Paradise Trails Condominium

Campus Drive
Village of Hartland,
Waukesha County, Wisconsin

Storm Water Management Plan

Prepared For:

Neumann Developments, Inc.

Prepared By:

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APPENDICES

Introduction

Lake Country Lutheran is a proposed residential development located between Campus Drive and Chestnut Ridge Subdivision, east of Lake Country Lutheran High School. The proposed development is comprised of 47 single-family condominium buildings situated along a private road system that connects to the public road and Campus Drive and a private cul-de-sac that also connects to the public road (Proposed Development Conditions). Six multi-family buildings (150-units total) and associated drives, parking, garages, sidewalks and amenity areas are located south of the public road (Future Development Conditions). The development is laid out to reduce impact to the existing woodlands to the largest extent practicable. The primary objective of the storm water management plan for the Lake Country Lutheran development is to follow existing drainage patterns and keep the site internally drained while managing development runoff and providing water quality control prior to discharging to existing kettles, per Village and WDNR requirements.

Owner

The owner and responsible entity for the storm water management practices is:

Neumann Developments, Inc.
N27W24025 Paul Court, Suite 100
Pewaukee, WI 53072
(262) 542-9200

Property Description

The 53.4-acre property is identified as tax key HAV0423981, described as being part of the SW ¼ & SE ¼ of Section 34, Town 8 North, Range 18 East, in the Village of Hartland, Waukesha County, Wisconsin.

Design Requirements

The following design standards have been used to develop the storm water management plan for Lake Country Lutheran.

- Wisconsin Department of Natural Resources (WDNR) Technical Standards, NR 151 and NR 216.
- Village of Hartland Municipal Code Chapter 76 & Erosion Control and Stormwater Management Requirements

  The proposed development is located on an internally drained site which produces no discharge (except in the extreme 100-year FROZEN condition). The proposed stormwater management plan will continue as an internally drained site and reduce FROZEN 100-year runoff rates, as compared to the existing site.

Analysis Overview

Existing and post development storm water runoff conditions for Lake Country Lutheran have been analyzed for**:** runoff volume, peak volume, discharge, detention area storage capacity required, outlet

structures and storm sewer system requirements. The software package used for modeling and analysis was HydroCAD version 10.00 by HydroCAD Software Solutions. HydroCAD uses NRCS methods to generate runoff and pond routing hydrographs. HydroCAD's capabilities include: modeling simple or complex drainage basins, combining hydrographs to determine runoff and storage requirements, analyzing interconnected detention basins and detention basin and outlet structure sizing.

The computer model analyzed the one, two, ten, and one hundred-year, back-to-back one hundred year, and FROZEN one hundred-year storm events. NRCS MSE3 rainfall distribution is used. The necessary hydrographs were generated to determine the storm water runoff rates, depths, and volumes for pre and post development conditions. This information is used to calculate detention basin size and outlet requirements.

Run-off curve numbers for the onsite and off-site areas were determined using the requirements outlined in the NRCS TR-55 Manual. The existing soils on the site are Type B: Casco-Rodman Complex (CrD, CrE), Hochheim Loam (HmB2, HmC2,HmD2), Hochheim Soils (HoD3), Dodge Silt Loam (DdB) and Juneau silt loam (JuA). Please refer to the attached soils map for additional information.

The post development analysis runoff curve numbers are assigned based on TR-55 standards, and by calculating composite curve numbers per TR-55 standards, as applicable.

The rainfall depths for the 24-hour duration storm are:

Rainfall Depths for 24-Hour Storm Duration
(NOAA Atlas 14 - Waukesha)

1 year	2 year	10 year	100 year
2.40 inches	2.70 inches	3.81 inches	6.18 inches

The following describes the curve numbers assigned for composite calculations:

Curve Numbers:	Impervious Area (Rooftop, Pavement, Sidewalk, Etc.),	CN = 98
	Open Space: Type "B" Soil,	CN = 61
	Woods: Type "B" Soil,	CN = 55
	Cropland: Type "B" Soil,	CN = 69

Existing Site Description & Drainage Summary

Description

The subject site is primarily woodlands with an asphalt trail running east west through the center of the site, connecting Campus Drive and Willow Drive. The site also contains a walking trail meandering throughout the site. As such, the storm water analysis modeled the existing areas as woods and open space with some impervious area accounting for the existing asphalt trail and offsite impervious run on from the single-family lots along Willow Drive, Gail Court and Hickory Court. An existing infiltration basin is located in the northwest corner of the development site, which overtops and spills into the subject site during the FROZEN 100-year storm event.

Existing Drainage Areas

The site is broken down into seventeen (17) drainage areas based on the kettles located throughout the site, as illustrated on the Existing Drainage Map and generally described as:

E-1: Comprised of 15.48 acres, drainage area E-1 receives runoff from onsite woodland and trail area and offsite cropland and residential area. E-1 drains directly to Kettle 1.
E-2: Drainage area E-2 is located southwest of drainage area E-1 and receives runoff from onsite woodland area and the existing asphalt trail, 5.43 acres. This drainage area overland flows to Kettle 2.
E-3: Onsite woodland and existing asphalt trail makes up the 1.59 acre drainage area that is E-3. E-3 overland flows to Kettle 3.
E-4: This small drainage area, 0.37 acres, is in the west central portion of the site and comprised of onsite woodland area. This area overland flows to Kettle 4 prior to discharging to E-2.
E-5: Drainage area E-5 is located in the central portion of the site south of the asphalt trail and made up of 6.18 acres of onsite woodland, open space and asphalt trail. Runoff overland flows to Kettle 5 prior to discharging through a 15" RCP culvert to Kettle 3.
E-6: This 2.78 acre drainage area is located along the western limits of the property and is primarily onsite woodland area that overland flows to Kettle 6.
E-10: Comprised of 1.92 acres of onsite woodland area and offsite rear-yard run-on, this drainage area overland flows to Kettle 10.
E-11: This small 0.73 acre onsite drainage area is comprised of primarily woodland area that drains to Kettle 11.
E-12: Drainage area E-12 is located along the northern portion of the Willow Drive connection and consists of 2.90 acres of onsite woodland area and asphalt trail, as well as offsite roadway & residential run-on. This area is tributary to Kettle 12, which also receives outflow from Kettle 13.
E-13: Located along the southern portion of the Willow Drive connection, drainage area is comprised of 1.01 acres of onsite woodland area and offsite rear yard run-on, that drains to Kettle 13 prior to discharging through two 24" RCP culverts to Kettle 12.
E-14: Drainage area E-14, 8.13 acres, consist of onsite woodland area and the northern portion of the S.T.H. 16 R.O.W. that drains to Kettle 14 via ditch and overland flow.
E-15: Drainage area E-15 is located to the east of the subject property and comprised of 0.87 acres of offsite rear yard and woodland area that overland flows to Kettle 15, discharging toward the proposed development site in the FROZEN 100-year condition.
E-16: Located in the southwest corner of the site, drainage area E-16 consists of 1.62 acres of onsite woodland area that drains to Kettle 16.
E-17: Drainage area E-17 consists of 4.30 acres of onsite open space, woodland area and walking trail. This drainage area is located in the southwest corner of the site and overland flows to Kettle 17.
E-18: Drainage area E-18 is approximately 5.99 acres and is located along the west side of the site. This area is comprised of Drainage Areas C and D from the Lake County Lutheran High School Stormwater Management Plan dated July 28, 2008. Runoff from this area is directed to the Existing Infiltration Basin located near the northwest corner of the site.
E-19: Small drainage area, approximately 0.10 acres, located along the west side of the site. This area is part of Drainage Area G from the Lake County Lutheran High School Stormwater Management Plan. Drainage from this area is tributary to an Existing Wet Detention Pond located on the school campus.
E-20: In the northwest corner of the subject site, drainage area E-20 is comprised of 4.81 acres of onsite woodland area, walking trail and some open space. This area receives runoff via overland flow and discharge from the Existing Infiltration Basin in the 100-year FROZEN condition.

E-21: Drainage area E-21 is approximately 1.78 acres and contains a portion of Campus Drive located north of the site. Runoff from this area is tributary to the Existing Infiltration Basin located near the northwest corner of the site.

The following table provides a detailed breakdown of the land use characteristics of each area, refer to the existing drainage map provided in Appendix 2:

Pre-Developed Condition									
Lot Coverage	**E-1**	**E-2**	**E-3**	**E-4**	**E-5**	**E-6**	**E-10**	**E-11**	**E-12**
	(acres)	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**
Open Space "B" (CN=61)	0.00	0.38	0.19	0.02	0.08	0.00	0.00	0.00	0.27
Woods "B" (CN=55)	11.95	4.96	1.28	0.35	6.10	2.78	1.47	0.73	1.45
Cropland "B" (CN=69)	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/2 ac Residential (CN=70)	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/4 ac Residential (CN=75)	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	1.07
LCL Report Area C (CN=78)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Impervious (CN=98)	0.00	0.09	0.12	0.00	0.00	0.00	0.00	0.00	0.11
Sub-Total (ac)	**15.48**	**5.43**	**1.59**	**0.37**	**6.18**	**2.78**	**1.92**	**0.73**	**2.90**
Composite CN	58	56	59	55	55	55	60	55	65

Pre-Developed Condition									
Lot Coverage	**E-13**	**E-14**	**E-15**	**E-16**	**E-17**	**E-18**	**E-19**	**E-20**	**E-21**
	(acres)	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**
Open Space "B" (CN=61)	0.00	2.60	0.09	0.00	0.00	0.62	0.06	0.11	0.53
Woods "B" (CN=55)	0.76	4.65	0.48	1.62	4.30	0.85	0.00	4.70	0.00
Cropland "B" (CN=69)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88
1/2 ac Residential (CN=70)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/4 ac Residential (CN=75)	0.25	0.05	0.29	0.00	0.00	0.00	0.00	0.00	0.00
LCL Report Area C (CN=78)	0.00	0.00	0.00	0.00	0.00	4.29	0.00	0.00	0.00
Impervious (CN=98)	0.00	0.83	0.01	0.00	0.00	0.23	0.04	0.00	0.37
Sub-Total (ac)	**1.01**	**8.13**	**0.87**	**1.62**	**4.30**	**5.99**	**0.10**	**4.81**	**1.78**
Composite CN	60	61	63	55	55	74	76	55	73

Post-Development Site Description & Drainage Summary

Description

The proposed Lake Country Lutheran development is a 47 single-family condominium unit residential subdivision along a private street system to the north (Proposed Development Conditions) and to the south are six multi-family buildings (totaling 150 units) and associated drives, parking, garages, sidewalks and amenity areas (Future Development Conditions). The layout of the condominium units, multifamily building and streets was intentional and designed to maximize the amount of wooded area that can be preserved through this development. The development areas drain to proposed basins for the primary means of storm water management and water quality prior to discharging to the existing kettles.

Proposed Drainage Areas

The post-development site is divided in to seventeen (17) drainage areas, as illustrated on the Proposed Drainage Map and generally described as:

P-1: Comprised of 11.90 acres, drainage area P-1 receives runoff from onsite rear-yard drainage, woodland and trail areas and offsite cropland and residential area. Pond 20 discharges to drainage area P-1. P-1 drains directly to existing Kettle 1
P-2: Drainage area P-2 consists of 2.03 acres of condominium rear yard runoff, condo amenity area and woodland areas. The runoff overland flows to existing Kettle 2.
P-3: 0.87 acres, this small drainage area receives runoff from condo rear-yard runoff, woodland area and Pond 5 discharge, and flows to existing Kettle 3.
P-5: Drainage area P-5 accounts for 8.12 acres of multi-family area runoff, which drains to Pond 5 via storm sewer, curb and gutter, swales and overland flow.
P-10: P-10 included 1.74 acres of area and encompasses the existing drainage area E-10 except in the proposed condition a small portion of rear yard runoff is included and overland flows to existing Kettle 10.
P-11: The eastern single-family condo cul-de-sac makes up the 3.60 acre drainage area, P-11. Runoff is comprised of roof, driveway, yard, road and open space and is tributary to Pond 11 via swales, overland flow, curb & gutter and storm sewer. Kettle 2 overtops to drainage area P-11 in the proposed condition.
P-12: P-12 is comprised of single-family condo rear yard runoff, existing asphalt trail and offsite roadway & residential area. This 2.57 acre drainage area also receives discharge from Kettle 13 and is managed by existing Kettle 12.
P-18: Drainage area P-18 is approximately 5.85 acres and is located along the west side of the site. This area is comprised of Drainage Areas C and D from the Lake County Lutheran High School Stormwater Management Plan dated July 28, 2008. Runoff from this area is directed to the Existing Infiltration Basin located near the northwest corner of the site.
P-19: Small drainage area, approximately 0.10 acres, located along the west side of the site. This area is part of Drainage Area G from the Lake County Lutheran High School Stormwater Management Plan. Drainage from this area is tributary to an Existing Wet Detention Pond located on the school campus.
P-20: Drainage area P-20 is located in the northwest corner of the development and consists of 8.72 acres of single-family condominium runoff. Discharge drains to Pond 20 via overland flow, swales, curb & gutter and storm sewer. The existing infiltration basin discharges to drainage area P-20 in the FROZEN 100-year condition.

Post-Developed Condition										
Lot Coverage	**P-1**	**P-2**	**P-3**	**P-5**	**P-10**	**P-11**	**P-12**	**P-18**	**P-19**	**P-20**
	(acres)	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**
Open Space "B" (CN=61)	0.54	0.57	0.26	0.97	0.02	1.56	0.35	0.76	0.06	4.11
Woods "B" (CN=55)	8.01	1.33	0.56	5.82	1.27	1.00	0.97	0.38	0.00	1.38
Cropland "B" (CN=69)	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Water (CN=98)	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.15
1/2 ac Residential (CN=70)	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/4 ac Residential (CN=75)	0.00	0.00	0.00	0.00	0.45	0.00	1.07	0.00	0.00	0.00
LCL Report Area C (CN=78)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	0.00	0.00
Impervious (CN=98)	0.08	0.13	0.05	1.09	0.00	1.04	0.18	0.42	0.04	2.83
Sub-Total (ac)	**11.90**	**2.03**	**0.87**	**8.12**	**1.74**	**3.60**	**2.57**	**5.85**	**0.10**	**8.72**
Composite CN	60	59	59	63	60	70	67	76	76	73

Future Drainage Areas

The future development site is divided in to fifteen (15) drainage areas, as illustrated on the Future Drainage Map and generally described as:

F-5: Drainage area F-5 accounts for 13.40 acres of multi-family area runoff, which drains to Pond 5 via storm sewer, curb and gutter, swales and overland flow.
F-14: Drainage area F-14, 7.00 acres, consist of onsite woodland area and the northern portion of the S.T.H. 16 R.O.W. that drains to Kettle 14 via ditch and overland flow.

F-16: Drainage area F-16 is located along the southern property line. Multifamily garage roof, open space and woodland area comprises this 1.06 acre drainage area tributary, via overland flow, to existing Kettle 16.
F-17: F-17 includes 3.48 acres of area and is located in the southwest corner of the site and receives runoff from multifamily garage roof, woodland area and open space; discharging via overland flow to proposed Kettle 17. Kettle 17 storage area is slightly altered by associated grading with the multifamily development, however the remainder of the kettle remains unchanged.
F-18: Drainage area F-18 is approximately 5.86 acres and is located along the west side of the site. This area is comprised of Drainage Areas C and D from the Lake County Lutheran High School Stormwater Management Plan dated July 28, 2008. Runoff from this area is directed to the Existing Infiltration Basin located near the northwest corner of the site.
F-19: Small drainage area, approximately 0.10 acres, located along the west side of the site. This area is part of Drainage Area G from the Lake County Lutheran High School Stormwater Management Plan. Drainage from this area is tributary to an Existing Wet Detention Pond located on the school campus.

The following table describes the lot coverage breakdown for each drainage area which was used to develop the composite curve numbers:

Future Condition						
Lot Coverage	**F-5**	**F-14**	**F-16**	**F-17**	**F-18**	**F-19**
	(acres)	**(acres)**	**(acres)**	**(acres)**	**(acres)**	**(acres)**
Open Space "B" (CN=61)	4.56	2.72	0.03	0.12	0.78	0.04
Woods "B" (CN=55)	1.59	3.34	1.02	3.28	0.27	0.00
Cropland "B" (CN=69)	0.00	0.00	0.00	0.00	0.00	0.00
Water (CN=98)	0.24	0.00	0.00	0.00	0.00	0.00
1/2 ac Residential (CN=70)	0.00	0.00	0.00	0.00	0.00	0.00
1/4 ac Residential (CN=75)	0.00	0.05	0.00	0.00	0.00	0.00
LCL Report Area C (CN=78)	0.00	0.00	0.00	0.00	4.29	0.00
Impervious (CN=98)	7.01	0.89	0.01	0.08	0.52	0.06
Sub-Total (ac)	**13.40**	**7.00**	**1.06**	**3.48**	**5.86**	**0.10**
Composite CN	80	63	56	56	76	83

Descriptions & Summaries of Storm Water Practices

Pond 5 Summary

Pond 5 is a large basin located south of the public drive. It receives runoff from drainage area P-5 via storm sewer, curb & gutter, grass swales and overland flow. This basin discharges through a multi-stage structure into a 15-inch reinforce concrete culvert pipe to Kettle 3. The emergency overflow spillway is a low point in the public drive near the southeast corner of the pond. The north and east portions of Pond 5 (including the outlet control and emergency overflow spillway) will be constructed during the first phase of construction (Proposed Development Conditions) to manage runoff from the proposed public drive. Pond 5 will be expanded during the second phase of development to accommodate Future Development Conditions (includes the construction of six multi-family buildings and associated drives, parking, garages, sidewalks and amenity areas).

The following describes this basin:

- "Top" of Berm = 987.0
- Overflow = 985.9
- NWL = 979.25
- Bottom = 974.25
- 6-inch orifice I.E. = 979.25
- 36-inch riser rim elevation = 981.25
- 15-inch RCP culvert I.E. = 979.25

Proposed Development Conditions:

- 100-yr FROZEN = 983.72
- 100-yr back-to-back = 983.03
- 100-yr = 981.51
- 10-yr = 980.23
- 2-yr = 979.61
- 1-yr = 979.51

Future Development Conditions:

- 100-yr FROZEN = 985.87
- 100-yr back-to-back = 985.67
- 100-yr = 984.30
- 10-yr = 981.96
- 2-yr = 981.35
- 1-yr = 981.00

Infiltration Basin 11 Summary

This infiltration basin is located near the center of the development, northwest of the singe-family condominium development. Inflow to this basin is primarily from drainage area P-11 with some discharge from Kettle 2 in large storm events. Infiltration Basin 11 discharges via a 10-inch culvert pipe to Kettle 1. The emergency overflow spillway is on the northern side of the pond and overflows to Kettle 1.

The following describes this wet pond:
- Top of Berm = 970.0
- Overflow = 969.0
- Bottom = 964.0
- 10-inch culvert I.E. = 966.0

Proposed Development Conditions:
- 100-yr FROZEN = 969.36
- 100-yr back-to-back = 969.43
- 100-yr = 967.11
- 10-yr = 965.70
- 2-yr = 964.59
- 1-yr = 964.33

Future Development Conditions:
- 100-yr FROZEN = 969.49
- 100-yr back-to-back = 969.66
- 100-yr = 969.18
- 10-yr = 965.70
- 2-yr = 964.59
- 1-yr = 964.33

Pond 20 Summary

Pond 20 is located in the northern portion of the site. Pond 20 receives discharge from drainage area P-20, and the existing infiltration basin during the frozen 100-year storm event. This basin discharges through a 6-inch culvert pipe to Kettle 1 and has a secondary discharge through a 15-inch culvert pipe that directs runoff to the existing infiltration basin 18B. The emergency overflow route is in the southeast corner of the basin and directed towards Kettle 1.

The following describes this basin:
- Top of Berm = 995.0
- Overflow = 994.0
- NWL = 989.0
- Bottom = 984.0
- 15-inch RCP culvert I.E. = 991.0
- 6-inch orifice I.E. = 989.00

Proposed/Future Development Conditions:
- 100-yr FROZEN = 994.54
- 100-yr back-to-back = 994.57
- 100-yr = 993.78
- 10-yr = 991.49
- 2-yr = 990.04
- 1-yr = 989.78

Kettle Peak Water Elevations

The table below summarizes the storm water peak elevations for the kettles throughout the site.

			High Water Levels		
		Storm Event	Existing	Proposed	Future
Kettle 1	Spillway-975 Bottom-944	1-yr	944.98	946.69	946.69
		2-yr	945.53	947.45	947.45
		10-yr	947.63	950.45	950.45
		100-yr	951.74	954.67	956.97
		100-yr x2	963.24	967.27	969.52
		FROZEN	*963.76*	*965.88*	*967.01*
Kettle 2	Spillway-973.7 Bottom-966	1-yr	966.85	967.42	971.00
		2-yr	967.16	968.07	971.58
		10-yr	968.44	970.27	973.51
		100-yr	972.48	973.16	974.48
		100-yr x2	975.00	974.64	974.92
		FROZEN	*975.06*	*974.61*	*974.80*
Kettle 3	Spillway-976 Bottom-972	1-yr	972.53	972.71	973.79
		2-yr	972.95	972.82	974.25
		10-yr	974.57	973.32	976.30
		100-yr	976.16	975.79	976.44
		100-yr x2	976.41	976.41	976.49
		FROZEN	*976.48*	*976.43*	*976.49*
Kettle 4	Spillway-1008.5 Bottom-1007	1-yr	1007.01	N/A	N/A
		2-yr	1007.05		
		10-yr	1007.34		
		100-yr	1007.92		
		100-yr x2	1008.58		
		FROZEN	*1008.61*		
Kettle 5	Spillway-985.1 Bottom-982.5	1-yr	982.67	N/A	N/A
		2-yr	982.73		
		10-yr	982.96		
		100-yr	983.45		
		100-yr x2	984.35		
		FROZEN	*984.88*		
Kettle 6	Spillway-1012.7 Bottom-1011	1-yr	1011.01	1011.01	N/A
		2-yr	1011.02	1011.02	
		10-yr	1011.22	1011.22	
		100-yr	1011.81	1011.81	
		100-yr x2	1012.81	1012.81	
		FROZEN	*1012.90*	*1012.90*	
Kettle 10	Spillway-964.5 Bottom-953	1-yr	954.45	954.37	954.37
		2-yr	954.85	954.76	954.76
		10-yr	956.00	955.88	955.88
		100-yr	957.85	957.64	957.64
		100-yr x2	964.56	964.40	963.85
		FROZEN	*964.60*	*964.50*	*963.85*
Kettle 11	Spillway-980.5 Bottom-979	1-yr	979.04	N/A	N/A
		2-yr	979.14		
		10-yr	979.57		
		100-yr	980.31		
		100-yr x2	980.65		
		FROZEN	*980.69*		

			High Water Levels		
		Storm Event	Existing	Proposed	Future
Kettle 12	Spillway-963 Bottom-956	1-yr	956.87	956.90	956.90
		2-yr	957.07	957.09	957.09
		10-yr	957.81	957.81	957.81
		100-yr	959.25	959.17	959.17
		100-yr x2	964.56	964.40	963.85
		FROZEN	*964.60*	*964.50*	*963.85*
Kettle 13	Spillway-966 Bottom-959.4	1-yr	959.56	959.56	959.56
		2-yr	959.59	959.59	959.59
		10-yr	959.69	959.69	959.69
		100-yr	959.88	959.88	959.88
		100-yr x2	964.56	964.40	963.85
		FROZEN	*964.60*	*964.50*	*963.85*
Kettle 14	Spillway-961.3 Bottom-955	1-yr	955.92	955.92	956.00
		2-yr	956.36	956.36	956.42
		10-yr	958.01	958.01	957.97
		100-yr	961.28	961.28	961.02
		100-yr x2	964.56	964.40	963.85
		FROZEN	*964.60*	*964.50*	*963.85*
Kettle 15	Spillway-972.5 Bottom-970	1-yr	970.19	970.19	970.19
		2-yr	970.32	970.32	970.32
		10-yr	970.88	970.88	970.88
		100-yr	971.90	971.90	971.90
		100-yr x2	972.71	972.71	972.71
		FROZEN	*972.67*	*972.67*	*972.67*
Kettle 16	Spillway-1007 Bottom-1005	1-yr	1005.01	1005.01	1005.01
		2-yr	1005.03	1005.03	1005.02
		10-yr	1005.32	1005.32	1005.21
		100-yr	1007.01	1007.01	1006.42
		100-yr x2	1007.42	1007.42	1007.40
		FROZEN	*1007.52*	*1007.52*	*1007.49*
Kettle 17	Spillway-1012 Bottom-1011	1-yr	1011.09	1011.09	1011.09
		2-yr	1011.21	1011.21	1011.20
		10-yr	1011.62	1011.62	1011.58
		100-yr	1012.09	1012.09	1012.06
		100-yr x2	1012.35	1012.35	1012.34
		FROZEN	*1012.43*	*1012.43*	*1012.42*
Kettle 20	Spillway-995.5 Bottom-992	1-yr	992.02	N/A	N/A
		2-yr	992.10		
		10-yr	992.51		
		100-yr	993.27		
		100-yr x2	995.10		
		FROZEN	*995.08*		

Water Quality (Total Suspended Solids Reduction) & Infiltration

WinSLAMM © Version 10.4.1 is utilized to calculate the total suspended solids (TSS) loadings for the drainage areas and reductions produced by the storm water facilities to ensure adequate water quality is achieved prior to discharging to existing kettles. WDNR's Technical Standard 1003, Infiltration Basin,

requires pretreatment practices for residential developments be designed to achieve at least 60 percent total suspended solids removal from stormwater runoff prior to discharging to an infiltration practice. The results of the WinSLAMM analyses indicate that the proposed ponds will remove approximately 82 percent of TSS from runoff under Proposed Development Conditions and 75 percent of TSS under Future Development Conditions. Detailed computations are included in Appendix 6.

The development will provide infiltration where soil and subsurface conditions permit, per WDNR and Village code requirements. Based on the soils, the existing kettles will continue to be the primary infiltration practices for the site. The proposed development will remain internally drained with zero discharge released.

Back-To-Back 100-year and Frozen Ground (CN=98) 100-year

The proposed storm water model has been analyzed to view the extreme scenarios of a back-to-back 100-year and 100-year storm event during frozen ground conditions. To portray the frozen ground, each drainage area was assigned a runoff curve number of 98, equal to the impervious runoff curve number. The overflow spillway and berm elevations of the proposed storm water practices are designed to carry these extreme 100-year overflows in a manner that protects the development. Please note Kettles 10 & 12, which connect to the rear yards along Hickory Court are improved in the proposed and future back-to-back 100-year and frozen 100-year conditions and that the runoff remains on-site. Refer to Appendix 4 for the proposed back-to-back 100-year and Appendix 5 for 100-year frozen ground HydroCAD modeling.

Conclusion

The storm water management plan for this proposed development remains internally drained and meets Village and WDNR requirements; the results described above are supported by the calculations provided in the attachments. A storm water maintenance agreement will be created and executed for this development to ensure that the storm water practices and drainage measures function as intended in perpetuity.

