114.43	1.02
W Silver Creek	Western	290	PF 1	105.59	4.89	5.25	5.25	5.37	0.014800	2.70	39.16	171.93	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	33.37	76.00	76.49	76.49	76.64	0.014099	3.07	10.88	37.92	1.01
Silver Creek	Eastern Reach 1	9326	PF 1	48.25	72.00	72.36	72.36	72.49	0.014183	2.89	16.69	63.94	1.00
Silver Creek	Eastern Reach 1	9081	PF 1	50.51	67.88	68.23	68.23	68.32	0.015699	2.46	20.53	108.08	0.99
Silver Creek	Eastern Reach 1	8854	PF 1	50.51	64.00	64.18	64.18	64.26	0.016660	2.28	22.16	136.87	1.00
Silver Creek	Eastern Reach 1	8483.331	PF 1	108.20	58.85	63.68	60.21	63.68	0.000004	0.18	692.38	444.23	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	108.20	58.36	60.34		60.35	0.000469	0.82	131.64	257.53	0.20
Silver Creek	Eastern Reach 1	8046	PF 1	118.18	58.14	60.35		60.35	0.000002	0.12	962.04	649.45	0.02
Silver Creek	Eastern Reach 1	7473	PF 1	123.04	56.00	60.35		60.35	0.000000	0.07	2112.36	841.97	0.01
Silver Creek	Eastern Reach 1	7029	PF 1	123.04	56.00	60.35		60.35	0.000001	0.16	2019.06	999.82	0.02
Silver Creek	Eastern Reach 1	6821	PF 1	126.55	56.00	60.35		60.35	0.000001	0.16	1798.14	1009.71	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	126.55	56.00	60.35		60.35	0.000002	0.20	1544.63	1067.08	0.02
Silver Creek	Eastern Reach 1	6369	PF 1	127.52	56.00	60.35		60.35	0.000001	0.12	1992.73	990.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	137.07	56.00	60.35	57.04	60.35	0.000006	0.29	1016.12	927.27	0.03
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	137.07	54.00	55.54	55.43	56.07	0.007053	5.84	23.46	17.44	0.89
Silver Creek	Eastern Reach 3	5498	PF 1	137.36	52.00	55.74	53.25	55.79	0.000207	1.67	82.19	27.64	0.17
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	137.36	48.00	49.25	49.25	49.79	0.009306	5.88	23.37	22.04	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	137.71	46.00	46.64	46.64	46.94	0.011015	4.39	31.39	53.14	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	138.33	36.93	44.96	38.57	44.96	0.000001	0.16	1334.64	603.67	0.01
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	138.61	22.03	25.32	25.32	25.91	0.010424	6.16	22.50	19.94	1.02
Silver Creek	Eastern Reach 3	3889	PF 1	138.81	14.00	15.22	15.22	15.56	0.010712	4.68	29.67	44.62	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	140.25	8.00	9.16	8.89	9.28	0.003543	2.79	50.34	71.83	0.59
Silver Creek	Eastern Reach 3	3263	PF 1	140.25	6.62	7.21	7.21	7.39	0.013241	3.37	41.63	120.41	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	141.34	3.90	5.00		5.01	0.000118	0.59	237.82	269.39	0.11
Silver Creek	Salt Marsh	2400	PF 1	201.65	2.00	5.00		5.00	0.000004	0.21	957.20	438.69	0.03
Silver Creek	Salt Marsh	2089	PF 1	201.65	0.65	5.00		5.00	0.000003	0.21	979.89	365.03	0.02
Silver Creek	Salt Marsh	1789	PF 1	202.06	0.55	5.00		5.00	0.000009	0.34	591.18	227.39	0.04
Silver Creek	Salt Marsh	1735	PF 1	202.06	0.60	4.99		5.00	0.000009	0.36	583.81	243.95	0.04
Silver Creek	Salt Marsh	1716	PF 1	202.06	0.60	4.99	2.37	5.00	0.000028	0.58	383.73	194.53	0.06
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	202.06	0.60	4.99		5.00	0.000030	0.56	383.58	194.47	0.06
Silver Creek	Salt Marsh	1659	PF 1	202.06	0.60	4.99		4.99	0.000009	0.36	583.09	243.81	0.04
Silver Creek	Salt Marsh	1594	PF 1	202.06	-0.02	4.99		4.99	0.000005	0.35	991.90	376.61	0.03
Silver Creek	Salt Marsh	1389	PF 1	203.37	0.32	4.99		4.99	0.000008	0.42	1279.40	620.58	0.04
Silver Creek	Salt Marsh	913	PF 1	203.37	0.50	4.98		4.99	0.000021	0.48	488.38	307.32	0.06
Silver Creek	Salt Marsh	787	PF 1	203.81	0.09	4.98		4.98	0.000009	0.40	525.61	205.39	0.04
Silver Creek	Salt Marsh	600	PF 1	209.20	0.40	4.98		4.98	0.000005	0.34	653.40	238.82	0.03
Silver Creek	Salt Marsh	344	PF 1	209.20	0.00	4.98		4.98	0.000001	0.19	1106.98	295.30	0.02
Silver Creek	Salt Marsh	157	PF 1	209.40	-0.60	4.98	0.90	4.98	0.000019	0.63	666.16	559.30	0.05
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	209.40	0.58	4.79		4.80	0.000045	0.91	369.29	299.65	0.08
Silver Creek	Salt Marsh	62	PF 1	209.84	0.70	4.79		4.80	0.000058	1.00	351.14	339.11	0.09
Silver Creek	Salt Marsh	47	PF 1	209.84	0.70	4.78	2.39	4.80	0.000168	1.35	340.38	499.06	0.15
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	209.84	-0.98	4.70	0.97	4.72	0.000137	1.13	230.09	554.09	0.13
Elbow	Reach 1	2128	PF 1	24.61	99.32	99.51	99.51	99.58	0.017459	2.23	12.02	85.98	1.01
Elbow	Reach 1	1857	PF 1	24.61	92.62	93.01	93.01	93.11	0.015369	2.55	9.65	47.45	1.00
Elbow	Reach 1	1483	PF 1	29.47	80.58	81.37	81.37	81.59	0.012353	3.81	7.73	17.56	1.01
Elbow	Reach 1	1369	PF 1	39.71	76.00	76.75	76.75	76.96	0.012410	3.75	10.60	24.83	1.01
Elbow	Reach 1	1114	PF 1	39.71	69.80	70.25	70.25	70.37	0.014520	2.71	14.76	67.76	0.99
Elbow	Reach 1	972	PF 1	40.93	66.00	66.83	66.83	66.97	0.014154	2.93	13.95	52.18	1.00
Elbow	Reach 1	829	PF 1	41.51	62.50	66.37	63.85	66.38	0.000016	0.30	166.12	189.35	0.04
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	61.61	62.00	64.17	64.17	64.33	0.005015	3.52	27.30	98.67	0.69
Elbow	Reach 1	479	PF 1	61.61	60.00	60.66	60.66	60.86	0.012889	3.53	17.46	46.11	1.01
Elbow	Reach 1	234	PF 1	62.10	58.00	60.35		60.35	0.000002	0.14	506.96	359.28	0.02

HEC-RAS Plan: Existing 10 Yr No Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	49.03	85.39	85.78	85.78	85.88	0.015379	2.62	18.69	88.00	1.00
W Silver Creek	Western	6278	PF 1	75.23	79.41	79.93	79.93	80.06	0.014270	2.87	26.17	101.56	1.00
W Silver Creek	Western	6008	PF 1	87.73	74.00	74.20	74.20	74.30	0.016032	2.54	34.56	176.39	1.01
W Silver Creek	Western	5772	PF 1	87.73	70.99	71.77	71.59	71.83	0.003456	1.94	45.25	109.50	0.53
W Silver Creek	Western	5534	PF 1	87.73	70.00	70.20	70.20	70.30	0.015972	2.55	34.47	174.71	1.01
W Silver Creek	Western	5300	PF 1	96.41	65.36	65.98	65.98	66.21	0.012203	3.79	25.41	57.84	1.01
W Silver Creek	Western	5128	PF 1	99.50	59.00	64.14	60.67	64.16	0.000143	0.99	100.02	58.16	0.13
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	146.04	50.36	54.74	51.77	54.76	0.000078	1.00	146.69	55.56	0.11
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	149.83	46.53	49.67		49.78	0.000843	2.71	55.20	26.78	0.33
W Silver Creek	Western	3744	PF 1	154.07	48.00	49.35		49.46	0.002648	2.65	58.07	71.62	0.52
W Silver Creek	Western	3565	PF 1	154.07	48.00	48.66	48.56	48.76	0.006310	2.56	60.07	150.01	0.71
W Silver Creek	Western	3148	PF 1	156.28	44.00	45.03	45.03	45.37	0.010729	4.63	33.77	51.76	1.01
W Silver Creek	Western	2720	PF 1	162.65	38.00	39.69	39.63	40.11	0.008126	5.24	31.05	31.91	0.94
W Silver Creek	Western	2428	PF 1	162.65	36.00	37.00	37.00	37.29	0.011259	4.28	37.98	67.83	1.01
W Silver Creek	Western	2028	PF 1	162.65	30.00	30.74	30.74	30.94	0.012381	3.57	45.56	114.84	1.00
W Silver Creek	Western	1737	PF 1	167.12	24.00	30.09	25.10	30.09	0.000001	0.20	1275.86	464.56	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	175.79	24.00	25.38	25.38	25.90	0.009200	5.77	30.45	29.59	1.00
W Silver Creek	Western	1430	PF 1	175.79	20.00	22.42	22.42	23.00	0.009233	6.15	28.60	24.69	1.01
W Silver Creek	Western	1217	PF 1	177.13	18.00	20.16	20.16	20.71	0.009269	5.93	29.88	27.93	1.01
W Silver Creek	Western	952	PF 1	177.13	16.00	16.82	16.82	17.08	0.011760	4.03	43.97	88.96	1.01
W Silver Creek	Western	684	PF 1	177.88	10.00	11.77	11.77	12.34	0.009095	6.05	29.39	26.30	1.01
W Silver Creek	Western	539	PF 1	177.88	8.37	9.04	9.04	9.25	0.012973	3.63	49.05	125.09	1.02
W Silver Creek	Western	290	PF 1	178.21	4.89	5.35	5.35	5.50	0.013834	3.10	57.57	195.36	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	55.63	76.00	76.62	76.62	76.80	0.012909	3.38	16.45	46.38	1.00
Silver Creek	Eastern Reach 1	9326	PF 1	85.58	72.00	72.50	72.50	72.66	0.013546	3.21	26.64	84.17	1.01
Silver Creek	Eastern Reach 1	9081	PF 1	89.35	67.88	68.32	68.32	68.45	0.014198	2.87	31.14	120.80	1.00
Silver Creek	Eastern Reach 1	8854	PF 1	89.35	64.00	65.17		65.17	0.000045	0.43	298.62	382.64	0.07
Silver Creek	Eastern Reach 1	8483.331	PF 1	197.84	58.85	65.17	60.51	65.17	0.000002	0.16	1527.83	647.96	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	197.84	58.36	63.04		63.04	0.000002	0.15	1396.48	639.35	0.02
Silver Creek	Eastern Reach 1	8046	PF 1	213.45	58.14	63.04		63.04	0.000000	0.08	2986.40	862.06	0.01
Silver Creek	Eastern Reach 1	7473	PF 1	221.44	56.00	63.04		63.04	0.000000	0.06	4492.43	936.67	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	221.44	56.00	63.04		63.04	0.000000	0.12	4944.79	1146.85	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	227.12	56.00	63.04		63.04	0.000000	0.12	4835.12	1228.89	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	227.12	56.00	63.04		63.04	0.000000	0.14	4549.75	1166.85	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	228.75	56.00	63.04		63.04	0.000000	0.10	5039.60	1312.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	247.86	56.00	63.04	57.51	63.04	0.000000	0.11	4350.51	1457.03	0.01
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	247.86	54.00	58.43		58.55	0.000511	2.76	113.41	151.39	0.27
Silver Creek	Eastern Reach 3	5498	PF 1	249.00	52.00	58.49	53.82	58.50	0.000034	0.88	519.46	342.07	0.07
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	249.00	48.00	49.80	49.80	50.53	0.008466	6.86	36.28	25.11	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	250.08	46.00	46.93	46.93	47.36	0.009793	5.24	47.77	56.73	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	252.16	36.93	46.13	39.01	46.13	0.000002	0.20	2181.85	821.76	0.02
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	252.98	22.03	26.00	26.00	26.66	0.009175	6.50	38.92	29.65	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	253.52	14.00	15.59	15.59	16.01	0.009910	5.21	48.68	58.78	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	257.65	8.00	9.47	9.19	9.65	0.004184	3.41	76.08	105.19	0.66
Silver Creek	Eastern Reach 3	3263	PF 1	257.65	6.62	7.40	7.40	7.63	0.011859	3.91	65.86	140.18	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	259.41	3.90	5.24		5.25	0.000216	0.84	307.11	323.14	0.15
Silver Creek	Salt Marsh	2400	PF 1	364.05	2.00	5.23		5.24	0.000010	0.34	1060.27	441.30	0.04
Silver Creek	Salt Marsh	2089	PF 1	364.05	0.65	5.23		5.23	0.000008	0.34	1065.92	374.97	0.04
Silver Creek	Salt Marsh	1789	PF 1	364.74	0.55	5.22		5.23	0.000023	0.57	643.58	232.09	0.06
Silver Creek	Salt Marsh	1735	PF 1	364.74	0.60	5.22		5.23	0.000024	0.60	640.44	255.16	0.06
Silver Creek	Salt Marsh	1716	PF 1	364.74	0.60	5.21	2.66	5.23	0.000069	0.95	428.58	212.60	0.10
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	364.74	0.60	5.21		5.22	0.000077	0.93	428.23	212.46	0.10
Silver Creek	Salt Marsh	1659	PF 1	364.74	0.60	5.21		5.22	0.000024	0.60	638.49	254.79	0.06
Silver Creek	Salt Marsh	1594	PF 1	364.74	-0.02	5.21		5.22	0.000013	0.59	1076.82	388.64	0.05
Silver Creek	Salt Marsh	1389	PF 1	366.79	0.32	5.21		5.22	0.000021	0.69	1417.63	633.65	0.06
Silver Creek	Salt Marsh	913	PF 1	366.79	0.50	5.19		5.20	0.000051	0.79	554.83	330.77	0.09
Silver Creek	Salt Marsh	787	PF 1	367.51	0.09	5.19		5.20	0.000024	0.69	569.95	223.95	0.06
Silver Creek	Salt Marsh	600	PF 1	375.71	0.40	5.19		5.19	0.000014	0.58	704.27	256.74	0.05
Silver Creek	Salt Marsh	344	PF 1	375.71	0.00	5.19		5.19	0.000004	0.33	1169.07	309.48	0.03
Silver Creek	Salt Marsh	157	PF 1	375.99	-0.60	5.18	1.41	5.19	0.000044	0.97	780.12	576.86	0.08
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	375.99	0.58	4.57		4.62	0.000207	1.87	305.20	291.94	0.18
Silver Creek	Salt Marsh	62	PF 1	376.74	0.70	4.55		4.61	0.000277	2.11	282.02	285.35	0.20
Silver Creek	Salt Marsh	47	PF 1	376.74	0.70	4.39	3.12	4.59	0.001858	4.02	162.35	320.10	0.47
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	376.74	-0.98	1.53	1.53	2.33	0.008490	7.19	52.39	33.28	1.01
Elbow	Reach 1	2128	PF 1	45.59	99.32	99.59	99.59	99.69	0.015537	2.63	19.31	101.66	1.01
Elbow	Reach 1	1857	PF 1	45.59	92.62	93.12	93.12	93.26	0.014553	2.97	15.36	57.63	1.01
Elbow	Reach 1	1483	PF 1	55.66	80.58	81.63	81.63	81.91	0.011373	4.29	12.97	23.19	1.01
Elbow	Reach 1	1369	PF 1	74.48	76.00	76.99	76.99	77.27	0.011436	4.24	17.57	32.17	1.01
Elbow	Reach 1	1114	PF 1	74.48	69.80	70.38	70.38	70.54	0.013427	3.23	24.21	87.69	1.00
Elbow	Reach 1	972	PF 1	76.76	66.00	68.05		68.05	0.000116	0.69	125.06	251.90	0.11
Elbow	Reach 1	829	PF 1	77.82	62.50	68.05	64.48	68.05	0.000003	0.23	632.81	513.61	0.02
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	114.84	62.00	64.34	64.34	64.53	0.006581	4.28	44.23	111.04	0.80
Elbow	Reach 1	479	PF 1	114.84	60.00	63.04		63.04	0.000013	0.39	450.50	379.31	0.04
Elbow	Reach 1	234	PF 1	115.64	58.00	63.04		63.04	0.000000	0.09	1925.03	702.61	0.01

HEC-RAS Plan: Existing 10 Yr with Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	49.03	85.39	85.78	85.78	85.88	0.015379	2.62	18.69	88.00	1.00
W Silver Creek	Western	6278	PF 1	75.23	79.41	79.93	79.93	80.06	0.014270	2.87	26.17	101.56	1.00
W Silver Creek	Western	6008	PF 1	87.73	74.00	74.20	74.20	74.30	0.016032	2.54	34.56	176.39	1.01
W Silver Creek	Western	5772	PF 1	87.73	70.99	71.77	71.59	71.83	0.003456	1.94	45.25	109.50	0.53
W Silver Creek	Western	5534	PF 1	87.73	70.00	70.20	70.20	70.30	0.015972	2.55	34.47	174.71	1.01
W Silver Creek	Western	5300	PF 1	96.41	65.36	65.98	65.98	66.21	0.012203	3.79	25.41	57.84	1.01
W Silver Creek	Western	5128	PF 1	99.50	59.00	64.14	60.67	64.16	0.000143	0.99	100.02	58.16	0.13
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	146.04	50.36	54.74	51.77	54.76	0.000078	1.00	146.69	55.56	0.11
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	149.83	46.53	49.67		49.78	0.000843	2.71	55.20	26.78	0.33
W Silver Creek	Western	3744	PF 1	154.07	48.00	49.35		49.46	0.002648	2.65	58.07	71.62	0.52
W Silver Creek	Western	3565	PF 1	154.07	48.00	48.66	48.56	48.76	0.006310	2.56	60.07	150.01	0.71
W Silver Creek	Western	3148	PF 1	156.28	44.00	45.03	45.03	45.37	0.010729	4.63	33.77	51.76	1.01
W Silver Creek	Western	2720	PF 1	162.65	38.00	39.69	39.63	40.11	0.008126	5.24	31.05	31.91	0.94
W Silver Creek	Western	2428	PF 1	162.65	36.00	37.00	37.00	37.29	0.011259	4.28	37.98	67.83	1.01
W Silver Creek	Western	2028	PF 1	162.65	30.00	30.74	30.74	30.94	0.012381	3.57	45.56	114.84	1.00
W Silver Creek	Western	1737	PF 1	167.12	24.00	30.09	25.10	30.09	0.000001	0.20	1275.86	464.56	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	175.79	24.00	25.38	25.38	25.90	0.009200	5.77	30.45	29.59	1.00
W Silver Creek	Western	1430	PF 1	175.79	20.00	22.42	22.42	23.00	0.009233	6.15	28.60	24.69	1.01
W Silver Creek	Western	1217	PF 1	177.13	18.00	20.16	20.16	20.71	0.009269	5.93	29.88	27.93	1.01
W Silver Creek	Western	952	PF 1	177.13	16.00	16.82	16.82	17.08	0.011760	4.03	43.97	88.96	1.01
W Silver Creek	Western	684	PF 1	177.88	10.00	11.77	11.77	12.34	0.009095	6.05	29.39	26.30	1.01
W Silver Creek	Western	539	PF 1	177.88	8.37	9.04	9.04	9.25	0.012973	3.63	49.05	125.09	1.02
W Silver Creek	Western	290	PF 1	178.21	4.89	5.35	5.35	5.50	0.013834	3.10	57.57	195.36	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	55.63	76.00	76.62	76.62	76.80	0.012909	3.38	16.45	46.38	1.00
Silver Creek	Eastern Reach 1	9326	PF 1	85.58	72.00	72.50	72.50	72.66	0.013546	3.21	26.64	84.17	1.01
Silver Creek	Eastern Reach 1	9081	PF 1	89.35	67.88	68.32	68.32	68.45	0.014198	2.87	31.14	120.80	1.00
Silver Creek	Eastern Reach 1	8854	PF 1	89.35	64.00	65.17		65.17	0.000045	0.43	298.62	382.64	0.07
Silver Creek	Eastern Reach 1	8483.331	PF 1	197.84	58.85	65.17	60.51	65.17	0.000002	0.16	1527.83	647.96	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	197.84	58.36	63.04		63.04	0.000002	0.15	1396.48	639.35	0.02
Silver Creek	Eastern Reach 1	8046	PF 1	213.45	58.14	63.04		63.04	0.000000	0.08	2986.40	862.06	0.01
Silver Creek	Eastern Reach 1	7473	PF 1	221.44	56.00	63.04		63.04	0.000000	0.06	4492.43	936.67	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	221.44	56.00	63.04		63.04	0.000000	0.12	4944.79	1146.85	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	227.12	56.00	63.04		63.04	0.000000	0.12	4835.12	1228.89	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	227.12	56.00	63.04		63.04	0.000000	0.14	4549.75	1166.85	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	228.75	56.00	63.04		63.04	0.000000	0.10	5039.60	1312.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	247.86	56.00	63.04	57.51	63.04	0.000000	0.11	4350.51	1457.03	0.01
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	247.86	54.00	58.43		58.55	0.000511	2.76	113.41	151.39	0.27
Silver Creek	Eastern Reach 3	5498	PF 1	249.00	52.00	58.49	53.82	58.50	0.000034	0.88	519.46	342.07	0.07
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	249.00	48.00	49.80	49.80	50.53	0.008466	6.86	36.28	25.11	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	250.08	46.00	46.93	46.93	47.36	0.009793	5.24	47.77	56.73	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	252.16	36.93	46.13	39.01	46.13	0.000002	0.20	2181.85	821.76	0.02
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	252.98	22.03	26.00	26.00	26.66	0.009175	6.50	38.92	29.65	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	253.52	14.00	15.59	15.59	16.01	0.009910	5.21	48.68	58.78	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	257.65	8.00	9.47	9.19	9.65	0.004184	3.41	76.08	105.19	0.66
Silver Creek	Eastern Reach 3	3263	PF 1	257.65	6.62	7.40	7.40	7.63	0.011859	3.91	65.86	140.18	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	259.41	3.90	5.38		5.39	0.000143	0.73	353.36	336.98	0.13
Silver Creek	Salt Marsh	2400	PF 1	364.05	2.00	5.37		5.38	0.000009	0.32	1122.67	443.28	0.04
Silver Creek	Salt Marsh	2089	PF 1	364.05	0.65	5.37		5.37	0.000007	0.33	1119.42	381.24	0.03
Silver Creek	Salt Marsh	1789	PF 1	364.74	0.55	5.37		5.37	0.000020	0.54	676.83	234.88	0.06
Silver Creek	Salt Marsh	1735	PF 1	364.74	0.60	5.36		5.37	0.000020	0.57	677.33	262.09	0.06
Silver Creek	Salt Marsh	1716	PF 1	364.74	0.60	5.36	2.66	5.37	0.000058	0.90	459.92	222.59	0.09
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	364.74	0.60	5.35		5.37	0.000065	0.87	459.63	222.51	0.10
Silver Creek	Salt Marsh	1659	PF 1	364.74	0.60	5.36		5.36	0.000020	0.57	675.60	261.79	0.06
Silver Creek	Salt Marsh	1594	PF 1	364.74	-0.02	5.36		5.36	0.000011	0.57	1133.23	396.43	0.05
Silver Creek	Salt Marsh	1389	PF 1	366.79	0.32	5.36		5.36	0.000018	0.65	1509.56	641.92	0.06
Silver Creek	Salt Marsh	913	PF 1	366.79	0.50	5.34		5.35	0.000042	0.74	604.73	347.34	0.08
Silver Creek	Salt Marsh	787	PF 1	367.51	0.09	5.34		5.34	0.000021	0.66	603.93	237.20	0.06
Silver Creek	Salt Marsh	600	PF 1	375.71	0.40	5.33		5.34	0.000013	0.56	743.14	269.63	0.05
Silver Creek	Salt Marsh	344	PF 1	375.71	0.00	5.33		5.34	0.000004	0.32	1215.65	321.08	0.03
Silver Creek	Salt Marsh	157	PF 1	375.99	-0.60	5.33	1.41	5.33	0.000034	0.88	867.57	589.98	0.07
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	375.99	0.58	4.75		4.79	0.000155	1.67	357.77	298.28	0.15
Silver Creek	Salt Marsh	62	PF 1	376.74	0.70	4.74		4.78	0.000202	1.86	335.78	296.33	0.17
Silver Creek	Salt Marsh	47	PF 1	376.74	0.70	4.70	3.12	4.77	0.000704	2.70	301.38	487.70	0.30
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	376.74	-0.98	4.70	1.53	4.76	0.000443	2.04	230.09	554.09	0.24
Elbow	Reach 1	2128	PF 1	45.59	99.32	99.59	99.59	99.69	0.015537	2.63	19.31	101.66	1.01
Elbow	Reach 1	1857	PF 1	45.59	92.62	93.12	93.12	93.26	0.014553	2.97	15.36	57.63	1.01
Elbow	Reach 1	1483	PF 1	55.66	80.58	81.63	81.63	81.91	0.011373	4.29	12.97	23.19	1.01
Elbow	Reach 1	1369	PF 1	74.48	76.00	76.99	76.99	77.27	0.011436	4.24	17.57	32.17	1.01
Elbow	Reach 1	1114	PF 1	74.48	69.80	70.38	70.38	70.54	0.013427	3.23	24.21	87.69	1.00
Elbow	Reach 1	972	PF 1	76.76	66.00	68.05		68.05	0.000116	0.69	125.06	251.90	0.11
Elbow	Reach 1	829	PF 1	77.82	62.50	68.05	64.48	68.05	0.000003	0.23	632.81	513.61	0.02
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	114.84	62.00	64.34	64.34	64.53	0.006581	4.28	44.23	111.04	0.80
Elbow	Reach 1	479	PF 1	114.84	60.00	63.04		63.04	0.000013	0.39	450.50	379.31	0.04
Elbow	Reach 1	234	PF 1	115.64	58.00	63.04		63.04	0.000000	0.09	1925.03	702.61	0.01