APPENDIX 1

Soils Map & Geotechnical Report

LAND INFORMATION SYSTEMS DIVISION

Waukesha County GIS Map

0 606.22 Feet

Legend

- Parcels (Click for details)
- Plats (Click for details)
- Retired Parcels (Click for detai
- Retired Plats (Click for details)
- Soils
- Municipal Boundary_2K
- FacilitySites_2K_Labels
- Lots_2K
  - Lot
  - Outlot
- SimultaneousConveyance_2K
  - Assessor Plat
  - CSM
  - Condominium
  - Subdivision
- Cartoline_2K
  - <all other values>
  - EA-Easement_Line
  - PL-DA
  - PL-Extended_Tie_line
  - PL-Meander_Line
  - PL-Note
  - PL-Tie
  - PL-Tie_Line
- Road Centerlines_2K
- Railroad_2K
- TaxParcel_2K
- Waterbodies_2K_Labels
- Waterlines_2K_Labels

Notes

APPENDIX 2

Existing, Proposed, and Future Drainage Area Maps

0 50 100 200
SCALE: 1" = 100' (22"X34")
SCALE: 1" = 200' (11"X17")

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PROJECT:
PARADISE TRAILS
VILLAGE OF HARTLAND, WISCONSIN
BY: NEUMANN DEVELOPMENTS, INC.
N27W24025 PAUL COURT, SUITE 100
PEWAUKEE, WI 53072

REVISION HISTORY	
DATE	DESCRIPTION
07/02/20	PRELIMINARY SUBMITTAL
07/31/20	PER VILLAGE REVIEW
08/14/20	INTERIM GRADING PLAN
08/20/20	BID SET
08/28/20	PER VILLAGE REVIEW

DATE:
AUGUST 26, 2020

JOB NUMBER:
19023-953

DESCRIPTION:
EXISTING DRAINAGE AREA MAP

SHEET
E-DA

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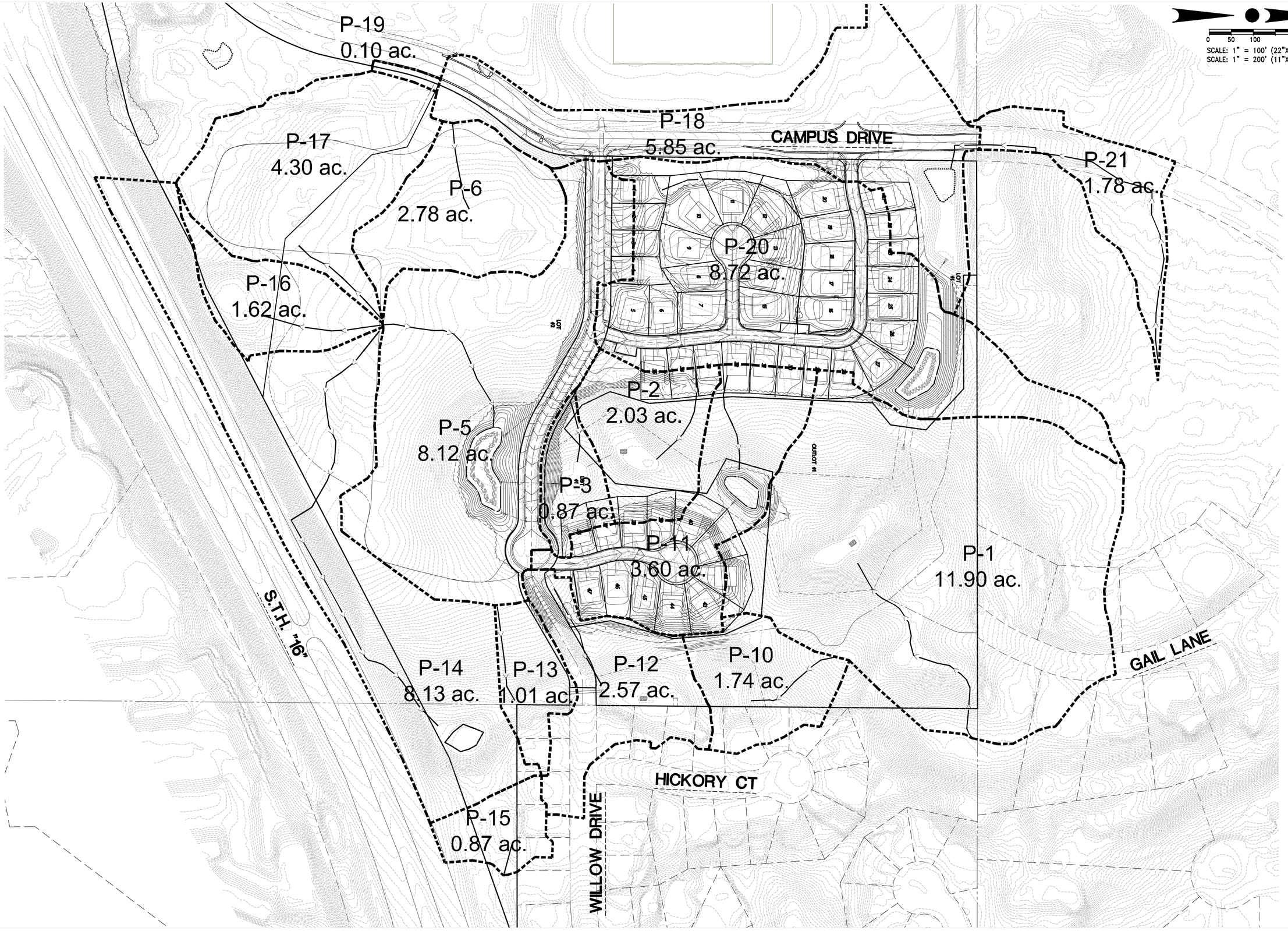

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08/20/20	BID SET
08/28/20	PER VILLAGE REVIEW

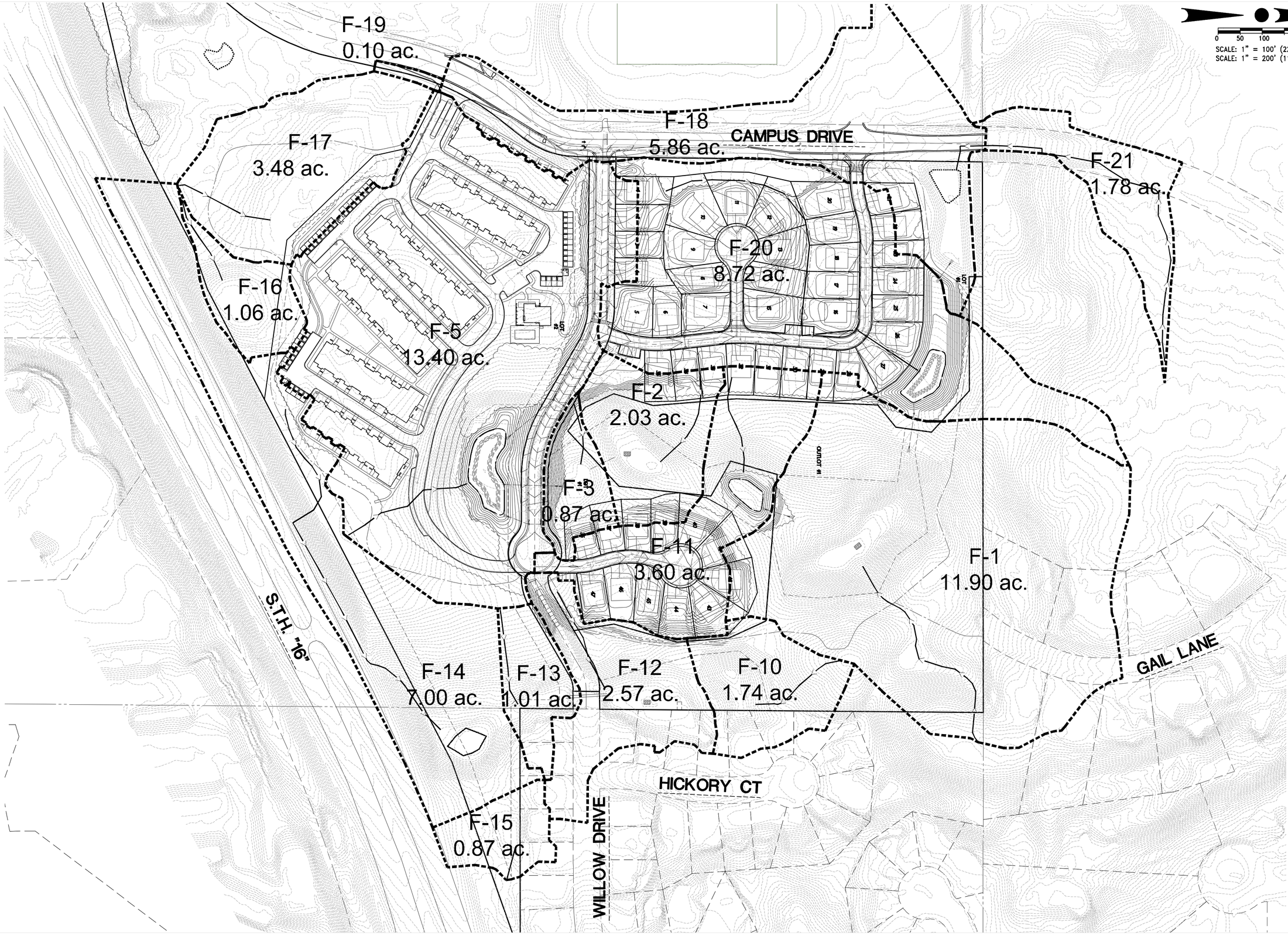
DATE:
AUGUST 26, 2020

JOB NUMBER:
19023-953

DESCRIPTION:
PROPOSED DRAINAGE AREA MAP

SHEET
P-DA

H:\C900\953\19023-01\CONSTRUCTION PLANS\LCL NORTH\SWMP_LCL NORTH_DA MAPS.DWG



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N27W24025 PAUL COURT, SUITE 100
PEWAUKEE, WI 53072

REVISION HISTORY	
DATE	DESCRIPTION
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08/20/20	BID SET
08/28/20	PER VILLAGE REVIEW

DATE:
AUGUST 26, 2020

JOB NUMBER:
19023-953

DESCRIPTION:
FUTURE DRAINAGE AREA MAP

SHEET
F-DA

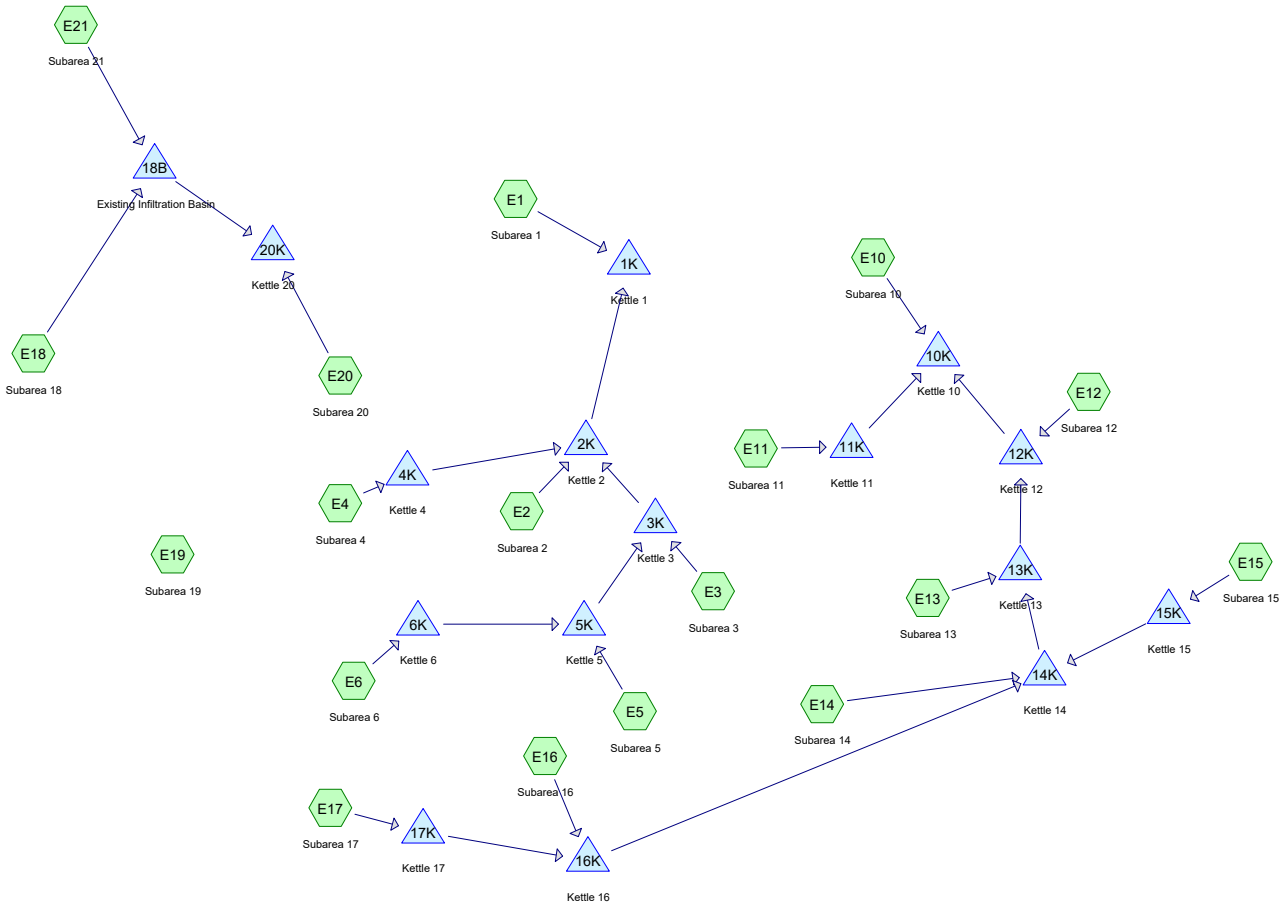
H:\C900\953\19023-01\CONSTRUCTION PLANS\LCL NORTH\SWMP_LCL NORTH_DA MAPS.DWG

APPENDIX 3

HydroCAD Modeling

Existing Conditions

HydroCAD Modeling



Subcat Reach Pond Link

Routing Diagram for Existing_010
Prepared by HP Inc., Printed 8/19/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	70	1/2 acre lots (E1)
2.110	75	1/4 acre lots (E10, E12, E13, E14, E15)
4.290	78	Area C from LCL High School Report (E18)
1.840	69	cropland (E1, E21)
4.950	61	grass (E12, E14, E15, E18, E19, E2, E20, E21, E3, E4, E5)
1.800	98	impervious (E12, E14, E15, E18, E19, E2, E21, E3)
48.430	55	woods (E1, E10, E11, E12, E13, E14, E15, E16, E17, E18, E2, E20, E3, E4, E5, E6)
65.990	**60**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE1: Subarea 1 Runoff Area=15.480 ac 0.00% Impervious Runoff Depth>0.11"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=58 Runoff=0.44 cfs 0.141 af

SubcatchmentE10: Subarea 10 Runoff Area=1.920 ac 0.00% Impervious Runoff Depth>0.15"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.10 cfs 0.023 af

SubcatchmentE11: Subarea 11 Runoff Area=0.730 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=100' Slope=0.0300 '/' Tc=34.6 min CN=55 Runoff=0.01 cfs 0.004 af

SubcatchmentE12: Subarea 12 Runoff Area=2.900 ac 3.79% Impervious Runoff Depth>0.26"
Flow Length=255' Slope=0.1100 '/' Tc=43.5 min CN=65 Runoff=0.34 cfs 0.063 af

SubcatchmentE13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.15"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.05 cfs 0.012 af

SubcatchmentE14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>0.16"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=0.32 cfs 0.110 af

SubcatchmentE15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.21"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.11 cfs 0.015 af

SubcatchmentE16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=0.02 cfs 0.009 af

SubcatchmentE17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=0.05 cfs 0.023 af

SubcatchmentE18: Subarea 18 Runoff Area=5.990 ac 3.84% Impervious Runoff Depth>0.55"
Tc=42.8 min CN=74 Runoff=2.07 cfs 0.275 af

SubcatchmentE19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>0.63"
Tc=6.0 min CN=76 Runoff=0.11 cfs 0.005 af

SubcatchmentE2: Subarea 2 Runoff Area=5.430 ac 1.66% Impervious Runoff Depth>0.08"
Flow Length=470' Slope=0.0800 '/' Tc=58.3 min CN=56 Runoff=0.09 cfs 0.035 af

SubcatchmentE20: Subarea 20 Runoff Area=4.810 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=525' Slope=0.0300 '/' Tc=87.6 min CN=55 Runoff=0.06 cfs 0.025 af

SubcatchmentE21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>0.51"
Flow Length=920' Tc=26.7 min CN=73 Runoff=0.75 cfs 0.076 af

SubcatchmentE3: Subarea 3 Runoff Area=1.590 ac 7.55% Impervious Runoff Depth>0.13"
Flow Length=150' Slope=0.1300 '/' Tc=26.6 min CN=59 Runoff=0.07 cfs 0.017 af

SubcatchmentE4: Subarea 4 Runoff Area=0.370 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=110' Slope=0.0300 '/' Tc=37.4 min CN=55 Runoff=0.01 cfs 0.002 af

Subcatchment E5: Subarea 5 Runoff Area=6.180 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=400' Slope=0.0900 '/' Tc=54.8 min CN=55 Runoff=0.08 cfs 0.033 af

Subcatchment E6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=0.04 cfs 0.015 af

Pond 1K: Kettle 1 Peak Elev=944.98' Storage=4,774 cf Inflow=0.44 cfs 0.141 af
Outflow=0.04 cfs 0.031 af

Pond 2K: Kettle 2 Peak Elev=966.85' Storage=1,051 cf Inflow=0.09 cfs 0.035 af
Discarded=0.01 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.011 af

Pond 3K: Kettle 3 Peak Elev=972.53' Storage=1,277 cf Inflow=0.10 cfs 0.044 af
Discarded=0.02 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.015 af

Pond 4K: Kettle 4 Peak Elev=1,007.01' Storage=8 cf Inflow=0.01 cfs 0.002 af
Discarded=0.00 cfs 0.002 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond 5K: Kettle 5 Peak Elev=982.67' Storage=107 cf Inflow=0.08 cfs 0.033 af
Discarded=0.01 cfs 0.005 af Primary=0.07 cfs 0.027 af Outflow=0.08 cfs 0.032 af

Pond 6K: Kettle 6 Peak Elev=1,011.01' Storage=58 cf Inflow=0.04 cfs 0.015 af
Discarded=0.03 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.015 af

Pond 10K: Kettle 10 Peak Elev=954.45' Storage=796 cf Inflow=0.10 cfs 0.023 af
Discarded=0.01 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond 11K: Kettle 11 Peak Elev=979.04' Storage=34 cf Inflow=0.01 cfs 0.004 af
Discarded=0.00 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.004 af

Pond 12K: Kettle 12 Peak Elev=956.87' Storage=2,156 cf Inflow=0.39 cfs 0.073 af
Discarded=0.03 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.026 af

Pond 13K: Kettle 13 Peak Elev=959.56' Storage=27 cf Inflow=0.05 cfs 0.012 af
Discarded=0.00 cfs 0.001 af Primary=0.05 cfs 0.011 af Outflow=0.05 cfs 0.012 af

Pond 14K: Kettle 14 Peak Elev=955.92' Storage=3,701 cf Inflow=0.32 cfs 0.110 af
Discarded=0.03 cfs 0.025 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.025 af

Pond 15K: Kettle 15 Peak Elev=970.19' Storage=331 cf Inflow=0.11 cfs 0.015 af
Discarded=0.01 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.010 af

Pond 16K: Kettle 16 Peak Elev=1,005.01' Storage=32 cf Inflow=0.02 cfs 0.009 af
Discarded=0.02 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.008 af

Pond 17K: Kettle 17 Peak Elev=1,011.09' Storage=299 cf Inflow=0.05 cfs 0.023 af
Discarded=0.02 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.018 af

Pond 18B: Existing Infiltration Basin Peak Elev=990.39' Storage=8,071 cf Inflow=2.63 cfs 0.351 af
Discarded=0.34 cfs 0.294 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.294 af

Pond 20K: Kettle 20 Peak Elev=992.02' Storage=149 cf Inflow=0.06 cfs 0.025 af
Outflow=0.04 cfs 0.025 af

Total Runoff Area = 65.990 ac Runoff Volume = 0.883 af Average Runoff Depth = 0.16"
97.27% Pervious = 64.190 ac 2.73% Impervious = 1.800 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE1: Subarea 1 Runoff Area=15.480 ac 0.00% Impervious Runoff Depth>0.18"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=58 Runoff=0.91 cfs 0.235 af

SubcatchmentE10: Subarea 10 Runoff Area=1.920 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.20 cfs 0.037 af

SubcatchmentE11: Subarea 11 Runoff Area=0.730 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=100' Slope=0.0300 '/' Tc=34.6 min CN=55 Runoff=0.03 cfs 0.007 af

SubcatchmentE12: Subarea 12 Runoff Area=2.900 ac 3.79% Impervious Runoff Depth>0.37"
Flow Length=255' Slope=0.1100 '/' Tc=43.5 min CN=65 Runoff=0.56 cfs 0.090 af

SubcatchmentE13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.10 cfs 0.019 af

SubcatchmentE14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>0.25"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=0.55 cfs 0.171 af

SubcatchmentE15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.31"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.20 cfs 0.023 af

SubcatchmentE16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=0.05 cfs 0.016 af

SubcatchmentE17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=0.12 cfs 0.043 af

SubcatchmentE18: Subarea 18 Runoff Area=5.990 ac 3.84% Impervious Runoff Depth>0.72"
Tc=42.8 min CN=74 Runoff=2.83 cfs 0.360 af

SubcatchmentE19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>0.82"
Tc=6.0 min CN=76 Runoff=0.15 cfs 0.007 af

SubcatchmentE2: Subarea 2 Runoff Area=5.430 ac 1.66% Impervious Runoff Depth>0.14"
Flow Length=470' Slope=0.0800 '/' Tc=58.3 min CN=56 Runoff=0.21 cfs 0.063 af

SubcatchmentE20: Subarea 20 Runoff Area=4.810 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=525' Slope=0.0300 '/' Tc=87.6 min CN=55 Runoff=0.13 cfs 0.048 af

SubcatchmentE21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>0.68"
Flow Length=920' Tc=26.7 min CN=73 Runoff=1.04 cfs 0.100 af

SubcatchmentE3: Subarea 3 Runoff Area=1.590 ac 7.55% Impervious Runoff Depth>0.21"
Flow Length=150' Slope=0.1300 '/' Tc=26.6 min CN=59 Runoff=0.15 cfs 0.027 af

SubcatchmentE4: Subarea 4 Runoff Area=0.370 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=110' Slope=0.0300 '/' Tc=37.4 min CN=55 Runoff=0.01 cfs 0.004 af

Subcatchment E5: Subarea 5 Runoff Area=6.180 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=400' Slope=0.0900 '/' Tc=54.8 min CN=55 Runoff=0.19 cfs 0.062 af

Subcatchment E6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=0.09 cfs 0.028 af

Pond 1K: Kettle 1 Peak Elev=945.53' Storage=8,544 cf Inflow=0.91 cfs 0.235 af
Outflow=0.05 cfs 0.039 af

Pond 2K: Kettle 2 Peak Elev=967.16' Storage=2,029 cf Inflow=0.21 cfs 0.063 af
Discarded=0.02 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.017 af

Pond 3K: Kettle 3 Peak Elev=972.95' Storage=2,702 cf Inflow=0.23 cfs 0.081 af
Discarded=0.02 cfs 0.020 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.020 af

Pond 4K: Kettle 4 Peak Elev=1,007.05' Storage=43 cf Inflow=0.01 cfs 0.004 af
Discarded=0.00 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.004 af

Pond 5K: Kettle 5 Peak Elev=982.73' Storage=222 cf Inflow=0.19 cfs 0.062 af
Discarded=0.01 cfs 0.007 af Primary=0.16 cfs 0.054 af Outflow=0.18 cfs 0.061 af

Pond 6K: Kettle 6 Peak Elev=1,011.02' Storage=176 cf Inflow=0.09 cfs 0.028 af
Discarded=0.06 cfs 0.028 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.028 af

Pond 10K: Kettle 10 Peak Elev=954.85' Storage=1,299 cf Inflow=0.20 cfs 0.037 af
Discarded=0.01 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 11K: Kettle 11 Peak Elev=979.14' Storage=127 cf Inflow=0.03 cfs 0.007 af
Discarded=0.01 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond 12K: Kettle 12 Peak Elev=957.07' Storage=3,334 cf Inflow=0.66 cfs 0.108 af
Discarded=0.04 cfs 0.035 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.035 af

Pond 13K: Kettle 13 Peak Elev=959.59' Storage=39 cf Inflow=0.10 cfs 0.019 af
Discarded=0.00 cfs 0.001 af Primary=0.10 cfs 0.018 af Outflow=0.10 cfs 0.019 af

Pond 14K: Kettle 14 Peak Elev=956.36' Storage=6,118 cf Inflow=0.55 cfs 0.171 af
Discarded=0.04 cfs 0.030 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.030 af

Pond 15K: Kettle 15 Peak Elev=970.32' Storage=590 cf Inflow=0.20 cfs 0.023 af
Discarded=0.01 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.011 af

Pond 16K: Kettle 16 Peak Elev=1,005.03' Storage=130 cf Inflow=0.05 cfs 0.016 af
Discarded=0.03 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.016 af

Pond 17K: Kettle 17 Peak Elev=1,011.21' Storage=856 cf Inflow=0.12 cfs 0.043 af
Discarded=0.03 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.026 af

Pond 18B: Existing Infiltration Basin Peak Elev=990.71' Storage=11,542 cf Inflow=3.60 cfs 0.460 af
Discarded=0.37 cfs 0.333 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.333 af

Pond 20K: Kettle 20 Peak Elev=992.10' Storage=715 cf Inflow=0.13 cfs 0.048 af
Outflow=0.04 cfs 0.038 af

Total Runoff Area = 65.990 ac Runoff Volume = 1.341 af Average Runoff Depth = 0.24"
97.27% Pervious = 64.190 ac 2.73% Impervious = 1.800 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE1: Subarea 1 Runoff Area=15.480 ac 0.00% Impervious Runoff Depth>0.58"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=58 Runoff=4.29 cfs 0.743 af

SubcatchmentE10: Subarea 10 Runoff Area=1.920 ac 0.00% Impervious Runoff Depth>0.67"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.82 cfs 0.107 af

SubcatchmentE11: Subarea 11 Runoff Area=0.730 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=100' Slope=0.0300 '/' Tc=34.6 min CN=55 Runoff=0.18 cfs 0.028 af

SubcatchmentE12: Subarea 12 Runoff Area=2.900 ac 3.79% Impervious Runoff Depth>0.92"
Flow Length=255' Slope=0.1100 '/' Tc=43.5 min CN=65 Runoff=1.67 cfs 0.221 af

SubcatchmentE13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.67"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.44 cfs 0.056 af

SubcatchmentE14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>0.70"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=1.88 cfs 0.477 af

SubcatchmentE15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.81"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.71 cfs 0.059 af

SubcatchmentE16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=0.27 cfs 0.061 af

SubcatchmentE17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=0.70 cfs 0.161 af

SubcatchmentE18: Subarea 18 Runoff Area=5.990 ac 3.84% Impervious Runoff Depth>1.45"
Tc=42.8 min CN=74 Runoff=6.13 cfs 0.725 af

SubcatchmentE19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>1.59"
Tc=6.0 min CN=76 Runoff=0.30 cfs 0.013 af

SubcatchmentE2: Subarea 2 Runoff Area=5.430 ac 1.66% Impervious Runoff Depth>0.49"
Flow Length=470' Slope=0.0800 '/' Tc=58.3 min CN=56 Runoff=1.13 cfs 0.222 af

SubcatchmentE20: Subarea 20 Runoff Area=4.810 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=525' Slope=0.0300 '/' Tc=87.6 min CN=55 Runoff=0.69 cfs 0.180 af

SubcatchmentE21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>1.39"
Flow Length=920' Tc=26.7 min CN=73 Runoff=2.30 cfs 0.206 af

SubcatchmentE3: Subarea 3 Runoff Area=1.590 ac 7.55% Impervious Runoff Depth>0.62"
Flow Length=150' Slope=0.1300 '/' Tc=26.6 min CN=59 Runoff=0.73 cfs 0.083 af

SubcatchmentE4: Subarea 4 Runoff Area=0.370 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=110' Slope=0.0300 '/' Tc=37.4 min CN=55 Runoff=0.09 cfs 0.014 af