HEC-RAS Plan: Existing 100 Yr Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	78.78	85.39	85.86	85.86	86.00	0.014224	2.91	27.06	102.83	1.00
W Silver Creek	Western	6278	PF 1	124.27	79.41	80.03	80.03	80.20	0.013202	3.37	37.07	112.32	1.01
W Silver Creek	Western	6008	PF 1	145.94	74.00	74.28	74.28	74.42	0.013953	2.96	49.26	180.94	1.00
W Silver Creek	Western	5772	PF 1	145.94	70.99	71.92		72.00	0.003842	2.37	61.67	119.79	0.58
W Silver Creek	Western	5534	PF 1	145.94	70.00	70.29	70.29	70.42	0.013950	2.97	49.11	178.32	1.00
W Silver Creek	Western	5300	PF 1	160.14	65.36	66.18	66.18	66.46	0.011240	4.28	37.43	66.86	1.01
W Silver Creek	Western	5128	PF 1	164.82	59.00	64.48	61.21	64.51	0.000269	1.32	126.40	96.52	0.18
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	236.39	50.36	57.27	52.18	57.28	0.000026	0.70	337.72	96.31	0.07
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	242.05	46.53	50.26		50.40	0.002365	2.93	82.65	79.77	0.51
W Silver Creek	Western	3744	PF 1	248.83	48.00	49.58		49.75	0.003323	3.28	75.90	80.78	0.60
W Silver Creek	Western	3565	PF 1	248.83	48.00	48.83	48.70	48.95	0.006080	2.79	89.21	191.04	0.72
W Silver Creek	Western	3148	PF 1	252.48	44.00	45.30	45.30	45.72	0.009995	5.16	48.97	60.50	1.01
W Silver Creek	Western	2720	PF 1	262.44	38.00	40.04	40.04	40.61	0.008846	6.07	43.26	38.00	1.00
W Silver Creek	Western	2428	PF 1	262.44	36.00	37.23	37.23	37.58	0.010710	4.77	54.99	80.40	1.02
W Silver Creek	Western	2028	PF 1	262.44	30.00	30.92	30.92	31.14	0.011893	3.81	68.90	152.95	1.00
W Silver Creek	Western	1737	PF 1	269.57	24.00	30.23	25.42	30.23	0.000003	0.31	1341.99	472.05	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	283.55	24.00	25.79	25.79	26.45	0.008860	6.51	43.55	34.33	1.02
W Silver Creek	Western	1430	PF 1	283.55	20.00	22.93	22.93	23.59	0.008784	6.56	43.22	32.83	1.01
W Silver Creek	Western	1217	PF 1	285.53	18.00	20.62	20.62	21.27	0.008863	6.45	44.30	35.35	1.01
W Silver Creek	Western	952	PF 1	285.53	16.00	17.03	17.03	17.34	0.010998	4.45	64.12	106.18	1.01
W Silver Creek	Western	684	PF 1	286.74	10.00	12.32	12.32	12.89	0.009055	6.07	47.25	42.12	1.01
W Silver Creek	Western	539	PF 1	286.74	8.37	9.20	9.20	9.46	0.011703	4.09	70.08	138.05	1.01
W Silver Creek	Western	290	PF 1	287.29	4.89	5.68		5.75	0.003189	2.13	134.84	266.61	0.53
Silver Creek	Eastern Reach 1	9611	PF 1	88.64	76.00	76.76	76.76	76.98	0.012325	3.79	23.41	53.86	1.01
Silver Creek	Eastern Reach 1	9326	PF 1	143.08	72.00	72.64	72.64	72.84	0.011965	3.66	39.54	100.47	0.99
Silver Creek	Eastern Reach 1	9081	PF 1	149.10	67.88	68.43	68.43	68.59	0.013049	3.21	47.81	180.85	0.99
Silver Creek	Eastern Reach 1	8854	PF 1	149.10	64.00	66.97		66.97	0.000003	0.22	1344.21	684.16	0.02
Silver Creek	Eastern Reach 1	8483.331	PF 1	337.53	58.85	66.96	60.87	66.97	0.000001	0.16	2986.84	918.46	0.01
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	337.53	58.36	66.97		66.97	0.000000	0.09	4902.49	1041.21	0.01
Silver Creek	Eastern Reach 1	8046	PF 1	361.40	58.14	66.97		66.97	0.000000	0.06	7110.55	1213.91	0.00
Silver Creek	Eastern Reach 1	7473	PF 1	373.98	56.00	66.96		66.97	0.000000	0.06	8871.79	1327.35	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	373.98	56.00	66.96		66.97	0.000000	0.11	9634.96	1232.96	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	382.86	56.00	66.96		66.96	0.000000	0.10	10160.36	1467.06	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	382.86	56.00	66.96		66.96	0.000000	0.12	9852.67	1507.06	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	385.46	56.00	66.96		66.96	0.000000	0.09	10579.92	1501.61	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	427.56	56.00	66.96	58.47	66.96	0.000000	0.07	10430.77	1602.89	0.00
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	427.56	54.00	60.16		60.19	0.000165	1.88	499.60	511.26	0.16
Silver Creek	Eastern Reach 3	5498	PF 1	429.34	52.00	60.17	54.56	60.18	0.000015	0.72	1261.87	595.77	0.05
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	429.34	48.00	50.51	50.51	51.42	0.007844	7.68	55.87	30.80	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	430.93	46.00	47.32	47.32	47.90	0.008854	6.12	70.45	61.37	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	434.24	36.93	46.26	39.48	46.26	0.000005	0.32	2289.13	822.90	0.03
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	435.58	22.03	26.67	26.67	27.39	0.008774	6.78	64.24	45.42	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	436.44	14.00	15.99	15.99	16.52	0.009261	5.82	74.93	72.68	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	443.30	8.00	9.82	9.58	10.05	0.004756	3.89	128.61	195.39	0.71
Silver Creek	Eastern Reach 3	3263	PF 1	443.30	6.62	7.63	7.63	7.92	0.011164	4.29	103.38	183.22	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	446.09	3.90	5.73		5.75	0.000176	0.93	478.14	371.81	0.14
Silver Creek	Salt Marsh	2400	PF 1	618.68	2.00	5.72		5.72	0.000016	0.48	1276.68	448.13	0.05
Silver Creek	Salt Marsh	2089	PF 1	618.68	0.65	5.72		5.72	0.000014	0.50	1252.58	394.67	0.05
Silver Creek	Salt Marsh	1789	PF 1	619.82	0.55	5.70		5.71	0.000042	0.82	756.73	241.37	0.08
Silver Creek	Salt Marsh	1735	PF 1	619.82	0.60	5.70		5.71	0.000042	0.87	767.41	278.25	0.08
Silver Creek	Salt Marsh	1716	PF 1	619.82	0.60	5.68	3.03	5.71	0.000118	1.38	534.89	242.05	0.13
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	619.82	0.60	5.68		5.70	0.000131	1.31	534.44	241.95	0.14
Silver Creek	Salt Marsh	1659	PF 1	619.82	0.60	5.68		5.70	0.000042	0.87	763.49	277.60	0.08
Silver Creek	Salt Marsh	1594	PF 1	619.82	-0.02	5.68		5.69	0.000026	0.89	1265.20	414.69	0.07
Silver Creek	Salt Marsh	1389	PF 1	622.98	0.32	5.68		5.69	0.000037	0.98	1720.38	660.64	0.08
Silver Creek	Salt Marsh	913	PF 1	622.98	0.50	5.64		5.66	0.000081	1.11	715.46	375.15	0.11
Silver Creek	Salt Marsh	787	PF 1	624.29	0.09	5.64		5.65	0.000046	1.03	679.63	264.87	0.09
Silver Creek	Salt Marsh	600	PF 1	637.70	0.40	5.63		5.65	0.000029	0.88	827.82	295.77	0.07
Silver Creek	Salt Marsh	344	PF 1	637.70	0.00	5.64		5.64	0.000008	0.51	1315.22	342.60	0.04
Silver Creek	Salt Marsh	157	PF 1	638.16	-0.60	5.62	2.07	5.64	0.000062	1.24	1045.62	615.84	0.10
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	638.16	0.58	5.14		5.19	0.000249	2.24	478.49	349.59	0.20
Silver Creek	Salt Marsh	62	PF 1	639.36	0.70	5.12		5.18	0.000331	2.52	495.45	481.62	0.23
Silver Creek	Salt Marsh	47	PF 1	639.36	0.70	5.12	4.65	5.17	0.000564	2.67	514.74	522.05	0.27
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	639.36	-0.98	4.70	2.22	4.88	0.001275	3.46	230.09	554.09	0.41
Elbow	Reach 1	2128	PF 1	78.21	99.32	99.68	99.68	99.80	0.014010	2.99	29.40	117.32	1.00
Elbow	Reach 1	1857	PF 1	78.21	92.62	93.25	93.25	93.42	0.013050	3.29	23.78	70.53	1.00
Elbow	Reach 1	1483	PF 1	97.03	80.58	81.91	81.91	82.26	0.010568	4.78	20.30	29.21	1.01
Elbow	Reach 1	1369	PF 1	129.10	76.00	77.26	77.26	77.61	0.010636	4.75	27.18	39.74	1.01
Elbow	Reach 1	1114	PF 1	129.10	69.80	70.53	70.53	70.73	0.011685	3.66	39.31	112.54	0.98
Elbow	Reach 1	972	PF 1	133.04	66.00	68.15		68.17	0.000251	1.07	151.60	258.91	0.17
Elbow	Reach 1	829	PF 1	134.83	62.50	68.16	64.86	68.16	0.000009	0.38	688.98	525.98	0.04
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	198.19	62.00	66.96		66.97	0.000011	0.39	966.17	659.03	0.04
Elbow	Reach 1	479	PF 1	198.19	60.00	66.96		66.96	0.000000	0.13	2562.59	625.73	0.01
Elbow	Reach 1	234	PF 1	199.45	58.00	66.96		66.96	0.000000	0.06	5053.87	881.50	0.00

HEC-RAS Plan: Exist 10 Yr Chestnut Street Diminished Capacity Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	49.03	85.39	85.78	85.78	85.88	0.015379	2.62	18.69	88.00	1.00
W Silver Creek	Western	6278	PF 1	75.23	79.41	79.93	79.93	80.06	0.014270	2.87	26.17	101.56	1.00
W Silver Creek	Western	6008	PF 1	87.73	74.00	74.20	74.20	74.30	0.016032	2.54	34.56	176.39	1.01
W Silver Creek	Western	5772	PF 1	87.73	70.99	71.77	71.59	71.83	0.003456	1.94	45.25	109.50	0.53
W Silver Creek	Western	5534	PF 1	87.73	70.00	70.20	70.20	70.30	0.015972	2.55	34.47	174.71	1.01
W Silver Creek	Western	5300	PF 1	96.41	65.36	65.98	65.98	66.21	0.012203	3.79	25.41	57.84	1.01
W Silver Creek	Western	5128	PF 1	99.50	59.00	64.14	60.67	64.16	0.000143	0.99	100.02	58.16	0.13
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	146.04	50.36	54.74	51.77	54.76	0.000078	1.00	146.69	55.56	0.11
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	149.83	46.53	49.67		49.78	0.000843	2.71	55.20	26.78	0.33
W Silver Creek	Western	3744	PF 1	154.07	48.00	49.35		49.46	0.002648	2.65	58.07	71.62	0.52
W Silver Creek	Western	3565	PF 1	154.07	48.00	48.66	48.56	48.76	0.006310	2.56	60.07	150.01	0.71
W Silver Creek	Western	3148	PF 1	156.28	44.00	45.03	45.03	45.37	0.010729	4.63	33.77	51.76	1.01
W Silver Creek	Western	2720	PF 1	162.65	38.00	39.69	39.63	40.11	0.008126	5.24	31.05	31.91	0.94
W Silver Creek	Western	2428	PF 1	162.65	36.00	37.00	37.00	37.29	0.011259	4.28	37.98	67.83	1.01
W Silver Creek	Western	2028	PF 1	162.65	30.00	30.74	30.74	30.94	0.012381	3.57	45.56	114.84	1.00
W Silver Creek	Western	1737	PF 1	167.12	24.00	30.09	25.10	30.09	0.000001	0.20	1275.86	464.56	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	175.79	24.00	25.38	25.38	25.90	0.009200	5.77	30.45	29.59	1.00
W Silver Creek	Western	1430	PF 1	175.79	20.00	22.42	22.42	23.00	0.009233	6.15	28.60	24.69	1.01
W Silver Creek	Western	1217	PF 1	177.13	18.00	20.16	20.16	20.71	0.009269	5.93	29.88	27.93	1.01
W Silver Creek	Western	952	PF 1	177.13	16.00	16.82	16.82	17.08	0.011760	4.03	43.97	88.96	1.01
W Silver Creek	Western	684	PF 1	177.88	10.00	11.77	11.77	12.34	0.009095	6.05	29.39	26.30	1.01
W Silver Creek	Western	539	PF 1	177.88	8.37	9.04	9.04	9.25	0.012973	3.63	49.05	125.09	1.02
W Silver Creek	Western	290	PF 1	178.21	4.89	5.35	5.35	5.50	0.013834	3.10	57.57	195.36	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	55.63	76.00	76.62	76.62	76.80	0.012909	3.38	16.45	46.38	1.00
Silver Creek	Eastern Reach 1	9326	PF 1	85.58	72.00	72.50	72.50	72.66	0.013546	3.21	26.64	84.17	1.01
Silver Creek	Eastern Reach 1	9081	PF 1	89.35	67.88	68.32	68.32	68.45	0.014198	2.87	31.14	120.80	1.00
Silver Creek	Eastern Reach 1	8854	PF 1	89.35	64.00	65.17		65.17	0.000045	0.43	298.62	382.64	0.07
Silver Creek	Eastern Reach 1	8483.331	PF 1	197.84	58.85	65.17	60.51	65.17	0.000002	0.16	1527.83	647.96	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	197.84	58.36	63.04		63.04	0.000002	0.15	1396.48	639.35	0.02
Silver Creek	Eastern Reach 1	8046	PF 1	213.45	58.14	63.04		63.04	0.000000	0.08	2986.40	862.06	0.01
Silver Creek	Eastern Reach 1	7473	PF 1	221.44	56.00	63.04		63.04	0.000000	0.06	4492.43	936.67	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	221.44	56.00	63.04		63.04	0.000000	0.12	4944.79	1146.85	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	227.12	56.00	63.04		63.04	0.000000	0.12	4835.12	1228.89	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	227.12	56.00	63.04		63.04	0.000000	0.14	4549.75	1166.85	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	228.75	56.00	63.04		63.04	0.000000	0.10	5039.60	1312.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	247.86	56.00	63.04	57.51	63.04	0.000000	0.11	4350.51	1457.03	0.01
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	247.86	54.00	58.43		58.55	0.000511	2.76	113.41	151.39	0.27
Silver Creek	Eastern Reach 3	5498	PF 1	249.00	52.00	58.49	53.82	58.50	0.000034	0.88	519.46	342.07	0.07
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	249.00	48.00	49.80	49.80	50.53	0.008466	6.86	36.28	25.11	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	250.08	46.00	46.93	46.93	47.36	0.009793	5.24	47.77	56.73	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	252.16	36.93	46.19	39.01	46.19	0.000002	0.19	2236.18	822.34	0.02
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	252.98	22.03	26.00	26.00	26.66	0.009175	6.50	38.92	29.65	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	253.52	14.00	15.59	15.59	16.01	0.009910	5.21	48.68	58.78	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	257.65	8.00	9.47	9.19	9.65	0.004184	3.41	76.08	105.19	0.66
Silver Creek	Eastern Reach 3	3263	PF 1	257.65	6.62	7.40	7.40	7.63	0.011859	3.91	65.86	140.18	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	259.41	3.90	5.38		5.39	0.000143	0.73	353.36	336.98	0.13
Silver Creek	Salt Marsh	2400	PF 1	364.05	2.00	5.37		5.38	0.000009	0.32	1122.67	443.28	0.04
Silver Creek	Salt Marsh	2089	PF 1	364.05	0.65	5.37		5.37	0.000007	0.33	1119.42	381.24	0.03
Silver Creek	Salt Marsh	1789	PF 1	364.74	0.55	5.37		5.37	0.000020	0.54	676.83	234.88	0.06
Silver Creek	Salt Marsh	1735	PF 1	364.74	0.60	5.36		5.37	0.000020	0.57	677.33	262.09	0.06
Silver Creek	Salt Marsh	1716	PF 1	364.74	0.60	5.36	2.66	5.37	0.000058	0.90	459.92	222.59	0.09
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	364.74	0.60	5.35		5.37	0.000065	0.87	459.63	222.51	0.10
Silver Creek	Salt Marsh	1659	PF 1	364.74	0.60	5.36		5.36	0.000020	0.57	675.60	261.79	0.06
Silver Creek	Salt Marsh	1594	PF 1	364.74	-0.02	5.36		5.36	0.000011	0.57	1133.23	396.43	0.05
Silver Creek	Salt Marsh	1389	PF 1	366.79	0.32	5.36		5.36	0.000018	0.65	1509.56	641.92	0.06
Silver Creek	Salt Marsh	913	PF 1	366.79	0.50	5.34		5.35	0.000042	0.74	604.73	347.34	0.08
Silver Creek	Salt Marsh	787	PF 1	367.51	0.09	5.34		5.34	0.000021	0.66	603.93	237.20	0.06
Silver Creek	Salt Marsh	600	PF 1	375.71	0.40	5.33		5.34	0.000013	0.56	743.14	269.63	0.05
Silver Creek	Salt Marsh	344	PF 1	375.71	0.00	5.33		5.34	0.000004	0.32	1215.65	321.08	0.03
Silver Creek	Salt Marsh	157	PF 1	375.99	-0.60	5.33	1.41	5.33	0.000034	0.88	867.57	589.98	0.07
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	375.99	0.58	4.75		4.79	0.000155	1.67	357.77	298.28	0.15
Silver Creek	Salt Marsh	62	PF 1	376.74	0.70	4.74		4.78	0.000202	1.86	335.78	296.33	0.17
Silver Creek	Salt Marsh	47	PF 1	376.74	0.70	4.70	3.12	4.77	0.000704	2.70	301.38	487.70	0.30
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	376.74	-0.98	4.70	1.53	4.76	0.000443	2.04	230.09	554.09	0.24
Elbow	Reach 1	2128	PF 1	45.59	99.32	99.59	99.59	99.69	0.015537	2.63	19.31	101.66	1.01
Elbow	Reach 1	1857	PF 1	45.59	92.62	93.12	93.12	93.26	0.014553	2.97	15.36	57.63	1.01
Elbow	Reach 1	1483	PF 1	55.66	80.58	81.63	81.63	81.91	0.011373	4.29	12.97	23.19	1.01
Elbow	Reach 1	1369	PF 1	74.48	76.00	76.99	76.99	77.27	0.011436	4.24	17.57	32.17	1.01
Elbow	Reach 1	1114	PF 1	74.48	69.80	70.38	70.38	70.54	0.013427	3.23	24.21	87.69	1.00
Elbow	Reach 1	972	PF 1	76.76	66.00	68.05		68.05	0.000116	0.69	125.06	251.90	0.11
Elbow	Reach 1	829	PF 1	77.82	62.50	68.05	64.48	68.05	0.000003	0.23	632.81	513.61	0.02
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	114.84	62.00	64.34	64.34	64.53	0.006581	4.28	44.23	111.04	0.80
Elbow	Reach 1	479	PF 1	114.84	60.00	63.04		63.04	0.000013	0.39	450.50	379.31	0.04
Elbow	Reach 1	234	PF 1	115.64	58.00	63.04		63.04	0.000000	0.09	1925.03	702.61	0.01

HEC-RAS Plan: HS Culv 10 Yr Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	49.03	85.39	85.78	85.78	85.88	0.015379	2.62	18.69	88.00	1.00
W Silver Creek	Western	6278	PF 1	75.23	79.41	79.93	79.93	80.06	0.014270	2.87	26.17	101.56	1.00
W Silver Creek	Western	6008	PF 1	87.73	74.00	74.20	74.20	74.30	0.016032	2.54	34.56	176.39	1.01
W Silver Creek	Western	5772	PF 1	87.73	70.99	71.77	71.59	71.83	0.003456	1.94	45.25	109.50	0.53
W Silver Creek	Western	5534	PF 1	87.73	70.00	70.20	70.20	70.30	0.015972	2.55	34.47	174.71	1.01
W Silver Creek	Western	5300	PF 1	96.41	65.36	65.98	65.98	66.21	0.012203	3.79	25.41	57.84	1.01
W Silver Creek	Western	5128	PF 1	99.50	59.00	64.14	60.67	64.16	0.000143	0.99	100.02	58.16	0.13
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	146.04	50.36	54.74	51.77	54.76	0.000078	1.00	146.69	55.56	0.11
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	149.83	46.53	49.67		49.78	0.000843	2.71	55.20	26.78	0.33
W Silver Creek	Western	3744	PF 1	154.07	48.00	49.35		49.46	0.002648	2.65	58.07	71.62	0.52
W Silver Creek	Western	3565	PF 1	154.07	48.00	48.66	48.56	48.76	0.006310	2.56	60.07	150.01	0.71
W Silver Creek	Western	3148	PF 1	156.28	44.00	45.03	45.03	45.37	0.010729	4.63	33.77	51.76	1.01
W Silver Creek	Western	2720	PF 1	162.65	38.00	39.69	39.63	40.11	0.008126	5.24	31.05	31.91	0.94
W Silver Creek	Western	2428	PF 1	162.65	36.00	37.00	37.00	37.29	0.011259	4.28	37.98	67.83	1.01
W Silver Creek	Western	2028	PF 1	162.65	30.00	30.74	30.74	30.94	0.012381	3.57	45.56	114.84	1.00
W Silver Creek	Western	1737	PF 1	167.12	24.00	30.09	25.10	30.09	0.000001	0.20	1275.86	464.56	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	175.79	24.00	25.38	25.38	25.90	0.009200	5.77	30.45	29.59	1.00
W Silver Creek	Western	1430	PF 1	175.79	20.00	22.42	22.42	23.00	0.009233	6.15	28.60	24.69	1.01
W Silver Creek	Western	1217	PF 1	177.13	18.00	20.16	20.16	20.71	0.009269	5.93	29.88	27.93	1.01
W Silver Creek	Western	952	PF 1	177.13	16.00	16.82	16.82	17.08	0.011760	4.03	43.97	88.96	1.01
W Silver Creek	Western	684	PF 1	177.88	10.00	11.77	11.77	12.34	0.009095	6.05	29.39	26.30	1.01
W Silver Creek	Western	539	PF 1	177.88	8.37	9.04	9.04	9.25	0.012973	3.63	49.05	125.09	1.02
W Silver Creek	Western	290	PF 1	178.21	4.89	5.35	5.35	5.50	0.013834	3.10	57.57	195.36	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	55.63	76.00	76.62	76.62	76.80	0.012909	3.38	16.45	46.38	1.00
Silver Creek	Eastern Reach 1	9326	PF 1	85.58	72.00	72.50	72.50	72.66	0.013546	3.21	26.64	84.17	1.01
Silver Creek	Eastern Reach 1	9081	PF 1	89.35	67.88	68.32	68.32	68.45	0.014198	2.87	31.14	120.80	1.00
Silver Creek	Eastern Reach 1	8854	PF 1	89.35	64.00	65.12		65.12	0.000053	0.45	280.15	375.17	0.08
Silver Creek	Eastern Reach 1	8483.331	PF 1	197.84	58.85	65.12	60.51	65.12	0.000002	0.16	1497.65	645.07	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	197.84	58.36	60.29		60.33	0.002235	1.68	117.86	254.65	0.43
Silver Creek	Eastern Reach 1	8046	PF 1	213.45	58.14	60.31		60.31	0.000009	0.23	937.22	646.53	0.03
Silver Creek	Eastern Reach 1	7473	PF 1	221.44	56.00	60.31		60.31	0.000001	0.12	2079.64	840.82	0.01
Silver Creek	Eastern Reach 1	7029	PF 1	221.44	56.00	60.31		60.31	0.000005	0.29	1979.22	996.97	0.03
Silver Creek	Eastern Reach 1	6821	PF 1	227.12	56.00	60.31		60.31	0.000005	0.29	1757.09	1006.03	0.03
Silver Creek	Eastern Reach 1	6595	PF 1	227.12	56.00	60.30		60.31	0.000008	0.37	1499.71	1065.58	0.04
Silver Creek	Eastern Reach 1	6369	PF 1	228.75	56.00	60.30		60.30	0.000003	0.23	1950.86	987.71	0.02
Silver Creek	Eastern Reach 3	5909	PF 1	247.86	56.00	60.30	57.51	60.30	0.000022	0.55	975.87	923.39	0.06
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	247.86	54.00	58.43		58.55	0.000511	2.76	113.41	151.39	0.27
Silver Creek	Eastern Reach 3	5498	PF 1	249.00	52.00	58.49	53.82	58.50	0.000034	0.88	519.46	342.07	0.07
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	249.00	48.00	49.80	49.80	50.53	0.008466	6.86	36.28	25.11	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	250.08	46.00	46.93	46.93	47.36	0.009793	5.24	47.77	56.73	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	252.16	36.93	46.13	39.01	46.13	0.000002	0.20	2181.85	821.76	0.02
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	252.98	22.03	26.00	26.00	26.66	0.009175	6.50	38.92	29.65	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	253.52	14.00	15.59	15.59	16.01	0.009910	5.21	48.68	58.78	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	257.65	8.00	9.47	9.19	9.65	0.004184	3.41	76.08	105.19	0.66
Silver Creek	Eastern Reach 3	3263	PF 1	257.65	6.62	7.40	7.40	7.63	0.011859	3.91	65.86	140.18	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	259.41	3.90	5.38		5.39	0.000143	0.73	353.36	336.98	0.13
Silver Creek	Salt Marsh	2400	PF 1	364.05	2.00	5.37		5.38	0.000009	0.32	1122.67	443.28	0.04
Silver Creek	Salt Marsh	2089	PF 1	364.05	0.65	5.37		5.37	0.000007	0.33	1119.42	381.24	0.03
Silver Creek	Salt Marsh	1789	PF 1	364.74	0.55	5.37		5.37	0.000020	0.54	676.83	234.88	0.06
Silver Creek	Salt Marsh	1735	PF 1	364.74	0.60	5.36		5.37	0.000020	0.57	677.33	262.09	0.06
Silver Creek	Salt Marsh	1716	PF 1	364.74	0.60	5.36	2.66	5.37	0.000058	0.90	459.92	222.59	0.09
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	364.74	0.60	5.35		5.37	0.000065	0.87	459.63	222.51	0.10
Silver Creek	Salt Marsh	1659	PF 1	364.74	0.60	5.36		5.36	0.000020	0.57	675.60	261.79	0.06
Silver Creek	Salt Marsh	1594	PF 1	364.74	-0.02	5.36		5.36	0.000011	0.57	1133.23	396.43	0.05
Silver Creek	Salt Marsh	1389	PF 1	366.79	0.32	5.36		5.36	0.000018	0.65	1509.56	641.92	0.06
Silver Creek	Salt Marsh	913	PF 1	366.79	0.50	5.34		5.35	0.000042	0.74	604.73	347.34	0.08
Silver Creek	Salt Marsh	787	PF 1	367.51	0.09	5.34		5.34	0.000021	0.66	603.93	237.20	0.06
Silver Creek	Salt Marsh	600	PF 1	375.71	0.40	5.33		5.34	0.000013	0.56	743.14	269.63	0.05
Silver Creek	Salt Marsh	344	PF 1	375.71	0.00	5.33		5.34	0.000004	0.32	1215.65	321.08	0.03
Silver Creek	Salt Marsh	157	PF 1	375.99	-0.60	5.33	1.41	5.33	0.000034	0.88	867.57	589.98	0.07
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	375.99	0.58	4.75		4.79	0.000155	1.67	357.77	298.28	0.15
Silver Creek	Salt Marsh	62	PF 1	376.74	0.70	4.74		4.78	0.000202	1.86	335.78	296.33	0.17
Silver Creek	Salt Marsh	47	PF 1	376.74	0.70	4.70	3.12	4.77	0.000704	2.70	301.38	487.70	0.30
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	376.74	-0.98	4.70	1.53	4.76	0.000443	2.04	230.09	554.09	0.24
Elbow	Reach 1	2128	PF 1	45.59	99.32	99.59	99.59	99.69	0.015537	2.63	19.31	101.66	1.01
Elbow	Reach 1	1857	PF 1	45.59	92.62	93.12	93.12	93.26	0.014553	2.97	15.36	57.63	1.01
Elbow	Reach 1	1483	PF 1	55.66	80.58	81.63	81.63	81.91	0.011373	4.29	12.97	23.19	1.01
Elbow	Reach 1	1369	PF 1	74.48	76.00	76.99	76.99	77.27	0.011436	4.24	17.57	32.17	1.01
Elbow	Reach 1	1114	PF 1	74.48	69.80	70.38	70.38	70.54	0.013427	3.23	24.21	87.69	1.00
Elbow	Reach 1	972	PF 1	76.76	66.00	68.05		68.05	0.000116	0.69	125.06	251.90	0.11
Elbow	Reach 1	829	PF 1	77.82	62.50	68.05	64.48	68.05	0.000003	0.23	632.81	513.61	0.02
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	114.84	62.00	64.34	64.34	64.53	0.006581	4.28	44.23	111.04	0.80
Elbow	Reach 1	479	PF 1	114.84	60.00	60.88	60.88	61.12	0.011867	4.01	28.67	58.85	1.01
Elbow	Reach 1	234	PF 1	115.64	58.00	60.31		60.31	0.000008	0.27	492.62	355.05	0.03

HEC-RAS Plan: Sed Rem 2 Yr No Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	29.05	85.39	85.70	85.70	85.78	0.016606	2.32	12.53	75.26	1.00
W Silver Creek	Western	6278	PF 1	42.95	79.41	79.82	79.82	79.93	0.015739	2.59	16.58	80.94	1.01
W Silver Creek	Western	6008	PF 1	49.69	74.00	74.14	74.14	74.21	0.017655	2.09	23.72	173.60	1.00
W Silver Creek	Western	5772	PF 1	49.69	70.99	71.63	71.47	71.67	0.003094	1.59	31.18	93.15	0.49
W Silver Creek	Western	5534	PF 1	49.69	70.00	70.14	70.14	70.21	0.017640	2.10	23.64	171.99	1.00
W Silver Creek	Western	5300	PF 1	54.62	65.36	65.82	65.82	65.99	0.013310	3.29	16.62	50.10	1.01
W Silver Creek	Western	5128	PF 1	56.62	59.00	62.90	60.22	62.92	0.000115	1.05	53.84	23.52	0.12
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	86.08	50.36	53.42	51.41	53.44	0.000131	1.05	82.15	42.36	0.13
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	88.59	46.53	49.34		49.39	0.000441	1.89	46.85	24.01	0.24
W Silver Creek	Western	3744	PF 1	91.10	48.00	49.13		49.20	0.002080	2.11	43.27	63.02	0.45
W Silver Creek	Western	3565	PF 1	91.10	48.00	48.51	48.43	48.59	0.006403	2.25	40.47	124.29	0.70
W Silver Creek	Western	3148	PF 1	92.36	44.00	44.80	44.80	45.06	0.011562	4.12	22.41	43.24	1.01
W Silver Creek	Western	2720	PF 1	96.29	38.00	39.38	39.26	39.67	0.006930	4.37	22.03	26.35	0.84
W Silver Creek	Western	2428	PF 1	96.29	36.00	36.79	36.79	37.02	0.012142	3.85	24.99	55.32	1.01
W Silver Creek	Western	2028	PF 1	96.29	30.00	30.58	30.58	30.75	0.013389	3.30	29.14	87.48	1.01
W Silver Creek	Western	1737	PF 1	98.96	24.00	28.45	24.84	28.45	0.000003	0.21	646.43	337.23	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	104.06	24.00	25.01	25.01	25.42	0.010039	5.12	20.32	25.24	1.01
W Silver Creek	Western	1430	PF 1	104.06	20.00	21.88	21.88	22.42	0.009868	5.89	17.68	16.93	1.02
W Silver Creek	Western	1217	PF 1	104.95	18.00	19.74	19.74	20.20	0.009860	5.39	19.46	21.94	1.01
W Silver Creek	Western	952	PF 1	104.95	16.00	16.64	16.64	16.84	0.012625	3.62	29.03	72.87	1.01
W Silver Creek	Western	684	PF 1	105.39	10.00	11.35	11.35	11.81	0.009756	5.42	19.44	21.65	1.01
W Silver Creek	Western	539	PF 1	105.39	8.37	8.91	8.91	9.07	0.014138	3.13	33.70	114.43	1.02
W Silver Creek	Western	290	PF 1	105.59	4.89	5.25	5.25	5.37	0.014813	2.70	39.15	171.92	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	33.37	76.00	76.49	76.49	76.64	0.014099	3.07	10.88	37.92	1.01
Silver Creek	Eastern Reach 1	9326	PF 1	48.25	72.00	72.36	72.36	72.49	0.014183	2.89	16.69	63.94	1.00
Silver Creek	Eastern Reach 1	9081	PF 1	50.51	67.88	68.23	68.23	68.32	0.015699	2.46	20.53	108.08	0.99
Silver Creek	Eastern Reach 1	8854	PF 1	50.51	64.00	64.18	64.18	64.26	0.016660	2.28	22.16	136.87	1.00
Silver Creek	Eastern Reach 1	8483.331	PF 1	108.20	58.85	63.69	60.21	63.69	0.000004	0.18	693.94	444.43	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	108.20	58.36	60.34		60.35	0.000471	0.82	131.48	257.50	0.20
Silver Creek	Eastern Reach 1	8046	PF 1	118.18	58.14	60.35		60.35	0.000002	0.12	961.64	649.40	0.02
Silver Creek	Eastern Reach 1	7473	PF 1	123.04	56.00	60.35		60.35	0.000000	0.06	2111.87	841.95	0.01
Silver Creek	Eastern Reach 1	7029	PF 1	123.04	56.00	60.35		60.35	0.000001	0.10	2018.72	999.80	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	126.55	56.00	60.35		60.35	0.000001	0.12	1797.94	1009.69	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	126.55	56.00	60.35		60.35	0.000001	0.15	1544.73	1067.08	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	127.52	56.00	60.35		60.35	0.000001	0.09	1992.83	990.05	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	137.07	56.00	60.35	57.04	60.35	0.000006	0.29	1016.12	927.27	0.03
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	137.07	54.00	55.54	55.43	56.07	0.007053	5.84	23.46	17.44	0.89
Silver Creek	Eastern Reach 3	5498	PF 1	137.36	52.00	55.74	53.25	55.79	0.000207	1.67	82.19	27.64	0.17
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	137.36	48.00	49.25	49.25	49.79	0.009306	5.88	23.37	22.04	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	137.71	46.00	46.64	46.64	46.94	0.011015	4.39	31.39	53.14	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	138.33	36.93	44.96	38.57	44.96	0.000001	0.16	1334.64	603.67	0.01
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	138.61	22.03	25.32	25.32	25.91	0.010424	6.16	22.50	19.94	1.02
Silver Creek	Eastern Reach 3	3889	PF 1	138.81	14.00	15.22	15.22	15.56	0.010712	4.68	29.67	44.62	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	140.25	8.00	9.16	8.89	9.28	0.003543	2.79	50.34	71.83	0.59
Silver Creek	Eastern Reach 3	3263	PF 1	140.25	6.62	7.21	7.21	7.39	0.013241	3.37	41.63	120.41	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	141.34	3.90	4.73		4.74	0.000333	0.84	167.88	245.22	0.18
Silver Creek	Salt Marsh	2400	PF 1	201.65	1.00	4.73		4.74	0.000002	0.16	1286.33	448.68	0.02
Silver Creek	Salt Marsh	2089	PF 1	201.65	-0.35	4.73		4.73	0.000001	0.16	1260.05	395.38	0.02
Silver Creek	Salt Marsh	1789	PF 1	202.06	-0.45	4.73		4.73	0.000004	0.26	764.32	241.97	0.03
Silver Creek	Salt Marsh	1735	PF 1	202.06	-0.40	4.73		4.73	0.000004	0.28	777.08	280.08	0.03
Silver Creek	Salt Marsh	1716	PF 1	202.06	-0.40	4.73	1.38	4.73	0.000011	0.42	547.75	245.14	0.04
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	202.06	-0.40	4.73		4.73	0.000012	0.40	547.68	245.12	0.04
Silver Creek	Salt Marsh	1659	PF 1	202.06	-0.40	4.73		4.73	0.000004	0.28	776.71	280.01	0.03
Silver Creek	Salt Marsh	1594	PF 1	202.06	-1.02	4.73		4.73	0.000002	0.23	1285.43	417.04	0.02
Silver Creek	Salt Marsh	1389	PF 1	203.37	-0.68	4.73		4.73	0.000001	0.19	1755.17	663.68	0.02
Silver Creek	Salt Marsh	913	PF 1	203.37	-0.50	4.73		4.73	0.000007	0.33	747.74	380.15	0.03
Silver Creek	Salt Marsh	787	PF 1	203.81	-0.91	4.73		4.73	0.000004	0.32	704.08	273.24	0.03
Silver Creek	Salt Marsh	600	PF 1	209.20	-0.60	4.73		4.73	0.000003	0.28	856.10	304.00	0.02
Silver Creek	Salt Marsh	344	PF 1	209.20	-1.00	4.73		4.73	0.000001	0.16	1347.30	350.35	0.01
Silver Creek	Salt Marsh	157	PF 1	209.40	-0.60	4.72	0.90	4.73	0.000031	0.76	526.26	532.45	0.07
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	209.40	0.58	4.57		4.59	0.000064	1.04	305.18	291.94	0.10
Silver Creek	Salt Marsh	62	PF 1	209.84	0.70	4.57		4.59	0.000084	1.17	286.04	286.19	0.11
Silver Creek	Salt Marsh	47	PF 1	209.84	0.70	4.54	2.39	4.58	0.000384	1.91	224.87	460.68	0.22
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	209.84	-0.98	0.97	0.97	1.55	0.009472	6.09	34.45	30.72	1.01
Elbow	Reach 1	2128	PF 1	24.61	99.32	99.51	99.51	99.58	0.017459	2.23	12.02	85.98	1.01
Elbow	Reach 1	1857	PF 1	24.61	92.62	93.01	93.01	93.11	0.015369	2.55	9.65	47.45	1.00
Elbow	Reach 1	1483	PF 1	29.47	80.58	81.37	81.37	81.59	0.012353	3.81	7.73	17.56	1.01
Elbow	Reach 1	1369	PF 1	39.71	76.00	76.75	76.75	76.96	0.012410	3.75	10.60	24.83	1.01
Elbow	Reach 1	1114	PF 1	39.71	69.80	70.25	70.25	70.37	0.015060	2.74	14.56	67.36	1.01
Elbow	Reach 1	972	PF 1	40.93	66.00	66.83	66.83	66.97	0.014154	2.93	13.95	52.18	1.00
Elbow	Reach 1	829	PF 1	41.51	62.50	66.37	63.85	66.38	0.000015	0.29	166.15	189.36	0.04
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	61.61	62.00	64.17	64.17	64.33	0.005015	3.52	27.30	98.67	0.69
Elbow	Reach 1	479	PF 1	61.61	60.00	60.66	60.66	60.86	0.012889	3.53	17.46	46.11	1.01
Elbow	Reach 1	234	PF 1	62.10	58.00	60.35		60.35	0.000002	0.14	506.96	359.28	0.02

HEC-RAS Plan: Sed Rem 2 Yr with Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	29.05	85.39	85.70	85.70	85.78	0.016606	2.32	12.53	75.26	1.00
W Silver Creek	Western	6278	PF 1	42.95	79.41	79.82	79.82	79.93	0.015739	2.59	16.58	80.94	1.01
W Silver Creek	Western	6008	PF 1	49.69	74.00	74.14	74.14	74.21	0.017655	2.09	23.72	173.60	1.00
W Silver Creek	Western	5772	PF 1	49.69	70.99	71.63	71.47	71.67	0.003094	1.59	31.18	93.15	0.49
W Silver Creek	Western	5534	PF 1	49.69	70.00	70.14	70.14	70.21	0.017640	2.10	23.64	171.99	1.00
W Silver Creek	Western	5300	PF 1	54.62	65.36	65.82	65.82	65.99	0.013310	3.29	16.62	50.10	1.01
W Silver Creek	Western	5128	PF 1	56.62	59.00	62.90	60.22	62.92	0.000115	1.05	53.84	23.52	0.12
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	86.08	50.36	53.42	51.41	53.44	0.000131	1.05	82.15	42.36	0.13
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	88.59	46.53	49.34		49.39	0.000441	1.89	46.85	24.01	0.24
W Silver Creek	Western	3744	PF 1	91.10	48.00	49.13		49.20	0.002080	2.11	43.27	63.02	0.45
W Silver Creek	Western	3565	PF 1	91.10	48.00	48.51	48.43	48.59	0.006403	2.25	40.47	124.29	0.70
W Silver Creek	Western	3148	PF 1	92.36	44.00	44.80	44.80	45.06	0.011562	4.12	22.41	43.24	1.01
W Silver Creek	Western	2720	PF 1	96.29	38.00	39.38	39.26	39.67	0.006930	4.37	22.03	26.35	0.84
W Silver Creek	Western	2428	PF 1	96.29	36.00	36.79	36.79	37.02	0.012142	3.85	24.99	55.32	1.01
W Silver Creek	Western	2028	PF 1	96.29	30.00	30.58	30.58	30.75	0.013389	3.30	29.14	87.48	1.01
W Silver Creek	Western	1737	PF 1	98.96	24.00	28.45	24.84	28.45	0.000003	0.21	646.43	337.23	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	104.06	24.00	25.01	25.01	25.42	0.010039	5.12	20.32	25.24	1.01
W Silver Creek	Western	1430	PF 1	104.06	20.00	21.88	21.88	22.42	0.009868	5.89	17.68	16.93	1.02
W Silver Creek	Western	1217	PF 1	104.95	18.00	19.74	19.74	20.20	0.009860	5.39	19.46	21.94	1.01
W Silver Creek	Western	952	PF 1	104.95	16.00	16.64	16.64	16.84	0.012625	3.62	29.03	72.87	1.01
W Silver Creek	Western	684	PF 1	105.39	10.00	11.35	11.35	11.81	0.009756	5.42	19.44	21.65	1.01
W Silver Creek	Western	539	PF 1	105.39	8.37	8.91	8.91	9.07	0.014138	3.13	33.70	114.43	1.02
W Silver Creek	Western	290	PF 1	105.59	4.89	5.25	5.25	5.37	0.014813	2.70	39.15	171.92	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	33.37	76.00	76.49	76.49	76.64	0.014099	3.07	10.88	37.92	1.01
Silver Creek	Eastern Reach 1	9326	PF 1	48.25	72.00	72.36	72.36	72.49	0.014183	2.89	16.69	63.94	1.00
Silver Creek	Eastern Reach 1	9081	PF 1	50.51	67.88	68.23	68.23	68.32	0.015699	2.46	20.53	108.08	0.99
Silver Creek	Eastern Reach 1	8854	PF 1	50.51	64.00	64.18	64.18	64.26	0.016660	2.28	22.16	136.87	1.00
Silver Creek	Eastern Reach 1	8483.331	PF 1	108.20	58.85	63.69	60.21	63.69	0.000004	0.18	693.94	444.43	0.02
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	108.20	58.36	60.34		60.35	0.000471	0.82	131.48	257.50	0.20
Silver Creek	Eastern Reach 1	8046	PF 1	118.18	58.14	60.35		60.35	0.000002	0.12	961.64	649.40	0.02
Silver Creek	Eastern Reach 1	7473	PF 1	123.04	56.00	60.35		60.35	0.000000	0.06	2111.87	841.95	0.01
Silver Creek	Eastern Reach 1	7029	PF 1	123.04	56.00	60.35		60.35	0.000001	0.10	2018.72	999.80	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	126.55	56.00	60.35		60.35	0.000001	0.12	1797.94	1009.69	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	126.55	56.00	60.35		60.35	0.000001	0.15	1544.73	1067.08	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	127.52	56.00	60.35		60.35	0.000001	0.09	1992.83	990.05	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	137.07	56.00	60.35	57.04	60.35	0.000006	0.29	1016.12	927.27	0.03
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	137.07	54.00	55.54	55.43	56.07	0.007053	5.84	23.46	17.44	0.89
Silver Creek	Eastern Reach 3	5498	PF 1	137.36	52.00	55.74	53.25	55.79	0.000207	1.67	82.19	27.64	0.17
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	137.36	48.00	49.25	49.25	49.79	0.009306	5.88	23.37	22.04	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	137.71	46.00	46.64	46.64	46.94	0.011015	4.39	31.39	53.14	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	138.33	36.93	44.96	38.57	44.96	0.000001	0.16	1334.64	603.67	0.01
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	138.61	22.03	25.32	25.32	25.91	0.010424	6.16	22.50	19.94	1.02
Silver Creek	Eastern Reach 3	3889	PF 1	138.81	14.00	15.22	15.22	15.56	0.010712	4.68	29.67	44.62	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	140.25	8.00	9.16	8.89	9.28	0.003543	2.79	50.34	71.83	0.59
Silver Creek	Eastern Reach 3	3263	PF 1	140.25	6.62	7.21	7.21	7.39	0.013241	3.37	41.63	120.41	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	141.34	3.90	4.94		4.95	0.000145	0.64	222.53	265.85	0.12
Silver Creek	Salt Marsh	2400	PF 1	201.65	1.00	4.95		4.95	0.000001	0.15	1381.82	451.38	0.01
Silver Creek	Salt Marsh	2089	PF 1	201.65	-0.35	4.95		4.95	0.000001	0.15	1344.82	403.36	0.01
Silver Creek	Salt Marsh	1789	PF 1	202.06	-0.45	4.95		4.95	0.000004	0.25	816.18	246.08	0.02
Silver Creek	Salt Marsh	1735	PF 1	202.06	-0.40	4.95		4.95	0.000003	0.26	837.82	291.50	0.02
Silver Creek	Salt Marsh	1716	PF 1	202.06	-0.40	4.94	1.38	4.95	0.000009	0.39	601.25	257.57	0.04
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	202.06	-0.40	4.94		4.95	0.000010	0.37	601.20	257.56	0.04
Silver Creek	Salt Marsh	1659	PF 1	202.06	-0.40	4.94		4.95	0.000003	0.26	837.51	291.45	0.02
Silver Creek	Salt Marsh	1594	PF 1	202.06	-1.02	4.94		4.94	0.000001	0.22	1375.30	427.74	0.02
Silver Creek	Salt Marsh	1389	PF 1	203.37	-0.68	4.94		4.94	0.000001	0.18	1897.71	675.96	0.01
Silver Creek	Salt Marsh	913	PF 1	203.37	-0.50	4.94		4.94	0.000005	0.30	830.54	395.58	0.03
Silver Creek	Salt Marsh	787	PF 1	203.81	-0.91	4.94		4.94	0.000004	0.30	764.48	292.89	0.03
Silver Creek	Salt Marsh	600	PF 1	209.20	-0.60	4.94		4.94	0.000002	0.26	922.96	322.63	0.02
Silver Creek	Salt Marsh	344	PF 1	209.20	-1.00	4.94		4.94	0.000001	0.16	1423.96	368.18	0.01
Silver Creek	Salt Marsh	157	PF 1	209.40	-0.60	4.94	0.90	4.94	0.000021	0.65	643.79	555.78	0.06
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	209.40	0.58	4.79		4.80	0.000045	0.91	369.29	299.65	0.08
Silver Creek	Salt Marsh	62	PF 1	209.84	0.70	4.79		4.80	0.000058	1.00	351.14	339.11	0.09
Silver Creek	Salt Marsh	47	PF 1	209.84	0.70	4.78	2.39	4.80	0.000168	1.35	340.38	499.06	0.15
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	209.84	-0.98	4.70	0.97	4.72	0.000137	1.13	230.09	554.09	0.13
Elbow	Reach 1	2128	PF 1	24.61	99.32	99.51	99.51	99.58	0.017459	2.23	12.02	85.98	1.01
Elbow	Reach 1	1857	PF 1	24.61	92.62	93.01	93.01	93.11	0.015369	2.55	9.65	47.45	1.00
Elbow	Reach 1	1483	PF 1	29.47	80.58	81.37	81.37	81.59	0.012353	3.81	7.73	17.56	1.01
Elbow	Reach 1	1369	PF 1	39.71	76.00	76.75	76.75	76.96	0.012410	3.75	10.60	24.83	1.01
Elbow	Reach 1	1114	PF 1	39.71	69.80	70.25	70.25	70.37	0.015060	2.74	14.56	67.36	1.01
Elbow	Reach 1	972	PF 1	40.93	66.00	66.83	66.83	66.97	0.014154	2.93	13.95	52.18	1.00
Elbow	Reach 1	829	PF 1	41.51	62.50	66.37	63.85	66.38	0.000015	0.29	166.15	189.36	0.04
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	61.61	62.00	64.17	64.17	64.33	0.005015	3.52	27.30	98.67	0.69
Elbow	Reach 1	479	PF 1	61.61	60.00	60.66	60.66	60.86	0.012889	3.53	17.46	46.11	1.01
Elbow	Reach 1	234	PF 1	62.10	58.00	60.35		60.35	0.000002	0.14	506.96	359.28	0.02

HEC-RAS Plan: Sed Rem 10 Yr No Tailwater Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	49.03	85.39	85.78	85.78	85.88	0.015379	2.62	18.69	88.00	1.00
W Silver Creek	Western	6278	PF 1	75.23	79.41	79.93	79.93	80.06	0.014270	2.87	26.17	101.56	1.00
W Silver Creek	Western	6008	PF 1	87.73	74.00	74.20	74.20	74.30	0.016032	2.54	34.56	176.39	1.01
W Silver Creek	Western	5772	PF 1	87.73	70.99	71.77	71.59	71.83	0.003456	1.94	45.25	109.50	0.53
W Silver Creek	Western	5534	PF 1	87.73	70.00	70.20	70.20	70.30	0.015972	2.55	34.47	174.71	1.01
W Silver Creek	Western	5300	PF 1	96.41	65.36	65.98	65.98	66.21	0.012203	3.79	25.41	57.84	1.01
W Silver Creek	Western	5128	PF 1	99.50	59.00	64.14	60.67	64.16	0.000143	0.99	100.02	58.16	0.13
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	146.04	50.36	54.74	51.77	54.76	0.000078	1.00	146.69	55.56	0.11
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	149.83	46.53	49.67		49.78	0.000843	2.71	55.20	26.78	0.33
W Silver Creek	Western	3744	PF 1	154.07	48.00	49.35		49.46	0.002648	2.65	58.07	71.62	0.52
W Silver Creek	Western	3565	PF 1	154.07	48.00	48.66	48.56	48.76	0.006310	2.56	60.07	150.01	0.71
W Silver Creek	Western	3148	PF 1	156.28	44.00	45.03	45.03	45.37	0.010729	4.63	33.77	51.76	1.01
W Silver Creek	Western	2720	PF 1	162.65	38.00	39.69	39.63	40.11	0.008126	5.24	31.05	31.91	0.94
W Silver Creek	Western	2428	PF 1	162.65	36.00	37.00	37.00	37.29	0.011259	4.28	37.98	67.83	1.01
W Silver Creek	Western	2028	PF 1	162.65	30.00	30.74	30.74	30.94	0.012381	3.57	45.56	114.84	1.00
W Silver Creek	Western	1737	PF 1	167.12	24.00	30.09	25.10	30.09	0.000001	0.20	1275.86	464.56	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	175.79	24.00	25.38	25.38	25.90	0.009200	5.77	30.45	29.59	1.00
W Silver Creek	Western	1430	PF 1	175.79	20.00	22.42	22.42	23.00	0.009233	6.15	28.60	24.69	1.01
W Silver Creek	Western	1217	PF 1	177.13	18.00	20.16	20.16	20.71	0.009269	5.93	29.88	27.93	1.01
W Silver Creek	Western	952	PF 1	177.13	16.00	16.82	16.82	17.08	0.011760	4.03	43.97	88.96	1.01
W Silver Creek	Western	684	PF 1	177.88	10.00	11.77	11.77	12.34	0.009095	6.05	29.39	26.30	1.01
W Silver Creek	Western	539	PF 1	177.88	8.37	9.04	9.04	9.25	0.012973	3.63	49.05	125.09	1.02
W Silver Creek	Western	290	PF 1	178.21	4.89	5.35	5.35	5.50	0.013834	3.10	57.57	195.36	1.00
Silver Creek	Eastern Reach 1	9611	PF 1	55.63	76.00	76.62	76.62	76.80	0.012909	3.38	16.45	46.38	1.00
Silver Creek	Eastern Reach 1	9326	PF 1	85.58	72.00	72.50	72.50	72.66	0.013546	3.21	26.64	84.17	1.01
Silver Creek	Eastern Reach 1	9081	PF 1	89.35	67.88	68.32	68.32	68.45	0.014198	2.87	31.14	120.80	1.00
Silver Creek	Eastern Reach 1	8854	PF 1	89.35	64.00	64.26	64.26	64.37	0.014999	2.69	33.21	147.75	1.00
Silver Creek	Eastern Reach 1	8483.331	PF 1	197.84	58.85	64.00	60.50	64.00	0.000009	0.28	842.60	566.07	0.04
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	197.84	58.36	63.04		63.04	0.000002	0.15	1396.34	639.27	0.02
Silver Creek	Eastern Reach 1	8046	PF 1	213.45	58.14	63.04		63.04	0.000000	0.08	2986.21	862.04	0.01
Silver Creek	Eastern Reach 1	7473	PF 1	221.44	56.00	63.04		63.04	0.000000	0.06	4492.24	936.66	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	221.44	56.00	63.04		63.04	0.000000	0.07	4944.67	1146.85	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	227.12	56.00	63.04		63.04	0.000000	0.08	4835.06	1228.89	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	227.12	56.00	63.04		63.04	0.000000	0.08	4549.78	1166.85	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	228.75	56.00	63.04		63.04	0.000000	0.07	5039.67	1312.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	247.86	56.00	63.04	57.51	63.04	0.000000	0.11	4073.99	1241.04	0.01
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	247.86	54.00	58.43		58.55	0.000511	2.76	113.41	151.39	0.27
Silver Creek	Eastern Reach 3	5498	PF 1	249.00	52.00	58.49	53.82	58.50	0.000034	0.88	519.46	342.07	0.07
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	249.00	48.00	49.80	49.80	50.53	0.008466	6.86	36.28	25.11	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	250.08	46.00	46.93	46.93	47.36	0.009793	5.24	47.77	56.73	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	252.16	36.93	45.17	39.01	45.17	0.000003	0.27	1464.09	645.25	0.02
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	252.98	22.03	26.00	26.00	26.66	0.009175	6.50	38.92	29.65	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	253.52	14.00	15.59	15.59	16.01	0.009910	5.21	48.68	58.78	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	257.65	8.00	9.47	9.19	9.65	0.004184	3.41	76.06	105.13	0.66
Silver Creek	Eastern Reach 3	3263	PF 1	257.65	6.62	7.40	7.40	7.63	0.011859	3.91	65.86	140.18	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	259.41	3.90	5.28		5.29	0.000194	0.81	318.67	326.65	0.15
Silver Creek	Salt Marsh	2400	PF 1	364.05	1.00	5.28		5.28	0.000003	0.24	1561.49	592.76	0.02
Silver Creek	Salt Marsh	2089	PF 1	364.05	-0.35	5.28		5.28	0.000003	0.25	1480.06	413.99	0.02
Silver Creek	Salt Marsh	1789	PF 1	364.74	-0.45	5.27		5.28	0.000008	0.41	903.73	285.19	0.04
Silver Creek	Salt Marsh	1735	PF 1	364.74	-0.40	5.27		5.28	0.000008	0.42	937.40	311.61	0.04
Silver Creek	Salt Marsh	1716	PF 1	364.74	-0.40	5.27	1.66	5.28	0.000020	0.64	689.28	282.99	0.06
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	364.74	-0.40	5.27		5.27	0.000022	0.60	689.19	282.97	0.06
Silver Creek	Salt Marsh	1659	PF 1	364.74	-0.40	5.27		5.27	0.000008	0.42	936.60	311.49	0.04
Silver Creek	Salt Marsh	1594	PF 1	364.74	-1.02	5.27		5.27	0.000004	0.36	1518.14	443.70	0.03
Silver Creek	Salt Marsh	1389	PF 1	366.79	-0.68	5.27		5.27	0.000003	0.29	2127.83	714.20	0.02
Silver Creek	Salt Marsh	913	PF 1	366.79	-0.50	5.27		5.27	0.000012	0.48	965.38	424.72	0.04
Silver Creek	Salt Marsh	787	PF 1	367.51	-0.91	5.26		5.27	0.000009	0.50	869.44	339.78	0.04
Silver Creek	Salt Marsh	600	PF 1	375.71	-0.60	5.26		5.27	0.000006	0.43	1030.28	340.02	0.03
Silver Creek	Salt Marsh	344	PF 1	375.71	-1.00	5.26		5.27	0.000002	0.26	1576.21	501.96	0.02
Silver Creek	Salt Marsh	157	PF 1	375.99	-0.60	5.26	1.42	5.26	0.000038	0.92	825.86	583.76	0.08
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	375.99	0.58	4.78		4.81	0.000149	1.64	365.88	299.24	0.15
Silver Creek	Salt Marsh	62	PF 1	376.74	0.70	4.77		4.81	0.000193	1.82	344.45	322.47	0.17
Silver Creek	Salt Marsh	47	PF 1	376.74	0.70	4.74	3.12	4.80	0.000627	2.57	318.99	496.03	0.28
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	376.74	-0.98	1.53	1.53	2.33	0.008490	7.19	52.39	33.28	1.01
Elbow	Reach 1	2128	PF 1	45.59	99.32	99.59	99.59	99.69	0.015537	2.63	19.31	101.66	1.01
Elbow	Reach 1	1857	PF 1	45.59	92.62	93.12	93.12	93.26	0.014553	2.97	15.36	57.63	1.01
Elbow	Reach 1	1483	PF 1	55.66	80.58	81.63	81.63	81.91	0.011373	4.29	12.97	23.19	1.01
Elbow	Reach 1	1369	PF 1	74.48	76.00	76.99	76.99	77.27	0.011436	4.24	17.57	32.17	1.01
Elbow	Reach 1	1114	PF 1	74.48	69.80	70.38	70.38	70.53	0.013088	3.19	24.27	87.82	0.99
Elbow	Reach 1	972	PF 1	76.76	66.00	68.05		68.05	0.000114	0.68	125.02	251.89	0.11
Elbow	Reach 1	829	PF 1	77.82	62.50	68.05	64.48	68.05	0.000002	0.19	632.95	513.64	0.02
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	114.84	62.00	64.34	64.34	64.53	0.006581	4.28	44.23	111.04	0.80
Elbow	Reach 1	479	PF 1	114.84	60.00	63.04		63.04	0.000013	0.39	450.50	379.31	0.04
Elbow	Reach 1	234	PF 1	115.64	58.00	63.04		63.04	0.000000	0.09	1925.03	702.61	0.01