Subcatchment E5: Subarea 5 Runoff Area=6.180 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=400' Slope=0.0900 '/' Tc=54.8 min CN=55 Runoff=1.18 cfs 0.233 af

Subcatchment E6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=0.56 cfs 0.105 af

Pond 1K: Kettle 1 Peak Elev=947.63' Storage=29,289 cf Inflow=4.29 cfs 0.743 af
Outflow=0.08 cfs 0.071 af

Pond 2K: Kettle 2 Peak Elev=968.44' Storage=8,256 cf Inflow=1.13 cfs 0.222 af
Discarded=0.04 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.033 af

Pond 3K: Kettle 3 Peak Elev=974.57' Storage=11,367 cf Inflow=1.07 cfs 0.298 af
Discarded=0.04 cfs 0.037 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.037 af

Pond 4K: Kettle 4 Peak Elev=1,007.34' Storage=352 cf Inflow=0.09 cfs 0.014 af
Discarded=0.01 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 5K: Kettle 5 Peak Elev=982.96' Storage=1,338 cf Inflow=1.18 cfs 0.233 af
Discarded=0.05 cfs 0.016 af Primary=0.85 cfs 0.215 af Outflow=0.90 cfs 0.231 af

Pond 6K: Kettle 6 Peak Elev=1,011.22' Storage=2,411 cf Inflow=0.56 cfs 0.105 af
Discarded=0.07 cfs 0.065 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.065 af

Pond 10K: Kettle 10 Peak Elev=956.00' Storage=3,912 cf Inflow=0.82 cfs 0.107 af
Discarded=0.02 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.017 af

Pond 11K: Kettle 11 Peak Elev=979.57' Storage=787 cf Inflow=0.18 cfs 0.028 af
Discarded=0.01 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.011 af

Pond 12K: Kettle 12 Peak Elev=957.81' Storage=9,661 cf Inflow=2.10 cfs 0.275 af
Discarded=0.06 cfs 0.056 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.056 af

Pond 13K: Kettle 13 Peak Elev=959.69' Storage=101 cf Inflow=0.44 cfs 0.056 af
Discarded=0.00 cfs 0.002 af Primary=0.42 cfs 0.054 af Outflow=0.43 cfs 0.056 af

Pond 14K: Kettle 14 Peak Elev=958.01' Storage=18,612 cf Inflow=1.88 cfs 0.477 af
Discarded=0.06 cfs 0.050 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.050 af

Pond 15K: Kettle 15 Peak Elev=970.88' Storage=1,942 cf Inflow=0.71 cfs 0.059 af
Discarded=0.02 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.016 af

Pond 16K: Kettle 16 Peak Elev=1,005.32' Storage=1,563 cf Inflow=0.27 cfs 0.061 af
Discarded=0.03 cfs 0.029 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.029 af

Pond 17K: Kettle 17 Peak Elev=1,011.62' Storage=4,530 cf Inflow=0.70 cfs 0.161 af
Discarded=0.07 cfs 0.064 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.064 af

Pond 18B: Existing Infiltration Basin Peak Elev=991.96' Storage=27,206 cf Inflow=7.84 cfs 0.931 af
Discarded=0.50 cfs 0.463 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.50 cfs 0.463 af

Pond 20K: Kettle 20 Peak Elev=992.51' Storage=5,027 cf Inflow=0.69 cfs 0.180 af
Outflow=0.08 cfs 0.070 af

Total Runoff Area = 65.990 ac Runoff Volume = 3.694 af Average Runoff Depth = 0.67"
97.27% Pervious = 64.190 ac 2.73% Impervious = 1.800 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE1: Subarea 1 Runoff Area=15.480 ac 0.00% Impervious Runoff Depth>1.86"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=58 Runoff=17.17 cfs 2.398 af

SubcatchmentE10: Subarea 10 Runoff Area=1.920 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=3.00 cfs 0.325 af

SubcatchmentE11: Subarea 11 Runoff Area=0.730 ac 0.00% Impervious Runoff Depth>1.62"
Flow Length=100' Slope=0.0300 '/' Tc=34.6 min CN=55 Runoff=0.88 cfs 0.098 af

SubcatchmentE12: Subarea 12 Runoff Area=2.900 ac 3.79% Impervious Runoff Depth>2.47"
Flow Length=255' Slope=0.1100 '/' Tc=43.5 min CN=65 Runoff=5.04 cfs 0.598 af

SubcatchmentE13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=1.60 cfs 0.171 af

SubcatchmentE14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>2.10"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=6.35 cfs 1.420 af

SubcatchmentE15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>2.30"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=2.28 cfs 0.167 af

SubcatchmentE16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=1.25 cfs 0.217 af

SubcatchmentE17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=3.20 cfs 0.576 af

SubcatchmentE18: Subarea 18 Runoff Area=5.990 ac 3.84% Impervious Runoff Depth>3.33"
Tc=42.8 min CN=74 Runoff=14.49 cfs 1.660 af

SubcatchmentE19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>3.53"
Tc=6.0 min CN=76 Runoff=0.65 cfs 0.029 af

SubcatchmentE2: Subarea 2 Runoff Area=5.430 ac 1.66% Impervious Runoff Depth>1.69"
Flow Length=470' Slope=0.0800 '/' Tc=58.3 min CN=56 Runoff=4.96 cfs 0.765 af

SubcatchmentE20: Subarea 20 Runoff Area=4.810 ac 0.00% Impervious Runoff Depth>1.60"
Flow Length=525' Slope=0.0300 '/' Tc=87.6 min CN=55 Runoff=3.10 cfs 0.642 af

SubcatchmentE21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>3.23"
Flow Length=920' Tc=26.7 min CN=73 Runoff=5.53 cfs 0.479 af

SubcatchmentE3: Subarea 3 Runoff Area=1.590 ac 7.55% Impervious Runoff Depth>1.95"
Flow Length=150' Slope=0.1300 '/' Tc=26.6 min CN=59 Runoff=2.82 cfs 0.258 af

SubcatchmentE4: Subarea 4 Runoff Area=0.370 ac 0.00% Impervious Runoff Depth>1.62"
Flow Length=110' Slope=0.0300 '/' Tc=37.4 min CN=55 Runoff=0.43 cfs 0.050 af

Subcatchment E5: Subarea 5 Runoff Area=6.180 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=400' Slope=0.0900 '/' Tc=54.8 min CN=55 Runoff=5.54 cfs 0.830 af

Subcatchment E6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=2.68 cfs 0.374 af

Pond 1K: Kettle 1 Peak Elev=951.74' Storage=98,188 cf Inflow=17.17 cfs 2.398 af
Outflow=0.17 cfs 0.144 af

Pond 2K: Kettle 2 Peak Elev=972.48' Storage=49,849 cf Inflow=4.96 cfs 1.230 af
Discarded=0.11 cfs 0.085 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.085 af

Pond 3K: Kettle 3 Peak Elev=976.16' Storage=24,356 cf Inflow=4.35 cfs 1.053 af
Discarded=0.07 cfs 0.061 af Primary=2.39 cfs 0.464 af Outflow=2.46 cfs 0.525 af

Pond 4K: Kettle 4 Peak Elev=1,007.92' Storage=1,580 cf Inflow=0.43 cfs 0.050 af
Discarded=0.02 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.016 af

Pond 5K: Kettle 5 Peak Elev=983.45' Storage=7,114 cf Inflow=5.54 cfs 0.830 af
Discarded=0.08 cfs 0.032 af Primary=3.70 cfs 0.794 af Outflow=3.79 cfs 0.827 af

Pond 6K: Kettle 6 Peak Elev=1,011.81' Storage=12,024 cf Inflow=2.68 cfs 0.374 af
Discarded=0.12 cfs 0.110 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.110 af

Pond 10K: Kettle 10 Peak Elev=957.85' Storage=12,616 cf Inflow=3.00 cfs 0.325 af
Discarded=0.04 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.036 af

Pond 11K: Kettle 11 Peak Elev=980.31' Storage=3,257 cf Inflow=0.88 cfs 0.098 af
Discarded=0.03 cfs 0.027 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.027 af

Pond 12K: Kettle 12 Peak Elev=959.25' Storage=29,213 cf Inflow=6.58 cfs 0.766 af
Discarded=0.11 cfs 0.097 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.097 af

Pond 13K: Kettle 13 Peak Elev=959.88' Storage=329 cf Inflow=1.60 cfs 0.171 af
Discarded=0.01 cfs 0.003 af Primary=1.54 cfs 0.168 af Outflow=1.55 cfs 0.171 af

Pond 14K: Kettle 14 Peak Elev=961.28' Storage=57,960 cf Inflow=6.35 cfs 1.425 af
Discarded=0.12 cfs 0.094 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.094 af

Pond 15K: Kettle 15 Peak Elev=971.90' Storage=6,014 cf Inflow=2.28 cfs 0.167 af
Discarded=0.03 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.031 af

Pond 16K: Kettle 16 Peak Elev=1,007.01' Storage=15,507 cf Inflow=1.38 cfs 0.414 af
Discarded=0.07 cfs 0.058 af Primary=0.04 cfs 0.005 af Outflow=0.10 cfs 0.063 af

Pond 17K: Kettle 17 Peak Elev=1,012.09' Storage=13,197 cf Inflow=3.20 cfs 0.576 af
Discarded=0.14 cfs 0.124 af Primary=0.96 cfs 0.197 af Outflow=1.10 cfs 0.321 af

Pond 18B: Existing Infiltration Basin Peak Elev=994.35' Storage=68,657 cf Inflow=18.65 cfs 2.139 af
Discarded=0.84 cfs 0.781 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.84 cfs 0.781 af

Pond 20K: Kettle 20 Peak Elev=993.27' Storage=21,806 cf Inflow=3.10 cfs 0.642 af
Outflow=0.17 cfs 0.149 af

Total Runoff Area = 65.990 ac Runoff Volume = 11.058 af Average Runoff Depth = 2.01"
97.27% Pervious = 64.190 ac 2.73% Impervious = 1.800 ac

Summary for Subcatchment E1: Subarea 1

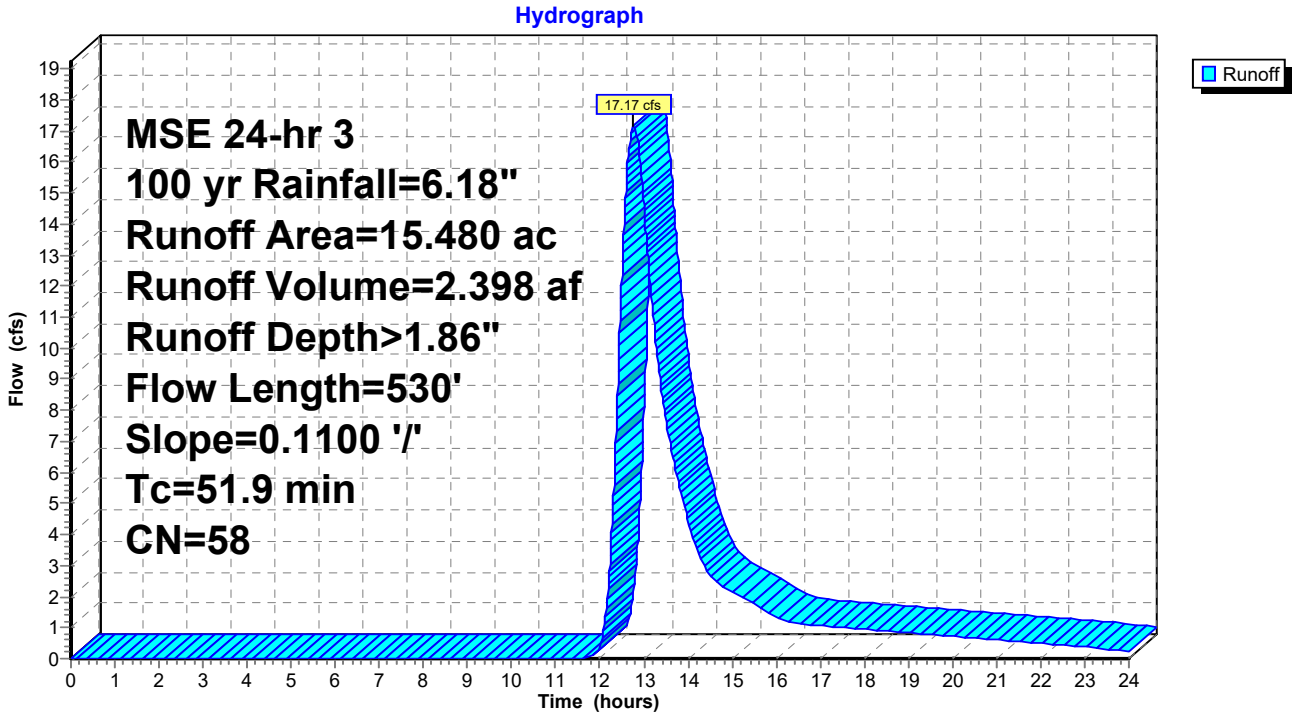
Runoff = 17.17 cfs @ 12.75 hrs, Volume= 2.398 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	11.950	55	woods
	2.570	70	1/2 acre lots
*	0.960	69	cropland
	15.480	58	Weighted Average
	15.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Subcatchment E1: Subarea 1



Summary for Subcatchment E10: Subarea 10

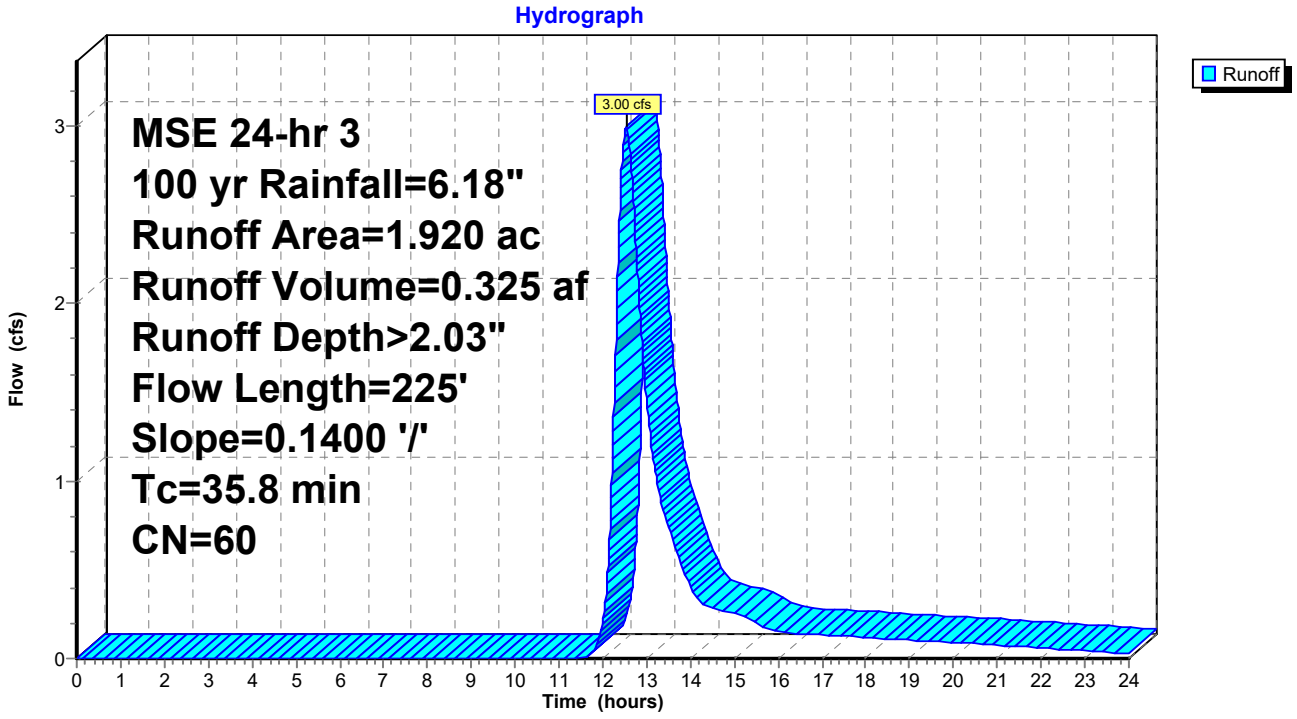
Runoff = 3.00 cfs @ 12.53 hrs, Volume= 0.325 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.470	55	woods
*	0.450	75	1/4 acre lots
	1.920	60	Weighted Average
	1.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E10: Subarea 10



Summary for Subcatchment E11: Subarea 11

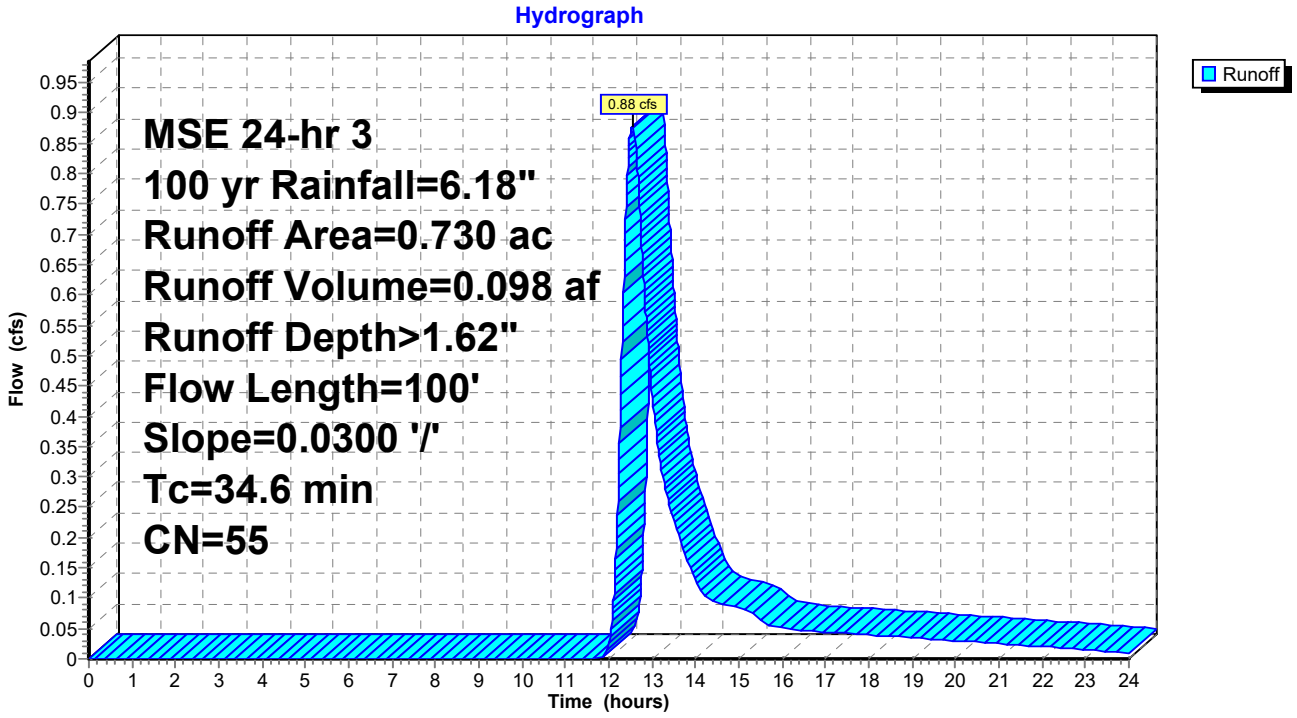
Runoff = 0.88 cfs @ 12.54 hrs, Volume= 0.098 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.730	55	woods
	0.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.6	100	0.0300	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E11: Subarea 11



Summary for Subcatchment E12: Subarea 12

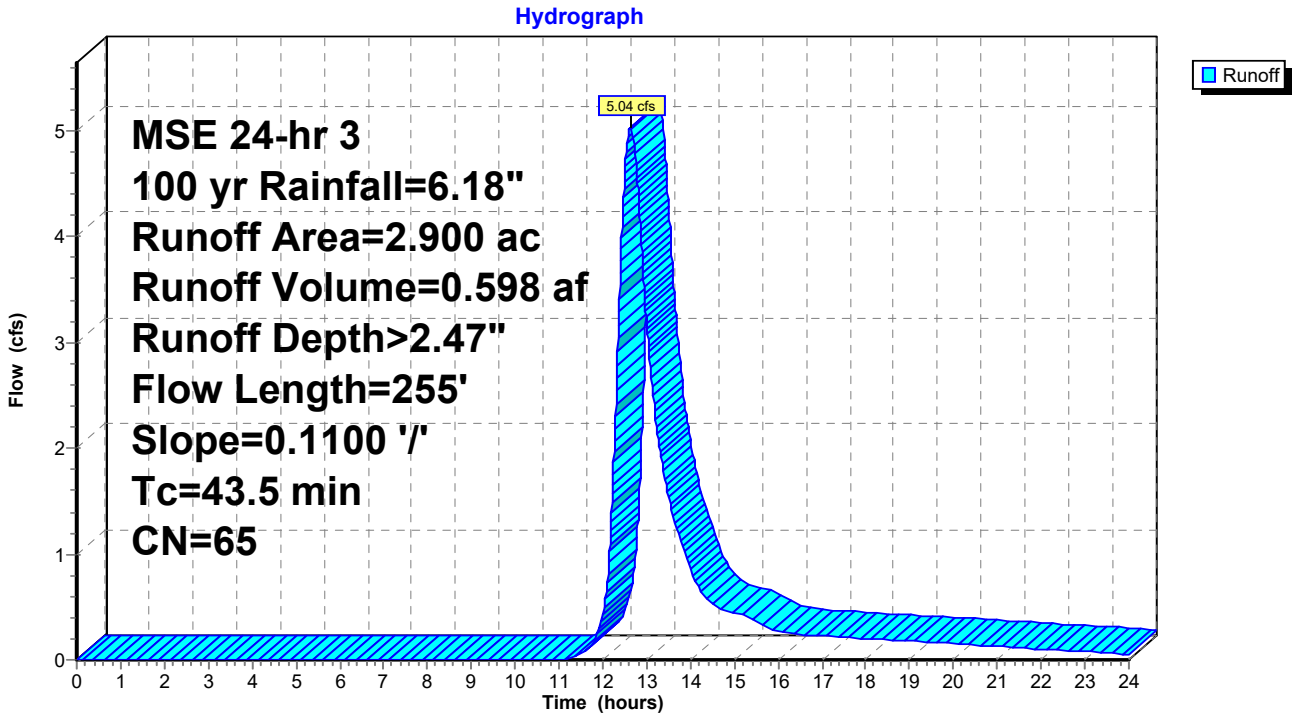
Runoff = 5.04 cfs @ 12.62 hrs, Volume= 0.598 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.450	55	woods
*	0.270	61	grass
*	0.110	98	impervious
	1.070	75	1/4 acre lots
	2.900	65	Weighted Average
	2.790		96.21% Pervious Area
	0.110		3.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	255	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E12: Subarea 12



Summary for Subcatchment E13: Subarea 13

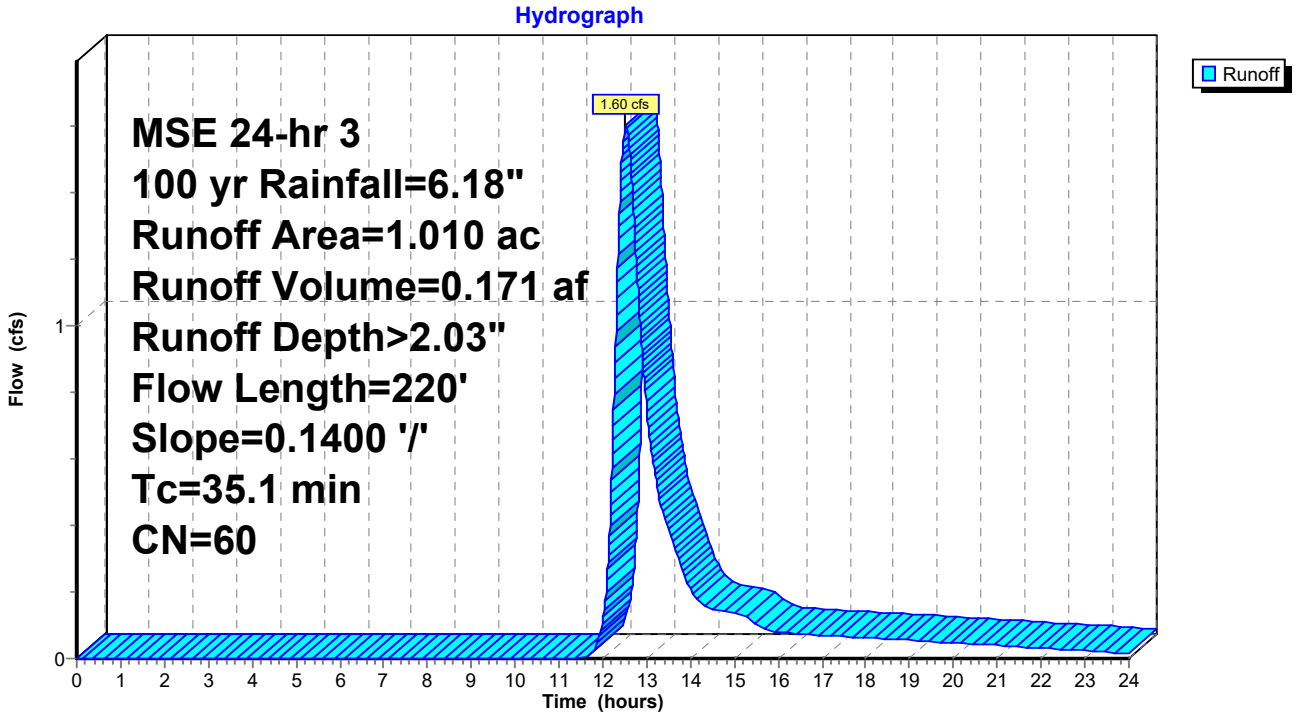
Runoff = 1.60 cfs @ 12.52 hrs, Volume= 0.171 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.760	55	woods
	0.250	75	1/4 acre lots
	1.010	60	Weighted Average
	1.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E13: Subarea 13



Summary for Subcatchment E14: Subarea 14

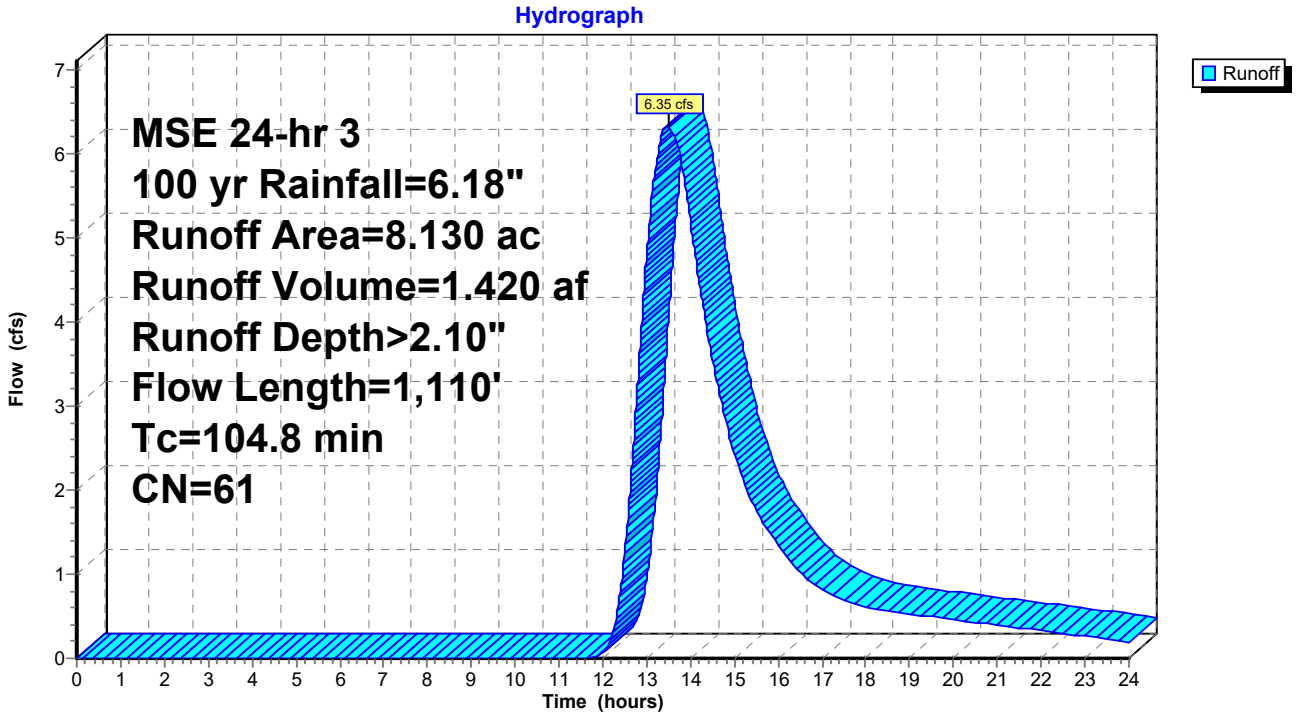
Runoff = 6.35 cfs @ 13.50 hrs, Volume= 1.420 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.650	55	woods
*	2.600	61	grass
*	0.830	98	impervious
*	0.050	75	1/4 acre lots
	8.130	61	Weighted Average
	7.300		89.79% Pervious Area
	0.830		10.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
98.0	300	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.0	170	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
104.8	1,110	Total			