HEC-RAS Plan: Sed Rem 10 Yr with Tailwater Profile: PF 1

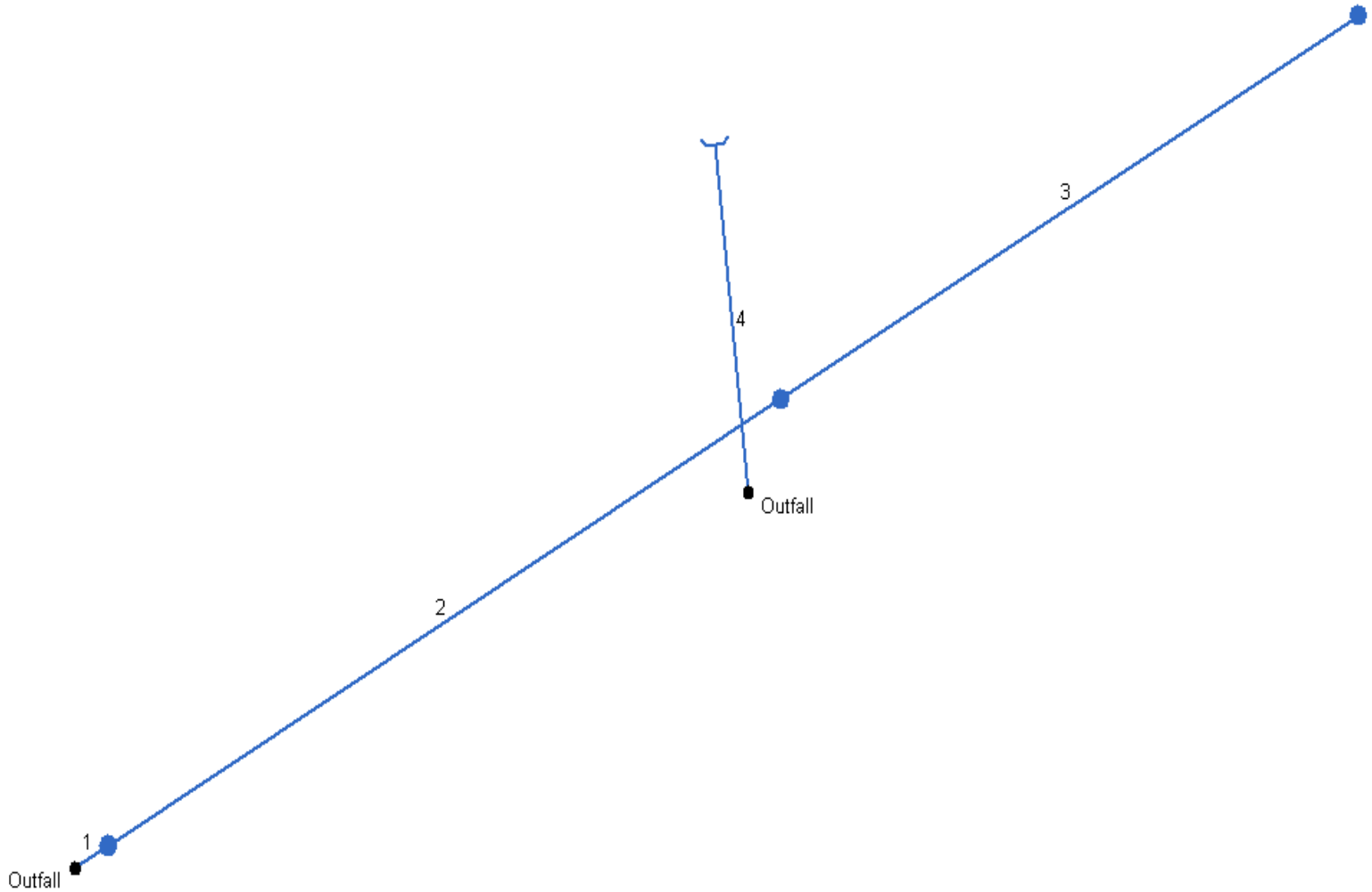
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	49.03	85.39	85.78	85.78	85.88	0.015379	2.62	18.69	88.00	1.00
W Silver Creek	Western	6278	PF 1	75.23	79.41	79.93	79.93	80.06	0.014270	2.87	26.17	101.56	1.00
W Silver Creek	Western	6008	PF 1	87.73	74.00	74.20	74.20	74.30	0.016032	2.54	34.56	176.39	1.01
W Silver Creek	Western	5772	PF 1	87.73	70.99	71.77	71.59	71.83	0.003456	1.94	45.25	109.50	0.53
W Silver Creek	Western	5534	PF 1	87.73	70.00	70.20	70.20	70.30	0.015972	2.55	34.47	174.71	1.01
W Silver Creek	Western	5300	PF 1	96.41	65.36	65.98	65.98	66.21	0.012203	3.79	25.41	57.84	1.01
W Silver Creek	Western	5128	PF 1	99.50	59.00	64.14	60.67	64.16	0.000143	0.99	100.02	58.16	0.13
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	146.04	50.36	54.74	51.77	54.76	0.000078	1.00	146.69	55.56	0.11
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	149.83	46.53	49.67		49.78	0.000843	2.71	55.20	26.78	0.33
W Silver Creek	Western	3744	PF 1	154.07	48.00	49.35		49.46	0.002648	2.65	58.07	71.62	0.52
W Silver Creek	Western	3565	PF 1	154.07	48.00	48.66	48.56	48.76	0.006310	2.56	60.07	150.01	0.71
W Silver Creek	Western	3148	PF 1	156.28	44.00	45.03	45.03	45.37	0.010729	4.63	33.77	51.76	1.01
W Silver Creek	Western	2720	PF 1	162.65	38.00	39.69	39.63	40.11	0.008126	5.24	31.05	31.91	0.94
W Silver Creek	Western	2428	PF 1	162.65	36.00	37.00	37.00	37.29	0.011259	4.28	37.98	67.83	1.01
W Silver Creek	Western	2028	PF 1	162.65	30.00	30.74	30.74	30.94	0.012381	3.57	45.56	114.84	1.00
W Silver Creek	Western	1737	PF 1	167.12	24.00	30.09	25.10	30.09	0.000001	0.20	1275.86	464.56	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	175.79	24.00	25.38	25.38	25.90	0.009200	5.77	30.45	29.59	1.00
W Silver Creek	Western	1430	PF 1	175.79	20.00	22.42	22.42	23.00	0.009233	6.15	28.60	24.69	1.01
W Silver Creek	Western	1217	PF 1	177.13	18.00	20.16	20.16	20.71	0.009269	5.93	29.88	27.93	1.01
W Silver Creek	Western	952	PF 1	177.13	16.00	16.82	16.82	17.08	0.011760	4.03	43.97	88.96	1.01
W Silver Creek	Western	684	PF 1	177.88	10.00	11.77	11.77	12.34	0.009095	6.05	29.39	26.30	1.01
W Silver Creek	Western	539	PF 1	177.88	8.37	9.04	9.04	9.25	0.012949	3.62	49.08	125.11	1.02
W Silver Creek	Western	290	PF 1	178.21	4.89	5.74		5.76	0.000886	1.18	150.65	275.53	0.28
Silver Creek	Eastern Reach 1	9611	PF 1	55.63	76.00	76.62	76.62	76.80	0.012909	3.38	16.45	46.38	1.00
Silver Creek	Eastern Reach 1	9326	PF 1	85.58	72.00	72.50	72.50	72.66	0.013546	3.21	26.64	84.17	1.01
Silver Creek	Eastern Reach 1	9081	PF 1	89.35	67.88	68.32	68.32	68.45	0.014198	2.87	31.14	120.80	1.00
Silver Creek	Eastern Reach 1	8854	PF 1	89.35	64.00	64.26	64.26	64.37	0.014999	2.69	33.21	147.75	1.00
Silver Creek	Eastern Reach 1	8483.331	PF 1	197.84	58.85	64.00	60.50	64.00	0.000009	0.28	842.60	566.07	0.04
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	197.84	58.36	63.04		63.04	0.000002	0.15	1396.34	639.27	0.02
Silver Creek	Eastern Reach 1	8046	PF 1	213.45	58.14	63.04		63.04	0.000000	0.08	2986.21	862.04	0.01
Silver Creek	Eastern Reach 1	7473	PF 1	221.44	56.00	63.04		63.04	0.000000	0.06	4492.24	936.66	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	221.44	56.00	63.04		63.04	0.000000	0.07	4944.67	1146.85	0.01
Silver Creek	Eastern Reach 1	6821	PF 1	227.12	56.00	63.04		63.04	0.000000	0.08	4835.06	1228.89	0.01
Silver Creek	Eastern Reach 1	6595	PF 1	227.12	56.00	63.04		63.04	0.000000	0.08	4549.78	1166.85	0.01
Silver Creek	Eastern Reach 1	6369	PF 1	228.75	56.00	63.04		63.04	0.000000	0.07	5039.67	1312.04	0.01
Silver Creek	Eastern Reach 3	5909	PF 1	247.86	56.00	63.04	57.51	63.04	0.000000	0.11	4073.99	1241.04	0.01
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	247.86	54.00	58.43		58.55	0.000511	2.76	113.41	151.39	0.27
Silver Creek	Eastern Reach 3	5498	PF 1	249.00	52.00	58.49	53.82	58.50	0.000034	0.88	519.46	342.07	0.07
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	249.00	48.00	49.80	49.80	50.53	0.008466	6.86	36.28	25.11	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	250.08	46.00	46.93	46.93	47.36	0.009793	5.24	47.77	56.73	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	252.16	36.93	45.17	39.01	45.17	0.000003	0.27	1464.09	645.25	0.02
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	252.98	22.03	26.00	26.00	26.66	0.009175	6.50	38.92	29.65	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	253.52	14.00	15.59	15.59	16.01	0.009910	5.21	48.68	58.78	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	257.65	8.00	9.47	9.19	9.65	0.004184	3.41	76.06	105.13	0.66
Silver Creek	Eastern Reach 3	3263	PF 1	257.65	6.62	7.40	7.40	7.63	0.011859	3.91	65.86	140.18	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	259.41	3.90	5.76		5.76	0.000057	0.53	486.27	373.97	0.08
Silver Creek	Salt Marsh	2400	PF 1	364.05	1.00	5.75		5.76	0.000002	0.21	1864.93	677.63	0.02
Silver Creek	Salt Marsh	2089	PF 1	364.05	-0.35	5.75		5.75	0.000002	0.22	1681.00	429.08	0.02
Silver Creek	Salt Marsh	1789	PF 1	364.74	-0.45	5.75		5.75	0.000006	0.36	1052.46	337.83	0.03
Silver Creek	Salt Marsh	1735	PF 1	364.74	-0.40	5.75		5.75	0.000005	0.37	1091.55	333.13	0.03
Silver Creek	Salt Marsh	1716	PF 1	364.74	-0.40	5.75	1.66	5.75	0.000013	0.54	832.72	310.57	0.05
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	364.74	-0.40	5.75		5.75	0.000013	0.51	832.69	310.56	0.05
Silver Creek	Salt Marsh	1659	PF 1	364.74	-0.40	5.75		5.75	0.000005	0.37	1091.00	333.05	0.03
Silver Creek	Salt Marsh	1594	PF 1	364.74	-1.02	5.75		5.75	0.000002	0.32	1739.66	482.79	0.02
Silver Creek	Salt Marsh	1389	PF 1	366.79	-0.68	5.75		5.75	0.000002	0.25	2475.27	737.13	0.02
Silver Creek	Salt Marsh	913	PF 1	366.79	-0.50	5.75		5.75	0.000007	0.40	1174.25	444.50	0.04
Silver Creek	Salt Marsh	787	PF 1	367.51	-0.91	5.75		5.75	0.000006	0.44	1040.43	371.30	0.03
Silver Creek	Salt Marsh	600	PF 1	375.71	-0.60	5.75		5.75	0.000004	0.38	1199.31	362.58	0.03
Silver Creek	Salt Marsh	344	PF 1	375.71	-1.00	5.75		5.75	0.000001	0.24	1825.21	533.42	0.02
Silver Creek	Salt Marsh	157	PF 1	375.99	-0.60	5.74	1.42	5.75	0.000018	0.68	1119.59	626.26	0.05
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	375.99	0.58	5.37		5.39	0.000061	1.15	568.42	411.29	0.10
Silver Creek	Salt Marsh	62	PF 1	376.74	0.70	5.37		5.39	0.000072	1.23	622.70	514.84	0.11
Silver Creek	Salt Marsh	47	PF 1	376.74	0.70	5.37	3.12	5.38	0.000104	1.21	648.36	532.07	0.12
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	376.74	-0.98	4.70	1.53	4.76	0.000443	2.04	230.09	554.09	0.24
Elbow	Reach 1	2128	PF 1	45.59	99.32	99.59	99.59	99.69	0.015537	2.63	19.31	101.66	1.01
Elbow	Reach 1	1857	PF 1	45.59	92.62	93.12	93.12	93.26	0.014553	2.97	15.36	57.63	1.01
Elbow	Reach 1	1483	PF 1	55.66	80.58	81.63	81.63	81.91	0.011373	4.29	12.97	23.19	1.01
Elbow	Reach 1	1369	PF 1	74.48	76.00	76.99	76.99	77.27	0.011436	4.24	17.57	32.17	1.01
Elbow	Reach 1	1114	PF 1	74.48	69.80	70.38	70.38	70.53	0.013088	3.19	24.27	87.82	0.99
Elbow	Reach 1	972	PF 1	76.76	66.00	68.05		68.05	0.000114	0.68	125.02	251.89	0.11
Elbow	Reach 1	829	PF 1	77.82	62.50	68.05	64.48	68.05	0.000002	0.19	632.95	513.64	0.02
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	114.84	62.00	64.34	64.34	64.53	0.006581	4.28	44.23	111.04	0.80
Elbow	Reach 1	479	PF 1	114.84	60.00	63.04		63.04	0.000013	0.39	450.50	379.31	0.04
Elbow	Reach 1	234	PF 1	115.64	58.00	63.04		63.04	0.000000	0.09	1925.03	702.61	0.01

HEC-RAS Plan: Sed Rem 100 Yr Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W Silver Creek	Western	6643	PF 1	78.78	85.39	85.86	85.86	86.00	0.014224	2.91	27.06	102.83	1.00
W Silver Creek	Western	6278	PF 1	124.27	79.41	80.03	80.03	80.20	0.013202	3.37	37.07	112.32	1.01
W Silver Creek	Western	6008	PF 1	145.94	74.00	74.28	74.28	74.42	0.013953	2.96	49.26	180.94	1.00
W Silver Creek	Western	5772	PF 1	145.94	70.99	71.92		72.00	0.003842	2.37	61.67	119.79	0.58
W Silver Creek	Western	5534	PF 1	145.94	70.00	70.29	70.29	70.42	0.013950	2.97	49.11	178.32	1.00
W Silver Creek	Western	5300	PF 1	160.14	65.36	66.18	66.18	66.46	0.011240	4.28	37.43	66.86	1.01
W Silver Creek	Western	5128	PF 1	164.82	59.00	64.48	61.21	64.51	0.000269	1.32	126.40	96.52	0.18
W Silver Creek	Western	5100		Culvert									
W Silver Creek	Western	4529	PF 1	236.39	50.36	57.27	52.18	57.28	0.000026	0.70	337.72	96.31	0.07
W Silver Creek	Western	4500		Culvert									
W Silver Creek	Western	3975	PF 1	242.05	46.53	50.26		50.40	0.002365	2.93	82.65	79.77	0.51
W Silver Creek	Western	3744	PF 1	248.83	48.00	49.58		49.75	0.003323	3.28	75.89	80.78	0.60
W Silver Creek	Western	3565	PF 1	248.83	48.00	48.83	48.70	48.95	0.006080	2.79	89.21	191.04	0.72
W Silver Creek	Western	3148	PF 1	252.48	44.00	45.30	45.30	45.72	0.009995	5.16	48.97	60.50	1.01
W Silver Creek	Western	2720	PF 1	262.44	38.00	40.04	40.04	40.61	0.008846	6.07	43.26	38.00	1.00
W Silver Creek	Western	2428	PF 1	262.44	36.00	37.23	37.23	37.58	0.010709	4.77	54.99	80.41	1.02
W Silver Creek	Western	2028	PF 1	262.44	30.00	30.92	30.92	31.14	0.011893	3.81	68.90	152.95	1.00
W Silver Creek	Western	1737	PF 1	269.57	24.00	30.23	25.42	30.23	0.000003	0.31	1341.99	472.05	0.02
W Silver Creek	Western	1681		Culvert									
W Silver Creek	Western	1626	PF 1	283.55	24.00	25.79	25.79	26.45	0.008860	6.51	43.55	34.33	1.02
W Silver Creek	Western	1430	PF 1	283.55	20.00	22.93	22.93	23.59	0.008784	6.56	43.22	32.83	1.01
W Silver Creek	Western	1217	PF 1	285.53	18.00	20.62	20.62	21.27	0.008863	6.45	44.30	35.35	1.01
W Silver Creek	Western	952	PF 1	285.53	16.00	17.03	17.03	17.34	0.010998	4.45	64.12	106.18	1.01
W Silver Creek	Western	684	PF 1	286.74	10.00	12.32	12.32	12.89	0.009055	6.07	47.25	42.12	1.01
W Silver Creek	Western	539	PF 1	286.74	8.37	9.20	9.20	9.46	0.011703	4.09	70.08	138.05	1.01
W Silver Creek	Western	290	PF 1	287.29	4.89	6.08		6.10	0.000520	1.14	251.62	325.61	0.23
Silver Creek	Eastern Reach 1	9611	PF 1	88.64	76.00	76.76	76.76	76.98	0.012325	3.79	23.41	53.86	1.01
Silver Creek	Eastern Reach 1	9326	PF 1	143.08	72.00	72.64	72.64	72.84	0.011872	3.65	39.61	100.52	0.99
Silver Creek	Eastern Reach 1	9081	PF 1	149.10	67.88	68.44	68.44	68.59	0.012198	3.13	49.08	185.59	0.96
Silver Creek	Eastern Reach 1	8854	PF 1	149.10	64.00	66.97		66.97	0.000002	0.16	1345.05	684.21	0.02
Silver Creek	Eastern Reach 1	8483.331	PF 1	337.53	58.85	66.97	60.86	66.97	0.000001	0.16	2987.84	918.50	0.01
Silver Creek	Eastern Reach 1	8438.292		Culvert									
Silver Creek	Eastern Reach 1	8375.415	PF 1	337.53	58.36	66.96		66.97	0.000000	0.09	4902.38	1041.20	0.01
Silver Creek	Eastern Reach 1	8046	PF 1	361.40	58.14	66.96		66.96	0.000000	0.06	7110.43	1213.90	0.00
Silver Creek	Eastern Reach 1	7473	PF 1	373.98	56.00	66.96		66.96	0.000000	0.05	8871.68	1327.34	0.00
Silver Creek	Eastern Reach 1	7029	PF 1	373.98	56.00	66.96		66.96	0.000000	0.06	9634.92	1232.96	0.00
Silver Creek	Eastern Reach 1	6821	PF 1	382.86	56.00	66.96		66.96	0.000000	0.06	10160.36	1467.06	0.00
Silver Creek	Eastern Reach 1	6595	PF 1	382.86	56.00	66.96		66.96	0.000000	0.07	9852.71	1507.07	0.00
Silver Creek	Eastern Reach 1	6369	PF 1	385.46	56.00	66.96		66.96	0.000000	0.06	10579.98	1501.62	0.00
Silver Creek	Eastern Reach 3	5909	PF 1	427.56	56.00	66.96	58.47	66.96	0.000000	0.08	9085.40	1322.89	0.00
Silver Creek	Eastern Reach 3	5881		Culvert									
Silver Creek	Eastern Reach 3	5722	PF 1	427.56	54.00	60.16		60.19	0.000165	1.88	499.60	511.26	0.16
Silver Creek	Eastern Reach 3	5498	PF 1	429.34	52.00	60.17	54.56	60.18	0.000015	0.72	1261.87	595.77	0.05
Silver Creek	Eastern Reach 3	5497		Culvert									
Silver Creek	Eastern Reach 3	5307	PF 1	429.34	48.00	50.51	50.51	51.42	0.007844	7.68	55.87	30.80	1.01
Silver Creek	Eastern Reach 3	5158	PF 1	430.93	46.00	47.32	47.32	47.90	0.008854	6.12	70.45	61.37	1.01
Silver Creek	Eastern Reach 3	4975	PF 1	434.24	36.93	45.31	39.48	45.31	0.000009	0.44	1558.28	668.26	0.04
Silver Creek	Eastern Reach 3	4947		Culvert									
Silver Creek	Eastern Reach 3	4219	PF 1	435.58	22.03	26.67	26.67	27.39	0.008774	6.78	64.24	45.42	1.00
Silver Creek	Eastern Reach 3	3889	PF 1	436.44	14.00	15.99	15.99	16.52	0.009271	5.83	74.89	72.66	1.01
Silver Creek	Eastern Reach 3	3568	PF 1	443.30	8.00	9.81	9.60	10.03	0.004664	3.87	126.13	191.01	0.71
Silver Creek	Eastern Reach 3	3263	PF 1	443.30	6.62	7.63	7.63	7.92	0.011164	4.29	103.38	183.22	1.01
Silver Creek	Eastern Reach 3	2964	PF 1	446.09	3.90	6.09		6.10	0.000093	0.72	619.70	442.08	0.11
Silver Creek	Salt Marsh	2400	PF 1	618.68	1.00	6.09		6.09	0.000004	0.32	2098.66	731.98	0.03
Silver Creek	Salt Marsh	2089	PF 1	618.68	-0.35	6.09		6.09	0.000004	0.35	1824.93	440.02	0.03
Silver Creek	Salt Marsh	1789	PF 1	619.82	-0.45	6.08		6.08	0.000012	0.56	1170.07	378.93	0.05
Silver Creek	Salt Marsh	1735	PF 1	619.82	-0.40	6.08		6.08	0.000012	0.58	1203.12	348.64	0.05
Silver Creek	Salt Marsh	1716	PF 1	619.82	-0.40	6.07	2.03	6.08	0.000027	0.84	935.53	322.24	0.07
Silver Creek	Salt Marsh	1715		Bridge									
Silver Creek	Salt Marsh	1693	PF 1	619.82	-0.40	6.07		6.08	0.000028	0.77	935.47	322.24	0.07
Silver Creek	Salt Marsh	1659	PF 1	619.82	-0.40	6.08		6.08	0.000012	0.58	1201.86	348.38	0.05
Silver Creek	Salt Marsh	1594	PF 1	619.82	-1.02	6.08		6.08	0.000006	0.51	1903.84	521.86	0.04
Silver Creek	Salt Marsh	1389	PF 1	622.98	-0.68	6.08		6.08	0.000004	0.39	2719.76	758.32	0.03
Silver Creek	Salt Marsh	913	PF 1	622.98	-0.50	6.07		6.07	0.000015	0.62	1319.79	457.39	0.05
Silver Creek	Salt Marsh	787	PF 1	624.29	-0.91	6.07		6.07	0.000014	0.69	1162.87	393.64	0.05
Silver Creek	Salt Marsh	600	PF 1	637.70	-0.60	6.07		6.07	0.000010	0.60	1317.72	377.61	0.04
Silver Creek	Salt Marsh	344	PF 1	637.70	-1.00	6.07		6.07	0.000003	0.38	1999.75	560.19	0.03
Silver Creek	Salt Marsh	157	PF 1	638.16	-0.60	6.06	2.07	6.07	0.000040	1.06	1330.87	814.49	0.08
Silver Creek	Salt Marsh	98		Bridge									
Silver Creek	Salt Marsh	94	PF 1	638.16	0.58	5.14		5.19	0.000249	2.24	478.49	349.59	0.20
Silver Creek	Salt Marsh	62	PF 1	639.36	0.70	5.12		5.18	0.000331	2.52	495.45	481.62	0.23
Silver Creek	Salt Marsh	47	PF 1	639.36	0.70	5.12	4.65	5.17	0.000564	2.67	514.74	522.05	0.27
Silver Creek	Salt Marsh	31		Bridge									
Silver Creek	Salt Marsh	17	PF 1	639.36	-0.98	4.70	2.22	4.88	0.001275	3.46	230.09	554.09	0.41
Elbow	Reach 1	2128	PF 1	78.21	99.32	99.68	99.68	99.80	0.014010	2.99	29.40	117.32	1.00
Elbow	Reach 1	1857	PF 1	78.21	92.62	93.25	93.25	93.42	0.013050	3.29	23.78	70.53	1.00
Elbow	Reach 1	1483	PF 1	97.03	80.58	81.90	81.90	82.26	0.010638	4.79	20.26	29.18	1.01
Elbow	Reach 1	1369	PF 1	129.10	76.00	77.26	77.26	77.61	0.010636	4.75	27.18	39.74	1.01
Elbow	Reach 1	1114	PF 1	129.10	69.80	70.53	70.53	70.72	0.011131	3.56	39.16	112.26	0.96
Elbow	Reach 1	972	PF 1	133.04	66.00	68.15		68.17	0.000237	1.04	151.78	258.96	0.17
Elbow	Reach 1	829	PF 1	134.83	62.50	68.16	64.86	68.16	0.000006	0.31	689.63	526.12	0.03
Elbow	Reach 1	793		Culvert									
Elbow	Reach 1	729	PF 1	198.19	62.00	66.96		66.97	0.000011	0.39	966.18	659.03	0.04
Elbow	Reach 1	479	PF 1	198.19	60.00	66.96		66.96	0.000000	0.13	2562.60	625.73	0.01
Elbow	Reach 1	234	PF 1	199.45	58.00	66.96		66.96	0.000000	0.06	5053.88	881.50	0.00

Appendix C – Problem Areas

Hydraflow Plan View



Project File: Existing Elbow.stm	No. Lines: 4	09-13-2007

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	5.0	0.02	2.09	0.90	0.02	0.85	5.0	20.9	2.3	1.91	2.01	2.44	12	1.00	90.81	90.76	91.80	91.76	98.26	98.26	CB1
2	1	99.0	1.11	2.07	0.40	0.44	0.83	14.0	20.2	2.3	1.90	1.75	2.42	12	0.76	92.01	91.26	93.14	92.26	96.76	98.26	CB2
3	2	85.0	0.96	0.96	0.40	0.38	0.38	19.0	19.0	2.4	0.91	2.23	1.63	12	1.22	93.00	91.96	93.54	93.23	95.80	96.76	CB3
4	End	40.0	40.22	40.22	0.40	16.09	16.09	22.0	22.0	2.2	35.49	1.74	45.20	12	0.75	95.44	95.14	220.56	96.14	0.00	96.44	HW

Project File: Existing Elbow.stm | Number of lines: 4 | Run Date: 09-13-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

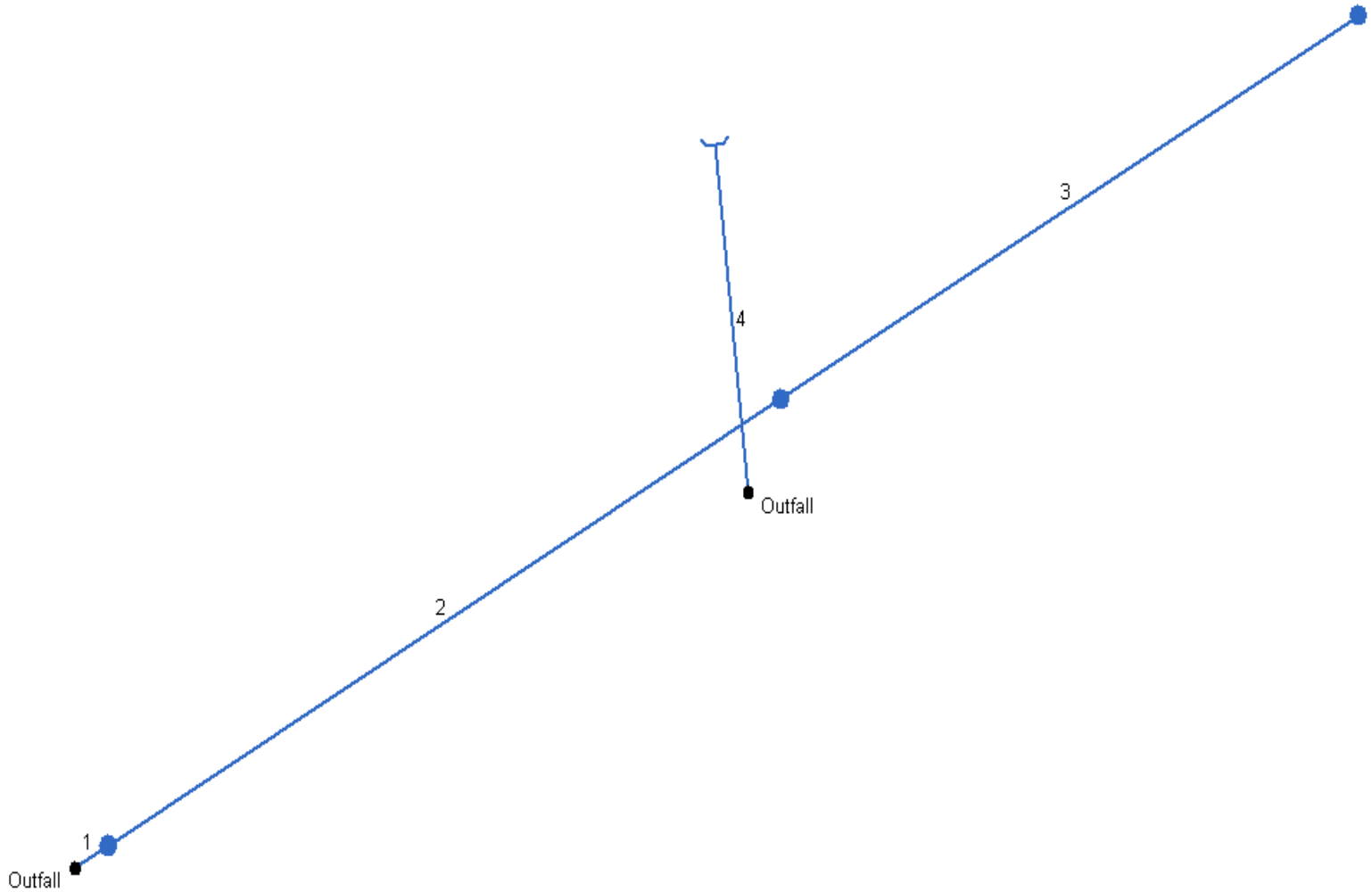
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	5.0	0.02	2.09	0.90	0.02	0.85	5.0	20.3	3.4	2.86	2.01	3.64	12	1.00	90.81	90.76	91.86	91.76	98.26	98.26	CB1
2	1	99.0	1.11	2.07	0.40	0.44	0.83	14.0	19.8	3.4	2.83	1.75	3.60	12	0.76	92.01	91.26	94.22	92.26	96.76	98.26	CB2
3	2	85.0	0.96	0.96	0.40	0.38	0.38	19.0	19.0	3.5	1.34	2.23	1.71	12	1.22	93.00	91.96	94.78	94.40	95.80	96.76	CB3
4	End	40.0	40.22	40.22	0.40	16.09	16.09	22.0	22.0	3.2	52.15	1.74	66.41	12	0.75	95.44	95.14	364.77	96.14	0.00	96.44	HW

Project File: Existing Elbow.stm | Number of lines: 4 | Run Date: 09-13-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Project File: Proposed Elbow.stm	No. Lines: 4	09-13-2007

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	5.0	0.02	2.09	0.90	0.02	0.85	5.0	20.9	2.3	1.91	2.01	2.92	12	1.00	90.81	90.76	91.59	91.54	98.26	98.26	CB1
2	1	99.0	1.11	2.07	0.40	0.44	0.83	14.0	20.2	2.3	1.90	1.75	2.42	12	0.76	92.01	91.26	93.14	92.26	96.76	98.26	CB2
3	2	85.0	0.96	0.96	0.40	0.38	0.38	19.0	19.0	2.4	0.91	2.23	1.63	12	1.22	93.00	91.96	93.54	93.23	95.80	96.76	CB3
4	End	40.0	40.22	40.22	0.40	16.09	16.09	22.0	22.0	2.2	35.49	41.01	8.47	30	1.00	95.00	94.60	96.99	96.59	0.00	96.44	HW

Project File: Proposed Elbow.stm

Number of lines: 4

Run Date: 09-13-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

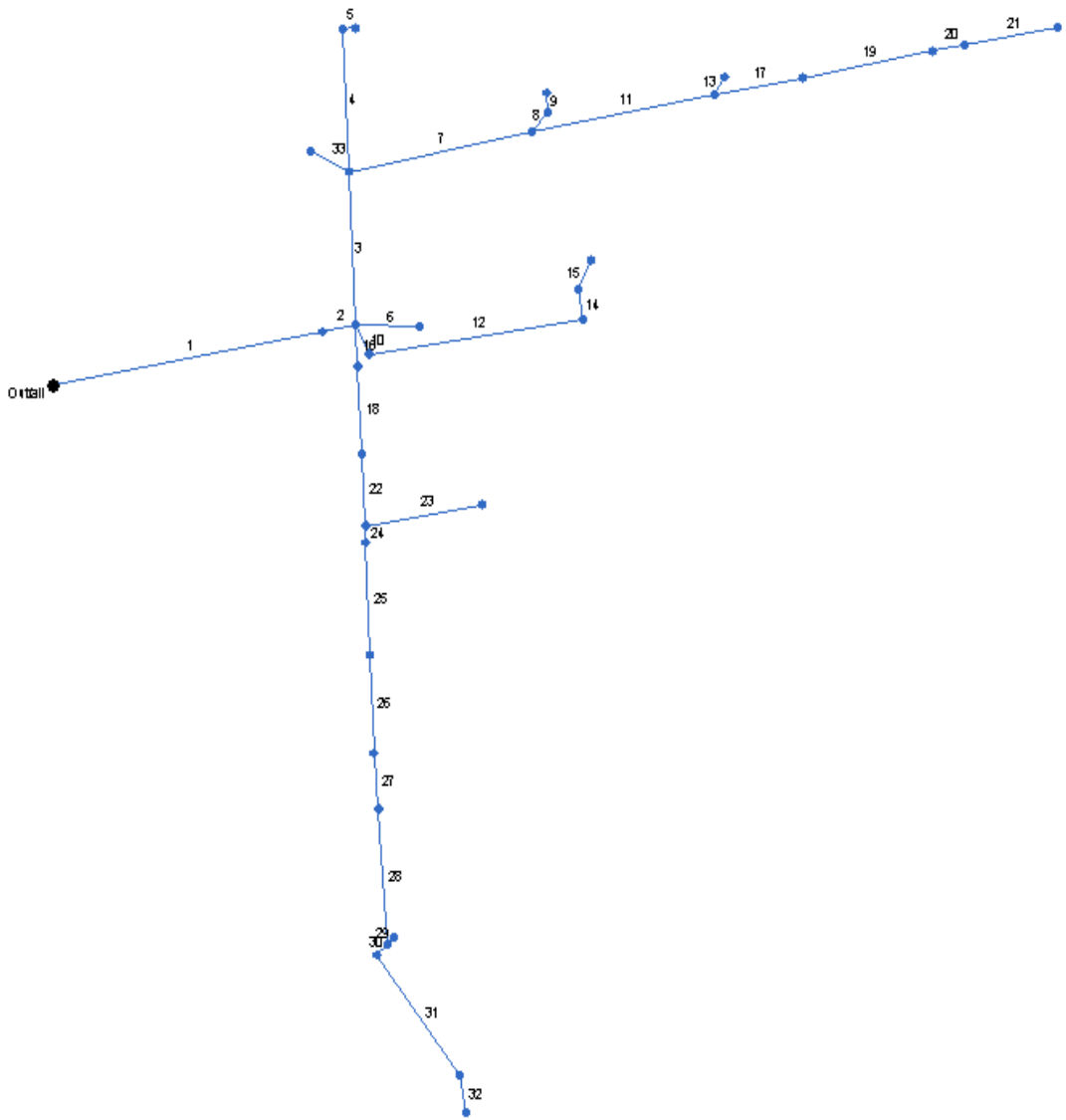
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	5.0	0.02	2.09	0.90	0.02	0.85	5.0	20.3	3.4	2.86	2.01	3.64	12	1.00	90.81	90.76	91.86	91.76	98.26	98.26	CB1
2	1	99.0	1.11	2.07	0.40	0.44	0.83	14.0	19.8	3.4	2.83	1.75	3.60	12	0.76	92.01	91.26	94.22	92.26	96.76	98.26	CB2
3	2	85.0	0.96	0.96	0.40	0.38	0.38	19.0	19.0	3.5	1.34	2.23	1.71	12	1.22	93.00	91.96	94.78	94.40	95.80	96.76	CB3
4	End	40.0	40.22	40.22	0.40	16.09	16.09	22.0	22.0	3.2	52.15	41.01	10.63	30	1.00	95.00	94.60	97.75	97.10	0.00	96.44	HW

Project File: Proposed Elbow.stm | Number of lines: 4 | Run Date: 09-13-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Project File: Existing Sherry.stm	No. Lines: 33	09-13-2007

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	400.0	0.05	42.25	0.90	0.05	13.59	5.0	36.2	1.7	23.56	16.52	13.33	18	7.75	55.50	24.50	89.01	26.00	60.00	26.00	1535
2	1	50.0	1.55	42.20	0.40	0.62	13.54	21.0	36.1	1.7	23.50	6.50	13.30	18	1.20	56.40	55.80	97.28	89.44	60.00	60.00	1531
3	2	204.0	1.36	7.65	0.40	0.54	3.18	13.0	25.6	2.1	6.52	2.96	8.30	12	2.16	60.50	56.10	123.11	101.71	64.00	60.00	1526
4	3	189.0	0.01	0.82	0.90	0.01	0.33	5.0	16.1	2.6	0.85	1.16	1.08	12	0.11	61.40	61.20	125.33	125.22	64.00	64.00	1525
5	4	18.0	0.81	0.81	0.40	0.32	0.32	16.0	16.0	2.6	0.83	1.43	2.38	8	1.00	61.98	61.80	125.41	125.35	62.65	64.00	1527
6	2	93.0	0.16	0.16	0.65	0.10	0.10	5.0	5.0	4.2	0.44	1.80	1.26	8	6.99	63.90	57.40	103.14	102.75	66.00	60.00	1528
7	3	272.0	0.97	5.41	0.40	0.39	2.24	14.0	24.8	2.1	4.68	3.82	5.95	12	3.60	71.50	61.70	139.37	124.69	76.00	64.00	1523
8	7	36.0	0.43	0.47	0.40	0.17	0.21	12.0	12.0	2.9	0.61	1.57	1.74	8	5.28	73.90	72.00	140.51	140.22	76.00	76.00	1522
9	8	26.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.24	1.75	4	0.96	74.55	74.30	140.64	140.54	77.50	76.00	1524
10	2	43.0	0.37	2.96	0.40	0.15	1.20	8.0	16.5	2.5	3.03	4.12	3.86	12	4.19	58.50	56.70	103.52	102.55	62.00	60.00	1529
11	7	273.0	0.66	3.97	0.40	0.26	1.65	13.0	23.8	2.1	3.50	4.06	4.46	12	4.07	82.90	71.80	148.23	139.96	90.00	76.00	1521
12	10	316.0	2.03	2.59	0.40	0.81	1.05	15.0	15.0	2.6	2.78	4.65	3.54	12	5.35	76.70	59.80	109.80	103.78	80.00	62.00	1533
13	11	28.0	0.24	0.24	0.65	0.16	0.16	5.0	5.0	4.2	0.66	1.22	1.89	8	3.21	86.50	85.60	148.99	148.73	90.00	90.00	1520
14	12	39.0	0.53	0.56	0.40	0.21	0.24	5.0	5.1	4.2	1.00	2.28	1.28	12	1.28	77.70	77.20	110.26	110.16	80.00	80.00	1537
15	14	44.0	0.03	0.03	0.90	0.03	0.03	5.0	5.0	4.2	0.11	0.04	5.24	2	1.00	78.24	77.80	114.07	110.27	82.50	80.00	1539
16	2	55.0	1.27	29.88	0.40	0.51	8.45	16.0	36.1	1.7	14.66	2.15	18.67	12	0.36	56.60	56.40	109.36	100.03	60.00	60.00	1530
17	11	131.0	0.51	3.07	0.40	0.20	1.23	11.0	23.1	2.2	2.65	2.08	3.37	12	1.07	86.40	85.00	150.87	148.61	92.00	90.00	1519
18	16	117.0	0.63	28.61	0.40	0.25	7.94	12.0	36.0	1.7	13.80	4.03	17.58	12	1.28	58.10	56.60	128.37	110.79	62.00	60.00	1534
19	17	193.0	1.55	2.56	0.40	0.62	1.02	22.0	22.0	2.2	2.26	2.38	2.88	12	1.40	89.40	86.70	153.38	150.94	96.00	92.00	1518
20	19	49.0	0.37	1.01	0.40	0.15	0.40	7.0	15.5	2.6	1.05	1.82	1.34	12	0.82	89.40	89.00	153.63	153.50	96.00	96.00	1517
21	20	138.0	0.64	0.64	0.40	0.26	0.26	13.0	13.0	2.8	0.72	1.08	0.92	12	0.29	89.60	89.20	153.83	153.65	94.00	96.00	1516

Project File: Existing Sherry.stm | Number of lines: 33 | Run Date: 09-13-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	18	95.0	0.14	27.98	0.65	0.09	7.69	5.0	35.9	1.7	13.38	0.00	17.04	12	-0.32	58.10	58.40	137.32	129.37	62.00	62.00	1544
23	22	173.0	0.49	0.49	0.65	0.32	0.32	5.0	5.0	4.2	1.35	11.13	1.72	12	5.78	68.60	58.60	146.44	146.30	72.00	62.00	1541
24	22	23.0	1.84	27.35	0.40	0.74	7.28	20.0	35.8	1.7	12.67	4.07	16.14	12	1.30	58.40	58.10	145.21	142.29	62.00	62.00	1542
25	24	149.0	5.79	25.51	0.25	1.45	6.54	34.0	35.7	1.7	11.42	3.57	14.54	12	1.01	60.10	58.60	161.90	146.58	62.00	62.00	1543
26	25	131.0	2.18	19.72	0.25	0.55	5.09	20.0	35.5	1.7	8.91	1.23	16.33	10	0.99	61.90	60.60	230.26	162.39	64.00	62.00	1547
27	26	74.0	5.36	17.54	0.25	1.34	4.55	34.0	35.4	1.8	7.97	0.00	10.15	12	0.00	61.90	61.90	245.02	233.42	64.00	64.00	1549
28	27	180.0	7.06	12.18	0.25	1.77	3.21	35.0	35.0	1.8	5.65	2.42	7.20	12	1.44	64.60	62.00	260.26	246.06	68.00	64.00	1552
29	28	13.0	2.91	2.91	0.25	0.73	0.73	17.0	17.0	2.5	1.81	0.56	9.24	6	1.00	66.03	65.90	262.42	261.06	0.00	68.00	1554
30	28	22.0	0.07	2.21	0.90	0.06	0.72	5.0	9.2	3.3	2.36	0.00	6.76	8	-1.82	65.00	65.40	263.79	261.16	68.00	68.00	1553
31	30	201.0	1.96	2.14	0.25	0.49	0.65	8.0	8.0	3.5	2.28	4.19	2.90	12	4.33	73.70	65.00	267.65	265.08	76.00	68.00	1745
32	31	50.0	0.18	0.18	0.90	0.16	0.16	5.0	5.0	4.2	0.69	4.03	0.87	12	4.00	75.80	73.80	267.90	267.84	78.00	76.00	1744
33	3	63.2	0.06	0.06	0.90	0.05	0.05	5.0	5.0	4.2	0.23	0.49	0.66	8	0.51	60.92	60.60	125.31	125.24	0.00	64.00	

Project File: Existing Sherry.stm | Number of lines: 33 | Run Date: 09-13-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	400.0	0.05	42.25	0.90	0.05	13.59	5.0	35.8	2.5	33.87	16.52	19.17	18	7.75	55.50	24.50	156.26	26.00	60.00	26.00	1535
2	1	50.0	1.55	42.20	0.40	0.62	13.54	21.0	35.8	2.5	33.78	6.50	19.12	18	1.20	56.40	55.80	173.35	157.15	60.00	60.00	1531
3	2	204.0	1.36	7.65	0.40	0.54	3.18	13.0	24.4	3.1	9.75	2.96	12.41	12	2.16	60.50	56.10	230.17	182.31	64.00	60.00	1526
4	3	189.0	0.01	0.82	0.90	0.01	0.33	5.0	16.1	3.8	1.26	1.16	1.61	12	0.11	61.40	61.20	235.13	234.89	64.00	64.00	1525
5	4	18.0	0.81	0.81	0.40	0.32	0.32	16.0	16.0	3.8	1.23	1.43	3.52	8	1.00	61.98	61.80	235.30	235.17	62.65	64.00	1527
6	2	93.0	0.16	0.16	0.65	0.10	0.10	5.0	5.0	6.0	0.62	1.80	1.78	8	6.99	63.90	57.40	185.44	184.66	66.00	60.00	1528
7	3	272.0	0.97	5.41	0.40	0.39	2.24	14.0	23.9	3.1	6.97	3.82	8.87	12	3.60	71.50	61.70	266.32	233.71	76.00	64.00	1523
8	7	36.0	0.43	0.47	0.40	0.17	0.21	12.0	12.0	4.3	0.90	1.57	2.58	8	5.28	73.90	72.00	268.82	268.20	76.00	76.00	1522
9	8	26.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.24	2.47	4	0.96	74.55	74.30	269.11	268.92	77.50	76.00	1524
10	2	43.0	0.37	2.96	0.40	0.15	1.20	8.0	16.0	3.8	4.55	4.12	5.80	12	4.19	58.50	56.70	186.39	184.19	62.00	60.00	1529
11	7	273.0	0.66	3.97	0.40	0.26	1.65	13.0	23.2	3.2	5.20	4.06	6.62	12	4.07	82.90	71.80	285.83	267.62	90.00	76.00	1521
12	10	316.0	2.03	2.59	0.40	0.81	1.05	15.0	15.0	3.9	4.11	4.65	5.24	12	5.35	76.70	59.80	200.19	186.98	80.00	62.00	1533
13	11	28.0	0.24	0.24	0.65	0.16	0.16	5.0	5.0	6.0	0.93	1.22	2.68	8	3.21	86.50	85.60	287.45	286.93	90.00	90.00	1520
14	12	39.0	0.53	0.56	0.40	0.21	0.24	5.0	5.1	6.0	1.42	2.28	1.81	12	1.28	77.70	77.20	201.19	200.99	80.00	80.00	1537
15	14	44.0	0.03	0.03	0.90	0.03	0.03	5.0	5.0	6.0	0.16	0.04	7.41	2	1.00	78.24	77.80	208.81	201.22	82.50	80.00	1539
16	2	55.0	1.27	29.88	0.40	0.51	8.45	16.0	35.8	2.5	21.08	2.15	26.84	12	0.36	56.60	56.40	198.30	179.03	60.00	60.00	1530
17	11	131.0	0.51	3.07	0.40	0.20	1.23	11.0	22.8	3.2	3.91	2.08	4.98	12	1.07	86.40	85.00	291.60	286.65	92.00	90.00	1519
18	16	117.0	0.63	28.61	0.40	0.25	7.94	12.0	35.7	2.5	19.83	4.03	25.26	12	1.28	58.10	56.60	237.56	201.26	62.00	60.00	1534
19	17	193.0	1.55	2.56	0.40	0.62	1.02	22.0	22.0	3.2	3.32	2.38	4.23	12	1.40	89.40	86.70	297.02	291.77	96.00	92.00	1518
20	19	49.0	0.37	1.01	0.40	0.15	0.40	7.0	14.7	4.0	1.60	1.82	2.03	12	0.82	89.40	89.00	297.58	297.27	96.00	96.00	1517
21	20	138.0	0.64	0.64	0.40	0.26	0.26	13.0	13.0	4.2	1.07	1.08	1.36	12	0.29	89.60	89.20	298.02	297.63	94.00	96.00	1516

Project File: Existing Sherry.stm | Number of lines: 33 | Run Date: 09-13-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

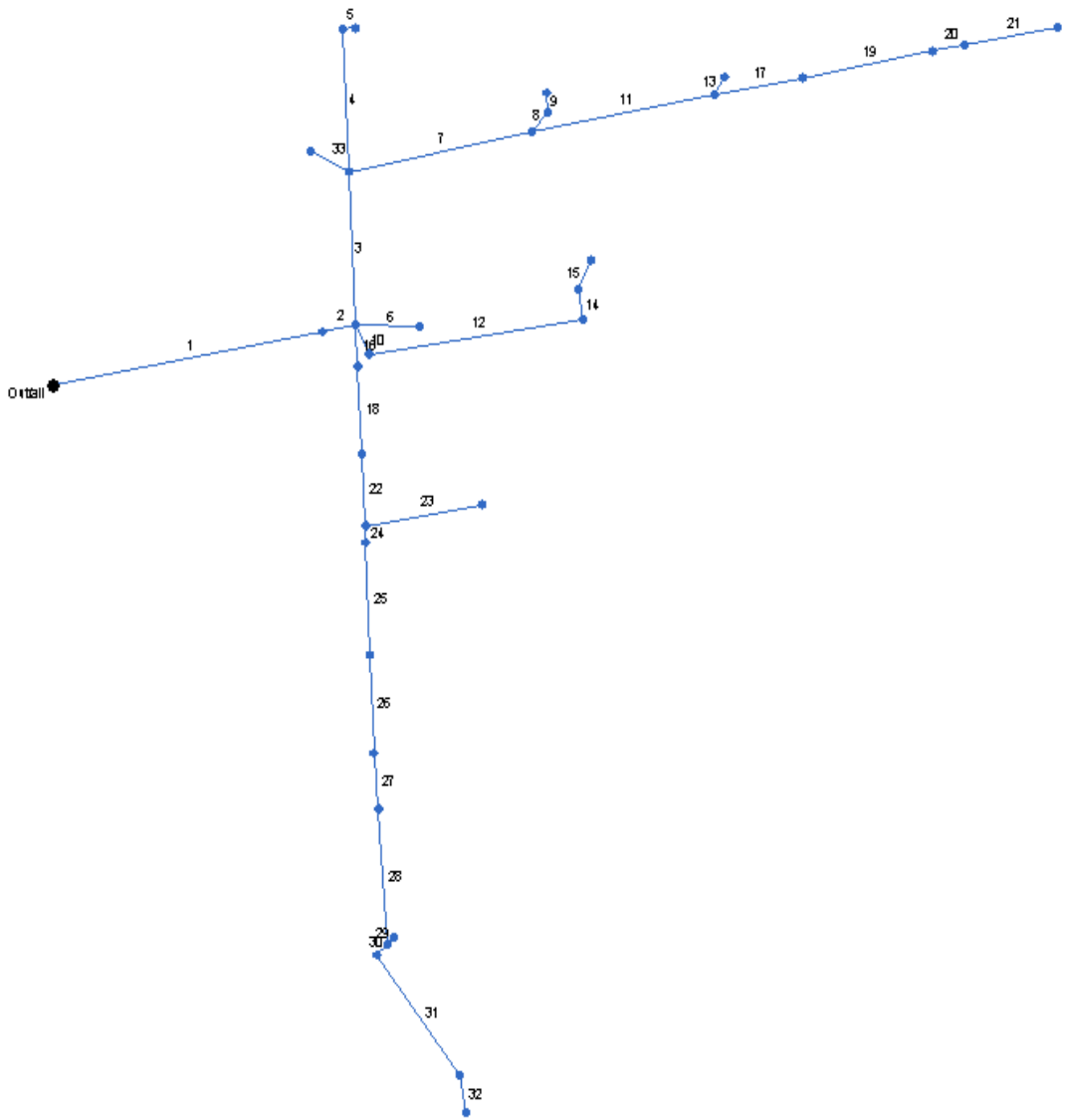
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	18	95.0	0.14	27.98	0.65	0.09	7.69	5.0	35.6	2.5	19.22	0.00	24.48	12	-0.32	58.10	58.40	256.03	239.65	62.00	62.00	1544
23	22	173.0	0.49	0.49	0.65	0.32	0.32	5.0	5.0	6.0	1.91	11.13	2.43	12	5.78	68.60	58.60	274.86	274.57	72.00	62.00	1541
24	22	23.0	1.84	27.35	0.40	0.74	7.28	20.0	35.6	2.5	18.20	4.07	23.18	12	1.30	58.40	58.10	272.32	266.31	62.00	62.00	1542
25	24	149.0	5.79	25.51	0.25	1.45	6.54	34.0	35.5	2.5	16.39	3.57	20.88	12	1.01	60.10	58.60	306.74	275.15	62.00	62.00	1543
26	25	131.0	2.18	19.72	0.25	0.55	5.09	20.0	35.4	2.5	12.79	1.23	23.44	10	0.99	61.90	60.60	447.56	307.75	64.00	62.00	1547
27	26	74.0	5.36	17.54	0.25	1.34	4.55	34.0	35.3	2.5	11.43	0.00	14.56	12	0.00	61.90	61.90	477.97	454.09	64.00	64.00	1549
28	27	180.0	7.06	12.18	0.25	1.77	3.21	35.0	35.0	2.5	8.10	2.42	10.32	12	1.44	64.60	62.00	509.26	480.10	68.00	64.00	1552
29	28	13.0	2.91	2.91	0.25	0.73	0.73	17.0	17.0	3.7	2.68	0.56	13.67	6	1.00	66.03	65.90	513.89	510.92	0.00	68.00	1554
30	28	22.0	0.07	2.21	0.90	0.06	0.72	5.0	8.8	4.9	3.52	0.00	10.09	8	-1.82	65.00	65.40	516.85	510.99	68.00	68.00	1553
31	30	201.0	1.96	2.14	0.25	0.49	0.65	8.0	8.0	5.1	3.33	4.19	4.24	12	4.33	73.70	65.00	525.24	519.74	76.00	68.00	1745
32	31	50.0	0.18	0.18	0.90	0.16	0.16	5.0	5.0	6.0	0.97	4.03	1.23	12	4.00	75.80	73.80	525.76	525.64	78.00	76.00	1744
33	3	63.2	0.06	0.06	0.90	0.05	0.05	5.0	5.0	6.0	0.32	0.49	0.93	8	0.51	60.92	60.60	235.06	234.92	0.00	64.00	

Project File: Existing Sherry.stm | Number of lines: 33 | Run Date: 09-13-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Project File: Proposed Sherry.stm	No. Lines: 33	09-13-2007

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	400.0	0.05	42.25	0.90	0.05	13.59	5.0	39.0	1.7	22.70	104.6	6.88	30	6.50	49.50	23.50	51.09	25.09	60.00	26.00	1535
2	1	50.0	1.55	42.20	0.40	0.62	13.54	21.0	38.8	1.7	22.68	58.00	5.91	30	2.00	51.00	50.00	52.59	52.21	60.00	60.00	1531
3	2	204.0	1.36	7.65	0.40	0.54	3.18	13.0	27.8	2.0	6.26	15.03	6.69	18	2.05	61.08	56.90	62.04	57.58	64.00	60.00	1526
4	3	189.0	0.01	0.82	0.90	0.01	0.33	5.0	16.1	2.6	0.85	1.16	1.08	12	0.11	61.40	61.20	62.79	62.68	64.00	64.00	1525
5	4	18.0	0.81	0.81	0.40	0.32	0.32	16.0	16.0	2.6	0.83	1.43	2.38	8	1.00	61.98	61.80	62.87	62.81	62.65	64.00	1527
6	2	93.0	0.16	0.16	0.65	0.10	0.10	5.0	5.0	4.2	0.44	6.17	3.49	12	3.00	60.54	57.75	60.82	57.93	66.00	60.00	1528
7	3	272.0	0.97	5.41	0.40	0.39	2.24	14.0	26.1	2.0	4.56	19.93	4.19	18	3.60	71.50	61.70	72.32	62.68	76.00	64.00	1523
8	7	36.0	0.43	0.47	0.40	0.17	0.21	12.0	12.0	2.9	0.61	1.57	2.41	8	5.28	73.90	72.00	74.27	72.78	76.00	76.00	1522
9	8	26.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.24	2.71	4	0.96	74.55	74.30	74.77	74.49	77.50	76.00	1524
10	2	43.0	0.37	2.96	0.40	0.15	1.20	8.0	16.5	2.5	3.03	21.49	6.30	18	4.19	58.50	56.70	59.16	57.08	62.00	60.00	1529
11	7	273.0	0.66	3.97	0.40	0.26	1.65	13.0	23.8	2.1	3.50	21.17	3.54	18	4.07	82.90	71.80	83.61	72.78	90.00	76.00	1521
12	10	316.0	2.03	2.59	0.40	0.81	1.05	15.0	15.0	2.6	2.78	4.65	5.43	12	5.35	76.70	59.80	77.41	60.36	80.00	62.00	1533
13	11	28.0	0.24	0.24	0.65	0.16	0.16	5.0	5.0	4.2	0.66	1.22	3.38	8	3.21	86.50	85.60	86.88	85.95	90.00	90.00	1520
14	12	39.0	0.53	0.56	0.40	0.21	0.24	5.0	5.1	4.2	1.00	2.28	2.21	12	1.28	77.70	77.20	78.16	77.94	80.00	80.00	1537
15	14	44.0	0.03	0.03	0.90	0.03	0.03	5.0	5.0	4.2	0.11	0.04	5.24	2	1.00	78.24	77.80	82.05	78.25	82.50	80.00	1539
16	2	55.0	1.27	29.88	0.40	0.51	8.45	16.0	38.6	1.7	14.18	31.99	4.85	24	2.00	52.20	51.10	53.83	53.71	60.00	60.00	1530
17	11	131.0	0.51	3.07	0.40	0.20	1.23	11.0	23.1	2.2	2.65	3.68	4.84	12	1.07	86.40	85.00	87.09	85.63	92.00	90.00	1519
18	16	117.0	0.63	28.61	0.40	0.25	7.94	12.0	38.2	1.7	13.41	31.99	5.36	24	2.00	54.64	52.30	55.94	54.10	62.00	60.00	1534
19	17	193.0	1.55	2.56	0.40	0.62	1.02	22.0	22.0	2.2	2.26	4.21	3.66	12	1.40	89.40	86.70	90.04	87.59	96.00	92.00	1518
20	19	49.0	0.37	1.01	0.40	0.15	0.40	7.0	15.5	2.6	1.05	1.82	1.34	12	0.82	89.40	89.00	90.59	90.46	96.00	96.00	1517
21	20	138.0	0.64	0.64	0.40	0.26	0.26	13.0	13.0	2.8	0.72	1.08	0.92	12	0.29	89.60	89.20	90.79	90.61	94.00	96.00	1516

Project File: Proposed Sherry.stm | Number of lines: 33 | Run Date: 09-13-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

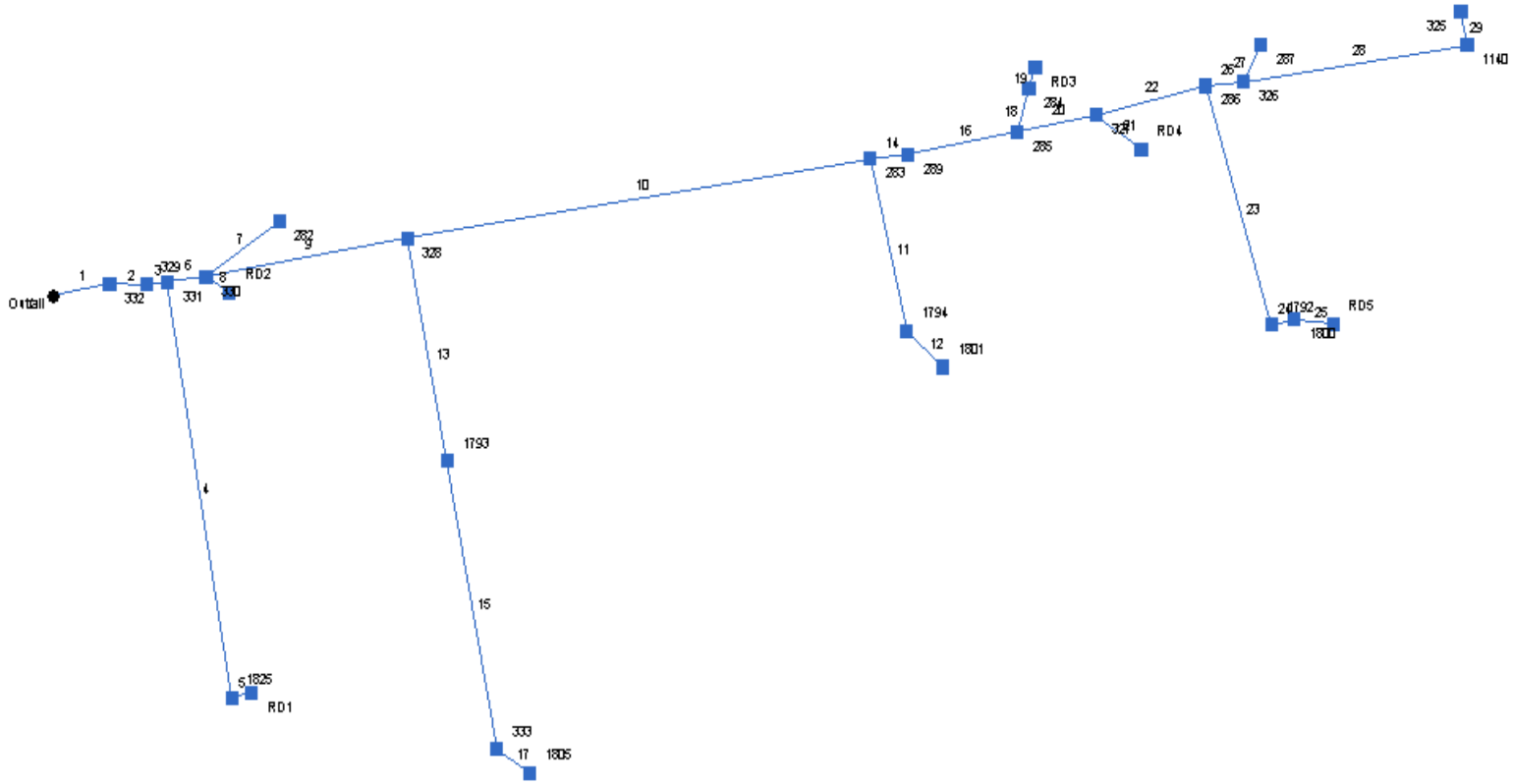
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
22	18	95.0	0.14	27.98	0.65	0.09	7.69	5.0	37.8	1.7	13.05	22.62	5.10	24	1.00	55.69	54.74	56.99	56.85	62.00	62.00	1544
23	22	173.0	0.49	0.49	0.65	0.32	0.32	5.0	5.0	4.2	1.35	8.56	5.72	12	5.78	68.00	58.00	68.49	58.27	72.00	62.00	1541
24	22	23.0	1.84	27.35	0.40	0.74	7.28	20.0	37.7	1.7	12.37	39.18	4.97	24	3.00	56.48	55.79	57.73	57.82	62.00	62.00	1542
25	24	149.0	5.79	25.51	0.25	1.45	6.54	34.0	37.0	1.7	11.22	22.62	4.68	24	1.00	58.07	56.58	59.26	58.56	62.00	62.00	1543
26	25	131.0	2.18	19.72	0.25	0.55	5.09	20.0	36.2	1.7	8.83	22.62	4.09	24	1.00	59.48	58.17	60.53	60.01	64.00	62.00	1547
27	26	74.0	5.36	17.54	0.25	1.34	4.55	34.0	35.9	1.7	7.91	10.50	5.12	18	1.00	60.32	59.58	61.41	61.13	64.00	64.00	1549
28	27	180.0	7.06	12.18	0.25	1.77	3.21	35.0	35.0	1.8	5.65	12.86	4.13	18	1.50	63.02	60.32	63.93	62.21	68.00	64.00	1552
29	28	13.0	2.91	2.91	0.25	0.73	0.73	17.0	17.0	2.5	1.81	3.56	4.22	12	1.00	66.03	65.90	66.60	66.41	0.00	68.00	1554
30	28	22.0	0.07	2.21	0.90	0.06	0.72	5.0	9.2	3.3	2.36	3.56	3.00	12	1.00	63.34	63.12	64.60	64.51	68.00	68.00	1553
31	30	201.0	1.96	2.14	0.25	0.49	0.65	8.0	8.0	3.5	2.28	4.19	4.87	12	4.33	73.70	65.00	74.34	65.53	76.00	68.00	1745
32	31	50.0	0.18	0.18	0.90	0.16	0.16	5.0	5.0	4.2	0.69	4.03	1.84	12	4.00	75.80	73.80	76.15	74.77	78.00	76.00	1744
33	3	63.2	0.06	0.06	0.90	0.05	0.05	5.0	5.0	4.2	0.23	0.68	0.66	8	1.00	61.81	61.18	62.75	62.68	64.00	64.00	