Subcatchment E14: Subarea 14



Summary for Subcatchment E15: Subarea 15

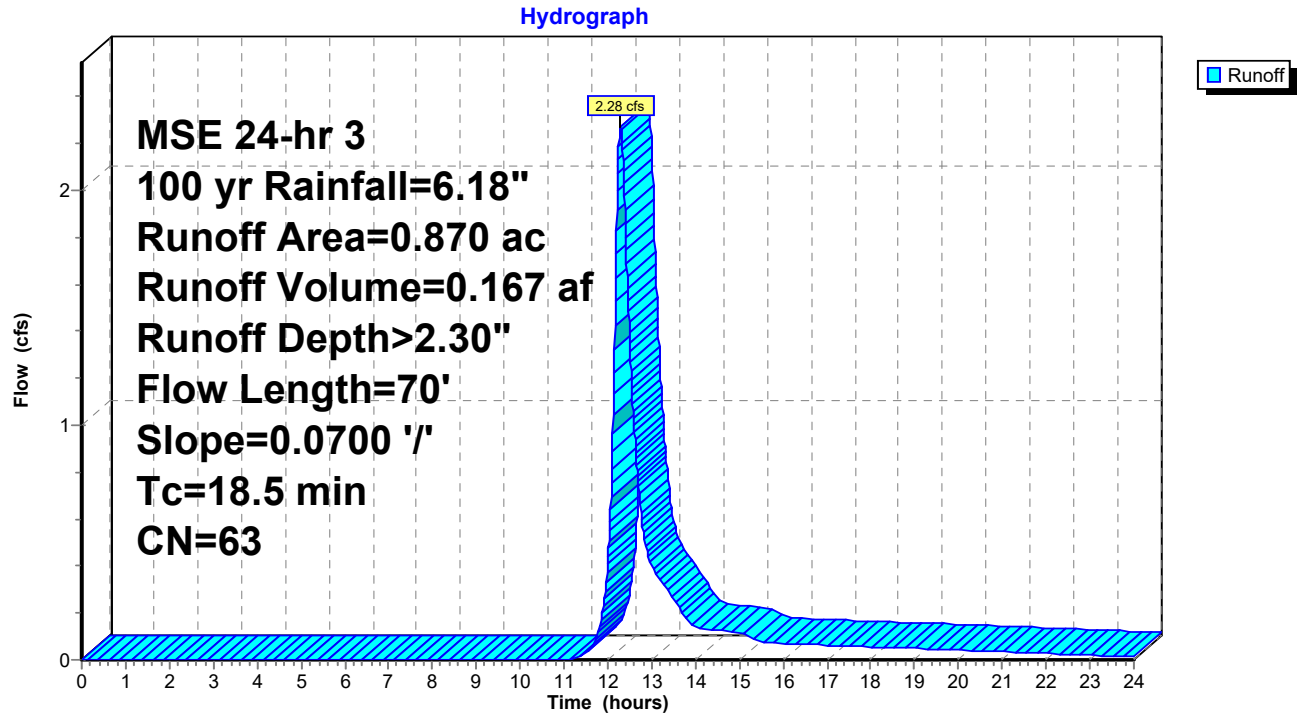
Runoff = 2.28 cfs @ 12.29 hrs, Volume= 0.167 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.480	55	woods
*	0.090	61	grass
*	0.010	98	impervious
*	0.290	75	1/4 acre lots
	0.870	63	Weighted Average
	0.860		98.85% Pervious Area
	0.010		1.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E15: Subarea 15



Summary for Subcatchment E16: Subarea 16

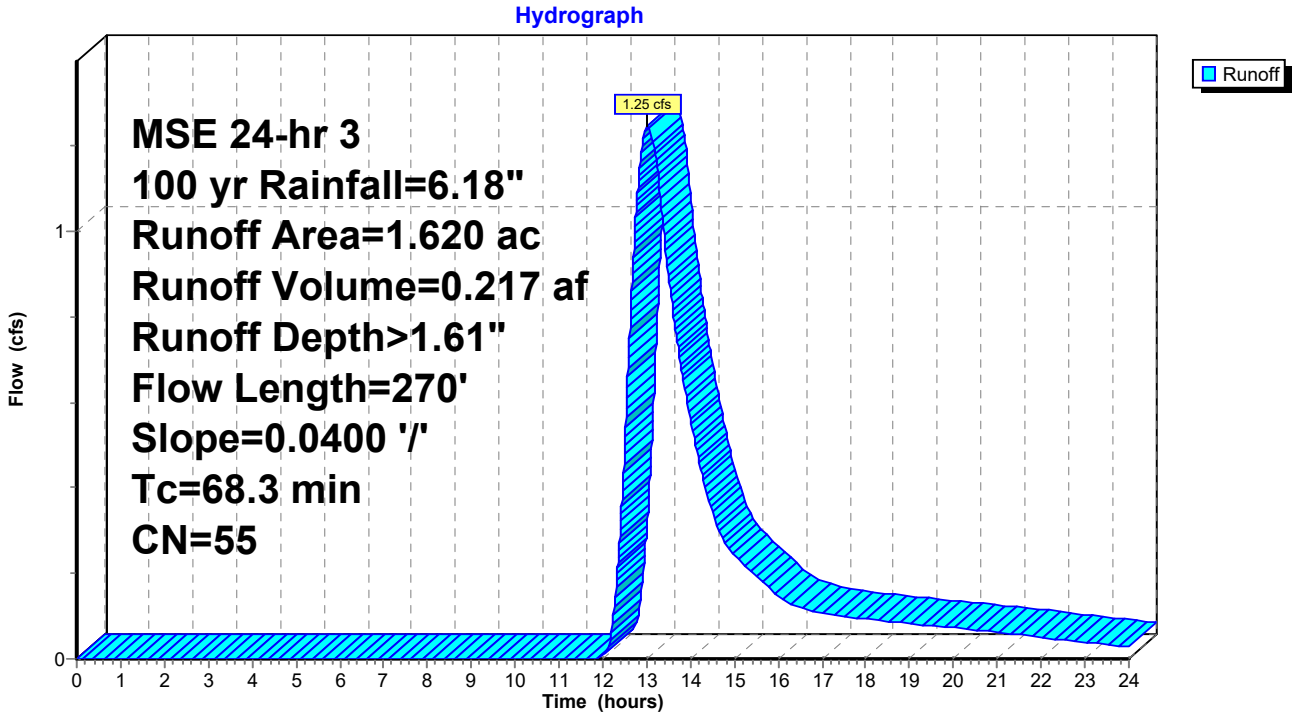
Runoff = 1.25 cfs @ 12.98 hrs, Volume= 0.217 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.620	55	woods
	1.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.3	270	0.0400	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E16: Subarea 16



Summary for Subcatchment E17: Subarea 17

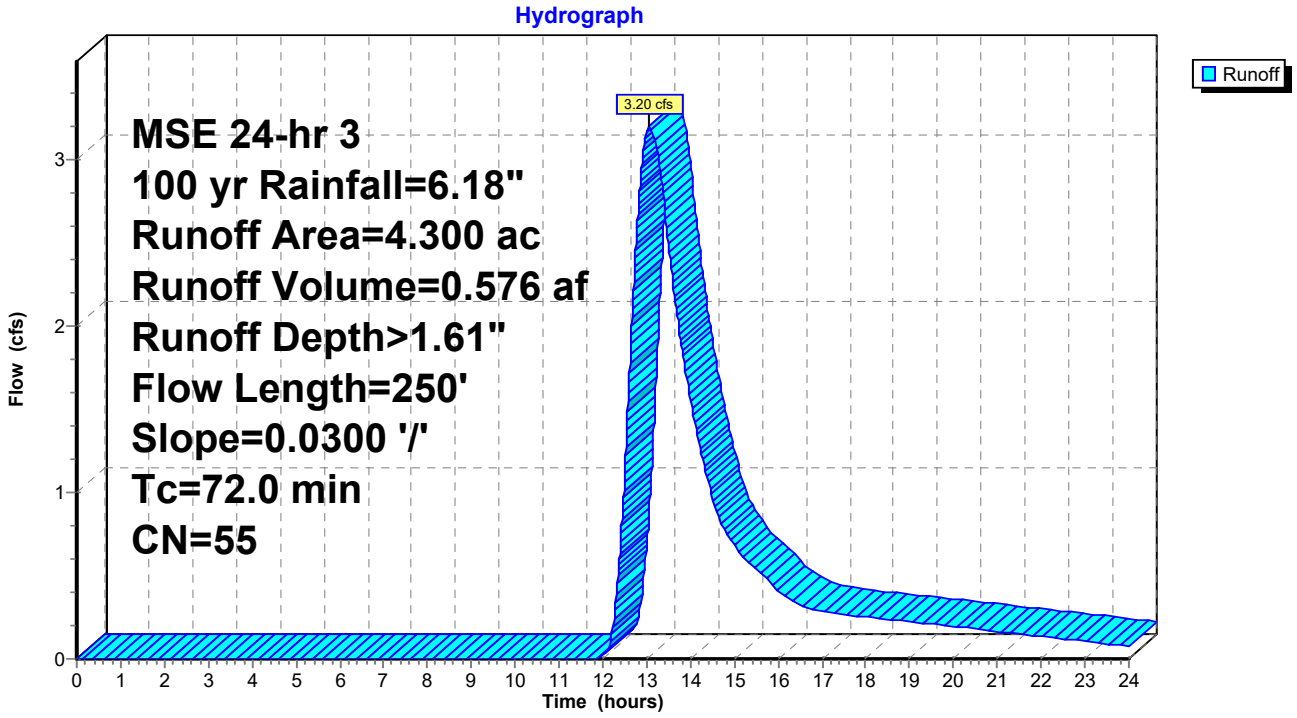
Runoff = 3.20 cfs @ 13.04 hrs, Volume= 0.576 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.300	55	woods
	4.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0	250	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E17: Subarea 17



Summary for Subcatchment E18: Subarea 18

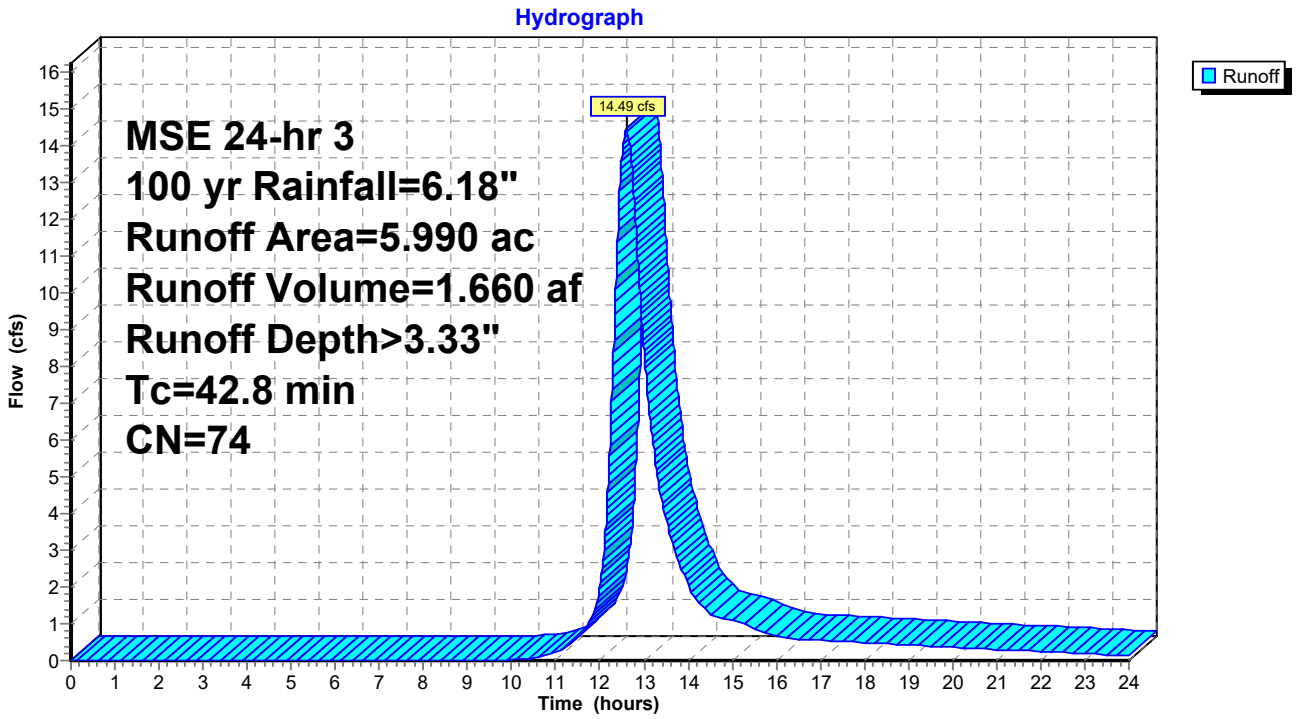
Runoff = 14.49 cfs @ 12.60 hrs, Volume= 1.660 af, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.290	78	Area C from LCL High School Report
*	0.850	55	woods
*	0.620	61	grass
*	0.230	98	impervious
	5.990	74	Weighted Average
	5.760		96.16% Pervious Area
	0.230		3.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Subcatchment E18: Subarea 18



Summary for Subcatchment E19: Subarea 19

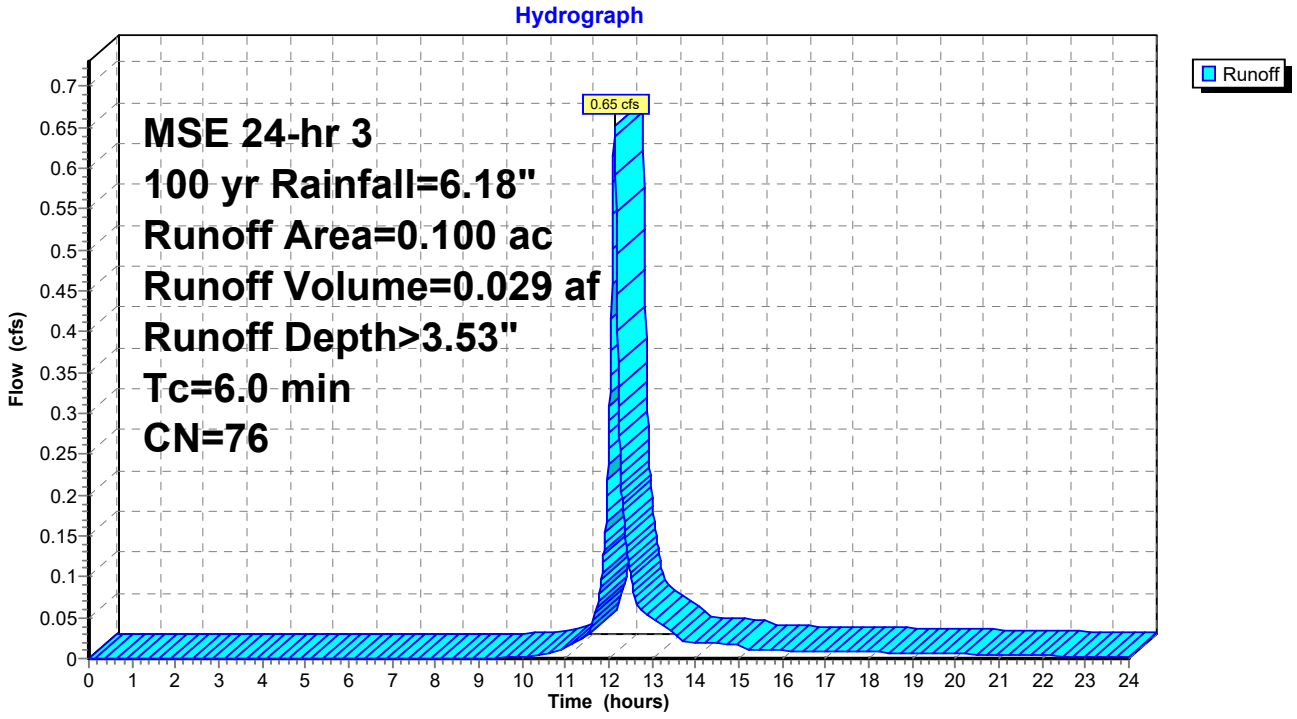
Runoff = 0.65 cfs @ 12.13 hrs, Volume= 0.029 af, Depth> 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.060	61	grass
*	0.040	98	impervious
	0.100	76	Weighted Average
	0.060		60.00% Pervious Area
	0.040		40.00% Impervious Area

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

Subcatchment E19: Subarea 19



Summary for Subcatchment E2: Subarea 2

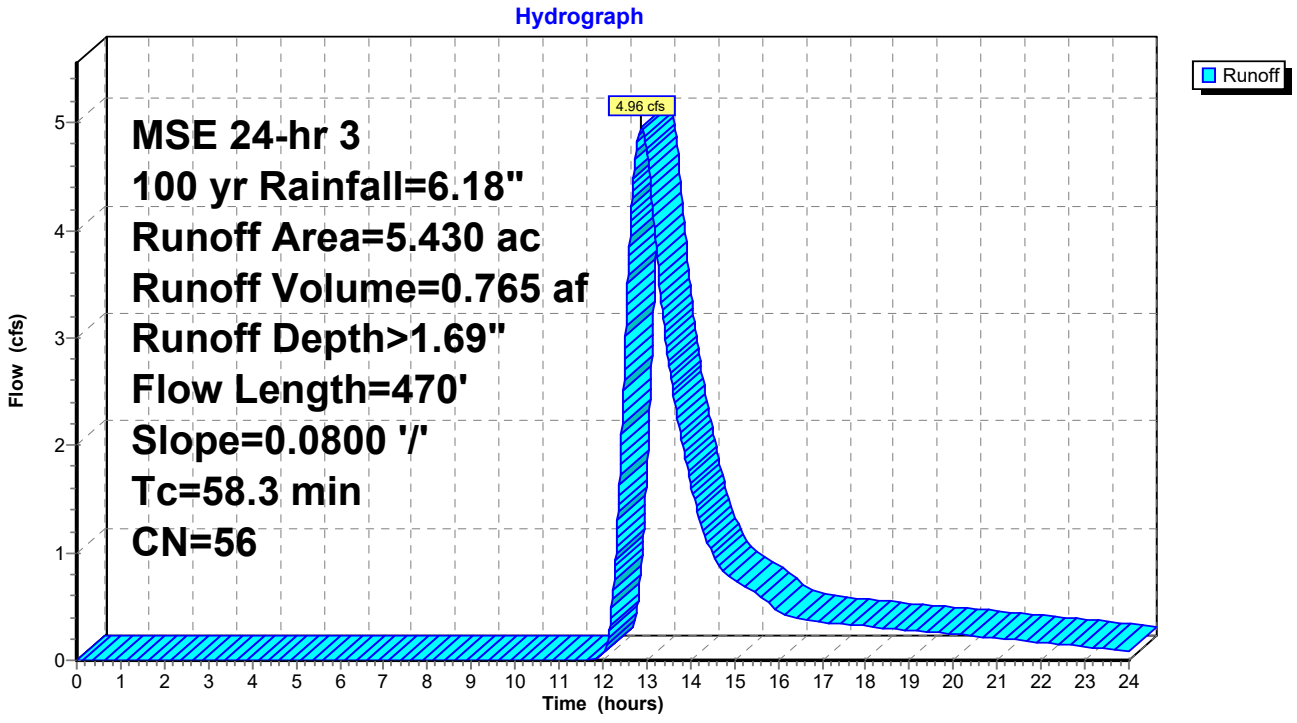
Runoff = 4.96 cfs @ 12.89 hrs, Volume= 0.765 af, Depth> 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.960	55	woods
*	0.380	61	grass
*	0.090	98	impervious
	5.430	56	Weighted Average
	5.340		98.34% Pervious Area
	0.090		1.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.3	300	0.0800	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.0	170	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
58.3	470	Total			

Subcatchment E2: Subarea 2



Summary for Subcatchment E20: Subarea 20

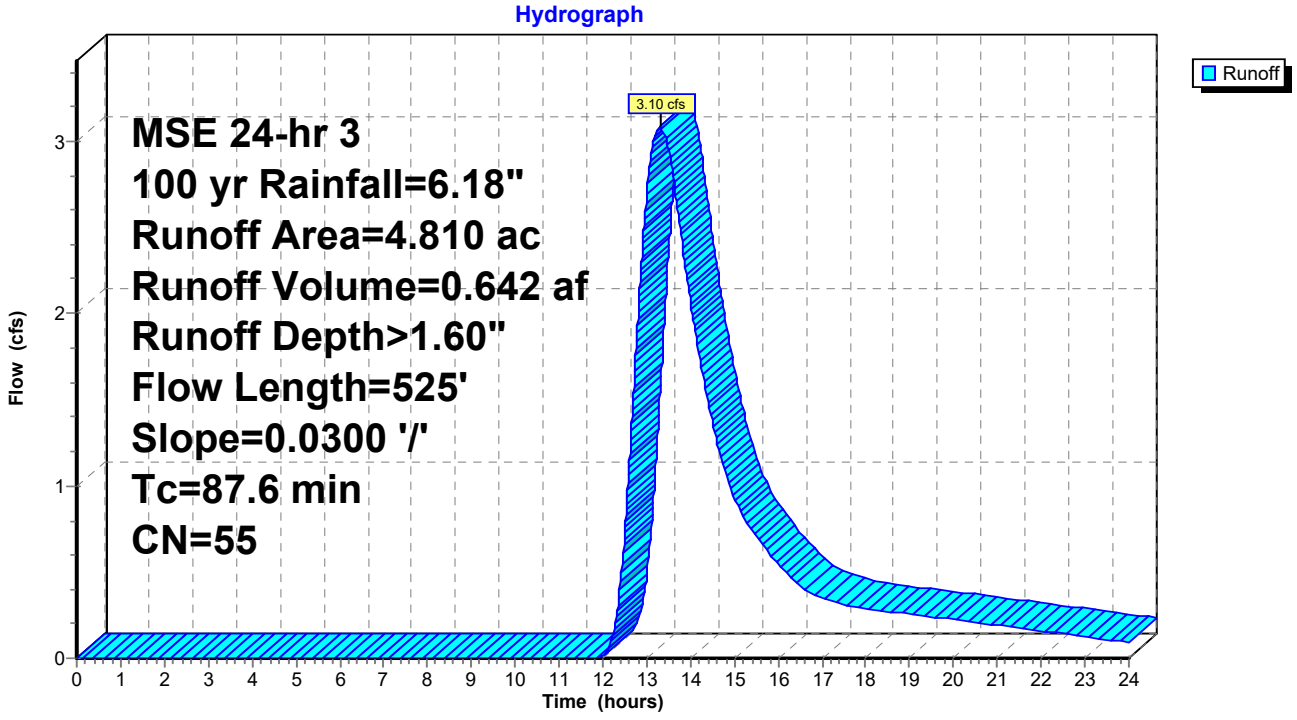
Runoff = 3.10 cfs @ 13.33 hrs, Volume= 0.642 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.700	55	woods
*	0.110	61	grass
	4.810	55	Weighted Average
	4.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.3	225	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
87.6	525	Total			

Subcatchment E20: Subarea 20



Summary for Subcatchment E21: Subarea 21

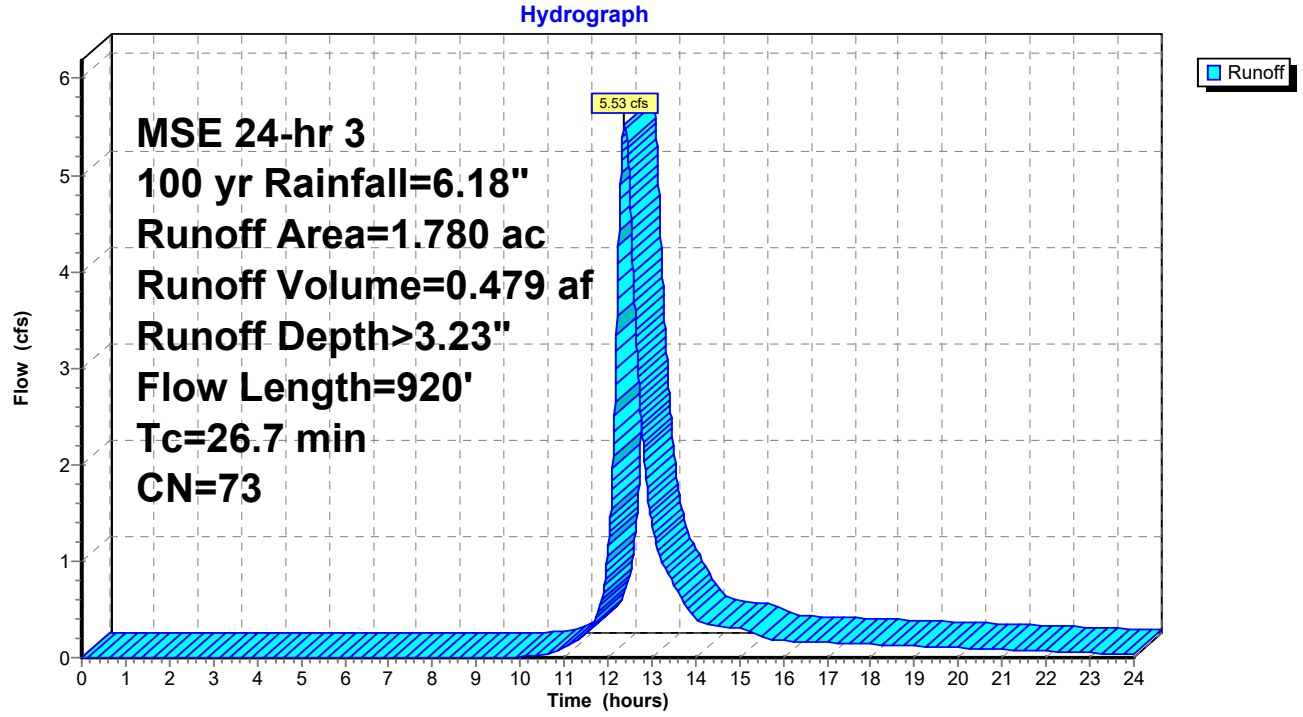
Runoff = 5.53 cfs @ 12.37 hrs, Volume= 0.479 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Subcatchment E21: Subarea 21