Project File: Proposed Sherry.stm | Number of lines: 33 | Run Date: 09-13-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Hydraflow Plan View



Existing Perry Street	No. Lines: 29	09-14-2007

Hydraflow Storm Sewers 2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	50.6	0.40	27.47	0.90	0.36	11.75	5.0	28.1	2.0	23.06	15.62	13.05	18	6.92	5.20	1.70	10.83	3.20	10.00	4.00	1636
2	1	32.0	1.29	27.07	0.40	0.52	11.39	19.0	28.0	2.0	22.38	28.27	7.12	24	1.56	6.00	5.50	13.15	12.84	10.00	10.00	1638
3	2	18.4	0.05	25.78	0.90	0.05	10.87	5.0	27.9	2.0	21.38	33.31	6.81	24	2.17	6.60	6.20	13.78	13.61	10.00	10.00	1643
4	3	334.2	2.91	3.10	0.40	1.16	1.34	22.0	22.0	2.2	2.95	17.50	0.94	24	0.60	8.40	6.40	15.94	15.88	12.00	10.00	1644
5	4	17.7	0.19	0.19	0.90	0.17	0.17	5.0	5.0	4.2	0.72	0.57	3.69	6	1.02	9.08	8.90	16.26	15.96	12.00	12.00	1765
6	3	34.1	2.33	22.63	0.40	0.93	9.49	19.0	20.7	2.3	21.53	1.98	17.55	15	0.29	7.20	7.10	27.03	15.18	10.00	10.00	1642
7	6	77.6	0.23	0.23	0.90	0.21	0.21	5.0	5.0	4.2	0.88	3.62	1.12	12	1.03	8.20	7.40	38.84	38.79	10.00	10.00	1641
8	6	23.8	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.11	1.75	4	1.01	6.24	6.00	39.24	38.76	10.00	10.00	1639
9	6	178.5	0.76	20.03	0.40	0.30	8.32	15.0	20.6	2.3	18.92	1.43	24.10	12	0.50	8.50	7.60	191.88	34.02	12.00	10.00	1640
10	9	408.8	0.95	13.18	0.40	0.38	5.53	12.0	20.2	2.3	12.70	4.33	16.17	12	4.62	27.60	8.70	373.21	210.38	32.00	12.00	1652
11	10	140.2	4.50	4.60	0.40	1.80	1.84	20.0	20.0	2.3	4.25	2.04	12.17	8	2.85	33.90	29.90	400.05	382.70	36.00	32.00	1786
12	11	42.5	0.10	0.10	0.40	0.04	0.04	7.0	7.0	3.7	0.15	1.66	0.42	8	5.89	36.40	33.90	404.48	404.46	38.00	36.00	1782
13	9	179.6	2.20	6.09	0.40	0.88	2.49	18.0	18.4	2.4	5.97	2.07	7.60	12	1.06	10.40	8.50	229.34	213.55	14.00	12.00	1653
14	10	33.6	0.10	7.63	0.65	0.07	3.31	5.0	19.0	2.4	7.82	5.60	9.96	12	7.74	29.60	27.00	388.54	383.46	36.00	32.00	1662
15	13	232.7	0.10	3.89	0.90	0.09	1.61	5.0	18.1	2.4	3.89	1.04	11.15	8	2.32	17.80	12.40	305.42	229.79	20.00	14.00	1777
16	14	96.9	0.09	7.53	0.65	0.06	3.24	5.0	18.9	2.4	7.69	5.93	14.10	10	7.33	38.30	31.20	401.26	389.31	42.00	36.00	1661
17	15	34.2	3.79	3.79	0.40	1.52	1.52	18.0	18.0	2.4	3.68	1.46	10.54	8	1.46	18.40	17.90	311.00	307.83	20.00	20.00	1776
18	16	36.0	0.28	0.31	0.65	0.18	0.21	5.0	5.2	4.2	0.87	2.55	2.49	8	4.45	41.00	39.40	408.64	408.45	44.00	42.00	1664
19	18	17.6	0.03	0.03	0.90	0.03	0.03	5.0	5.0	4.2	0.11	0.23	1.31	4	1.03	41.08	40.90	408.80	408.76	44.00	44.00	1665
20	16	70.0	0.12	7.13	0.65	0.08	2.97	5.0	18.8	2.4	7.07	6.52	12.97	10	8.86	44.50	38.30	413.23	405.93	48.00	42.00	1663
21	20	48.1	0.03	0.03	0.90	0.03	0.03	5.0	5.0	4.2	0.11	0.56	0.58	6	1.00	45.38	44.90	419.23	419.21	48.00	48.00	1667

Existing Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
22	20	98.4	1.47	6.98	0.40	0.59	2.87	13.0	18.6	2.4	6.85	4.89	8.73	12	5.90	50.80	45.00	429.44	418.03	54.00	48.00	1666
23	22	197.9	3.52	4.34	0.40	1.41	1.76	18.0	18.0	2.4	4.26	1.57	5.43	12	0.61	51.80	50.60	440.81	431.94	54.00	54.00	1669
24	23	20.2	0.78	0.82	0.40	0.31	0.35	12.0	12.0	2.9	1.02	6.17	1.30	12	9.40	53.90	52.00	441.98	441.93	56.00	54.00	1787
25	24	33.9	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.19	1.75	4	1.00	55.34	55.00	442.21	442.00	56.00	56.00	1788
26	22	33.7	0.23	1.17	0.65	0.15	0.53	11.0	13.4	2.8	1.46	4.10	1.86	12	4.16	53.00	51.60	432.52	432.35	56.00	54.00	1668
27	26	32.4	0.40	0.40	0.40	0.16	0.16	13.0	13.0	2.8	0.45	2.04	1.29	8	8.96	55.90	53.00	432.76	432.62	58.00	56.00	1670
28	26	197.2	0.21	0.54	0.40	0.08	0.22	7.0	8.8	3.4	0.73	3.57	0.92	12	3.14	59.40	53.20	432.89	432.63	64.00	56.00	1671
29	28	27.3	0.33	0.33	0.40	0.13	0.13	8.0	8.0	3.5	0.46	5.28	0.59	12	2.20	59.40	58.80	432.92	432.92	64.00	64.00	1672

Existing Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	50.6	0.40	27.47	0.90	0.36	11.75	5.0	26.1	3.0	34.81	15.62	19.70	18	6.92	5.20	1.70	20.60	3.20	10.00	4.00	1636
2	1	32.0	1.29	27.07	0.40	0.52	11.39	19.0	26.1	3.0	33.78	28.27	10.75	24	1.56	6.00	5.50	22.36	21.64	10.00	10.00	1638
3	2	18.4	0.05	25.78	0.90	0.05	10.87	5.0	26.0	3.0	32.27	33.31	10.27	24	2.17	6.60	6.20	23.79	23.41	10.00	10.00	1643
4	3	334.2	2.91	3.10	0.40	1.16	1.34	22.0	22.0	3.2	4.33	17.50	1.38	24	0.60	8.40	6.40	28.70	28.58	12.00	10.00	1644
5	4	17.7	0.19	0.19	0.90	0.17	0.17	5.0	5.0	6.0	1.02	0.57	5.21	6	1.02	9.08	8.90	29.34	28.75	12.00	12.00	1765
6	3	34.1	2.33	22.63	0.40	0.93	9.49	19.0	20.5	3.4	31.89	1.98	25.99	15	0.29	7.20	7.10	52.98	26.97	10.00	10.00	1642
7	6	77.6	0.23	0.23	0.90	0.21	0.21	5.0	5.0	6.0	1.24	3.62	1.58	12	1.03	8.20	7.40	78.87	78.78	10.00	10.00	1641
8	6	23.8	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.11	2.47	4	1.01	6.24	6.00	79.68	78.72	10.00	10.00	1639
9	6	178.5	0.76	20.03	0.40	0.30	8.32	15.0	20.4	3.4	28.01	1.43	35.66	12	0.50	8.50	7.60	414.05	68.32	12.00	10.00	1640
10	9	408.8	0.95	13.18	0.40	0.38	5.53	12.0	20.1	3.4	18.75	4.33	23.87	12	4.62	27.60	8.70	809.34	454.62	32.00	12.00	1652
11	10	140.2	4.50	4.60	0.40	1.80	1.84	20.0	20.0	3.4	6.26	2.04	17.94	8	2.85	33.90	29.90	867.71	830.03	36.00	32.00	1786
12	11	42.5	0.10	0.10	0.40	0.04	0.04	7.0	7.0	5.4	0.21	1.66	0.61	8	5.89	36.40	33.90	877.35	877.31	38.00	36.00	1782
13	9	179.6	2.20	6.09	0.40	0.88	2.49	18.0	18.3	3.6	8.85	2.07	11.27	12	1.06	10.40	8.50	496.23	461.51	14.00	12.00	1653
14	10	33.6	0.10	7.63	0.65	0.07	3.31	5.0	18.7	3.5	11.64	5.60	14.83	12	7.74	29.60	27.00	842.86	831.61	36.00	32.00	1662
15	13	232.7	0.10	3.89	0.90	0.09	1.61	5.0	18.0	3.6	5.75	1.04	16.49	8	2.32	17.80	12.40	662.58	497.21	20.00	14.00	1777
16	14	96.9	0.09	7.53	0.65	0.06	3.24	5.0	18.6	3.5	11.44	5.93	20.98	10	7.33	38.30	31.20	871.01	844.57	42.00	36.00	1661
17	15	34.2	3.79	3.79	0.40	1.52	1.52	18.0	18.0	3.6	5.44	1.46	15.58	8	1.46	18.40	17.90	674.78	667.85	20.00	20.00	1776
18	16	36.0	0.28	0.31	0.65	0.18	0.21	5.0	5.2	5.9	1.24	2.55	3.55	8	4.45	41.00	39.40	887.34	886.96	44.00	42.00	1664
19	18	17.6	0.03	0.03	0.90	0.03	0.03	5.0	5.0	6.0	0.16	0.23	1.85	4	1.03	41.08	40.90	887.67	887.58	44.00	44.00	1665
20	16	70.0	0.12	7.13	0.65	0.08	2.97	5.0	18.5	3.5	10.51	6.52	19.28	10	8.86	44.50	38.30	897.51	881.38	48.00	42.00	1663
21	20	48.1	0.03	0.03	0.90	0.03	0.03	5.0	5.0	6.0	0.16	0.56	0.82	6	1.00	45.38	44.90	910.77	910.73	48.00	48.00	1667

Existing Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

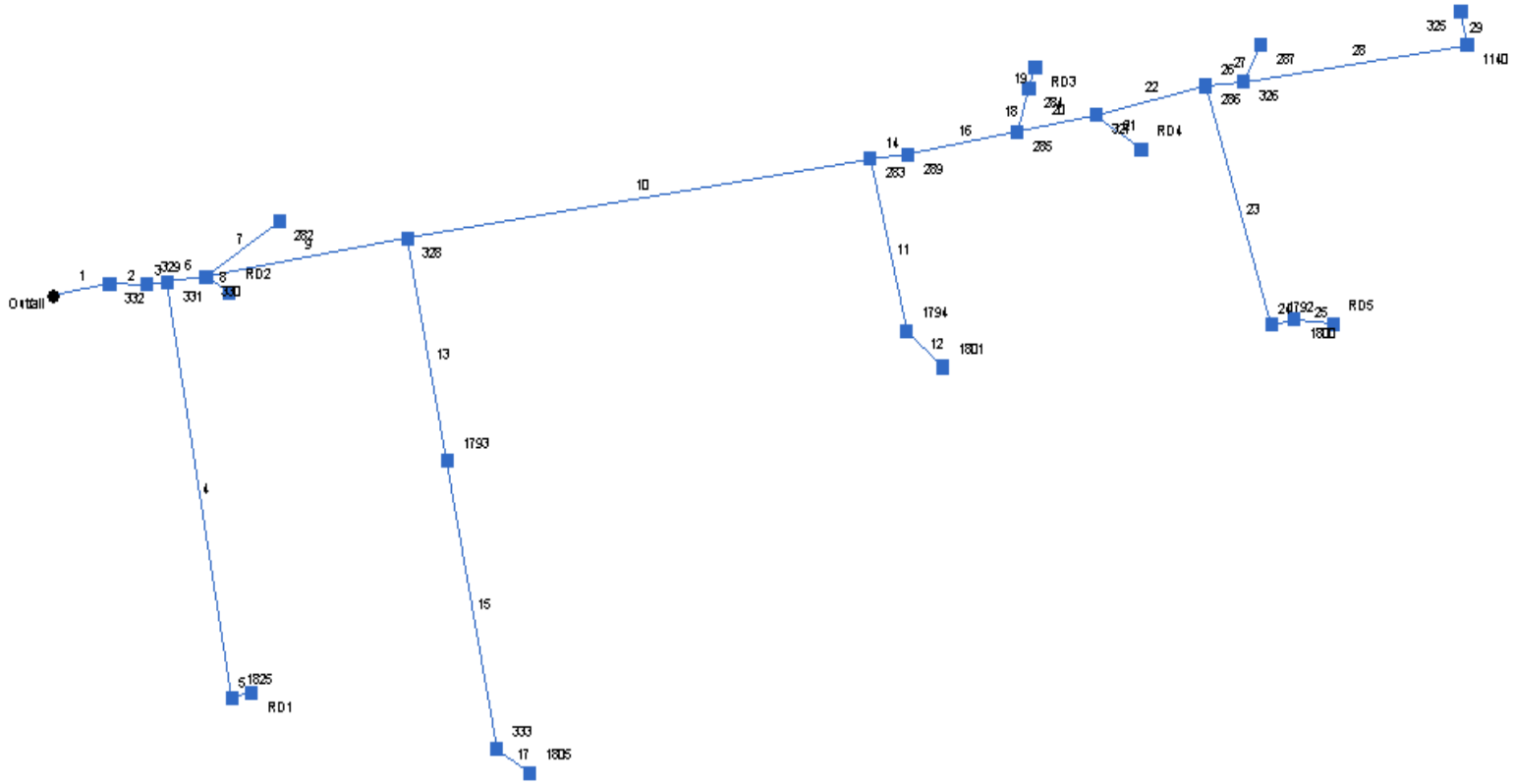
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
22	20	98.4	1.47	6.98	0.40	0.59	2.87	13.0	18.4	3.5	10.18	4.89	12.96	12	5.90	50.80	45.00	933.27	908.13	54.00	48.00	1666
23	22	197.9	3.52	4.34	0.40	1.41	1.76	18.0	18.0	3.6	6.30	1.57	8.02	12	0.61	51.80	50.60	958.18	938.80	54.00	54.00	1669
24	23	20.2	0.78	0.82	0.40	0.31	0.35	12.0	12.0	4.3	1.51	6.17	1.92	12	9.40	53.90	52.00	960.74	960.62	56.00	54.00	1787
25	24	33.9	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.19	2.47	4	1.00	55.34	55.00	961.20	960.77	56.00	56.00	1788
26	22	33.7	0.23	1.17	0.65	0.15	0.53	11.0	13.3	4.1	2.18	4.10	2.77	12	4.16	53.00	51.60	940.07	939.68	56.00	54.00	1668
27	26	32.4	0.40	0.40	0.40	0.16	0.16	13.0	13.0	4.2	0.67	2.04	1.92	8	8.96	55.90	53.00	940.60	940.29	58.00	56.00	1670
28	26	197.2	0.21	0.54	0.40	0.08	0.22	7.0	8.5	5.0	1.08	3.57	1.37	12	3.14	59.40	53.20	940.88	940.32	64.00	56.00	1671
29	28	27.3	0.33	0.33	0.40	0.13	0.13	8.0	8.0	5.1	0.67	5.28	0.86	12	2.20	59.40	58.80	940.95	940.95	64.00	64.00	1672

Existing Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Proposed Perry Street	No. Lines: 29	09-14-2007

Hydraflow Storm Sewers 2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	50.6	0.40	27.47	0.90	0.36	11.75	5.0	25.5	2.1	24.15	81.97	7.06	30	4.00	4.02	2.00	5.66	3.64	10.00	4.00	1636
2	1	32.0	1.29	27.07	0.40	0.52	11.39	19.0	25.4	2.1	23.46	71.03	5.88	30	3.00	5.08	4.12	6.70	6.86	10.00	10.00	1638
3	2	18.4	0.05	25.78	0.90	0.05	10.87	5.0	25.3	2.1	22.41	39.06	7.14	24	2.98	5.73	5.18	8.04	7.86	10.00	10.00	1643
4	3	334.2	2.91	3.10	0.40	1.16	1.34	22.0	22.0	2.2	2.95	7.42	3.15	18	0.50	9.45	7.78	10.11	8.79	12.00	10.00	1644
5	4	17.7	0.19	0.19	0.90	0.17	0.17	5.0	5.0	4.2	0.72	0.57	3.69	6	1.02	9.08	8.90	10.71	10.42	12.00	12.00	1765
6	3	34.1	2.33	22.63	0.40	0.93	9.49	19.0	22.8	2.2	20.57	35.74	6.55	24	2.50	6.68	5.83	9.07	8.79	10.00	10.00	1642
7	6	77.6	0.23	0.23	0.90	0.21	0.21	5.0	5.0	4.2	0.88	2.53	1.12	12	0.50	8.00	7.61	9.46	9.41	10.00	10.00	1641
8	6	23.8	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.11	1.75	4	1.01	6.24	6.00	9.89	9.41	10.00	10.00	1639
9	6	178.5	0.76	20.03	0.40	0.30	8.32	15.0	22.3	2.2	18.23	27.71	6.48	24	1.50	9.46	6.78	10.97	9.41	12.00	10.00	1640
10	9	408.8	0.95	13.18	0.40	0.38	5.53	12.0	20.6	2.3	12.58	45.23	5.03	24	4.00	25.91	9.56	27.17	12.29	32.00	12.00	1652
11	10	140.2	4.50	4.60	0.40	1.80	1.84	20.0	20.0	2.3	4.25	5.63	5.63	12	2.50	30.41	26.91	31.28	28.02	36.00	32.00	1786
12	11	42.5	0.10	0.10	0.40	0.04	0.04	7.0	7.0	3.7	0.15	6.16	0.31	12	2.99	31.78	30.51	32.23	32.23	38.00	36.00	1782
13	9	179.6	2.20	6.09	0.40	0.88	2.49	18.0	19.9	2.3	5.75	27.68	3.18	24	1.50	12.25	9.56	13.10	12.29	14.00	12.00	1653
14	10	33.6	0.10	7.63	0.65	0.07	3.31	5.0	20.5	2.3	7.55	29.21	5.81	18	7.74	29.60	27.00	30.65	28.02	36.00	32.00	1662
15	13	232.7	0.10	3.89	0.90	0.09	1.61	5.0	18.1	2.4	3.88	14.84	3.52	18	2.00	17.00	12.35	17.75	13.50	20.00	14.00	1777
16	14	96.9	0.09	7.53	0.65	0.06	3.24	5.0	20.1	2.3	7.47	28.43	9.62	18	7.33	38.30	31.20	39.34	31.72	42.00	36.00	1661
17	15	34.2	3.79	3.79	0.40	1.52	1.52	18.0	18.0	2.4	3.68	5.02	5.03	12	1.99	17.78	17.10	18.59	18.15	20.00	20.00	1776
18	16	36.0	0.28	0.31	0.65	0.18	0.21	5.0	5.2	4.2	0.87	2.55	3.03	8	4.45	41.00	39.40	41.44	40.13	44.00	42.00	1664
19	18	17.6	0.03	0.03	0.90	0.03	0.03	5.0	5.0	4.2	0.11	0.23	1.31	4	1.03	41.08	40.90	41.78	41.73	44.00	44.00	1665
20	16	70.0	0.12	7.13	0.65	0.08	2.97	5.0	19.8	2.3	6.90	31.26	4.70	18	8.86	44.50	38.30	45.50	40.13	48.00	42.00	1663
21	20	48.1	0.03	0.03	0.90	0.03	0.03	5.0	5.0	4.2	0.11	0.56	0.58	6	1.00	45.38	44.90	46.24	46.22	48.00	48.00	1667

Proposed Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
22	20	98.4	1.47	6.98	0.40	0.59	2.87	13.0	19.4	2.3	6.73	23.49	4.62	18	5.00	49.52	44.60	50.51	46.22	54.00	48.00	1666
23	22	197.9	3.52	4.34	0.40	1.41	1.76	18.0	18.0	2.4	4.26	10.50	3.47	18	1.00	51.60	49.62	52.39	51.21	54.00	54.00	1669
24	23	20.2	0.78	0.82	0.40	0.31	0.35	12.0	12.0	2.9	1.02	7.13	2.23	12	4.01	52.51	51.70	52.94	52.82	56.00	54.00	1787
25	24	33.9	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.19	2.42	4	1.00	55.34	55.00	55.57	55.23	56.00	56.00	1788
26	22	33.7	0.23	1.17	0.65	0.15	0.53	11.0	13.4	2.8	1.46	4.10	4.19	12	4.16	53.00	51.60	53.51	52.01	56.00	54.00	1668
27	26	32.4	0.40	0.40	0.40	0.16	0.16	13.0	13.0	2.8	0.45	2.04	2.03	8	8.96	55.90	53.00	56.22	53.78	58.00	56.00	1670
28	26	197.2	0.21	0.54	0.40	0.08	0.22	7.0	8.8	3.4	0.73	3.57	2.18	12	3.14	59.40	53.20	59.76	53.78	64.00	56.00	1671
29	28	27.3	0.33	0.33	0.40	0.13	0.13	8.0	8.0	3.5	0.46	5.28	0.88	12	2.20	59.40	58.80	59.90	59.91	64.00	64.00	1672

Proposed Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	50.6	0.40	27.47	0.90	0.36	11.75	5.0	24.4	3.1	36.11	81.97	8.54	30	4.00	4.02	2.00	6.03	4.01	10.00	4.00	1636
2	1	32.0	1.29	27.07	0.40	0.52	11.39	19.0	24.3	3.1	35.06	71.03	7.14	30	3.00	5.08	4.12	8.21	7.98	10.00	10.00	1638
3	2	18.4	0.05	25.78	0.90	0.05	10.87	5.0	24.3	3.1	33.49	39.06	10.66	24	2.98	5.73	5.18	8.80	8.39	10.00	10.00	1643
4	3	334.2	2.91	3.10	0.40	1.16	1.34	22.0	22.0	3.2	4.33	7.42	2.45	18	0.50	9.45	7.78	11.89	11.33	12.00	10.00	1644
5	4	17.7	0.19	0.19	0.90	0.17	0.17	5.0	5.0	6.0	1.02	0.57	5.21	6	1.02	9.08	8.90	12.62	12.03	12.00	12.00	1765
6	3	34.1	2.33	22.63	0.40	0.93	9.49	19.0	21.8	3.3	30.91	35.74	9.84	24	2.50	6.68	5.83	11.96	11.33	10.00	10.00	1642
7	6	77.6	0.23	0.23	0.90	0.21	0.21	5.0	5.0	6.0	1.24	2.53	1.58	12	0.50	8.00	7.61	15.72	15.63	10.00	10.00	1641
8	6	23.8	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.11	2.47	4	1.01	6.24	6.00	16.53	15.57	10.00	10.00	1639
9	6	178.5	0.76	20.03	0.40	0.30	8.32	15.0	21.5	3.3	27.31	27.71	8.69	24	1.50	9.46	6.78	17.09	14.49	12.00	10.00	1640
10	9	408.8	0.95	13.18	0.40	0.38	5.53	12.0	20.3	3.4	18.67	45.23	6.59	24	4.00	25.91	9.56	27.44	19.48	32.00	12.00	1652
11	10	140.2	4.50	4.60	0.40	1.80	1.84	20.0	20.0	3.4	6.26	5.63	7.97	12	2.50	30.41	26.91	33.13	28.79	36.00	32.00	1786
12	11	42.5	0.10	0.10	0.40	0.04	0.04	7.0	7.0	5.4	0.21	6.16	0.27	12	2.99	31.78	30.51	33.48	33.48	38.00	36.00	1782
13	9	179.6	2.20	6.09	0.40	0.88	2.49	18.0	19.3	3.5	8.62	27.68	2.74	24	1.50	12.25	9.56	20.18	19.91	14.00	12.00	1653
14	10	33.6	0.10	7.63	0.65	0.07	3.31	5.0	19.7	3.4	11.35	29.21	6.72	18	7.74	29.60	27.00	30.89	28.79	36.00	32.00	1662
15	13	232.7	0.10	3.89	0.90	0.09	1.61	5.0	18.1	3.6	5.75	14.84	3.25	18	2.00	17.00	12.35	20.93	20.23	20.00	14.00	1777
16	14	96.9	0.09	7.53	0.65	0.06	3.24	5.0	19.4	3.5	11.20	28.43	7.78	18	7.33	38.30	31.20	39.58	32.24	42.00	36.00	1661
17	15	34.2	3.79	3.79	0.40	1.52	1.52	18.0	18.0	3.6	5.44	5.02	6.92	12	1.99	17.78	17.10	21.92	21.12	20.00	20.00	1776
18	16	36.0	0.28	0.31	0.65	0.18	0.21	5.0	5.2	5.9	1.24	2.55	3.88	8	4.45	41.00	39.40	41.52	40.90	44.00	42.00	1664
19	18	17.6	0.03	0.03	0.90	0.03	0.03	5.0	5.0	6.0	0.16	0.23	1.85	4	1.03	41.08	40.90	42.07	41.98	44.00	44.00	1665
20	16	70.0	0.12	7.13	0.65	0.08	2.97	5.0	19.2	3.5	10.33	31.26	6.26	18	8.86	44.50	38.30	45.73	40.90	48.00	42.00	1663
21	20	48.1	0.03	0.03	0.90	0.03	0.03	5.0	5.0	6.0	0.16	0.56	0.82	6	1.00	45.38	44.90	46.96	46.92	48.00	48.00	1667

Proposed Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

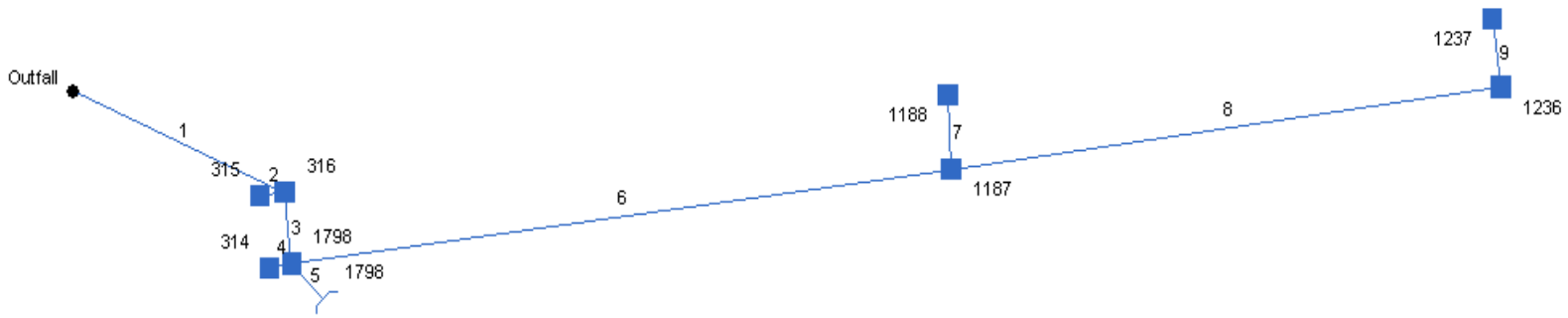
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
22	20	98.4	1.47	6.98	0.40	0.59	2.87	13.0	18.9	3.5	10.04	23.49	6.13	18	5.00	49.52	44.60	50.73	46.92	54.00	48.00	1666
23	22	197.9	3.52	4.34	0.40	1.41	1.76	18.0	18.0	3.6	6.30	10.50	4.28	18	1.00	51.60	49.62	52.61	51.87	54.00	54.00	1669
24	23	20.2	0.78	0.82	0.40	0.31	0.35	12.0	12.0	4.3	1.51	7.13	2.68	12	4.01	52.51	51.70	53.06	53.11	56.00	54.00	1787
25	24	33.9	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.19	2.47	4	1.00	55.34	55.00	55.77	55.33	56.00	56.00	1788
26	22	33.7	0.23	1.17	0.65	0.15	0.53	11.0	13.3	4.1	2.18	4.10	4.75	12	4.16	53.00	51.60	53.63	52.12	56.00	54.00	1668
27	26	32.4	0.40	0.40	0.40	0.16	0.16	13.0	13.0	4.2	0.67	2.04	2.56	8	8.96	55.90	53.00	56.29	54.03	58.00	56.00	1670
28	26	197.2	0.21	0.54	0.40	0.08	0.22	7.0	8.5	5.0	1.08	3.57	2.39	12	3.14	59.40	53.20	59.84	54.03	64.00	56.00	1671
29	28	27.3	0.33	0.33	0.40	0.13	0.13	8.0	8.0	5.1	0.67	5.28	1.06	12	2.20	59.40	58.80	60.04	60.04	64.00	64.00	1672

Proposed Perry Street | Number of lines: 29 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Existing Highview Drive	No. Lines: 9	09-14-2007

Hydraflow Storm Sewers 2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	103.0	0.21	21.66	0.50	0.11	10.45	5.0	32.1	1.8	19.20	32.30	7.34	24	2.04	117.60	115.50	119.15	117.05	122.20	117.50	555
2	1	11.0	0.37	0.37	0.46	0.17	0.17	16.0	16.0	2.6	0.44	7.91	0.56	12	15.45	119.30	117.60	120.56	120.55	122.20	122.20	1370
3	1	29.0	1.46	21.08	0.40	0.58	10.17	22.0	32.0	1.8	18.71	26.56	5.96	24	1.38	118.00	117.60	120.75	120.55	122.20	122.20	554
4	3	10.0	1.67	1.67	0.25	0.42	0.42	16.0	16.0	2.6	1.07	6.97	1.36	12	12.00	119.20	118.00	122.13	122.10	122.20	122.20	552
5	3	20.0	14.95	14.95	0.53	7.92	7.92	32.0	32.0	1.8	14.59	30.53	8.26	18	5.00	119.00	118.00	121.81	121.58	120.50	122.20	553
6	3	296.0	1.29	3.00	0.40	0.52	1.25	16.0	16.0	2.6	3.19	2.82	4.07	12	1.96	123.50	117.70	129.33	121.88	127.90	122.20	1369
7	6	30.0	0.28	0.28	0.40	0.11	0.11	5.0	5.0	4.2	0.47	2.01	0.60	12	1.00	123.90	123.60	129.98	129.97	128.20	127.90	1368
8	6	247.0	1.24	1.43	0.40	0.50	0.62	12.0	12.0	2.9	1.81	5.04	3.10	12	6.28	139.40	123.90	139.97	129.89	143.80	127.90	1367
9	8	28.0	0.19	0.19	0.64	0.12	0.12	5.0	5.0	4.2	0.52	2.95	1.33	12	2.14	140.00	139.40	140.37	140.30	143.20	143.80	1366

Existing Highview Drive | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

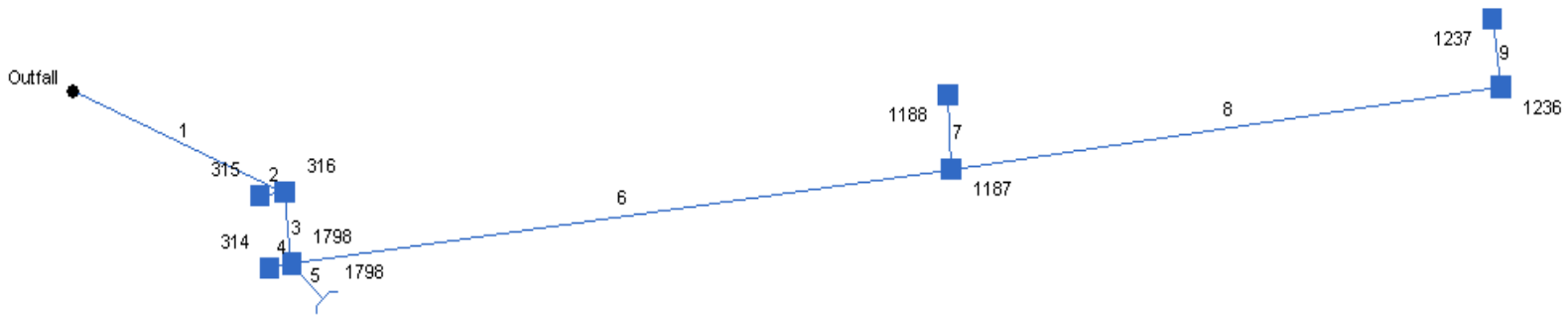
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	103.0	0.21	21.66	0.50	0.11	10.45	5.0	32.1	2.7	27.69	32.30	9.21	24	2.04	117.60	115.50	119.42	117.32	122.20	117.50	555
2	1	11.0	0.37	0.37	0.46	0.17	0.17	16.0	16.0	3.8	0.65	7.91	0.82	12	15.45	119.30	117.60	121.95	121.94	122.20	122.20	1370
3	1	29.0	1.46	21.08	0.40	0.58	10.17	22.0	32.0	2.7	26.98	26.56	8.59	24	1.38	118.00	117.60	122.36	121.94	122.20	122.20	554
4	3	10.0	1.67	1.67	0.25	0.42	0.42	16.0	16.0	3.8	1.59	6.97	2.02	12	12.00	119.20	118.00	125.22	125.16	122.20	122.20	552
5	3	20.0	14.95	14.95	0.53	7.92	7.92	32.0	32.0	2.7	21.03	30.53	11.90	18	5.00	119.00	118.00	124.55	124.08	120.50	122.20	553
6	3	296.0	1.29	3.00	0.40	0.52	1.25	16.0	16.0	3.8	4.73	2.82	6.02	12	1.96	123.50	117.70	141.00	124.66	127.90	122.20	1369
7	6	30.0	0.28	0.28	0.40	0.11	0.11	5.0	5.0	6.0	0.67	2.01	0.85	12	1.00	123.90	123.60	142.43	142.40	128.20	127.90	1368
8	6	247.0	1.24	1.43	0.40	0.50	0.62	12.0	12.0	4.3	2.67	5.04	3.41	12	6.28	139.40	123.90	146.60	142.23	143.80	127.90	1367
9	8	28.0	0.19	0.19	0.64	0.12	0.12	5.0	5.0	6.0	0.73	2.95	0.93	12	2.14	140.00	139.40	147.07	147.03	143.20	143.80	1366

Existing Highview Drive | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Proposed Highview Drive	No. Lines: 9	09-14-2007

Hydraflow Storm Sewers 2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	103.0	0.21	21.66	0.50	0.11	10.45	5.0	32.2	1.8	19.19	32.30	7.34	24	2.04	117.60	115.50	119.15	117.05	122.20	117.50	555
2	1	11.0	0.37	0.37	0.46	0.17	0.17	16.0	16.0	2.6	0.44	7.91	0.56	12	15.45	119.30	117.60	120.56	120.55	122.20	122.20	1370
3	1	29.0	1.46	21.08	0.40	0.58	10.17	22.0	32.1	1.8	18.71	31.99	5.95	24	2.00	118.18	117.60	120.75	120.55	122.20	122.20	554
4	3	10.0	1.67	1.67	0.25	0.42	0.42	16.0	16.0	2.6	1.07	6.11	1.36	12	9.20	119.20	118.28	122.13	122.10	122.20	122.20	552
5	3	20.0	14.95	14.95	0.53	7.92	7.92	32.0	32.0	1.8	14.59	32.87	4.64	24	1.25	119.00	118.75	121.84	121.79	120.50	122.20	553
6	3	296.0	1.29	3.00	0.40	0.52	1.25	16.0	16.0	2.6	3.19	13.95	2.95	18	1.76	123.50	118.28	124.18	122.08	127.90	122.20	1369
7	6	30.0	0.28	0.28	0.40	0.11	0.11	5.0	5.0	4.2	0.47	2.01	0.77	12	1.00	123.90	123.60	124.53	124.52	128.20	127.90	1368
8	6	247.0	1.24	1.43	0.40	0.50	0.62	12.0	12.0	2.9	1.81	5.04	3.73	12	6.28	139.40	123.90	139.97	124.52	143.80	127.90	1367
9	8	28.0	0.19	0.19	0.64	0.12	0.12	5.0	5.0	4.2	0.52	2.95	1.33	12	2.14	140.00	139.40	140.37	140.30	143.20	143.80	1366

Proposed Highview Drive | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

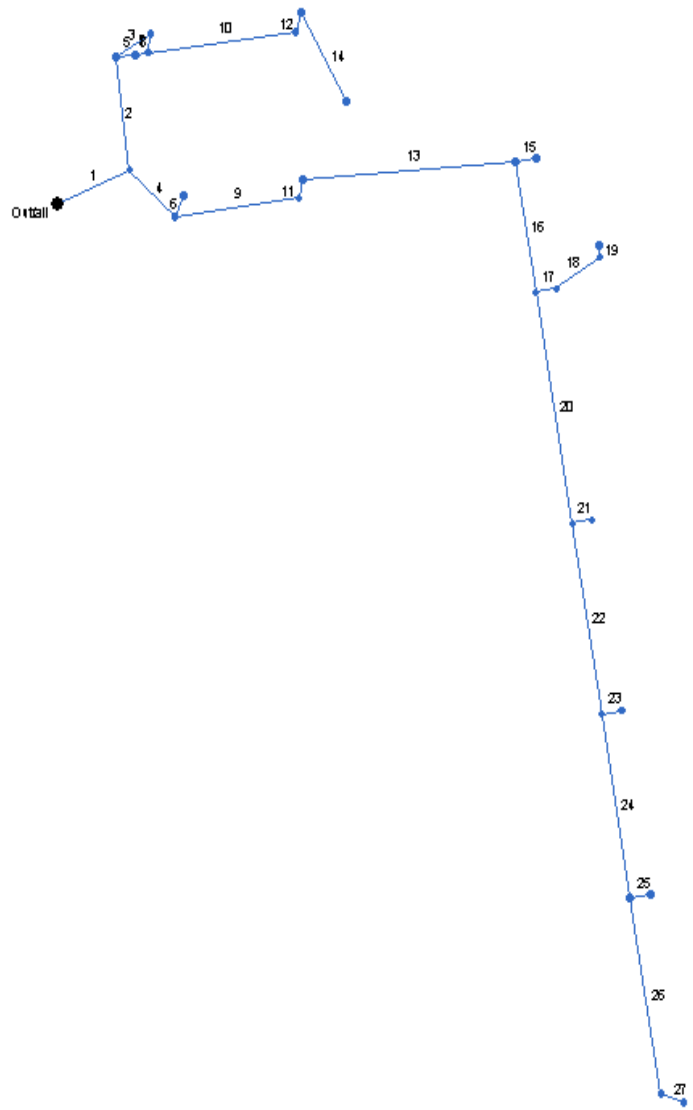
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	103.0	0.21	21.66	0.50	0.11	10.45	5.0	32.1	2.6	27.68	32.30	9.21	24	2.04	117.60	115.50	119.42	117.32	122.20	117.50	555
2	1	11.0	0.37	0.37	0.46	0.17	0.17	16.0	16.0	3.8	0.65	7.91	0.82	12	15.45	119.30	117.60	121.95	121.94	122.20	122.20	1370
3	1	29.0	1.46	21.08	0.40	0.58	10.17	22.0	32.0	2.7	26.97	31.99	8.59	24	2.00	118.18	117.60	122.35	121.94	122.20	122.20	554
4	3	10.0	1.67	1.67	0.25	0.42	0.42	16.0	16.0	3.8	1.59	6.11	2.02	12	9.20	119.20	118.28	125.22	125.15	122.20	122.20	552
5	3	20.0	14.95	14.95	0.53	7.92	7.92	32.0	32.0	2.7	21.03	32.87	6.70	24	1.25	119.00	118.75	124.62	124.52	120.50	122.20	553
6	3	296.0	1.29	3.00	0.40	0.52	1.25	16.0	16.0	3.8	4.73	13.95	2.68	18	1.76	123.50	118.28	125.71	125.11	127.90	122.20	1369
7	6	30.0	0.28	0.28	0.40	0.11	0.11	5.0	5.0	6.0	0.67	2.01	0.85	12	1.00	123.90	123.60	126.01	125.97	128.20	127.90	1368
8	6	247.0	1.24	1.43	0.40	0.50	0.62	12.0	12.0	4.3	2.67	5.04	4.00	12	6.28	139.40	123.90	140.09	125.87	143.80	127.90	1367
9	8	28.0	0.19	0.19	0.64	0.12	0.12	5.0	5.0	6.0	0.73	2.95	1.15	12	2.14	140.00	139.40	140.64	140.60	143.20	143.80	1366

Proposed Highview Drive | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Existing Jane Lane	No. Lines: 27	09-14-2007

Hydraflow Storm Sewers 2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	136.0	0.43	15.00	0.40	0.17	6.85	5.0	26.1	2.0	14.57	6.23	8.25	18	1.10	104.00	102.50	112.20	104.00	112.00	104.00	1389
2	1	178.0	0.25	4.59	0.40	0.10	1.84	10.0	23.3	2.1	4.59	1.22	5.84	12	0.37	104.75	104.10	123.00	113.75	109.00	112.00	1377
3	2	69.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.39	0.39	4.47	4	2.46	107.00	105.30	125.47	123.75	109.00	109.00	1378
4	1	107.0	0.56	9.98	0.40	0.22	4.84	12.0	25.8	2.0	9.90	13.33	5.60	18	5.05	109.50	104.10	116.77	113.79	114.00	112.00	1388
5	2	32.0	0.55	4.34	0.40	0.22	1.74	14.0	23.2	2.1	3.99	2.52	5.08	12	1.56	105.40	104.90	124.92	123.66	109.50	109.00	1375
6	4	37.0	0.34	0.34	0.40	0.14	0.14	9.0	9.0	3.3	0.45	0.61	1.30	8	0.81	109.70	109.40	117.88	117.72	114.00	114.00	1387
7	5	24.0	0.73	3.79	0.40	0.29	1.52	14.0	23.2	2.2	3.52	3.90	4.49	12	3.75	106.30	105.40	125.80	125.06	109.50	109.50	1374
8	7	29.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.26	0.57	0.74	8	0.69	106.60	106.40	126.45	126.41	109.00	109.50	1376
9	4	216.0	0.97	9.08	0.40	0.39	4.48	12.0	25.1	2.1	9.29	7.77	5.26	18	1.71	113.20	109.50	122.61	117.32	118.00	114.00	1386
10	7	256.0	0.23	3.06	0.40	0.09	1.22	11.0	22.6	2.2	2.67	0.50	7.64	8	0.55	107.80	106.40	165.16	126.10	115.00	109.50	1380
11	9	30.0	0.05	8.11	0.40	0.02	4.09	5.0	24.9	2.1	8.50	3.43	4.81	18	0.33	113.30	113.20	123.70	123.09	118.00	118.00	1384
12	10	32.0	1.32	2.83	0.40	0.53	1.13	13.0	22.5	2.2	2.47	1.08	7.07	8	2.50	108.60	107.80	170.31	166.12	115.00	115.00	1381
13	11	368.0	0.10	8.06	0.90	0.09	4.07	5.0	23.7	2.1	8.67	11.44	4.91	18	3.71	126.96	113.30	131.91	124.05	132.40	118.00	1383
14	12	159.0	1.51	1.51	0.40	0.60	0.60	21.0	21.0	2.3	1.36	6.25	1.73	12	1.82	114.70	111.80	171.96	171.82	118.00	115.00	1382
15	13	36.0	0.43	0.43	0.65	0.28	0.28	10.0	10.0	3.2	0.89	2.01	1.13	12	1.00	127.32	126.96	132.71	132.64	132.40	132.40	1897
16	13	208.0	0.15	7.53	0.90	0.14	3.70	5.0	23.1	2.2	7.97	5.56	6.50	15	2.32	131.79	126.96	142.21	132.28	138.10	132.40	1896
17	16	36.0	3.06	3.79	0.35	1.07	1.46	23.0	23.0	2.2	3.16	2.01	4.02	12	1.00	132.35	131.99	144.16	143.27	138.10	138.10	1895
18	17	90.0	0.47	0.73	0.50	0.24	0.39	5.0	5.4	4.1	1.61	4.05	2.05	12	4.06	136.10	132.45	145.04	144.46	139.00	138.10	1338
19	18	18.0	0.26	0.26	0.60	0.16	0.16	5.0	5.0	4.2	0.66	3.67	0.84	12	3.33	136.70	136.10	145.17	145.15	139.00	139.00	1339
20	16	367.0	0.22	3.59	0.90	0.20	2.11	5.0	20.3	2.3	4.83	4.75	3.93	15	1.69	138.20	131.99	149.70	143.28	142.90	138.10	1894
21	20	34.0	0.82	0.82	0.40	0.33	0.33	14.0	14.0	2.7	0.89	2.01	1.14	12	1.00	138.74	138.40	150.23	150.16	142.90	142.90	1893

Existing Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	20	303.0	0.36	2.55	0.90	0.32	1.58	5.0	18.7	2.4	3.76	5.20	3.07	15	2.03	144.55	138.40	153.26	150.03	149.69	142.90	1892
23	22	35.0	0.47	0.47	0.40	0.19	0.19	15.0	15.0	2.6	0.50	2.01	0.63	12	1.00	145.15	144.80	153.56	153.54	149.69	149.69	1891
24	22	292.0	0.24	1.72	0.90	0.22	1.07	5.0	17.3	2.5	2.64	2.46	3.36	12	1.49	149.15	144.80	158.42	153.40	154.00	149.69	1890
25	24	36.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	2.7	0.52	2.01	0.67	12	1.00	149.51	149.15	158.79	158.76	154.00	154.00	1889
26	24	311.0	0.52	1.00	0.90	0.47	0.66	5.0	15.0	2.6	1.74	2.46	2.22	12	1.50	154.00	149.35	161.02	158.69	159.29	154.00	1888
27	26	42.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	2.7	0.52	2.01	0.67	12	1.00	154.42	154.00	161.19	161.16	159.29	159.29	1887

Existing Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	136.0	0.43	15.00	0.40	0.17	6.85	5.0	25.1	3.0	21.37	6.23	12.09	18	1.10	104.00	102.50	121.63	104.00	112.00	104.00	1389
2	1	178.0	0.25	4.59	0.40	0.10	1.84	10.0	22.6	3.2	6.52	1.22	8.30	12	0.37	104.75	104.10	143.72	125.04	109.00	112.00	1377
3	2	69.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.39	0.39	4.47	4	2.46	107.00	105.30	147.27	145.55	109.00	109.00	1378
4	1	107.0	0.56	9.98	0.40	0.22	4.84	12.0	24.9	3.0	14.71	13.33	8.33	18	5.05	109.50	104.10	131.61	125.03	114.00	112.00	1388
5	2	32.0	0.55	4.34	0.40	0.22	1.74	14.0	22.5	3.2	5.82	2.52	7.41	12	1.56	105.40	104.90	147.69	145.01	109.50	109.00	1375
6	4	37.0	0.34	0.34	0.40	0.14	0.14	9.0	9.0	4.9	0.66	0.61	1.90	8	0.81	109.70	109.40	134.06	133.71	114.00	114.00	1387
7	5	24.0	0.73	3.79	0.40	0.29	1.52	14.0	22.5	3.2	5.12	3.90	6.52	12	3.75	106.30	105.40	149.56	148.01	109.50	109.50	1374
8	7	29.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.26	0.57	0.74	8	0.69	106.60	106.40	150.90	150.85	109.00	109.50	1376
9	4	216.0	0.97	9.08	0.40	0.39	4.48	12.0	24.4	3.1	13.76	7.77	7.79	18	1.71	113.20	109.50	144.44	132.83	118.00	114.00	1386
10	7	256.0	0.23	3.06	0.40	0.09	1.22	11.0	22.1	3.2	3.96	0.50	11.35	8	0.55	107.80	106.40	236.37	150.20	115.00	109.50	1380
11	9	30.0	0.05	8.11	0.40	0.02	4.09	5.0	24.3	3.1	12.59	3.43	7.13	18	0.33	113.30	113.20	146.84	145.49	118.00	118.00	1384
12	10	32.0	1.32	2.83	0.40	0.53	1.13	13.0	22.0	3.2	3.67	1.08	10.50	8	2.50	108.60	107.80	247.73	238.49	115.00	115.00	1381
13	11	368.0	0.10	8.06	0.90	0.09	4.07	5.0	23.5	3.1	12.77	11.44	7.23	18	3.71	126.96	113.30	164.63	147.60	132.40	118.00	1383
14	12	159.0	1.51	1.51	0.40	0.60	0.60	21.0	21.0	3.3	2.01	6.25	2.55	12	1.82	114.70	111.80	251.35	251.06	118.00	115.00	1382
15	13	36.0	0.43	0.43	0.65	0.28	0.28	10.0	10.0	4.7	1.31	2.01	1.67	12	1.00	127.32	126.96	166.37	166.21	132.40	132.40	1897
16	13	208.0	0.15	7.53	0.90	0.14	3.70	5.0	23.1	3.2	11.70	5.56	9.54	15	2.32	131.79	126.96	186.84	165.44	138.10	132.40	1896
17	16	36.0	3.06	3.79	0.35	1.07	1.46	23.0	23.0	3.2	4.63	2.01	5.90	12	1.00	132.35	131.99	191.04	189.13	138.10	138.10	1895
18	17	90.0	0.47	0.73	0.50	0.24	0.39	5.0	5.3	5.9	2.31	4.05	2.94	12	4.06	136.10	132.45	192.88	191.70	139.00	138.10	1338
19	18	18.0	0.26	0.26	0.60	0.16	0.16	5.0	5.0	6.0	0.93	3.67	1.19	12	3.33	136.70	136.10	193.15	193.11	139.00	139.00	1339
20	16	367.0	0.22	3.59	0.90	0.20	2.11	5.0	18.3	3.6	7.50	4.75	6.11	15	1.69	138.20	131.99	204.58	189.09	142.90	138.10	1894
21	20	34.0	0.82	0.82	0.40	0.33	0.33	14.0	14.0	4.0	1.33	2.01	1.69	12	1.00	138.74	138.40	205.85	205.70	142.90	142.90	1893

Existing Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

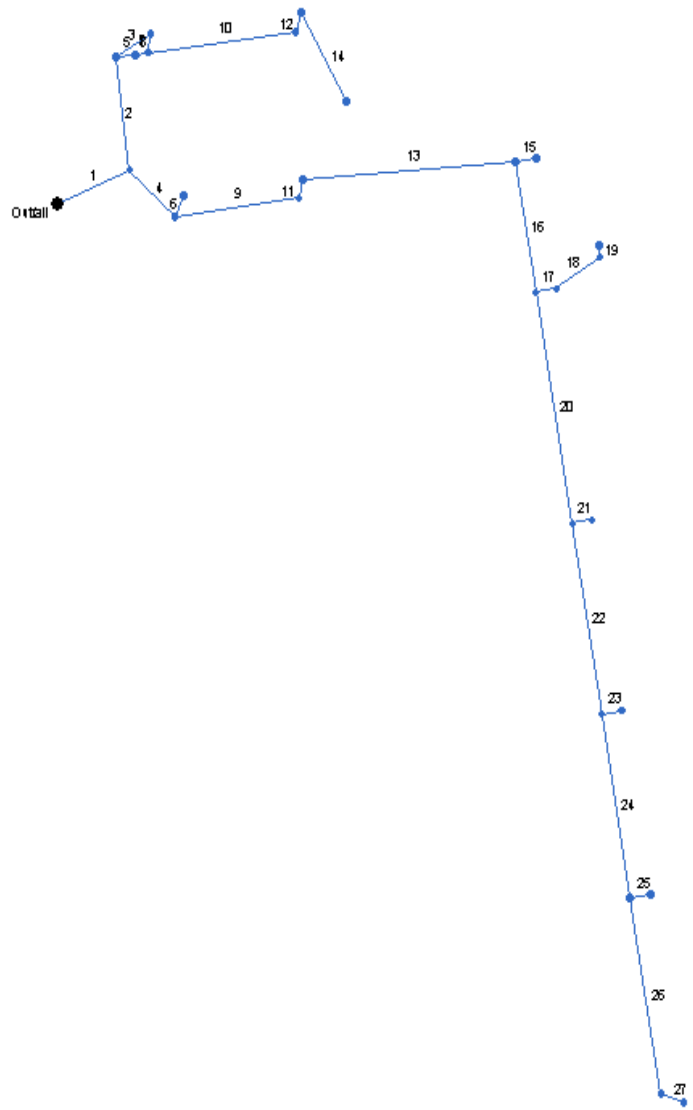
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	20	303.0	0.36	2.55	0.90	0.32	1.58	5.0	17.2	3.7	5.80	5.20	4.72	15	2.03	144.55	138.40	213.04	205.40	149.69	142.90	1892
23	22	35.0	0.47	0.47	0.40	0.19	0.19	15.0	15.0	3.9	0.74	2.01	0.94	12	1.00	145.15	144.80	213.76	213.72	149.69	149.69	1891
24	22	292.0	0.24	1.72	0.90	0.22	1.07	5.0	16.2	3.8	4.03	2.46	5.13	12	1.49	149.15	144.80	225.07	213.38	154.00	149.69	1890
25	24	36.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	4.0	0.78	2.01	0.99	12	1.00	149.51	149.15	225.92	225.87	154.00	154.00	1889
26	24	311.0	0.52	1.00	0.90	0.47	0.66	5.0	14.7	4.0	2.61	2.46	3.32	12	1.50	154.00	149.35	230.93	225.71	159.29	154.00	1888
27	26	42.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	4.0	0.78	2.01	0.99	12	1.00	154.42	154.00	231.30	231.24	159.29	159.29	1887

Existing Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Proposed Jane Lane	No. Lines: 27	09-14-2007

Hydraflow Storm Sewers 2005

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	136.0	0.43	15.00	0.40	0.17	6.85	5.0	26.1	2.0	14.57	23.75	6.45	24	1.10	104.00	102.50	105.35	103.85	112.00	104.00	1389
2	1	178.0	0.25	4.59	0.40	0.10	1.84	10.0	23.3	2.1	4.59	1.22	5.84	12	0.37	104.75	104.10	115.60	106.36	109.00	112.00	1377
3	2	69.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.39	0.39	4.47	4	2.46	107.00	105.30	118.07	116.35	109.00	109.00	1378
4	1	107.0	0.56	9.98	0.40	0.22	4.84	12.0	25.8	2.0	9.90	23.59	6.07	18	5.05	109.50	104.10	110.70	106.36	114.00	112.00	1388
5	2	32.0	0.55	4.34	0.40	0.22	1.74	14.0	23.2	2.1	3.99	2.52	5.08	12	1.56	105.40	104.90	117.52	116.26	109.50	109.00	1375
6	4	37.0	0.34	0.34	0.40	0.14	0.14	9.0	9.0	3.3	0.45	0.61	1.30	8	0.81	109.70	109.40	111.99	111.82	114.00	114.00	1387
7	5	24.0	0.73	3.79	0.40	0.29	1.52	14.0	23.2	2.2	3.52	3.90	4.49	12	3.75	106.30	105.40	118.41	117.67	109.50	109.50	1374
8	7	29.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.26	0.57	0.74	8	0.69	106.60	106.40	119.06	119.01	109.00	109.50	1376
9	4	216.0	0.97	9.08	0.40	0.39	4.48	12.0	25.1	2.1	9.29	13.74	5.79	18	1.71	113.20	109.50	114.36	111.82	118.00	114.00	1386
10	7	256.0	0.23	3.06	0.40	0.09	1.22	11.0	22.6	2.2	2.67	0.50	7.64	8	0.55	107.80	106.40	157.76	118.71	115.00	109.50	1380
11	9	30.0	0.05	8.11	0.40	0.02	4.09	5.0	24.9	2.1	8.50	6.06	4.81	18	0.33	113.30	113.20	115.59	115.40	118.00	118.00	1384
12	10	32.0	1.32	2.83	0.40	0.53	1.13	13.0	22.5	2.2	2.47	1.08	7.07	8	2.50	108.60	107.80	162.91	158.73	115.00	115.00	1381
13	11	368.0	0.10	8.06	0.90	0.09	4.07	5.0	23.7	2.1	8.67	20.23	5.51	18	3.71	126.96	113.30	128.08	115.94	132.40	118.00	1383
14	12	159.0	1.51	1.51	0.40	0.60	0.60	21.0	21.0	2.3	1.36	6.25	1.73	12	1.82	114.70	111.80	164.56	164.42	118.00	115.00	1382
15	13	36.0	0.43	0.43	0.65	0.28	0.28	10.0	10.0	3.2	0.89	2.01	1.13	12	1.00	127.32	126.96	129.10	129.03	132.40	132.40	1897
16	13	208.0	0.15	7.53	0.90	0.14	3.70	5.0	23.1	2.2	7.97	5.56	6.50	15	2.32	131.79	126.96	138.96	129.03	138.10	132.40	1896
17	16	36.0	3.06	3.79	0.35	1.07	1.46	23.0	23.0	2.2	3.16	2.01	4.02	12	1.00	132.35	131.99	140.91	140.02	138.10	138.10	1895
18	17	90.0	0.47	0.73	0.50	0.24	0.39	5.0	5.4	4.1	1.61	4.05	2.05	12	4.06	136.10	132.45	141.79	141.21	139.00	138.10	1338
19	18	18.0	0.26	0.26	0.60	0.16	0.16	5.0	5.0	4.2	0.66	3.67	0.84	12	3.33	136.70	136.10	141.92	141.90	139.00	139.00	1339
20	16	367.0	0.22	3.59	0.90	0.20	2.11	5.0	20.3	2.3	4.83	4.75	3.93	15	1.69	138.20	131.99	146.45	140.03	142.90	138.10	1894
21	20	34.0	0.82	0.82	0.40	0.33	0.33	14.0	14.0	2.7	0.89	2.01	1.14	12	1.00	138.74	138.40	146.97	146.91	142.90	142.90	1893

Proposed Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	20	303.0	0.36	2.55	0.90	0.32	1.58	5.0	18.7	2.4	3.76	5.20	3.07	15	2.03	144.55	138.40	150.00	146.78	149.69	142.90	1892
23	22	35.0	0.47	0.47	0.40	0.19	0.19	15.0	15.0	2.6	0.50	2.01	0.63	12	1.00	145.15	144.80	150.31	150.29	149.69	149.69	1891
24	22	292.0	0.24	1.72	0.90	0.22	1.07	5.0	17.3	2.5	2.64	2.46	3.36	12	1.49	149.15	144.80	155.17	150.15	154.00	149.69	1890
25	24	36.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	2.7	0.52	2.01	0.67	12	1.00	149.51	149.15	155.53	155.51	154.00	154.00	1889
26	24	311.0	0.52	1.00	0.90	0.47	0.66	5.0	15.0	2.6	1.74	2.46	2.22	12	1.50	154.00	149.35	157.77	155.44	159.29	154.00	1888
27	26	42.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	2.7	0.52	2.01	0.67	12	1.00	154.42	154.00	157.93	157.91	159.29	159.29	1887