Summary for Subcatchment E3: Subarea 3

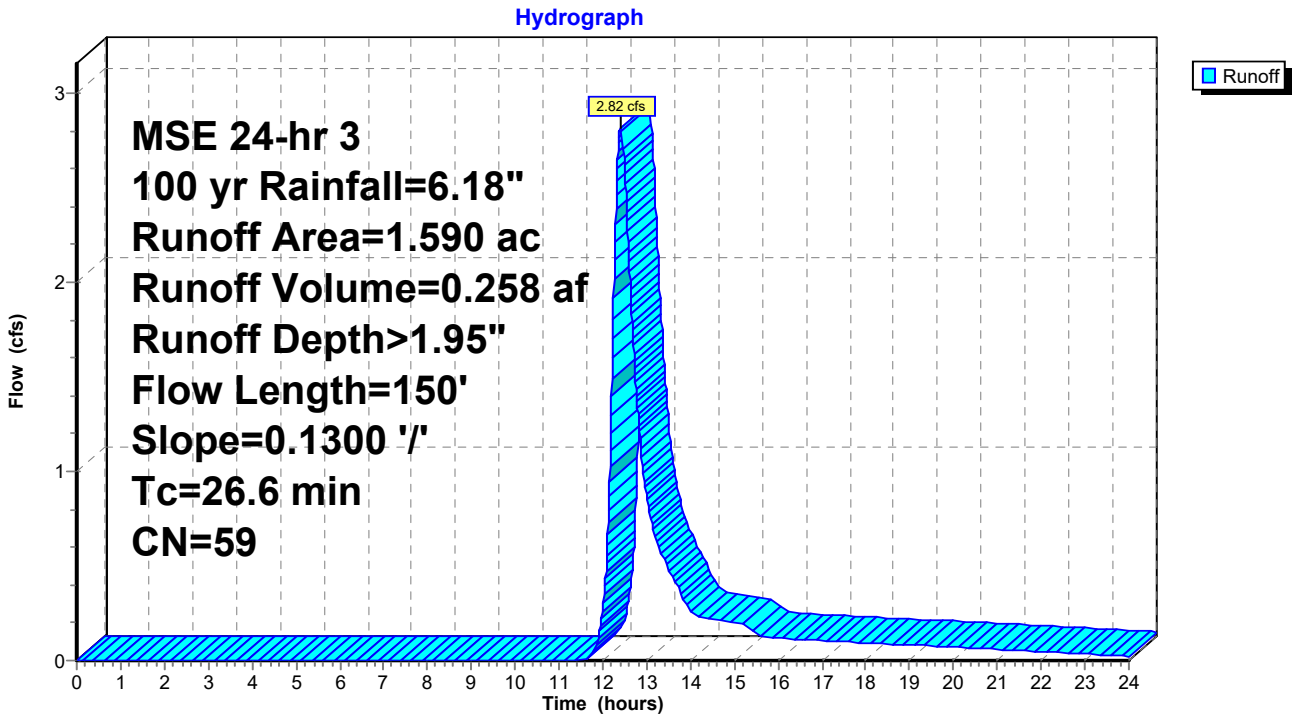
Runoff = 2.82 cfs @ 12.41 hrs, Volume= 0.258 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.280	55	woods
*	0.190	61	grass
*	0.120	98	impervious
	1.590	59	Weighted Average
	1.470		92.45% Pervious Area
	0.120		7.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.6	150	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E3: Subarea 3



Summary for Subcatchment E4: Subarea 4

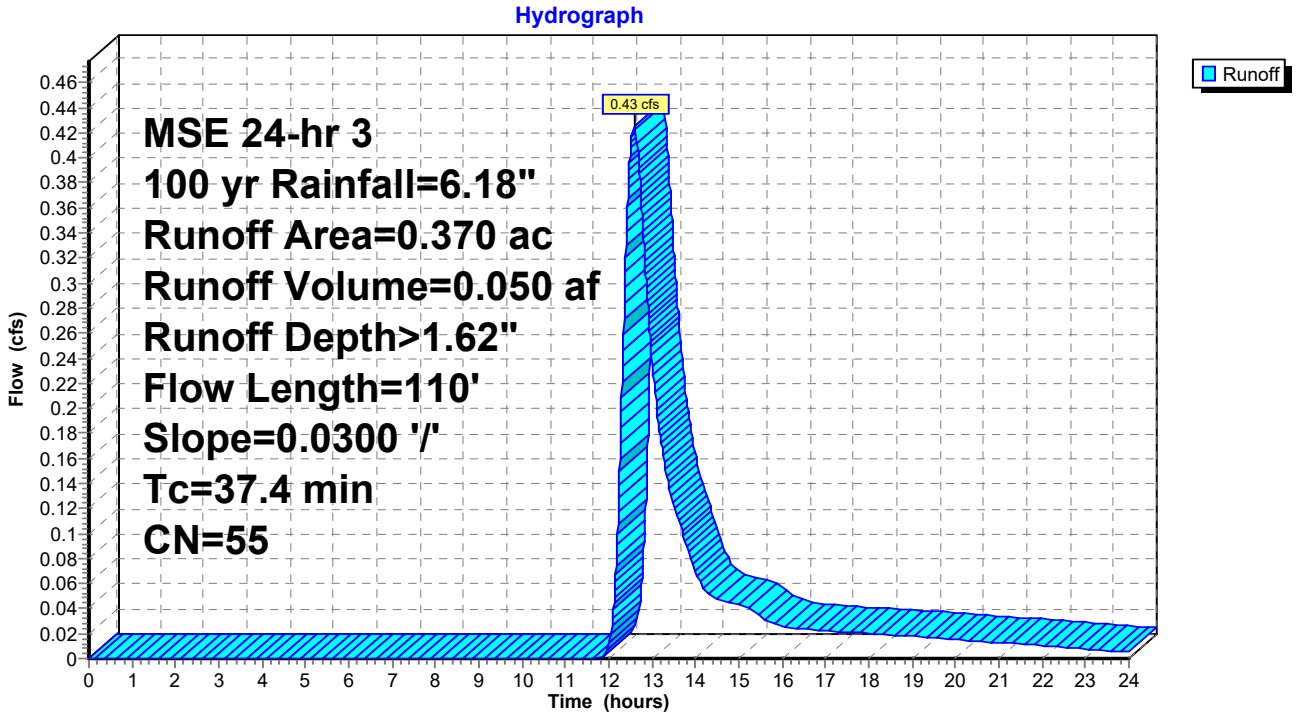
Runoff = 0.43 cfs @ 12.59 hrs, Volume= 0.050 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.350	55	woods
*	0.020	61	grass
	0.370	55	Weighted Average
	0.370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.4	110	0.0300	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E4: Subarea 4



Summary for Subcatchment E5: Subarea 5

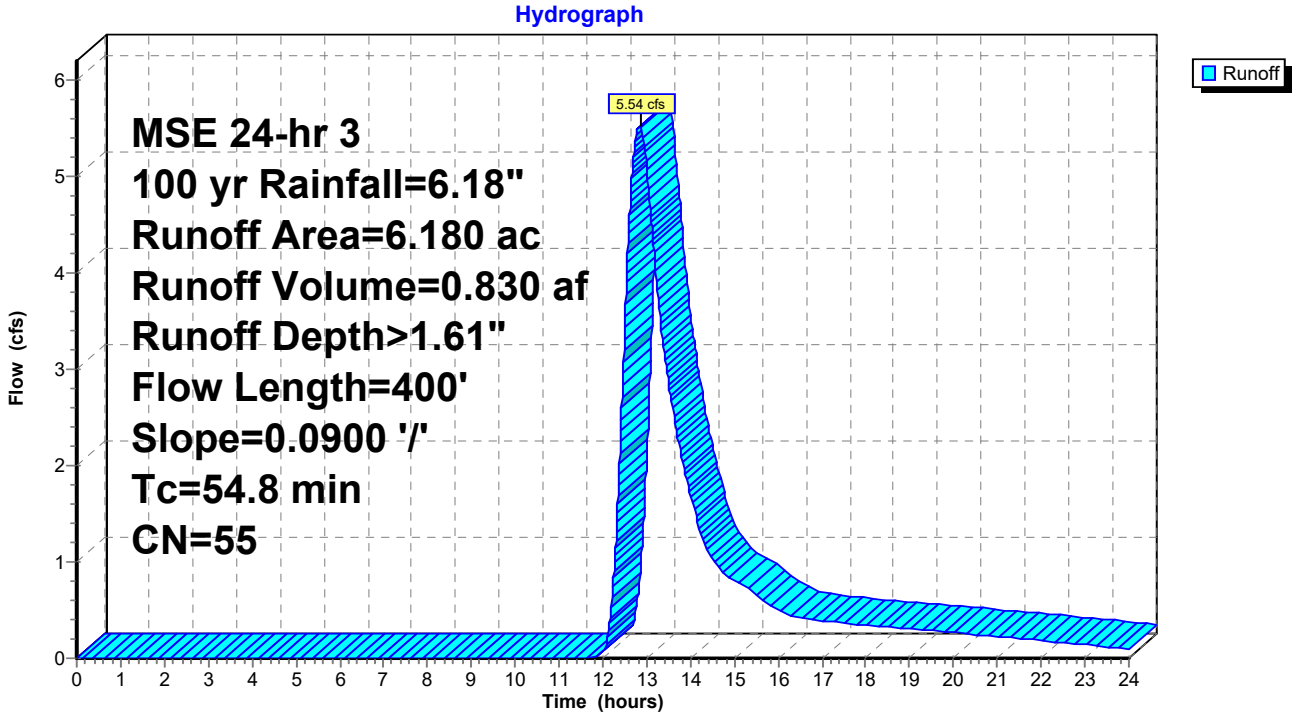
Runoff = 5.54 cfs @ 12.85 hrs, Volume= 0.830 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	6.100	55	woods
*	0.080	61	grass
	6.180	55	Weighted Average
	6.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	300	0.0900	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.1	100	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
54.8	400	Total			

Subcatchment E5: Subarea 5



Summary for Subcatchment E6: Subarea 6

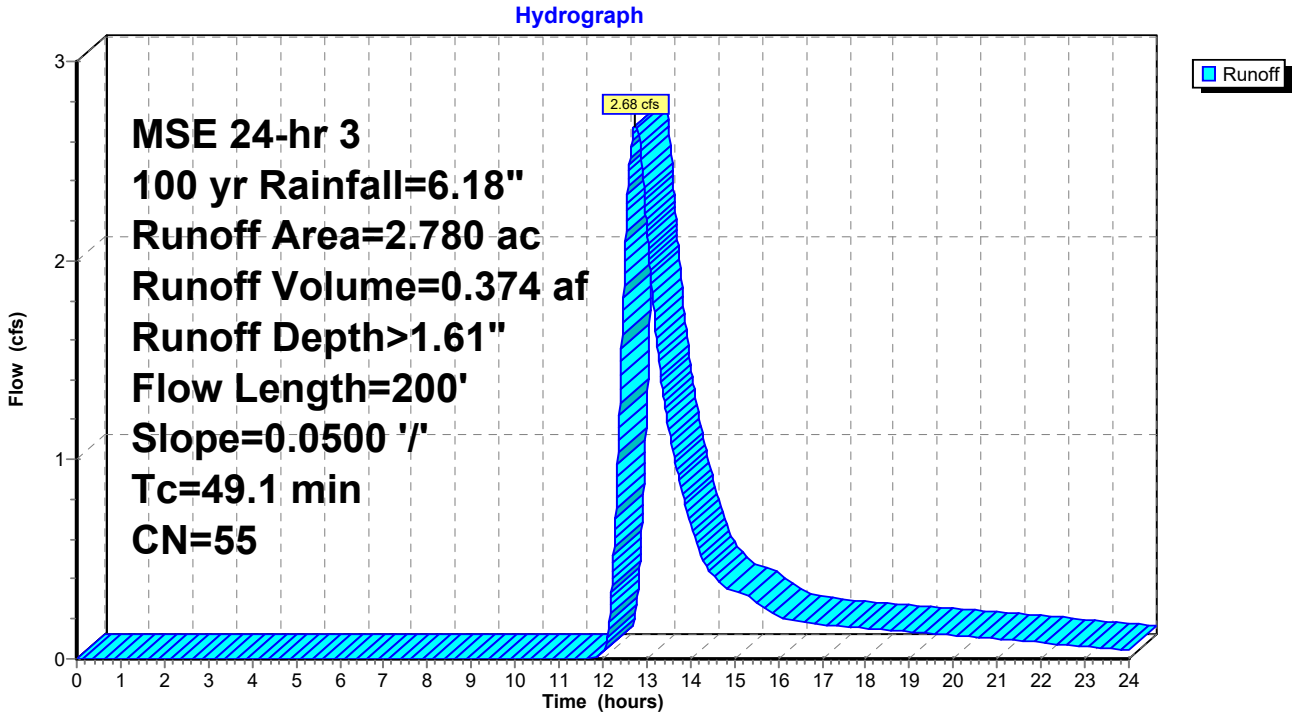
Runoff = 2.68 cfs @ 12.72 hrs, Volume= 0.374 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	2.780	55	woods
	2.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.1	200	0.0500	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment E6: Subarea 6



Summary for Pond 1K: Kettle 1

Inflow Area = 31.830 ac, 0.66% Impervious, Inflow Depth > 0.90" for 100 yr event
Inflow = 17.17 cfs @ 12.75 hrs, Volume= 2.398 af
Outflow = 0.17 cfs @ 24.00 hrs, Volume= 0.144 af, Atten= 99%, Lag= 675.0 min
Discarded = 0.17 cfs @ 24.00 hrs, Volume= 0.144 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 951.74' @ 24.00 hrs Surf.Area= 21,286 sf Storage= 98,188 cf

Plug-Flow detention time= 375.6 min calculated for 0.144 af (6% of inflow)
Center-of-Mass det. time= 243.9 min (1,114.5 - 870.5)

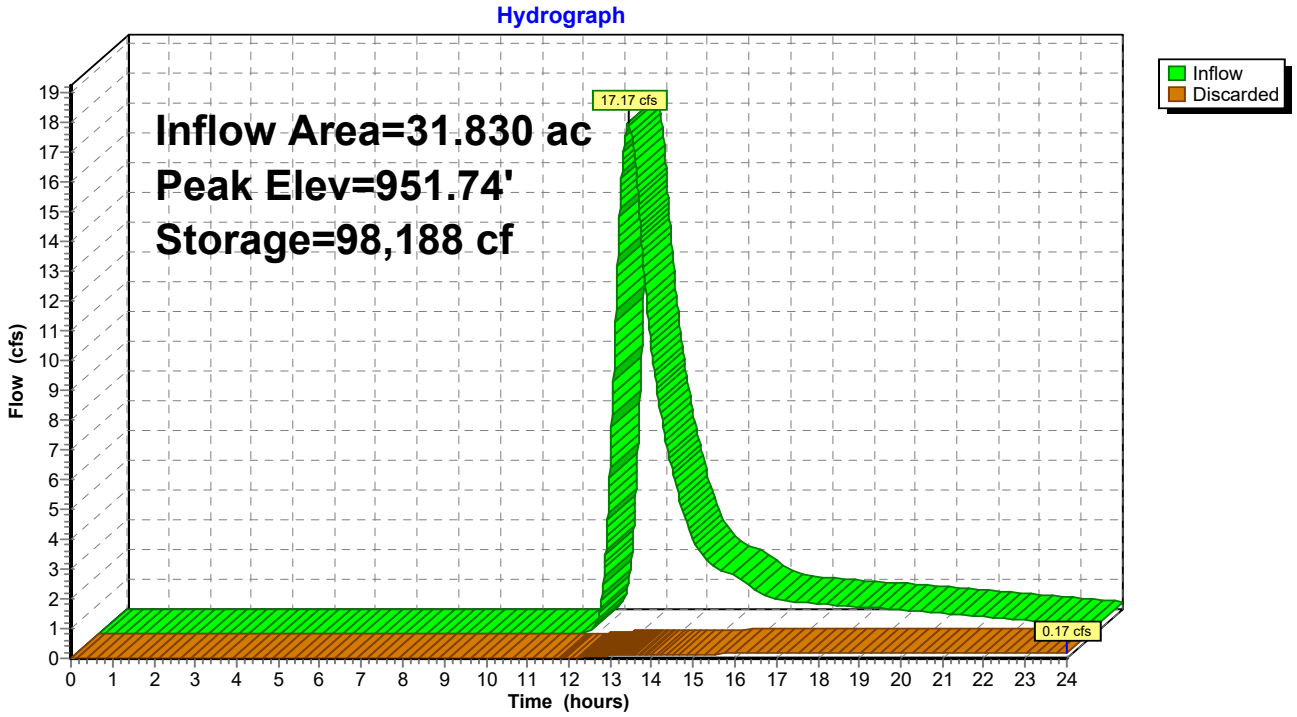
Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	560,290 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	944.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 934.00' Phase-In= 0.01'

Discarded OutFlow Max=0.17 cfs @ 24.00 hrs HW=951.74' (Free Discharge)
↑**1=Exfiltration** (Controls 0.17 cfs)

Pond 1K: Kettle 1



Summary for Pond 2K: Kettle 2

Inflow Area = 16.350 ac, 1.28% Impervious, Inflow Depth > 0.90" for 100 yr event
Inflow = 4.96 cfs @ 12.89 hrs, Volume= 1.230 af
Outflow = 0.11 cfs @ 24.00 hrs, Volume= 0.085 af, Atten= 98%, Lag= 666.7 min
Discarded = 0.11 cfs @ 24.00 hrs, Volume= 0.085 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 972.48' @ 24.00 hrs Surf.Area= 14,943 sf Storage= 49,849 cf

Plug-Flow detention time= 383.9 min calculated for 0.085 af (7% of inflow)
Center-of-Mass det. time= 210.3 min (1,132.8 - 922.5)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	96,797 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

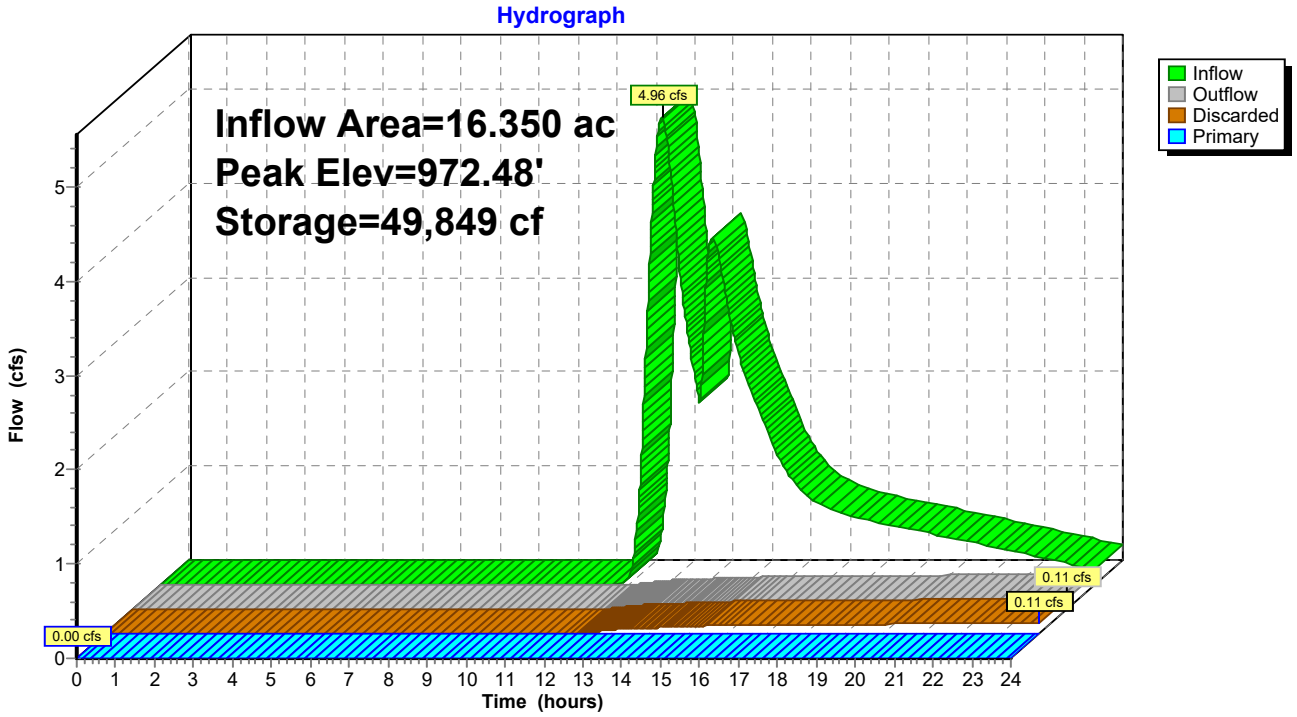
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838

Device	Routing	Invert	Outlet Devices
#1	Discarded	966.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 956.00' Phase-In= 0.01'
#2	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.11 cfs @ 24.00 hrs HW=972.48' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=966.00' TW=944.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2K: Kettle 2



Summary for Pond 3K: Kettle 3

Inflow Area = 10.550 ac, 1.14% Impervious, Inflow Depth > 1.20" for 100 yr event
Inflow = 4.35 cfs @ 13.16 hrs, Volume= 1.053 af
Outflow = 2.46 cfs @ 14.24 hrs, Volume= 0.525 af, Atten= 44%, Lag= 64.7 min
Discarded = 0.07 cfs @ 14.24 hrs, Volume= 0.061 af
Primary = 2.39 cfs @ 14.24 hrs, Volume= 0.464 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 976.16' @ 14.24 hrs Surf.Area= 9,745 sf Storage= 24,356 cf

Plug-Flow detention time= 222.9 min calculated for 0.525 af (50% of inflow)
Center-of-Mass det. time= 116.2 min (1,004.8 - 888.6)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	46,349 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

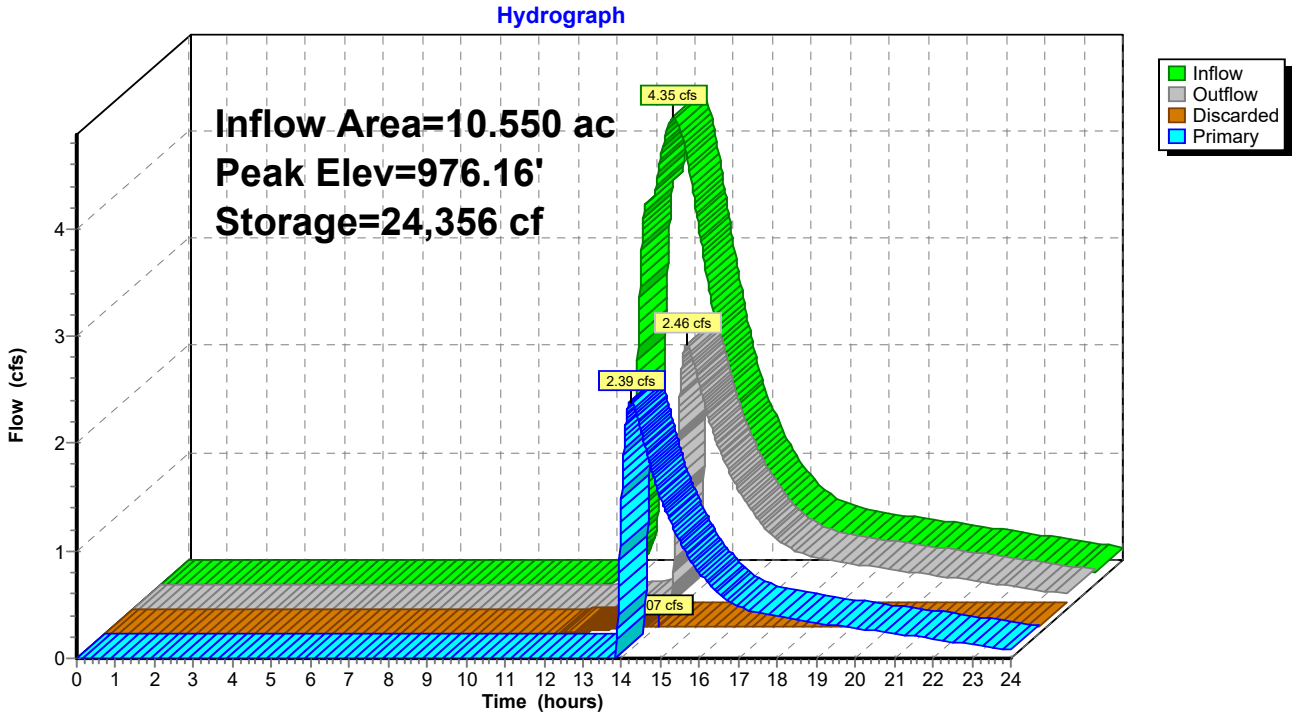
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,020	2,906	2,906	4,029
974.00	5,770	4,869	7,775	5,796
975.00	7,510	6,621	14,396	7,560
976.00	9,385	8,430	22,826	9,463
977.00	11,750	10,545	33,371	11,855
978.00	14,245	12,977	46,349	14,383

Device	Routing	Invert	Outlet Devices
#1	Discarded	972.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 962.00' Phase-In= 0.01'
#2	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 14.24 hrs HW=976.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=2.39 cfs @ 14.24 hrs HW=976.16' TW=970.33' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 2.39 cfs @ 1.00 fps)

Pond 3K: Kettle 3



Summary for Pond 4K: Kettle 4

Inflow Area = 0.370 ac, 0.00% Impervious, Inflow Depth > 1.62" for 100 yr event
Inflow = 0.43 cfs @ 12.59 hrs, Volume= 0.050 af
Outflow = 0.02 cfs @ 19.23 hrs, Volume= 0.016 af, Atten= 96%, Lag= 398.5 min
Discarded = 0.02 cfs @ 19.23 hrs, Volume= 0.016 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,007.92' @ 19.23 hrs Surf.Area= 2,943 sf Storage= 1,580 cf

Plug-Flow detention time= 350.9 min calculated for 0.016 af (32% of inflow)
Center-of-Mass det. time= 236.2 min (1,100.8 - 864.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,007.00'	6,875 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

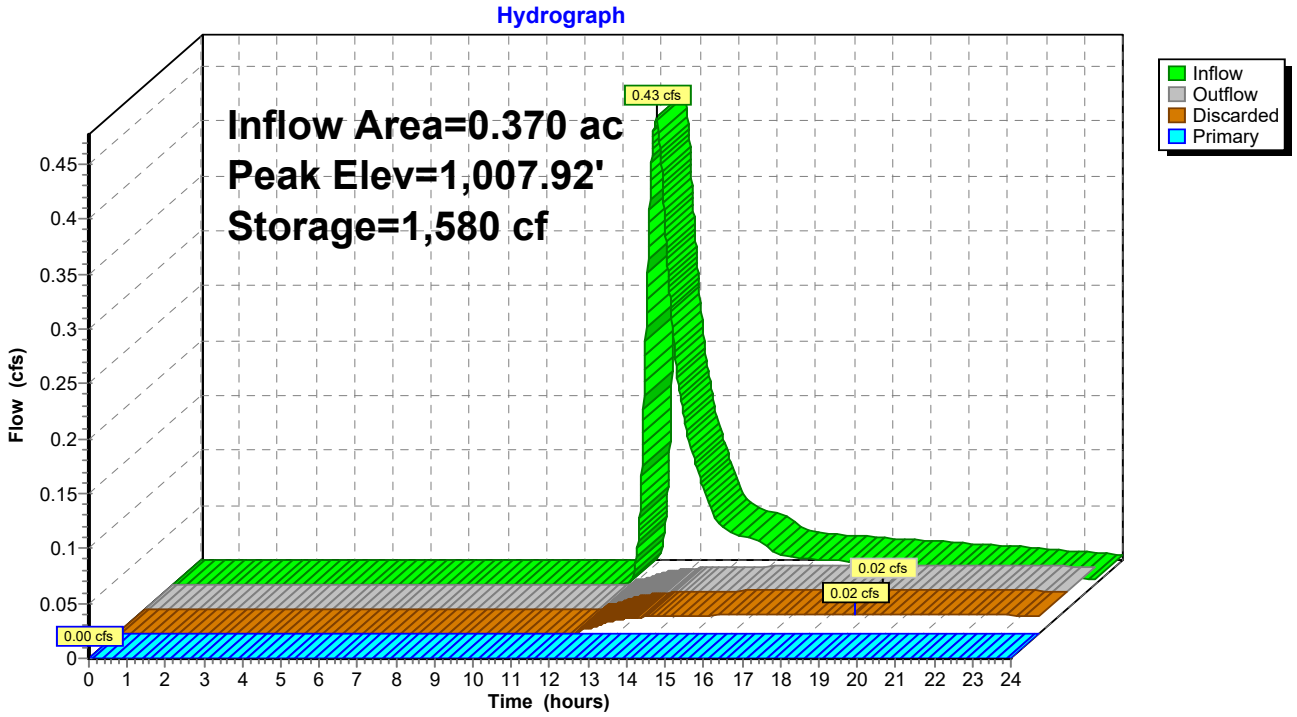
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,007.00	750	0	0	750
1,008.00	3,220	1,841	1,841	3,224
1,009.00	7,100	5,034	6,875	7,113