Proposed Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	136.0	0.43	15.00	0.40	0.17	6.85	5.0	25.1	3.0	21.37	23.75	7.76	24	1.10	104.00	102.50	105.64	104.14	112.00	104.00	1389
2	1	178.0	0.25	4.59	0.40	0.10	1.84	10.0	22.6	3.2	6.52	1.22	8.30	12	0.37	104.75	104.10	125.94	107.26	109.00	112.00	1377
3	2	69.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.39	0.39	4.47	4	2.46	107.00	105.30	129.49	127.77	109.00	109.00	1378
4	1	107.0	0.56	9.98	0.40	0.22	4.84	12.0	24.9	3.0	14.71	23.59	8.45	18	5.05	109.50	104.10	110.90	107.26	114.00	112.00	1388
5	2	32.0	0.55	4.34	0.40	0.22	1.74	14.0	22.5	3.2	5.82	2.52	7.41	12	1.56	105.40	104.90	129.90	127.22	109.50	109.00	1375
6	4	37.0	0.34	0.34	0.40	0.14	0.14	9.0	9.0	4.9	0.66	0.61	1.90	8	0.81	109.70	109.40	113.52	113.17	114.00	114.00	1387
7	5	24.0	0.73	3.79	0.40	0.29	1.52	14.0	22.5	3.2	5.12	3.90	6.52	12	3.75	106.30	105.40	131.77	130.22	109.50	109.50	1374
8	7	29.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.26	0.57	0.74	8	0.69	106.60	106.40	133.11	133.07	109.00	109.50	1376
9	4	216.0	0.97	9.08	0.40	0.39	4.48	12.0	24.4	3.1	13.76	13.74	7.79	18	1.71	113.20	109.50	116.88	113.17	118.00	114.00	1386
10	7	256.0	0.23	3.06	0.40	0.09	1.22	11.0	22.1	3.2	3.96	0.50	11.35	8	0.55	107.80	106.40	218.58	132.42	115.00	109.50	1380
11	9	30.0	0.05	8.11	0.40	0.02	4.09	5.0	24.3	3.1	12.59	6.06	7.13	18	0.33	113.30	113.20	118.36	117.93	118.00	118.00	1384
12	10	32.0	1.32	2.83	0.40	0.53	1.13	13.0	22.0	3.2	3.67	1.08	10.50	8	2.50	108.60	107.80	229.94	220.71	115.00	115.00	1381
13	11	368.0	0.10	8.06	0.90	0.09	4.07	5.0	23.5	3.1	12.77	20.23	7.43	18	3.71	126.96	113.30	128.31	119.12	132.40	118.00	1383
14	12	159.0	1.51	1.51	0.40	0.60	0.60	21.0	21.0	3.3	2.01	6.25	2.55	12	1.82	114.70	111.80	233.57	233.27	118.00	115.00	1382
15	13	36.0	0.43	0.43	0.65	0.28	0.28	10.0	10.0	4.7	1.31	2.01	1.67	12	1.00	127.32	126.96	130.14	129.99	132.40	132.40	1897
16	13	208.0	0.15	7.53	0.90	0.14	3.70	5.0	23.1	3.2	11.70	5.56	9.54	15	2.32	131.79	126.96	151.39	129.99	138.10	132.40	1896
17	16	36.0	3.06	3.79	0.35	1.07	1.46	23.0	23.0	3.2	4.63	2.01	5.90	12	1.00	132.35	131.99	155.58	153.68	138.10	138.10	1895
18	17	90.0	0.47	0.73	0.50	0.24	0.39	5.0	5.3	5.9	2.31	4.05	2.94	12	4.06	136.10	132.45	157.43	156.25	139.00	138.10	1338
19	18	18.0	0.26	0.26	0.60	0.16	0.16	5.0	5.0	6.0	0.93	3.67	1.19	12	3.33	136.70	136.10	157.70	157.66	139.00	139.00	1339
20	16	367.0	0.22	3.59	0.90	0.20	2.11	5.0	18.3	3.6	7.50	4.75	6.11	15	1.69	138.20	131.99	169.13	153.64	142.90	138.10	1894
21	20	34.0	0.82	0.82	0.40	0.33	0.33	14.0	14.0	4.0	1.33	2.01	1.69	12	1.00	138.74	138.40	170.39	170.25	142.90	142.90	1893

Proposed Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

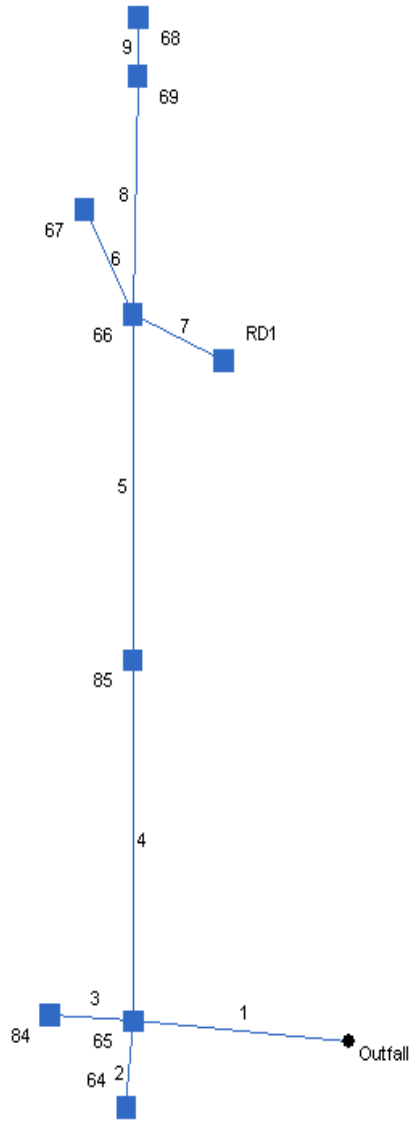
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
22	20	303.0	0.36	2.55	0.90	0.32	1.58	5.0	17.2	3.7	5.80	5.20	4.72	15	2.03	144.55	138.40	177.59	169.94	149.69	142.90	1892
23	22	35.0	0.47	0.47	0.40	0.19	0.19	15.0	15.0	3.9	0.74	2.01	0.94	12	1.00	145.15	144.80	178.31	178.27	149.69	149.69	1891
24	22	292.0	0.24	1.72	0.90	0.22	1.07	5.0	16.2	3.8	4.03	2.46	5.13	12	1.49	149.15	144.80	189.61	177.93	154.00	149.69	1890
25	24	36.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	4.0	0.78	2.01	0.99	12	1.00	149.51	149.15	190.47	190.42	154.00	154.00	1889
26	24	311.0	0.52	1.00	0.90	0.47	0.66	5.0	14.7	4.0	2.61	2.46	3.32	12	1.50	154.00	149.35	195.48	190.26	159.29	154.00	1888
27	26	42.0	0.48	0.48	0.40	0.19	0.19	14.0	14.0	4.0	0.78	2.01	0.99	12	1.00	154.42	154.00	195.85	195.79	159.29	159.29	1887

Proposed Jane Lane | Number of lines: 27 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Existing Paull/Hillside	No. Lines: 9	09-14-2007

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	93.0	1.28	9.86	0.40	0.51	4.11	17.0	21.5	2.2	9.17	4.86	7.47	15	1.77	6.40	4.75	11.87	6.00	10.00	6.00	1740
2	1	34.0	0.59	0.59	0.65	0.38	0.38	5.0	5.0	4.2	1.62	1.05	8.27	6	2.06	7.60	6.90	15.50	13.81	10.00	10.00	1739
3	1	36.0	0.86	0.86	0.40	0.34	0.34	9.5	9.5	3.2	1.12	0.24	5.69	6	0.56	8.20	8.00	18.64	14.17	12.00	10.00	1738
4	1	141.0	1.27	7.13	0.40	0.51	2.87	16.5	21.2	2.2	6.44	2.01	8.21	12	0.99	8.20	6.80	28.26	13.81	12.00	10.00	1741
5	4	135.0	0.55	5.86	0.40	0.22	2.36	16.5	20.9	2.3	5.34	0.95	6.80	12	0.22	8.60	8.30	38.63	29.11	12.00	12.00	1742
6	5	46.0	1.11	1.11	0.40	0.44	0.44	16.5	16.5	2.5	1.12	0.78	3.21	8	1.30	10.10	9.50	41.51	40.27	12.00	12.00	1743
7	5	43.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.73	0.78	6	1.00	9.23	8.80	40.44	40.42	12.00	12.00	1745
8	5	93.0	0.26	4.16	0.40	0.10	1.66	11.0	20.6	2.3	3.79	0.47	4.83	12	0.05	8.60	8.55	43.36	40.07	12.00	12.00	1744
9	8	23.0	3.90	3.90	0.40	1.56	1.56	20.5	20.5	2.3	3.56	3.98	4.53	12	3.91	9.40	8.50	44.31	43.59	12.00	12.00	1746

Existing Paull/Hillside | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

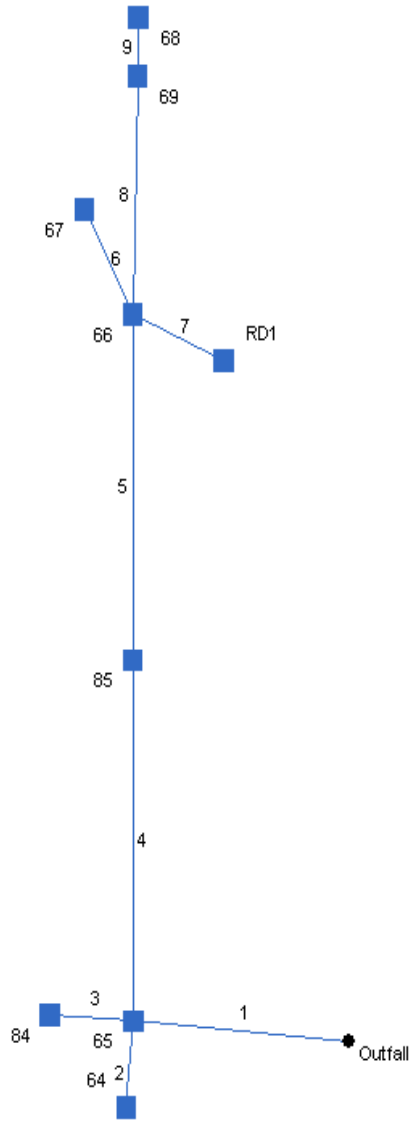
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	93.0	1.28	9.86	0.40	0.51	4.11	17.0	21.2	3.3	13.58	4.86	11.07	15	1.77	6.40	4.75	18.89	6.00	10.00	6.00	1740
2	1	34.0	0.59	0.59	0.65	0.38	0.38	5.0	5.0	6.0	2.30	1.05	11.69	6	2.06	7.60	6.90	26.53	23.15	10.00	10.00	1739
3	1	36.0	0.86	0.86	0.40	0.34	0.34	9.5	9.5	4.8	1.64	0.24	8.37	6	0.56	8.20	8.00	33.65	23.97	12.00	10.00	1738
4	1	141.0	1.27	7.13	0.40	0.51	2.87	16.5	21.0	3.3	9.53	2.01	12.14	12	0.99	8.20	6.80	54.80	23.15	12.00	10.00	1741
5	4	135.0	0.55	5.86	0.40	0.22	2.36	16.5	20.8	3.3	7.89	0.95	10.05	12	0.22	8.60	8.30	77.42	56.67	12.00	12.00	1742
6	5	46.0	1.11	1.11	0.40	0.44	0.44	16.5	16.5	3.7	1.66	0.78	4.76	8	1.30	10.10	9.50	83.72	80.99	12.00	12.00	1743
7	5	43.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.73	1.10	6	1.00	9.23	8.80	81.36	81.33	12.00	12.00	1745
8	5	93.0	0.26	4.16	0.40	0.10	1.66	11.0	20.6	3.4	5.58	0.47	7.11	12	0.05	8.60	8.55	87.72	80.56	12.00	12.00	1744
9	8	23.0	3.90	3.90	0.40	1.56	1.56	20.5	20.5	3.4	5.24	3.98	6.68	12	3.91	9.40	8.50	89.77	88.21	12.00	12.00	1746

Existing Paull/Hillside | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Hydraflow Plan View



Proposed Paull/Hillside	No. Lines: 9	09-14-2007

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	93.0	1.28	9.86	0.40	0.51	4.11	17.0	23.2	2.1	8.84	15.01	6.16	18	2.04	6.40	4.50	7.53	5.63	10.00	6.00	1740
2	1	34.0	0.59	0.59	0.65	0.38	0.38	5.0	5.0	4.2	1.62	6.64	2.10	12	2.06	7.60	6.90	8.54	8.50	10.00	10.00	1739
3	1	36.0	0.86	0.86	0.40	0.34	0.34	10.0	10.0	3.2	1.09	1.50	2.08	12	0.56	8.20	8.00	8.83	8.63	12.00	10.00	1738
4	1	141.0	1.27	7.13	0.40	0.51	2.87	17.0	22.6	2.2	6.26	9.11	3.60	18	0.75	7.56	6.50	8.96	8.50	12.00	10.00	1741
5	4	135.0	0.55	5.86	0.40	0.22	2.36	17.0	21.8	2.2	5.24	8.90	3.94	18	0.72	8.63	7.66	9.50	9.13	12.00	12.00	1742
6	5	46.0	1.11	1.11	0.40	0.44	0.44	17.0	17.0	2.5	1.11	4.07	2.91	12	1.30	10.10	9.50	10.55	10.04	12.00	12.00	1743
7	5	43.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	4.2	0.15	0.73	0.78	6	1.00	9.23	8.80	10.06	10.04	12.00	12.00	1745
8	5	93.0	0.26	4.16	0.40	0.10	1.66	11.0	21.1	2.3	3.75	10.50	3.31	18	1.00	9.66	8.73	10.40	10.04	12.00	12.00	1744
9	8	23.0	3.90	3.90	0.40	1.56	1.56	21.0	21.0	2.3	3.52	3.56	4.48	12	1.00	9.99	9.76	10.99	10.79	12.00	12.00	1746

Proposed Paull/Hillside | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 11.13 / (Inlet time + 1.60) ^ 0.51; Return period = 2 Yrs.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	93.0	1.28	9.86	0.40	0.51	4.11	17.0	22.5	3.2	13.17	15.01	7.82	18	2.04	6.40	4.50	7.76	5.86	10.00	6.00	1740
2	1	34.0	0.59	0.59	0.65	0.38	0.38	5.0	5.0	6.0	2.30	6.64	2.92	12	2.06	7.60	6.90	9.64	9.55	10.00	10.00	1739
3	1	36.0	0.86	0.86	0.40	0.34	0.34	10.0	10.0	4.7	1.61	1.50	2.05	12	0.56	8.20	8.00	9.78	9.55	12.00	10.00	1738
4	1	141.0	1.27	7.13	0.40	0.51	2.87	17.0	22.1	3.2	9.30	9.11	5.26	18	0.75	7.56	6.50	10.66	9.55	12.00	10.00	1741
5	4	135.0	0.55	5.86	0.40	0.22	2.36	17.0	21.6	3.3	7.74	8.90	4.38	18	0.72	8.63	7.66	11.74	11.01	12.00	12.00	1742
6	5	46.0	1.11	1.11	0.40	0.44	0.44	17.0	17.0	3.7	1.64	4.07	2.08	12	1.30	10.10	9.50	12.52	12.42	12.00	12.00	1743
7	5	43.0	0.04	0.04	0.90	0.04	0.04	5.0	5.0	6.0	0.22	0.73	1.10	6	1.00	9.23	8.80	12.51	12.47	12.00	12.00	1745
8	5	93.0	0.26	4.16	0.40	0.10	1.66	11.0	21.1	3.3	5.52	10.50	3.12	18	1.00	9.66	8.73	12.59	12.34	12.00	12.00	1744
9	8	23.0	3.90	3.90	0.40	1.56	1.56	21.0	21.0	3.3	5.18	3.56	6.59	12	1.00	9.99	9.76	13.15	12.67	12.00	12.00	1746

Proposed Paull/Hillside | Number of lines: 9 | Run Date: 09-14-2007

NOTES: Intensity = 28.46 / (Inlet time + 5.90) ^ 0.65; Return period = 10 Yrs.

Appendix D – Estimates

TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

CHESTNUT STREET AND CULVERT REPLACEMENT THRU CEMETERY

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0409	Remove and Dispose Flexible Pavement	SY	800	$6.00	$4,800.00
201.0414	Remove and Dispose Pipe	LF	900	$15.00	$13,500.00
202.0100	Earth Excavation	CY	1000	$15.00	$15,000.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	500	$2.00	$1,000.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	500	$3.00	$1,500.00
401.0100	Bituminous Base Course	TON	100	$60.00	$6,000.00
401.0200	Bituminous Surface Course, Type I-1	TON	100	$65.00	$6,500.00
701.0630	42 Inch RCP	LF	1100	$150.00	$165,000.00
701.7730	42 Inch FES	EA	1	$5,000.00	$5,000.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	12	$550.00	$6,600.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	1	$625.00	$625.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	12	$3,600.00	$43,200.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	1	$4,000.00	$4,000.00
906.0602	4' x 6' Precast Box Culvert	LF	900	$500.00	$450,000.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	25	$70.00	$1,750.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	25	$100.00	$2,500.00
920.0200	Filter Fabric for Riprap	SY	40	$3.25	$130.00
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	1100	$2.00	$2,200.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	1000	$4.00	$4,000.00
L01.0102	Residential Seeding (Type 2)	SY	1000	$1.75	$1,750.00
	Unclassified Excavation	CY	500	$30.00	$15,000.00
	MPT	LS	1	$5,000.00	$5,000.00
	Dewatering	LS	1	$50,000.00	$50,000.00
	Landscaping	EA	1	$5,000.00	$5,000.00
				Subtotal	$810,055.00
				15% Eng. & Permitting	$121,508.25
				15% Contingency	$121,508.25
				TOTAL	**$1,053,071.50**
				SAY	**$1,100,000.00**

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TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

ELBOW STREET

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0320	Clearing and Grubbing	A	0.5	$6,500.00	$3,250.00
202.0100	Earth Excavation	CY	80	$10.00	$800.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	48	$2.00	$96.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	200	$3.00	$600.00
401.0100	Bituminous Base Course	TON	60	$70.00	$4,200.00
401.0200	Bituminous Surface Course, Type I-1	TON	60	$70.00	$4,200.00
701.0630	30 Inch RCP - Class V	LF	40	$175.00	$7,000.00
701.7730	30 Inch FES	EA	2	$1,250.00	$2,500.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	4	$550.00	$2,200.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	1	$625.00	$625.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	4	$3,600.00	$14,400.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	1	$4,000.00	$4,000.00
906.0602	Bituminous Berm, RI Std. 7.5.1	LF	400	$4.00	$1,600.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	5	$70.00	$350.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	5	$100.00	$500.00
920.0200	Filter Fabric for Riprap	SY	10	$3.25	$32.50
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	60	$2.00	$120.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	225	$4.00	$900.00
L01.0102	Residential Seeding (Type 2)	SY	225	$1.75	$393.75
	Unclassified Excavation	CY	100	$30.00	$3,000.00
	MPT	LS	1	$5,000.00	$5,000.00
	Landscaping	EA	1	$5,000.00	$5,000.00
				Subtotal	$60,767.25
				15% Eng. & Permitting	$9,115.09
				15% Contingency	$9,115.09
				TOTAL	**$78,997.43**
				SAY	**$80,000.00**

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TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

SHERRY AVENUE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0320	Clearing and Grubbing	A	0.25	$6,500.00	$1,625.00
202.0100	Earth Excavation	CY	0	$10.00	$0.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	500	$2.00	$1,000.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	1500	$3.00	$4,500.00
401.0100	Bituminous Base Course	TON	700	$70.00	$49,000.00
401.0200	Bituminous Surface Course, Type I-1	TON	700	$70.00	$49,000.00
701.0412	12 Inch RCP - Class III	LF	300	$60.00	$18,000.00
701.0418	18 Inch RCP - Class III	LF	1050	$75.00	$78,750.00
701.0424	24 Inch RCP - Class III	LF	570	$70.00	$39,900.00
701.0430	30 Inch RCP - Class III	LF	450	$100.00	$45,000.00
701.7730	30 Inch FES	EA	1	$1,250.00	$1,250.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	31	$550.00	$17,050.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	2	$625.00	$1,250.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	31	$3,600.00	$111,600.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	2	$4,000.00	$8,000.00
906.0602	Bituminous Berm, RI Std. 7.5.1	LF	2000	$4.00	$8,000.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	2.5	$70.00	$175.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	2.5	$100.00	$250.00
920.0200	Filter Fabric for Riprap	SY	5	$3.25	$16.25
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	240	$2.00	$480.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	500	$4.00	$2,000.00
L01.0102	Residential Seeding (Type 2)	SY	500	$1.75	$875.00
	Unclassified Excavation	CY	200	$30.00	$6,000.00
	MPT	LS	1	$15,000.00	$15,000.00
	Landscaping	EA	1	$10,000.00	$10,000.00
				Subtotal	$468,721.25
				15% Eng. & Permitting	$70,308.19
				15% Contingency	$70,308.19
				TOTAL	**$609,337.63**
				SAY	**$610,000.00**

TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

PERRY STREET

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0320	Clearing and Grubbing	A	0.25	$6,500.00	$1,625.00
202.0100	Earth Excavation	CY	0	$10.00	$0.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	440	$2.00	$880.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	100	$3.00	$300.00
401.0100	Bituminous Base Course	TON	500	$70.00	$35,000.00
401.0200	Bituminous Surface Course, Type I-1	TON	500	$70.00	$35,000.00
701.0412	12 Inch RCP - Class III	LF	300	$60.00	$18,000.00
701.0418	18 Inch RCP - Class III	LF	1070	$75.00	$80,250.00
701.0424	24 Inch RCP - Class III	LF	820	$100.00	$82,000.00
701.0430	30 Inch RCP - Class III	LF	80	$120.00	$9,600.00
701.7730	30 Inch FES	EA	1	$1,250.00	$1,250.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	51	$550.00	$28,050.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	2	$625.00	$1,250.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	11	$3,600.00	$39,600.00
702.0717	Double Grate Catch Basin, RI Std. 3.3.5	EA	20	$3,750.00	$75,000.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	2	$4,000.00	$8,000.00
906.0602	Bituminous Berm, RI Std. 7.5.1	LF	1050	$4.00	$4,200.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	2.5	$70.00	$175.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	2.5	$100.00	$250.00
920.0200	Filter Fabric for Riprap	SY	5	$3.25	$16.25
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	300	$2.00	$600.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	400	$4.00	$1,600.00
L01.0102	Residential Seeding (Type 2)	SY	400	$1.75	$700.00
	Unclassified Excavation	CY	200	$30.00	$6,000.00
	MPT	LS	1	$10,000.00	$10,000.00
	Landscaping	EA	1	$7,500.00	$7,500.00
				Subtotal	$446,846.25
				15% Eng. & Permitting	$67,026.94
				15% Contingency	$67,026.94
				TOTAL	**$580,900.13**
				SAY	**$590,000.00**

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TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

HIGHVIEW DRIVE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0320	Clearing and Grubbing	A	0	$6,500.00	$0.00
202.0100	Earth Excavation	CY	0	$10.00	$0.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	80	$2.00	$160.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	50	$3.00	$150.00
401.0100	Bituminous Base Course	TON	35	$70.00	$2,450.00
401.0200	Bituminous Surface Course, Type I-1	TON	35	$70.00	$2,450.00
701.0412	12 Inch RCP - Class III	LF	0	$60.00	$0.00
701.0418	18 Inch RCP - Class III	LF	296	$75.00	$22,200.00
701.0424	24 Inch RCP - Class III	LF	29	$100.00	$2,900.00
701.0430	30 Inch RCP - Class III	LF	0	$120.00	$0.00
701.4324	24 Inch Plastic Pipe	LF	20	$80.00	$1,600.00
701.7730	30 Inch FES	EA	0	$1,250.00	$0.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	0	$550.00	$0.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	0	$625.00	$0.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	0	$3,600.00	$0.00
702.0717	Double Grate Catch Basin, RI Std. 3.3.5	EA	0	$3,750.00	$0.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	0	$4,000.00	$0.00
906.0602	Bituminous Berm, RI Std. 7.5.1	LF	0	$4.00	$0.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	2.5	$70.00	$175.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	2.5	$100.00	$250.00
920.0200	Filter Fabric for Riprap	SY	5	$3.25	$16.25
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	370	$2.00	$740.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	200	$4.00	$800.00
L01.0102	Residential Seeding (Type 2)	SY	200	$1.75	$350.00
	Unclassified Excavation	CY	50	$30.00	$1,500.00
	MPT	LS	1	$5,000.00	$5,000.00
	Landscaping	EA	1	$2,500.00	$2,500.00
				Subtotal	$43,241.25
				15% Eng. & Permitting	$6,486.19
				15% Contingency	$6,486.19
				TOTAL	**$56,213.63**
				SAY	**$60,000.00**

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TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

JANE LANE

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0320	Clearing and Grubbing	A	0.25	$6,500.00	$1,625.00
202.0100	Earth Excavation	CY	0	$10.00	$0.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	96	$2.00	$192.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	50	$3.00	$150.00
401.0100	Bituminous Base Course	TON	35	$70.00	$2,450.00
401.0200	Bituminous Surface Course, Type I-1	TON	35	$70.00	$2,450.00
701.0412	12 Inch RCP - Class III	LF	0	$60.00	$0.00
701.0418	18 Inch RCP - Class III	LF	721	$75.00	$54,075.00
701.0424	24 Inch RCP - Class III	LF	136	$100.00	$13,600.00
701.0430	30 Inch RCP - Class III	LF	0	$120.00	$0.00
701.4324	24 Inch Plastic Pipe	LF	0	$80.00	$0.00
701.7724	24 Inch FES	EA	1	$900.00	$900.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	2	$550.00	$1,100.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	2	$625.00	$1,250.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	2	$3,600.00	$7,200.00
702.0717	Double Grate Catch Basin, RI Std. 3.3.5	EA	0	$3,750.00	$0.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	2	$4,000.00	$8,000.00
906.0602	Bituminous Berm, RI Std. 7.5.1	LF	0	$4.00	$0.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	2.5	$70.00	$175.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	2.5	$100.00	$250.00
920.0200	Filter Fabric for Riprap	SY	5	$3.25	$16.25
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	375	$2.00	$750.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	775	$4.00	$3,100.00
L01.0102	Residential Seeding (Type 2)	SY	775	$1.75	$1,356.25
	Unclassified Excavation	CY	150	$30.00	$4,500.00
	MPT	LS	1	$2,500.00	$2,500.00
	Landscaping	EA	1	$5,000.00	$5,000.00
				Subtotal	$110,639.50
				15% Eng. & Permitting	$16,595.93
				15% Contingency	$16,595.93
				TOTAL	**$143,831.35**
				SAY	**$150,000.00**

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TOWN OF BRISTOL, RHODE ISLAND

PRELIMINARY ESTIMATE

PAULL STREET / HILLSIDE ROAD

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST ($/UNIT)	TOTAL COST ($)
201.0320	Clearing and Grubbing	A	0.25	$6,500.00	$1,625.00
202.0100	Earth Excavation	CY	25	$10.00	$250.00
206.0201	Baled Hay Erosion Check, RI Std. 9.1.0	LF	145	$2.00	$290.00
206.0220	Silt Fence, RI Std. 9.2.0	LF	50	$3.00	$150.00
401.0100	Bituminous Base Course	TON	50	$70.00	$3,500.00
401.0200	Bituminous Surface Course, Type I-1	TON	50	$70.00	$3,500.00
701.0412	12 Inch RCP - Class III	LF	139	$75.00	$10,425.00
701.0418	18 Inch RCP - Class III	LF	462	$90.00	$41,580.00
701.0424	24 Inch RCP - Class III	LF	0	$100.00	$0.00
701.0430	30 Inch RCP - Class III	LF	0	$100.00	$0.00
701.4324	24 Inch Plastic Pipe	LF	0	$80.00	$0.00
701.7718	18 Inch FES	EA	1	$1,000.00	$1,000.00
702.0517	Frame and Grate, RI Std. 6.3.2	EA	2	$550.00	$1,100.00
702.0522	Frame and Cover, RI Std. 6.2.1	EA	0	$625.00	$0.00
702.0615	6' Precast Catch Basin w/hood and deep sump, RI Std. 4.4.0	EA	2	$3,600.00	$7,200.00
702.0717	Double Grate Catch Basin, RI Std. 3.3.5	EA	0	$3,750.00	$0.00
702.0640	6' Precast Manhole, RI Std. 4.2.2	EA	0	$4,000.00	$0.00
906.0602	Bituminous Berm, RI Std. 7.5.1	LF	0	$4.00	$0.00
920.0090	Placed Stone Rip-rap R6, R7, R8	CY	2.5	$70.00	$175.00
920.0155	Bedding for Riprap FS-3, RI Std. 8.3.0	CY	2.5	$100.00	$250.00
920.0200	Filter Fabric for Riprap	SY	5	$3.25	$16.25
932.0200	Full-Depth Sawcut of Bituminous Pavement	LF	530	$2.00	$1,060.00
L01.0102	Loam Borrow, 4 Inches Deep	SY	400	$4.00	$1,600.00
L01.0102	Residential Seeding (Type 2)	SY	400	$1.75	$700.00
	Unclassified Excavation	CY	125	$30.00	$3,750.00
	MPT	LS	1	$5,000.00	$5,000.00
	Landscaping	EA	1	$2,500.00	$2,500.00
				Subtotal	$85,671.25
				15% Eng. & Permitting	$12,850.69
				15% Contingency	$12,850.69
				TOTAL	**$111,372.63**
				SAY	**$120,000.00**

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Appendix E – Map of Study Area