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,007.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 997.00' Phase-In= 0.01'
#2	Primary	1,008.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.02 cfs @ 19.23 hrs HW=1,007.92' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,007.00' TW=966.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4K: Kettle 4



Summary for Pond 5K: Kettle 5

Inflow Area = 8.960 ac, 0.00% Impervious, Inflow Depth > 1.11" for 100 yr event
Inflow = 5.54 cfs @ 12.85 hrs, Volume= 0.830 af
Outflow = 3.79 cfs @ 13.25 hrs, Volume= 0.827 af, Atten= 32%, Lag= 24.4 min
Discarded = 0.08 cfs @ 13.25 hrs, Volume= 0.032 af
Primary = 3.70 cfs @ 13.25 hrs, Volume= 0.794 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 983.45' @ 13.25 hrs Surf.Area= 14,369 sf Storage= 7,114 cf

Plug-Flow detention time= 27.6 min calculated for 0.826 af (100% of inflow)
Center-of-Mass det. time= 25.4 min (904.6 - 879.3)

Volume	Invert	Avail.Storage	Storage Description
#1	982.50'	80,797 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

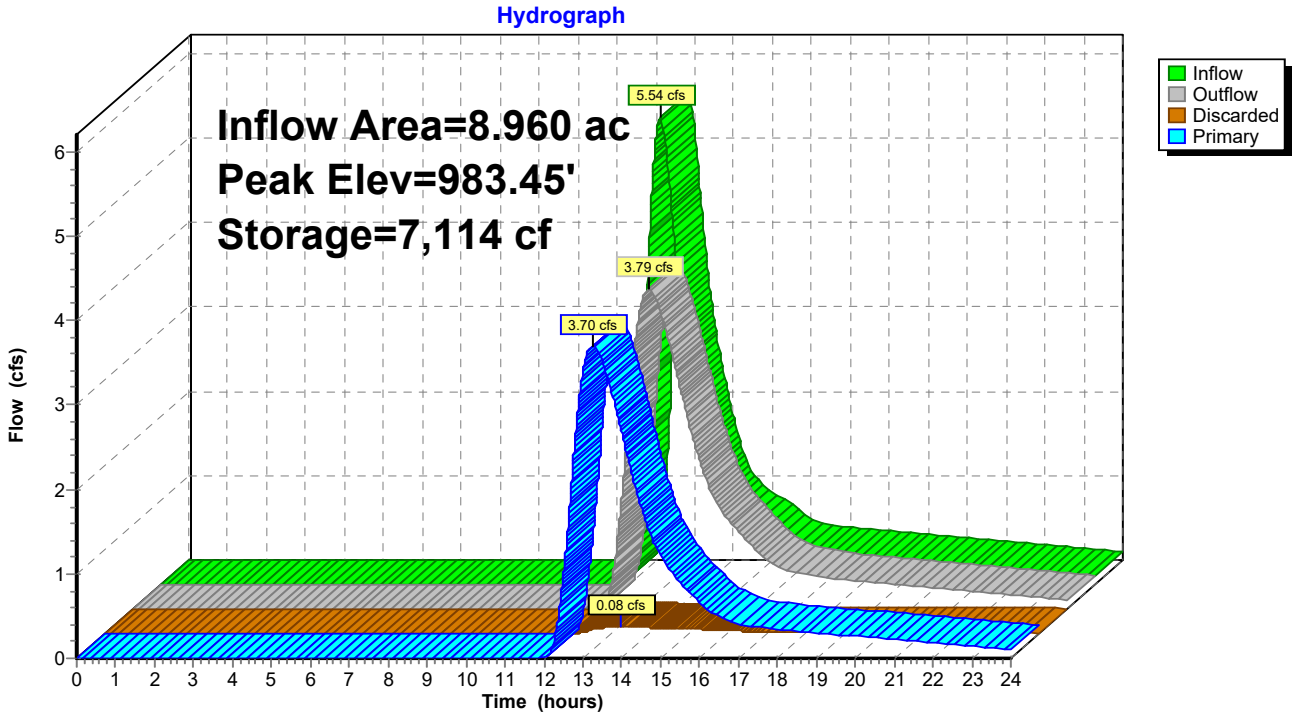
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
982.50	50	0	0	50
983.00	9,605	1,725	1,725	9,605
984.00	21,410	15,118	16,843	21,418
985.00	33,125	27,055	43,898	33,148
986.00	40,805	36,898	80,797	40,858

Device	Routing	Invert	Outlet Devices
#1	Discarded	982.50'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 972.50' Phase-In= 0.01'
#2	Primary	982.57'	**15.0" Round Culvert** L= 48.4' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 982.57' / 980.88' S= 0.0349 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Primary	985.10'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.08 cfs @ 13.25 hrs HW=983.45' (Free Discharge)
└**1=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=3.70 cfs @ 13.25 hrs HW=983.45' TW=975.00' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 3.70 cfs @ 4.00 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5K: Kettle 5



Summary for Pond 6K: Kettle 6

Inflow Area = 2.780 ac, 0.00% Impervious, Inflow Depth > 1.61" for 100 yr event
Inflow = 2.68 cfs @ 12.72 hrs, Volume= 0.374 af
Outflow = 0.12 cfs @ 19.96 hrs, Volume= 0.110 af, Atten= 96%, Lag= 434.5 min
Discarded = 0.12 cfs @ 19.96 hrs, Volume= 0.110 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,011.81' @ 19.96 hrs Surf.Area= 20,262 sf Storage= 12,024 cf

Plug-Flow detention time= 343.7 min calculated for 0.110 af (29% of inflow)
Center-of-Mass det. time= 225.9 min (1,100.4 - 874.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	47,595 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

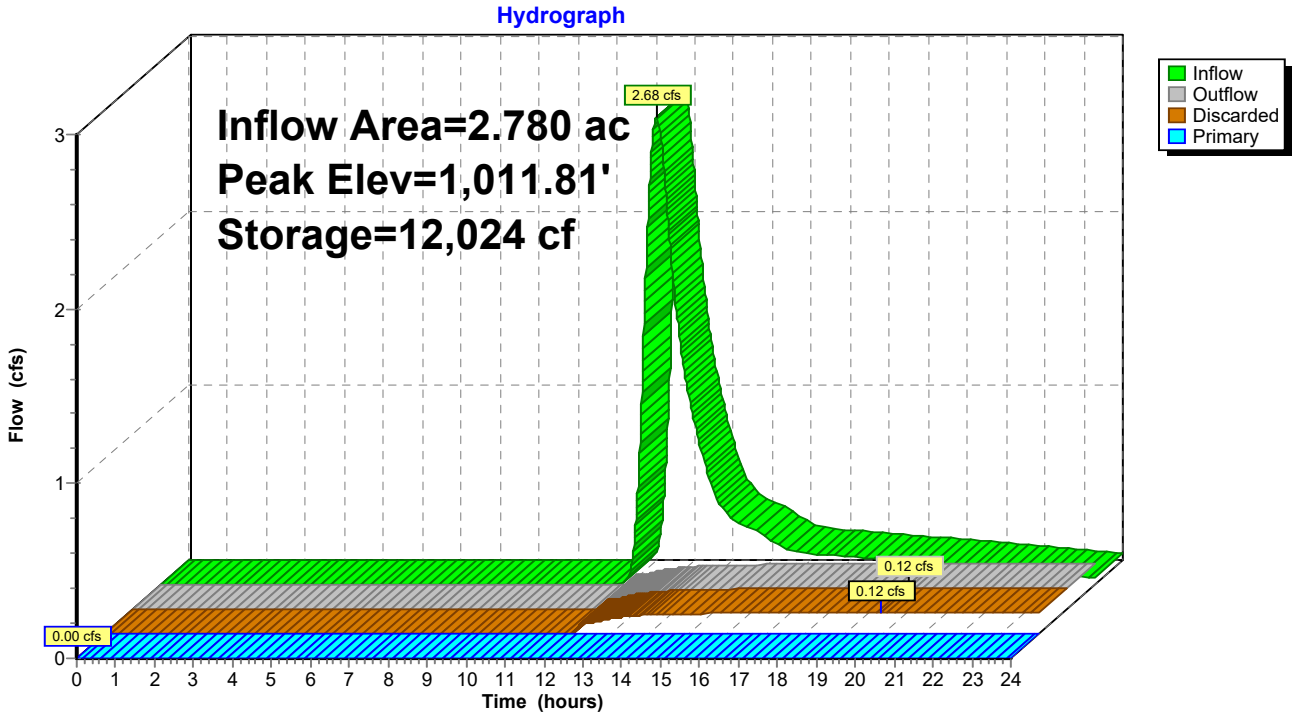
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	9,905	0	0	9,905
1,012.00	23,150	16,066	16,066	23,158
1,013.00	40,730	31,529	47,595	40,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.70'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 19.96 hrs HW=1,011.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,011.00' TW=982.50' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6K: Kettle 6



Summary for Pond 10K: Kettle 10

Inflow Area = 21.480 ac, 4.42% Impervious, Inflow Depth > 0.18" for 100 yr event
Inflow = 3.00 cfs @ 12.53 hrs, Volume= 0.325 af
Outflow = 0.04 cfs @ 23.28 hrs, Volume= 0.036 af, Atten= 99%, Lag= 645.1 min
Discarded = 0.04 cfs @ 23.28 hrs, Volume= 0.036 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 957.85' @ 23.28 hrs Surf.Area= 6,156 sf Storage= 12,616 cf

Plug-Flow detention time= 373.7 min calculated for 0.036 af (11% of inflow)
Center-of-Mass det. time= 255.1 min (1,108.1 - 853.0)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

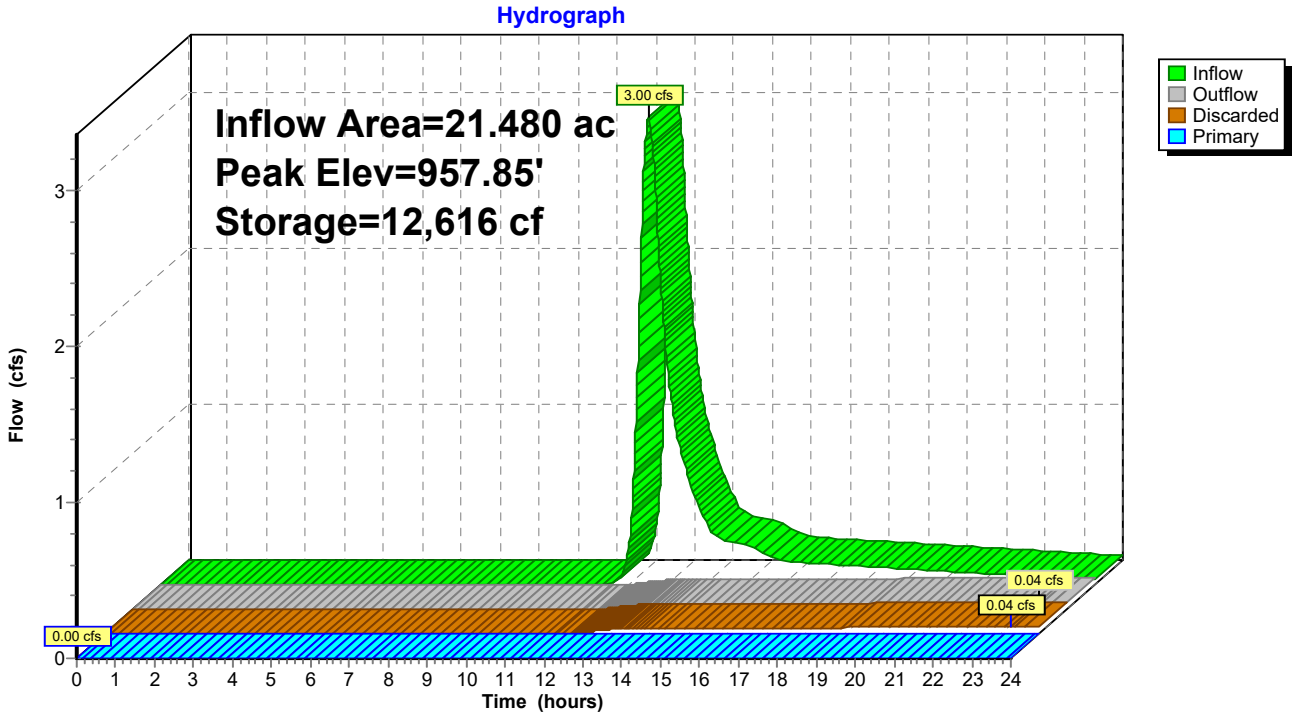
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 943.00' Phase-In= 0.01'
#2	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.04 cfs @ 23.28 hrs HW=957.85' (Free Discharge)
↑**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 10K: Kettle 10



Summary for Pond 11K: Kettle 11

Inflow Area = 0.730 ac, 0.00% Impervious, Inflow Depth > 1.62" for 100 yr event
Inflow = 0.88 cfs @ 12.54 hrs, Volume= 0.098 af
Outflow = 0.03 cfs @ 20.17 hrs, Volume= 0.027 af, Atten= 97%, Lag= 457.6 min
Discarded = 0.03 cfs @ 20.17 hrs, Volume= 0.027 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 980.31' @ 20.17 hrs Surf.Area= 4,944 sf Storage= 3,257 cf

Plug-Flow detention time= 359.1 min calculated for 0.027 af (27% of inflow)
Center-of-Mass det. time= 242.8 min (1,105.1 - 862.3)

Volume	Invert	Avail.Storage	Storage Description
#1	979.00'	8,105 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

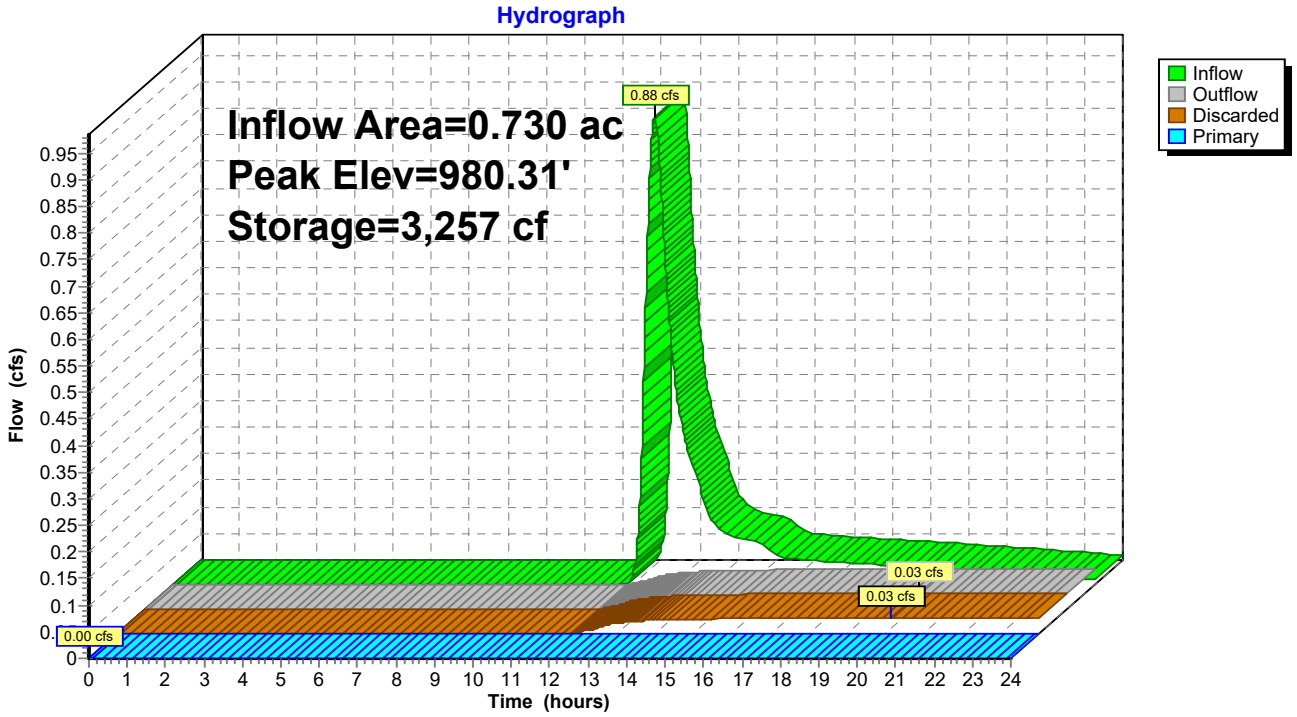
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.00	805	0	0	805
980.00	3,445	1,972	1,972	3,450
981.00	9,295	6,133	8,105	9,306

Device	Routing	Invert	Outlet Devices
#1	Discarded	979.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 969.00' Phase-In= 0.01'
#2	Primary	980.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 20.17 hrs HW=980.31' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=979.00' TW=953.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 11K: Kettle 11



Summary for Pond 12K: Kettle 12

Inflow Area = 18.830 ac, 5.05% Impervious, Inflow Depth > 0.49" for 100 yr event
Inflow = 6.58 cfs @ 12.62 hrs, Volume= 0.766 af
Outflow = 0.11 cfs @ 22.85 hrs, Volume= 0.097 af, Atten= 98%, Lag= 614.1 min
Discarded = 0.11 cfs @ 22.85 hrs, Volume= 0.097 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 959.25' @ 22.85 hrs Surf.Area= 16,383 sf Storage= 29,213 cf

Plug-Flow detention time= 366.8 min calculated for 0.097 af (13% of inflow)
Center-of-Mass det. time= 251.2 min (1,102.6 - 851.4)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

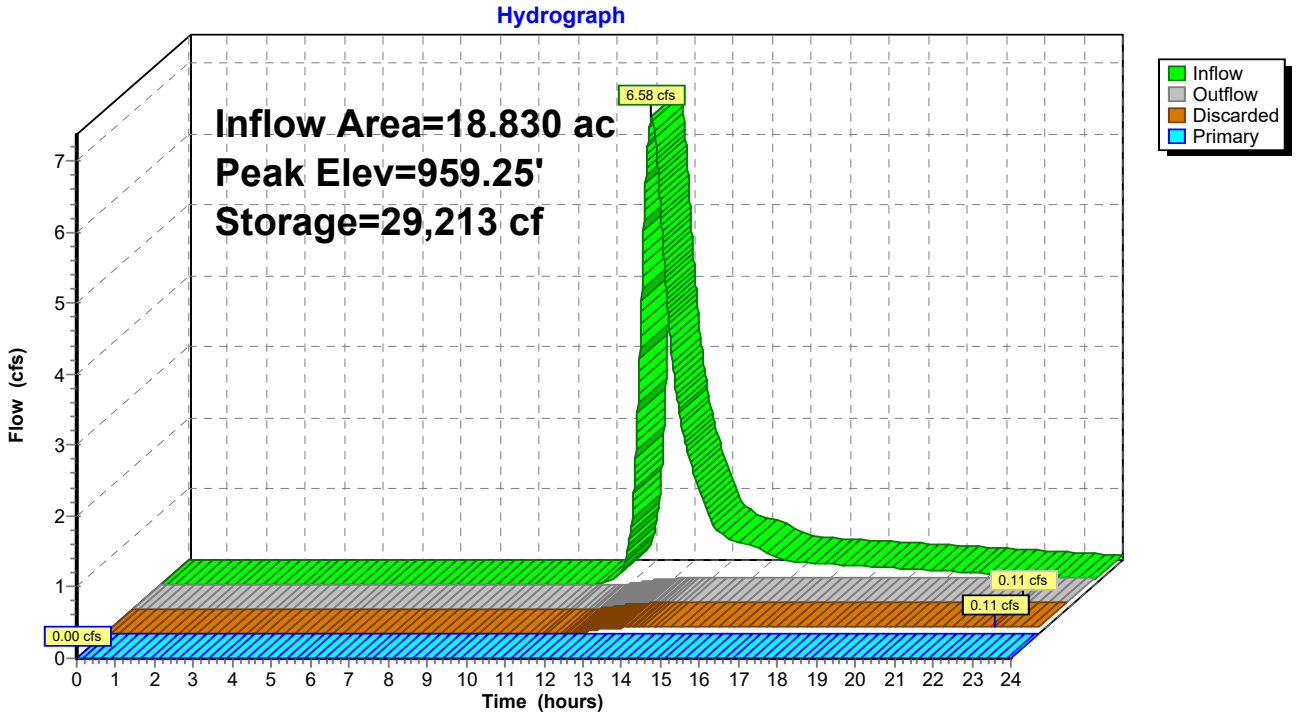
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 946.00' Phase-In= 0.01'
#2	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.11 cfs @ 22.85 hrs HW=959.25' (Free Discharge)
1=Exfiltration (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=956.00' TW=953.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 12K: Kettle 12



Summary for Pond 13K: Kettle 13

Inflow Area = 15.930 ac, 5.27% Impervious, Inflow Depth > 0.13" for 100 yr event
Inflow = 1.60 cfs @ 12.52 hrs, Volume= 0.171 af
Outflow = 1.55 cfs @ 12.59 hrs, Volume= 0.171 af, Atten= 3%, Lag= 4.1 min
Discarded = 0.01 cfs @ 12.59 hrs, Volume= 0.003 af
Primary = 1.54 cfs @ 12.59 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 959.88' @ 12.59 hrs Surf.Area= 1,730 sf Storage= 329 cf

Plug-Flow detention time= 5.1 min calculated for 0.171 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (856.0 - 852.4)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

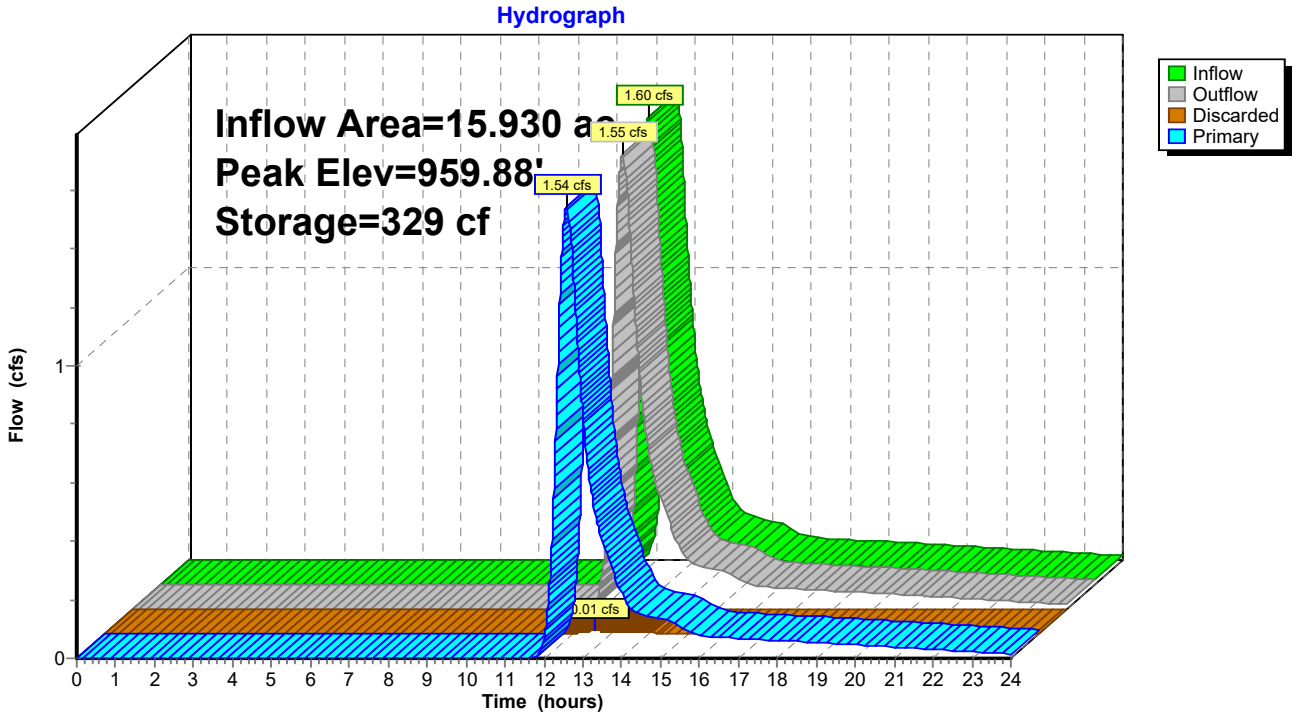
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.40'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 949.00' Phase-In= 0.01'
#2	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#3	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.59 hrs HW=959.88' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.54 cfs @ 12.59 hrs HW=959.88' TW=957.58' (Dynamic Tailwater)
├**2=Culvert** (Barrel Controls 1.54 cfs @ 2.65 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13K: Kettle 13



Summary for Pond 14K: Kettle 14

Inflow Area = 14.920 ac, 5.63% Impervious, Inflow Depth > 1.15" for 100 yr event
Inflow = 6.35 cfs @ 13.50 hrs, Volume= 1.425 af
Outflow = 0.12 cfs @ 24.00 hrs, Volume= 0.094 af, Atten= 98%, Lag= 630.0 min
Discarded = 0.12 cfs @ 24.00 hrs, Volume= 0.094 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 961.28' @ 24.00 hrs Surf.Area= 15,555 sf Storage= 57,960 cf

Plug-Flow detention time= 371.0 min calculated for 0.094 af (7% of inflow)
Center-of-Mass det. time= 219.9 min (1,129.6 - 909.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

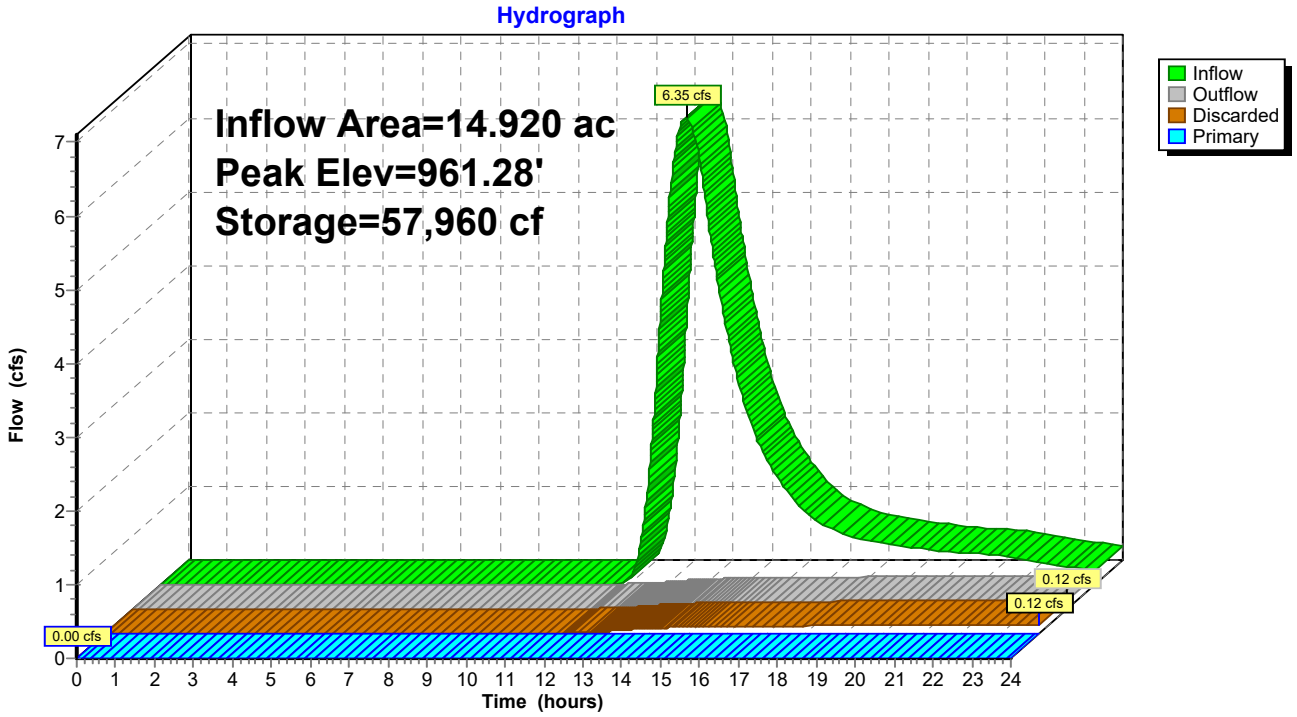
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
965.00	23,972	62,065	131,899	24,362
967.00	28,808	52,706	184,605	29,333

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 945.00' Phase-In= 0.01'
#2	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 24.00 hrs HW=961.28' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.00' TW=959.40' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 14K: Kettle 14



Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac, 1.15% Impervious, Inflow Depth > 2.30" for 100 yr event
Inflow = 2.28 cfs @ 12.29 hrs, Volume= 0.167 af
Outflow = 0.03 cfs @ 21.23 hrs, Volume= 0.031 af, Atten= 99%, Lag= 536.5 min
Discarded = 0.03 cfs @ 21.23 hrs, Volume= 0.031 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 971.90' @ 21.23 hrs Surf.Area= 5,308 sf Storage= 6,014 cf

Plug-Flow detention time= 365.9 min calculated for 0.031 af (19% of inflow)
Center-of-Mass det. time= 259.2 min (1,091.8 - 832.6)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

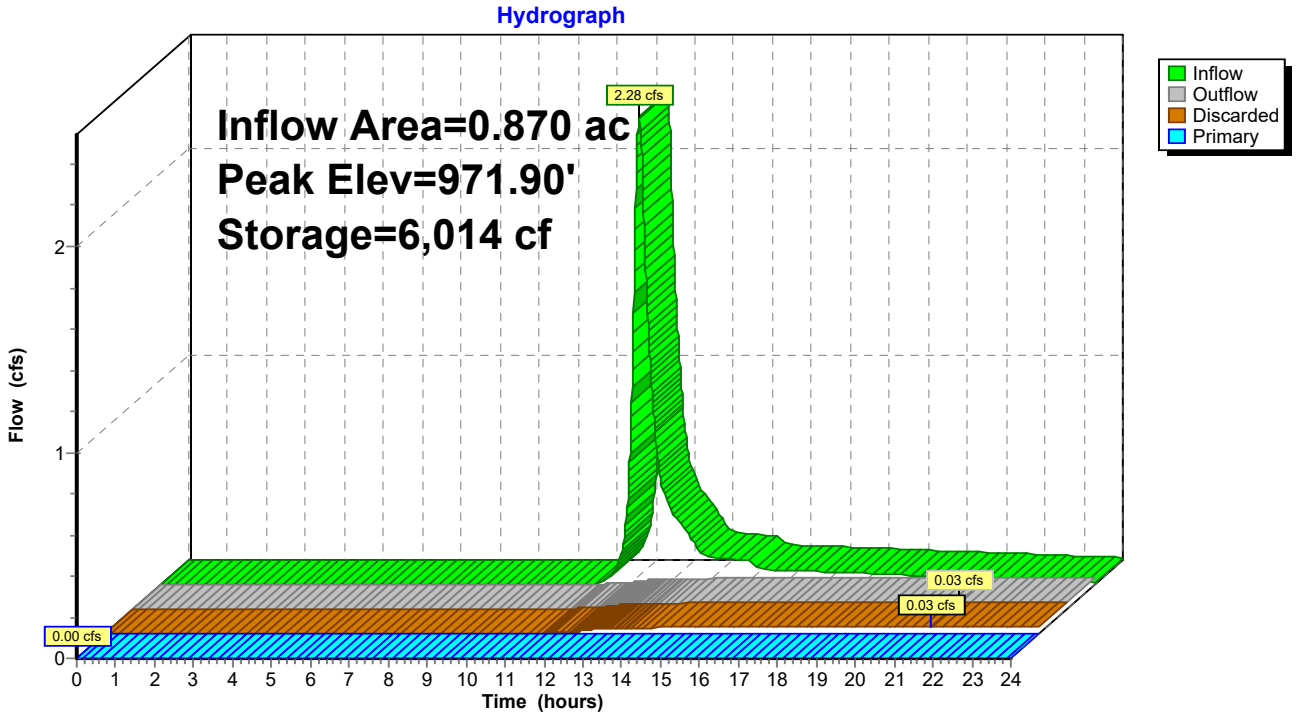
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	970.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 960.00' Phase-In= 0.01'
#2	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 21.23 hrs HW=971.90' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=970.00' TW=955.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15K: Kettle 15



Summary for Pond 16K: Kettle 16

Inflow Area = 5.920 ac, 0.00% Impervious, Inflow Depth > 0.84" for 100 yr event
Inflow = 1.38 cfs @ 14.23 hrs, Volume= 0.414 af
Outflow = 0.10 cfs @ 21.38 hrs, Volume= 0.063 af, Atten= 92%, Lag= 429.0 min
Discarded = 0.07 cfs @ 21.38 hrs, Volume= 0.058 af
Primary = 0.04 cfs @ 21.38 hrs, Volume= 0.005 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,007.01' @ 21.38 hrs Surf.Area= 10,650 sf Storage= 15,507 cf

Plug-Flow detention time= 364.6 min calculated for 0.063 af (15% of inflow)
Center-of-Mass det. time= 211.2 min (1,133.5 - 922.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

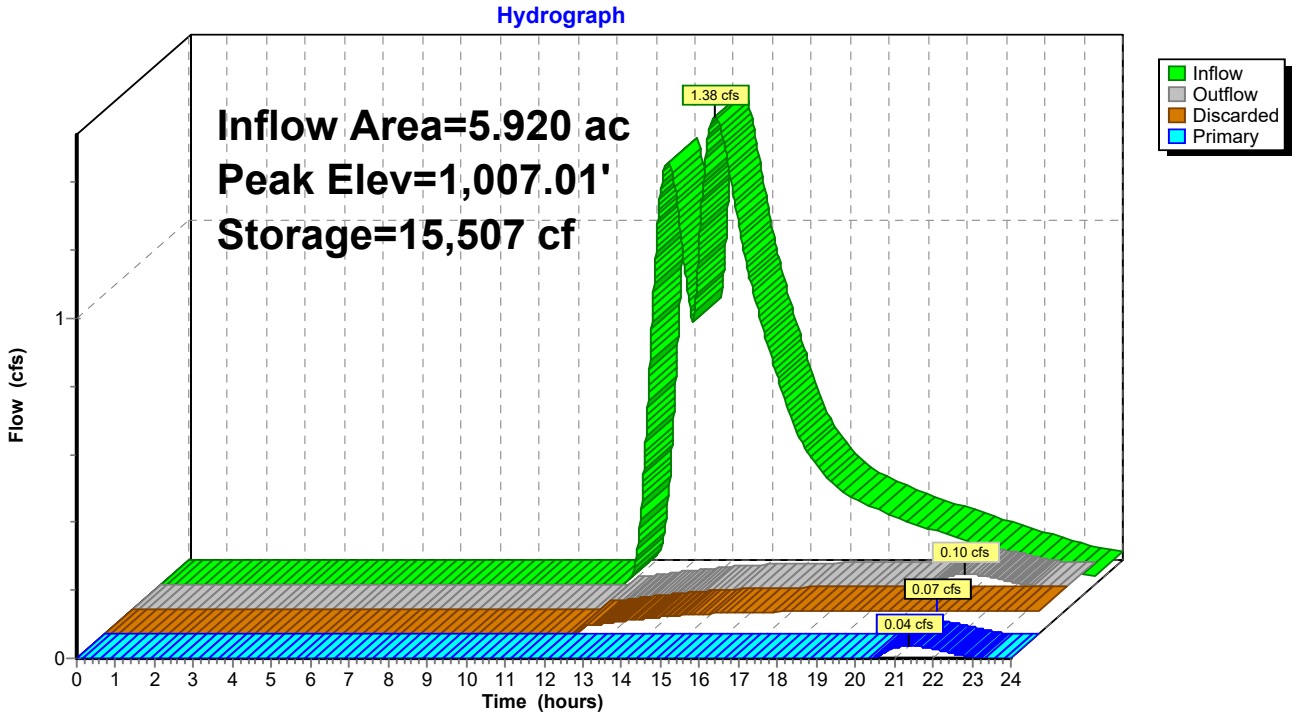
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,005.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 995.00' Phase-In= 0.01'
#2	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 21.38 hrs HW=1,007.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.04 cfs @ 21.38 hrs HW=1,007.01' TW=961.17' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.25 fps)

Pond 16K: Kettle 16



Summary for Pond 17K: Kettle 17

Inflow Area = 4.300 ac, 0.00% Impervious, Inflow Depth > 1.61" for 100 yr event
Inflow = 3.20 cfs @ 13.04 hrs, Volume= 0.576 af
Outflow = 1.10 cfs @ 14.37 hrs, Volume= 0.321 af, Atten= 66%, Lag= 79.3 min
Discarded = 0.14 cfs @ 14.37 hrs, Volume= 0.124 af
Primary = 0.96 cfs @ 14.37 hrs, Volume= 0.197 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.09' @ 14.37 hrs Surf.Area= 24,000 sf Storage= 13,197 cf

Plug-Flow detention time= 221.5 min calculated for 0.321 af (56% of inflow)
Center-of-Mass det. time= 120.2 min (1,013.9 - 893.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

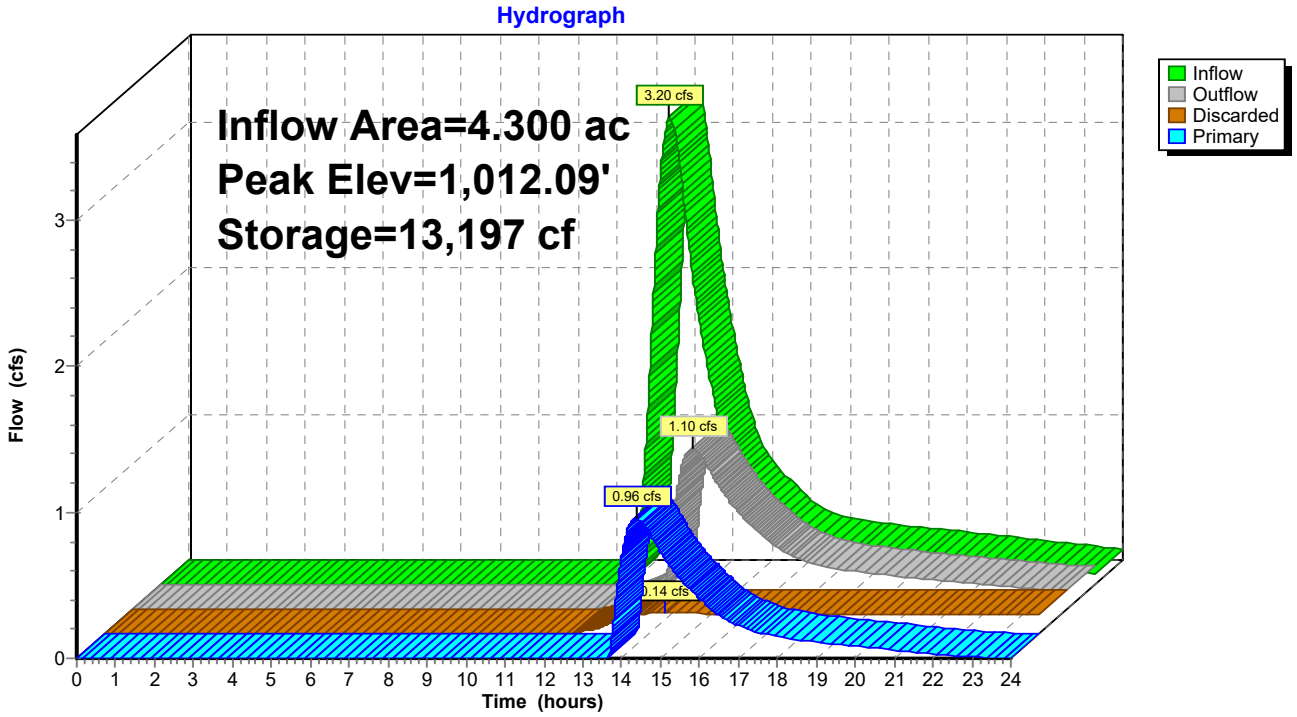
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.14 cfs @ 14.37 hrs HW=1,012.09' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.96 cfs @ 14.37 hrs HW=1,012.09' TW=1,006.14' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.96 cfs @ 0.73 fps)

Pond 17K: Kettle 17



Summary for Pond 18B: Existing Infiltration Basin

Inflow Area = 7.770 ac, 7.72% Impervious, Inflow Depth > 3.30" for 100 yr event
Inflow = 18.65 cfs @ 12.51 hrs, Volume= 2.139 af
Outflow = 0.84 cfs @ 15.97 hrs, Volume= 0.781 af, Atten= 96%, Lag= 207.6 min
Discarded = 0.84 cfs @ 15.97 hrs, Volume= 0.781 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 994.35' @ 15.97 hrs Surf.Area= 21,497 sf Storage= 68,657 cf

Plug-Flow detention time= 344.5 min calculated for 0.781 af (37% of inflow)
Center-of-Mass det. time= 249.6 min (1,082.3 - 832.7)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	111,738 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249
996.00	31,138	28,054	111,738	31,336

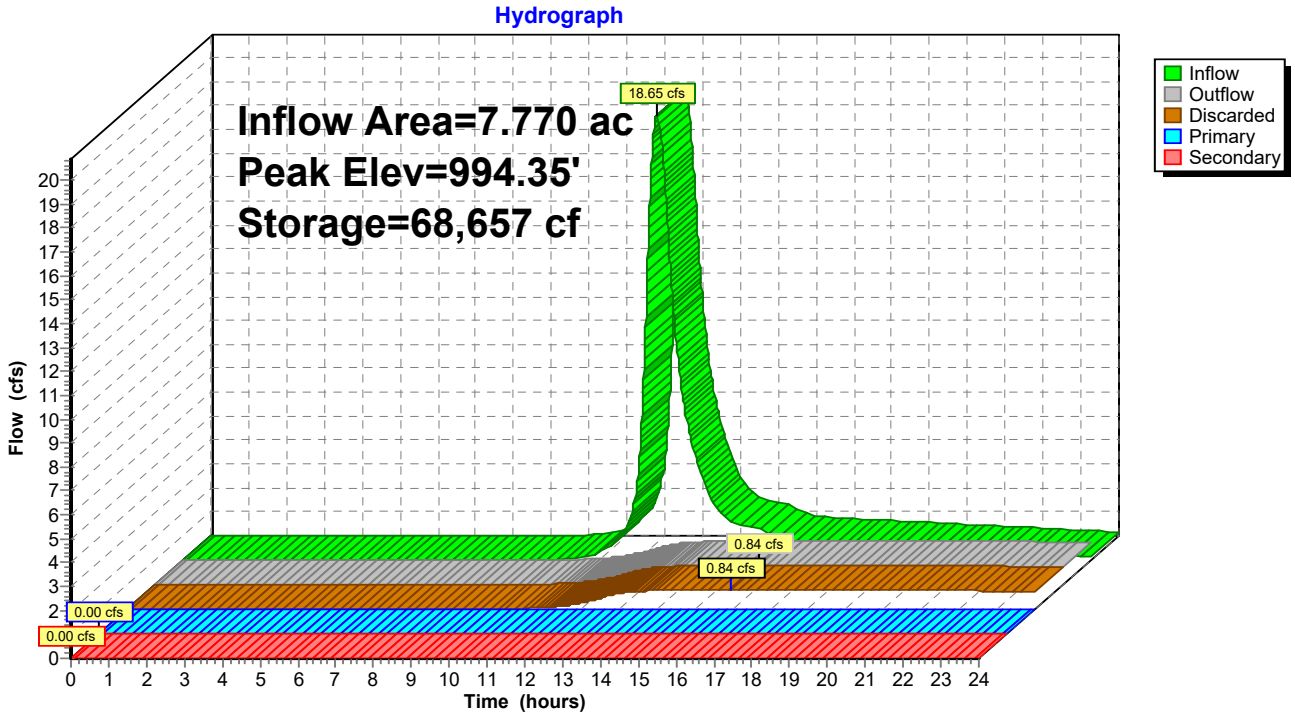
Device	Routing	Invert	Outlet Devices
#1	Discarded	989.00'	**1.300 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 979.00'
#2	Primary	994.65'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.84 cfs @ 15.97 hrs HW=994.35' (Free Discharge)
1=Exfiltration (Controls 0.84 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' TW=992.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 18B: Existing Infiltration Basin



Summary for Pond 20K: Kettle 20

Inflow Area = 12.580 ac, 4.77% Impervious, Inflow Depth > 0.61" for 100 yr event
Inflow = 3.10 cfs @ 13.33 hrs, Volume= 0.642 af
Outflow = 0.17 cfs @ 21.65 hrs, Volume= 0.149 af, Atten= 94%, Lag= 499.2 min
Discarded = 0.17 cfs @ 21.65 hrs, Volume= 0.149 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 993.27' @ 21.65 hrs Surf.Area= 28,650 sf Storage= 21,806 cf

Plug-Flow detention time= 342.8 min calculated for 0.149 af (23% of inflow)
Center-of-Mass det. time= 212.3 min (1,118.6 - 906.2)

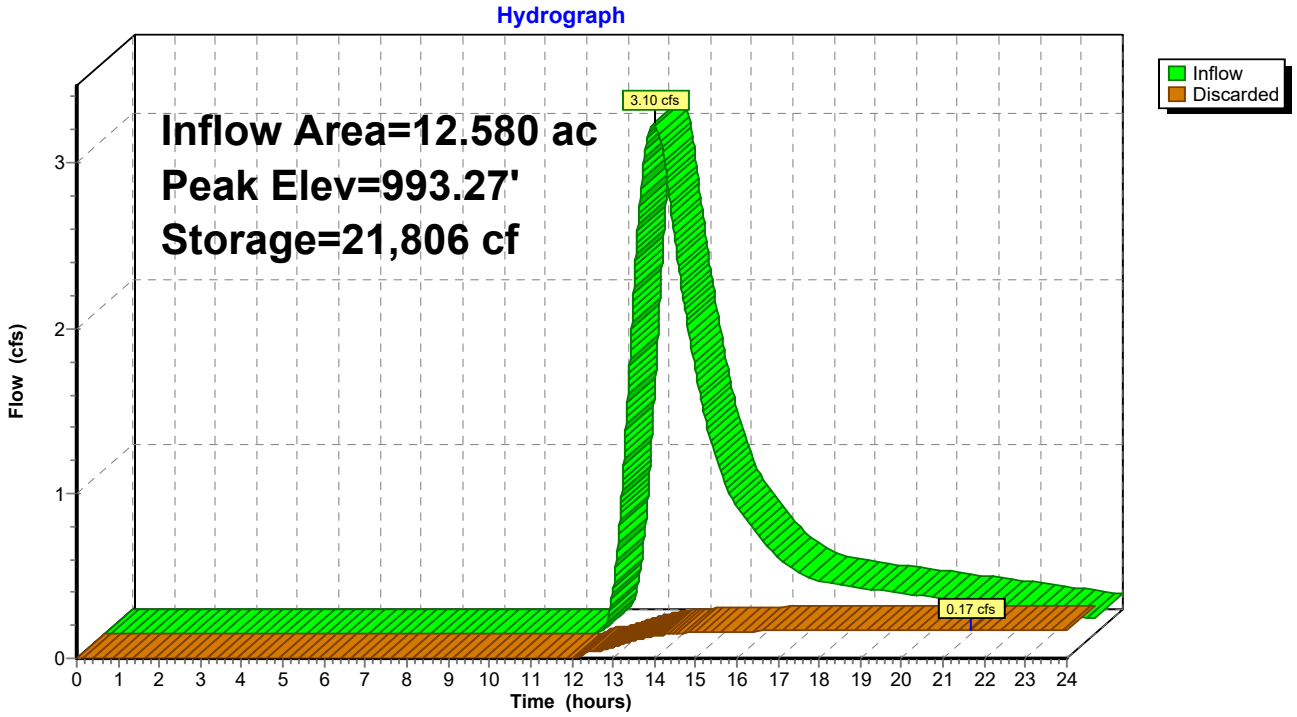
Volume	Invert	Avail.Storage	Storage Description
#1	992.00'	157,706 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
992.00	6,330	0	0	6,330
993.00	24,655	14,493	14,493	24,660
994.00	40,640	32,316	46,809	40,657
995.00	55,600	47,925	94,734	55,638
996.00	70,643	62,972	157,706	70,707

Device	Routing	Invert	Outlet Devices
#1	Discarded	992.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 982.00' Phase-In= 0.01'

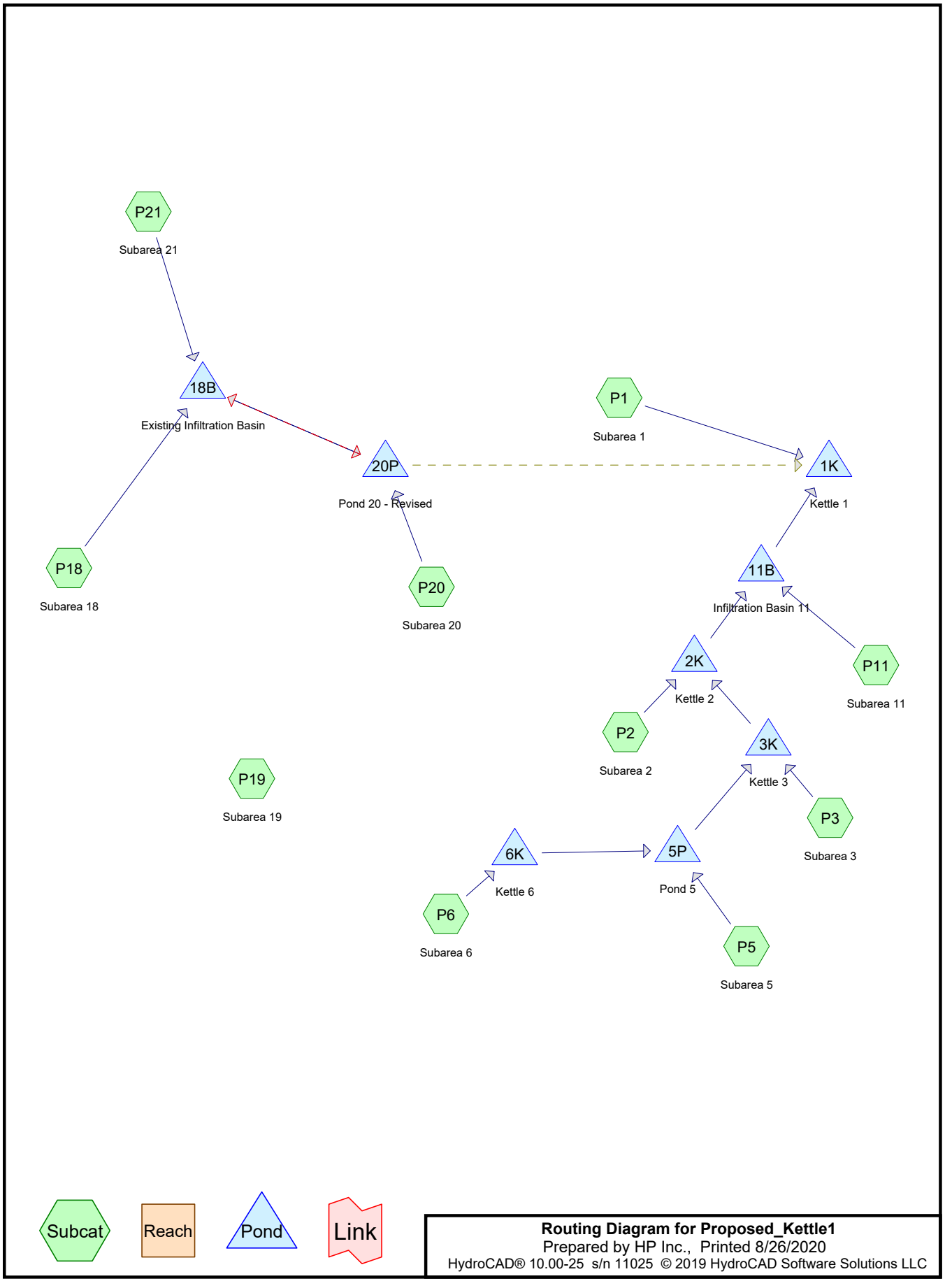
Discarded OutFlow Max=0.17 cfs @ 21.65 hrs HW=993.27' (Free Discharge)
↑**1=Exfiltration** (Controls 0.17 cfs)

Pond 20K: Kettle 20



Proposed Conditions

HydroCAD Modeling



Routing Diagram for Proposed_Kettle1
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	70	1/2 acre lots (P1)
4.290	78	Area C from LCL High School Report (P18)
1.830	69	cropland (P1, P20, P21)
9.360	61	grass (P1, P11, P18, P19, P2, P20, P21, P3, P5)
6.050	98	impervious (P1, P11, P18, P19, P2, P20, P21, P3, P5)
0.390	98	water (P20, P5)
21.260	55	woods (P1, P11, P18, P2, P20, P3, P5, P6)
45.750	**66**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentP1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>0.15"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=0.53 cfs 0.144 af

SubcatchmentP11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>0.41"
Flow Length=220' Tc=39.8 min CN=70 Runoff=0.87 cfs 0.122 af

SubcatchmentP18: Subarea 18 Runoff Area=5.850 ac 7.18% Impervious Runoff Depth>0.63"
Tc=42.8 min CN=76 Runoff=2.41 cfs 0.308 af

SubcatchmentP19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>0.63"
Tc=6.0 min CN=76 Runoff=0.11 cfs 0.005 af

SubcatchmentP2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>0.13"
Flow Length=240' Tc=42.4 min CN=59 Runoff=0.08 cfs 0.021 af

SubcatchmentP20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>0.51"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=1.72 cfs 0.369 af

SubcatchmentP21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>0.51"
Flow Length=920' Tc=26.7 min CN=73 Runoff=0.75 cfs 0.076 af

SubcatchmentP3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>0.13"
Flow Length=140' Tc=23.0 min CN=59 Runoff=0.04 cfs 0.009 af

SubcatchmentP5: Subarea 5 Runoff Area=8.120 ac 16.38% Impervious Runoff Depth>0.21"
Flow Length=400' Slope=0.1000 '/' Tc=52.6 min CN=63 Runoff=0.64 cfs 0.142 af

SubcatchmentP6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=0.04 cfs 0.015 af

Pond 1K: Kettle 1 Peak Elev=946.69' Storage=18,841 cf Inflow=1.02 cfs 0.484 af
Outflow=0.07 cfs 0.051 af

Pond 2K: Kettle 2 Peak Elev=967.42' Storage=3,002 cf Inflow=0.14 cfs 0.084 af
Discarded=0.02 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.015 af

Pond 3K: Kettle 3 Peak Elev=972.71' Storage=1,830 cf Inflow=0.19 cfs 0.116 af
Discarded=0.02 cfs 0.017 af Primary=0.12 cfs 0.062 af Outflow=0.14 cfs 0.079 af

Pond 5P: Pond 5 Peak Elev=979.51' Storage=2,678 cf Inflow=0.64 cfs 0.142 af
Outflow=0.17 cfs 0.107 af

Pond 6K: Kettle 6 Peak Elev=1,011.01' Storage=58 cf Inflow=0.04 cfs 0.015 af
Discarded=0.03 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.015 af

Pond 11B: Infiltration Basin 11 Peak Elev=964.33' Storage=1,226 cf Inflow=0.87 cfs 0.122 af
Discarded=0.33 cfs 0.122 af Primary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.122 af

Pond 18B: Existing Infiltration Basin Peak Elev=990.50' Storage=9,207 cf Inflow=2.99 cfs 0.384 af
s 0.309 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.309 af

Pond 20P: Pond 20 - Revised Peak Elev=989.78' Storage=6,136 cf Inflow=1.72 cfs 0.369 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.69 cfs 0.340 af Outflow=0.69 cfs 0.340 af

Total Runoff Area = 45.750 ac Runoff Volume = 1.211 af Average Runoff Depth = 0.32"
85.92% Pervious = 39.310 ac 14.08% Impervious = 6.440 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentP1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>0.23"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=1.01 cfs 0.228 af

SubcatchmentP11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>0.55"
Flow Length=220' Tc=39.8 min CN=70 Runoff=1.26 cfs 0.165 af

SubcatchmentP18: Subarea 18 Runoff Area=5.850 ac 7.18% Impervious Runoff Depth>0.81"
Tc=42.8 min CN=76 Runoff=3.21 cfs 0.397 af

SubcatchmentP19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>0.82"
Tc=6.0 min CN=76 Runoff=0.15 cfs 0.007 af

SubcatchmentP2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>0.21"
Flow Length=240' Tc=42.4 min CN=59 Runoff=0.16 cfs 0.035 af

SubcatchmentP20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>0.67"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=2.37 cfs 0.487 af

SubcatchmentP21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>0.68"
Flow Length=920' Tc=26.7 min CN=73 Runoff=1.04 cfs 0.100 af

SubcatchmentP3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>0.21"
Flow Length=140' Tc=23.0 min CN=59 Runoff=0.09 cfs 0.015 af

SubcatchmentP5: Subarea 5 Runoff Area=8.120 ac 16.38% Impervious Runoff Depth>0.31"
Flow Length=400' Slope=0.1000 '/' Tc=52.6 min CN=63 Runoff=1.09 cfs 0.211 af

SubcatchmentP6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=0.09 cfs 0.028 af

Pond 1K: Kettle 1 Peak Elev=947.45' Storage=27,061 cf Inflow=1.43 cfs 0.682 af
Outflow=0.08 cfs 0.061 af

Pond 2K: Kettle 2 Peak Elev=968.07' Storage=6,135 cf Inflow=0.28 cfs 0.164 af
Discarded=0.03 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.023 af

Pond 3K: Kettle 3 Peak Elev=972.82' Storage=2,205 cf Inflow=0.33 cfs 0.186 af
Discarded=0.02 cfs 0.018 af Primary=0.25 cfs 0.129 af Outflow=0.27 cfs 0.147 af

Pond 5P: Pond 5 Peak Elev=979.61' Storage=3,855 cf Inflow=1.09 cfs 0.211 af
Outflow=0.31 cfs 0.171 af

Pond 6K: Kettle 6 Peak Elev=1,011.02' Storage=177 cf Inflow=0.09 cfs 0.028 af
Discarded=0.06 cfs 0.028 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.028 af

Pond 11B: Infiltration Basin 11 Peak Elev=964.59' Storage=2,288 cf Inflow=1.26 cfs 0.165 af
Discarded=0.37 cfs 0.165 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.165 af

Pond 18B: Existing Infiltration Basin Peak Elev=990.83' Storage=12,862 cf Inflow=4.01 cfs 0.498 af
s 0.344 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.344 af

Pond 20P: Pond 20 - Revised Peak Elev=990.04' Storage=8,705 cf Inflow=2.37 cfs 0.487 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.84 cfs 0.454 af Outflow=0.84 cfs 0.454 af

Total Runoff Area = 45.750 ac Runoff Volume = 1.674 af Average Runoff Depth = 0.44"
85.92% Pervious = 39.310 ac 14.08% Impervious = 6.440 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentP1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>0.67"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=4.03 cfs 0.660 af

SubcatchmentP11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>1.20"
Flow Length=220' Tc=39.8 min CN=70 Runoff=3.09 cfs 0.360 af

SubcatchmentP18: Subarea 18 Runoff Area=5.850 ac 7.18% Impervious Runoff Depth>1.59"
Tc=42.8 min CN=76 Runoff=6.63 cfs 0.774 af

SubcatchmentP19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>1.59"
Tc=6.0 min CN=76 Runoff=0.30 cfs 0.013 af

SubcatchmentP2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>0.62"
Flow Length=240' Tc=42.4 min CN=59 Runoff=0.71 cfs 0.105 af

SubcatchmentP20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>1.38"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=5.23 cfs 1.001 af

SubcatchmentP21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>1.39"
Flow Length=920' Tc=26.7 min CN=73 Runoff=2.30 cfs 0.206 af

SubcatchmentP3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>0.62"
Flow Length=140' Tc=23.0 min CN=59 Runoff=0.43 cfs 0.045 af

SubcatchmentP5: Subarea 5 Runoff Area=8.120 ac 16.38% Impervious Runoff Depth>0.81"
Flow Length=400' Slope=0.1000 '/' Tc=52.6 min CN=63 Runoff=3.56 cfs 0.548 af

SubcatchmentP6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=0.56 cfs 0.105 af

Pond 1K: Kettle 1 Peak Elev=950.45' Storage=72,546 cf Inflow=4.58 cfs 1.765 af
Outflow=0.14 cfs 0.099 af

Pond 2K: Kettle 2 Peak Elev=970.27' Storage=22,759 cf Inflow=0.79 cfs 0.568 af
Discarded=0.07 cfs 0.045 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.045 af

Pond 3K: Kettle 3 Peak Elev=973.32' Storage=4,243 cf Inflow=0.86 cfs 0.533 af
Discarded=0.03 cfs 0.023 af Primary=0.71 cfs 0.463 af Outflow=0.74 cfs 0.486 af

Pond 5P: Pond 5 Peak Elev=980.23' Storage=11,105 cf Inflow=3.56 cfs 0.548 af
Outflow=0.81 cfs 0.488 af

Pond 6K: Kettle 6 Peak Elev=1,011.22' Storage=2,411 cf Inflow=0.56 cfs 0.105 af
Discarded=0.07 cfs 0.065 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.065 af

Pond 11B: Infiltration Basin 11 Peak Elev=965.70' Storage=7,523 cf Inflow=3.09 cfs 0.360 af
Discarded=0.51 cfs 0.360 af Primary=0.00 cfs 0.000 af Outflow=0.51 cfs 0.360 af

Pond 18B: Existing Infiltration Basin Peak Elev=991.62' Storage=22,576 cf Inflow=8.35 cfs 0.980 af
s 0.412 af Primary=1.61 cfs 0.277 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=2.07 cfs 0.688 af

Pond 20P: Pond 20 - Revised Peak Elev=991.49' Storage=29,163 cf Inflow=6.64 cfs 1.278 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=1.42 cfs 1.105 af Outflow=1.42 cfs 1.105 af

Total Runoff Area = 45.750 ac Runoff Volume = 3.819 af Average Runoff Depth = 1.00"
85.92% Pervious = 39.310 ac 14.08% Impervious = 6.440 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentP1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>2.03"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=14.68 cfs 2.012 af

SubcatchmentP11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>2.94"
Flow Length=220' Tc=39.8 min CN=70 Runoff=7.98 cfs 0.882 af

SubcatchmentP18: Subarea 18 Runoff Area=5.850 ac 7.18% Impervious Runoff Depth>3.52"
Tc=42.8 min CN=76 Runoff=15.01 cfs 1.718 af

SubcatchmentP19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>3.53"
Tc=6.0 min CN=76 Runoff=0.65 cfs 0.029 af

SubcatchmentP2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>1.95"
Flow Length=240' Tc=42.4 min CN=59 Runoff=2.70 cfs 0.329 af

SubcatchmentP20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>3.21"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=12.66 cfs 2.333 af

SubcatchmentP21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>3.23"
Flow Length=920' Tc=26.7 min CN=73 Runoff=5.53 cfs 0.479 af

SubcatchmentP3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>1.95"
Flow Length=140' Tc=23.0 min CN=59 Runoff=1.67 cfs 0.141 af

SubcatchmentP5: Subarea 5 Runoff Area=8.120 ac 16.38% Impervious Runoff Depth>2.29"
Flow Length=400' Slope=0.1000 '/' Tc=52.6 min CN=63 Runoff=11.39 cfs 1.550 af

SubcatchmentP6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=2.68 cfs 0.374 af

Pond 1K: Kettle 1 Peak Elev=954.67' Storage=170,365 cf Inflow=17.25 cfs 4.089 af
Outflow=0.24 cfs 0.178 af

Pond 2K: Kettle 2 Peak Elev=973.16' Storage=60,548 cf Inflow=3.20 cfs 1.471 af
Discarded=0.12 cfs 0.081 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.081 af

Pond 3K: Kettle 3 Peak Elev=975.79' Storage=20,375 cf Inflow=5.70 cfs 1.498 af
Discarded=0.06 cfs 0.050 af Primary=1.37 cfs 1.142 af Outflow=1.43 cfs 1.192 af

Pond 5P: Pond 5 Peak Elev=981.51' Storage=29,372 cf Inflow=11.39 cfs 1.550 af
Outflow=5.43 cfs 1.357 af

Pond 6K: Kettle 6 Peak Elev=1,011.81' Storage=12,026 cf Inflow=2.68 cfs 0.374 af
Discarded=0.12 cfs 0.110 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.110 af

Pond 11B: Infiltration Basin 11 Peak Elev=967.11' Storage=16,199 cf Inflow=7.98 cfs 0.882 af
Discarded=0.73 cfs 0.531 af Primary=2.19 cfs 0.300 af Outflow=2.92 cfs 0.831 af

Pond 18B: Existing Infiltration Basin Peak Elev=993.78' Storage=57,084 cf Inflow=19.21 cfs 2.300 af
s 0.669 af Primary=6.58 cfs 0.744 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=7.20 cfs 1.413 af

Pond 20P: Pond 20 - Revised Peak Elev=993.78' Storage=75,805 cf Inflow=19.13 cfs 3.076 af
Primary=1.33 cfs 0.102 af Secondary=0.00 cfs 0.000 af Tertiary=1.99 cfs 1.779 af Outflow=3.23 cfs 1.882 af

Total Runoff Area = 45.750 ac Runoff Volume = 9.847 af Average Runoff Depth = 2.58"
85.92% Pervious = 39.310 ac 14.08% Impervious = 6.440 ac

Summary for Subcatchment P1: Subarea 1

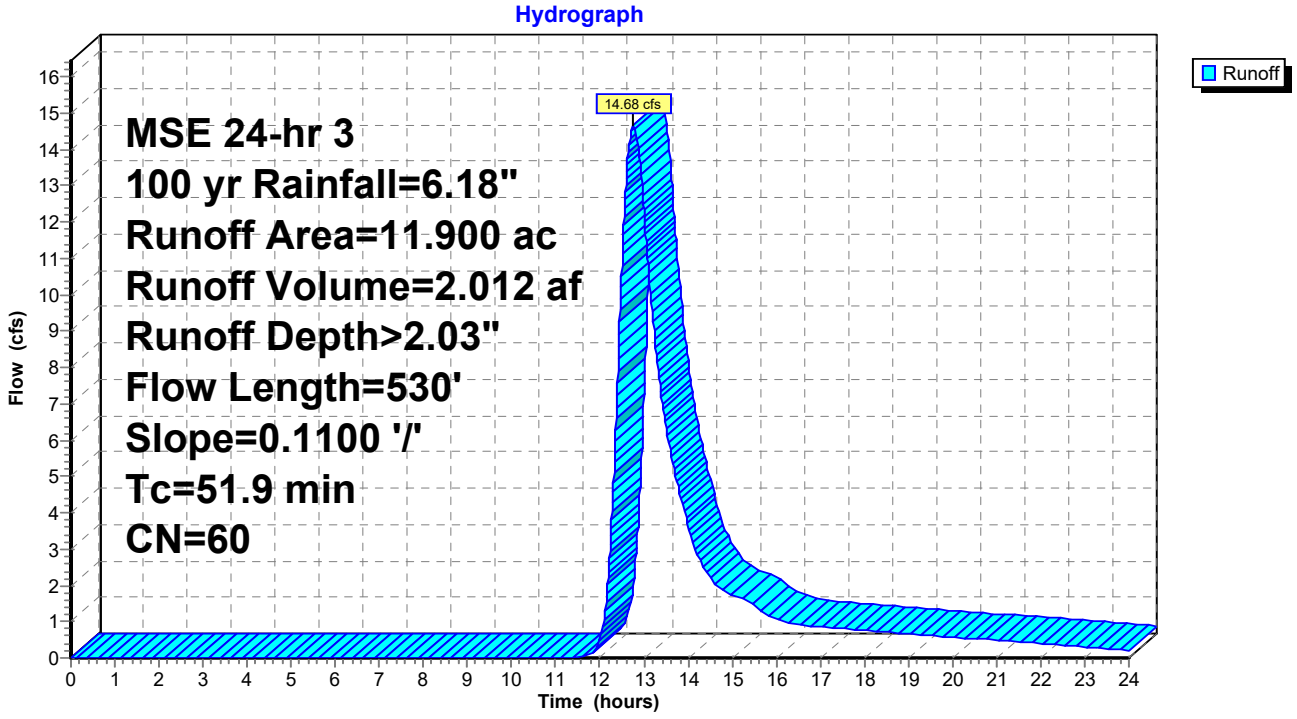
Runoff = 14.68 cfs @ 12.75 hrs, Volume= 2.012 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	8.010	55	woods
	2.570	70	1/2 acre lots
*	0.700	69	cropland
*	0.540	61	grass
*	0.080	98	impervious
	11.900	60	Weighted Average
	11.820		99.33% Pervious Area
	0.080		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Subcatchment P1: Subarea 1



Summary for Subcatchment P11: Subarea 11

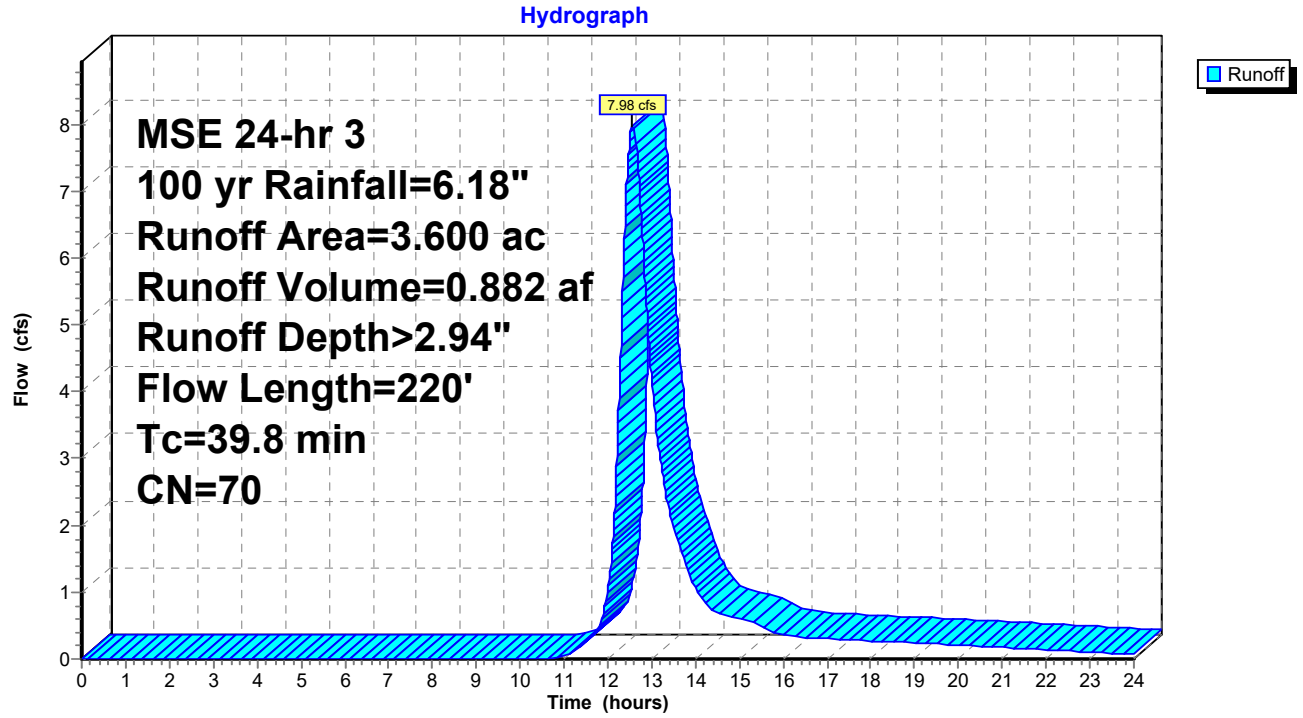
Runoff = 7.98 cfs @ 12.56 hrs, Volume= 0.882 af, Depth> 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.000	55	woods
*	1.120	61	grass
*	1.000	98	impervious
*	0.040	98	impervious
*	0.440	61	grass
	3.600	70	Weighted Average
	2.560		71.11% Pervious Area
	1.040		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0300	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
17.9	80	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
16.2	105	0.2200	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
39.8	220	Total			

Subcatchment P11: Subarea 11



Summary for Subcatchment P18: Subarea 18

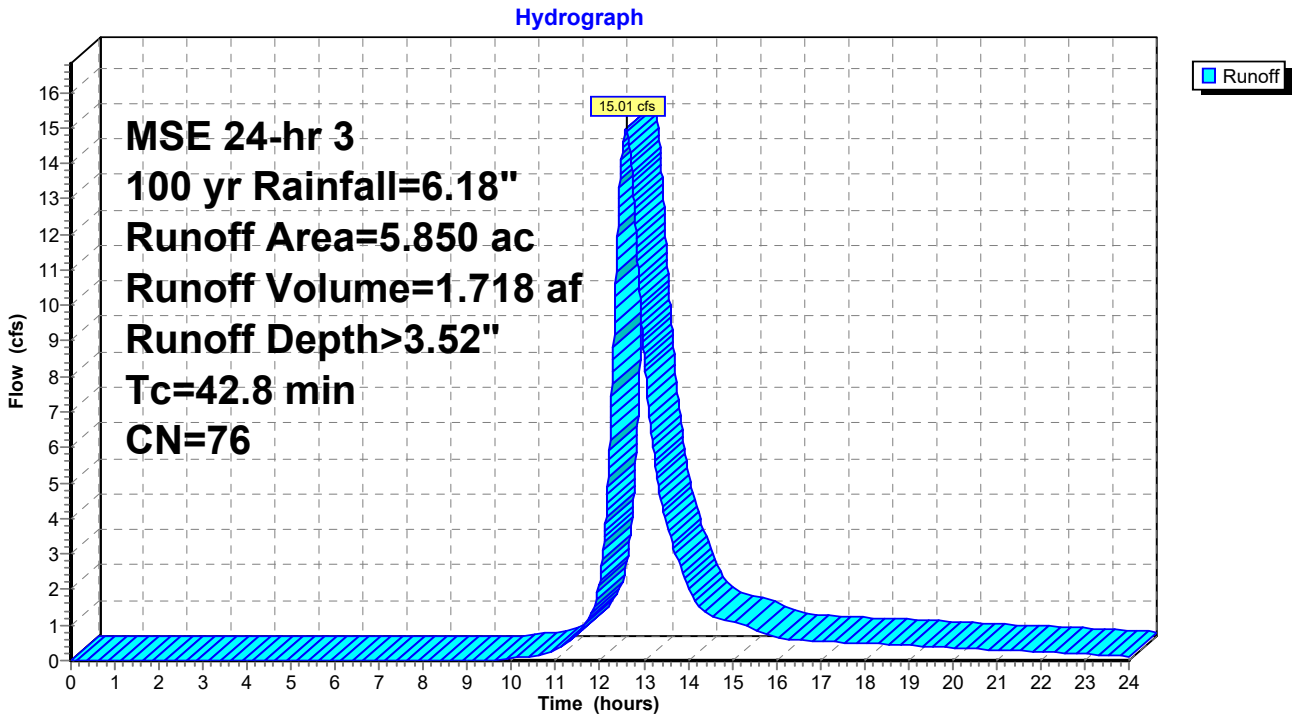
Runoff = 15.01 cfs @ 12.60 hrs, Volume= 1.718 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.290	78	Area C from LCL High School Report
*	0.380	55	woods
*	0.760	61	grass
*	0.420	98	impervious
	5.850	76	Weighted Average
	5.430		92.82% Pervious Area
	0.420		7.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Subcatchment P18: Subarea 18



Summary for Subcatchment P19: Subarea 19

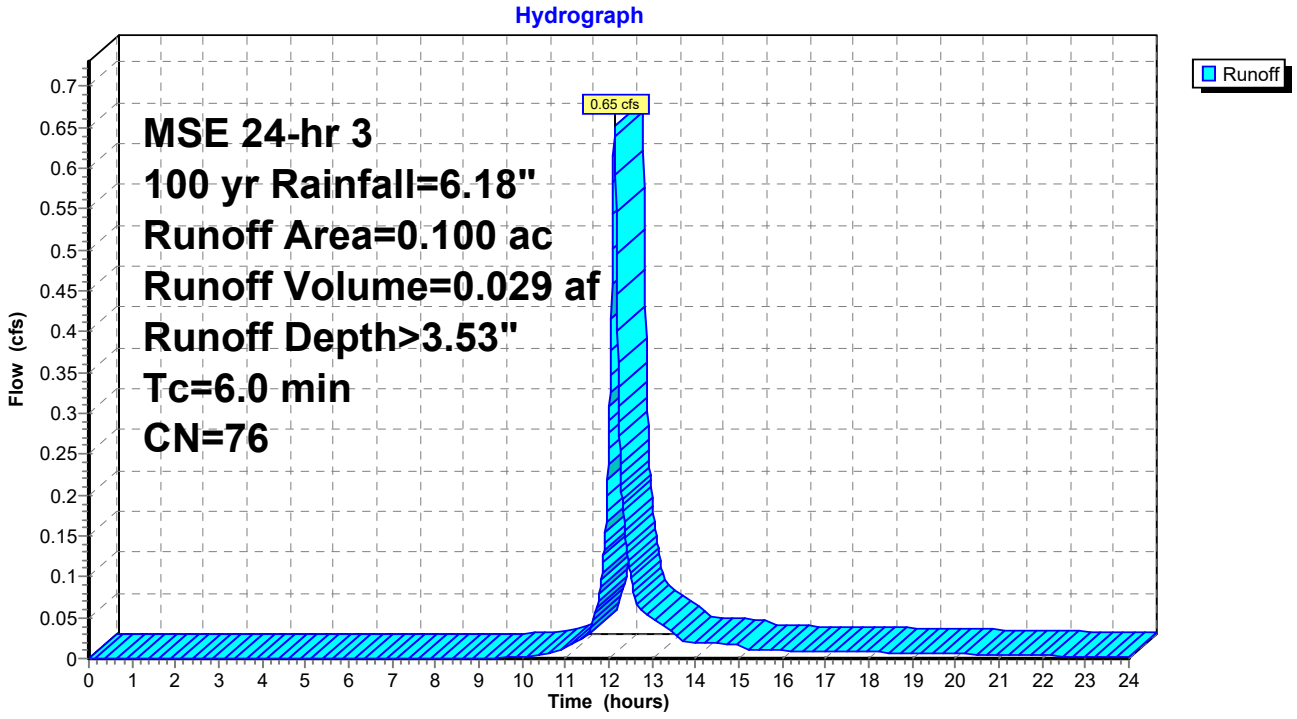
Runoff = 0.65 cfs @ 12.13 hrs, Volume= 0.029 af, Depth> 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.060	61	grass
*	0.040	98	impervious
	0.100	76	Weighted Average
	0.060		60.00% Pervious Area
	0.040		40.00% Impervious Area

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

Subcatchment P19: Subarea 19



Summary for Subcatchment P2: Subarea 2

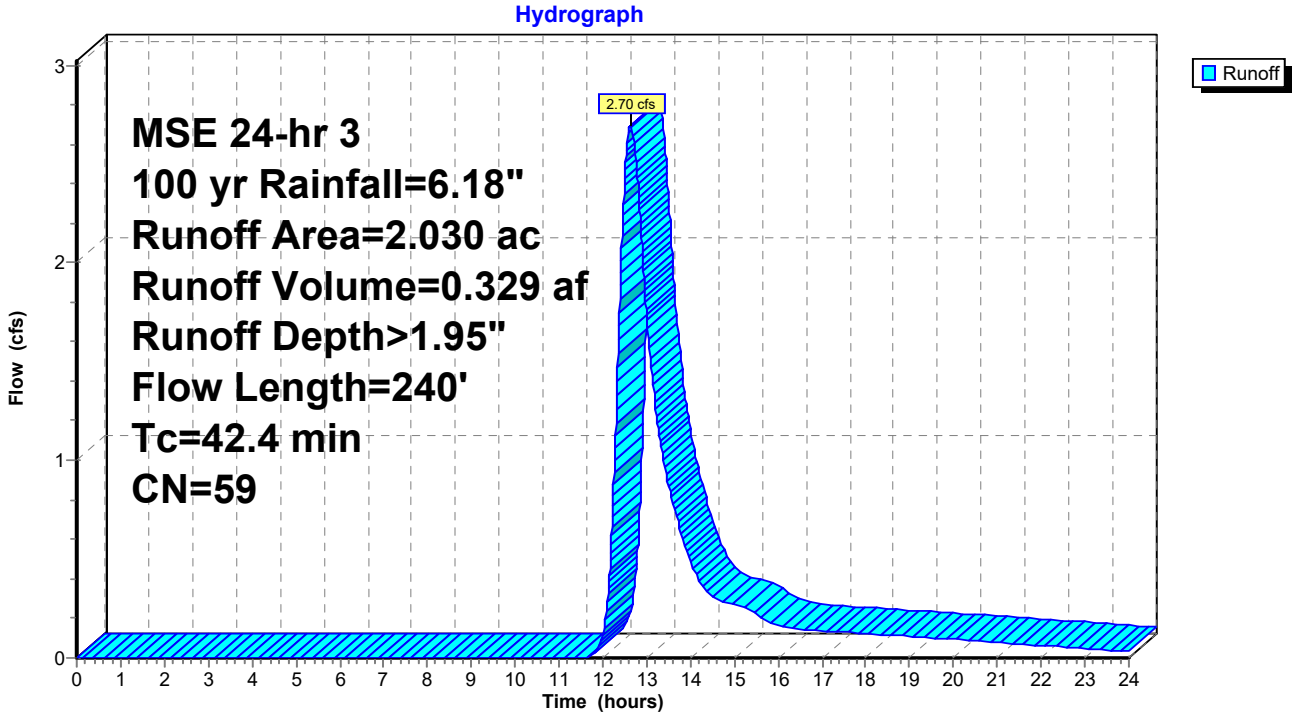
Runoff = 2.70 cfs @ 12.63 hrs, Volume= 0.329 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.330	55	woods
*	0.570	61	grass
*	0.130	98	impervious
	2.030	59	Weighted Average
	1.900		93.60% Pervious Area
	0.130		6.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0600	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
15.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
21.6	140	0.1900	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
42.4	240	Total			

Subcatchment P2: Subarea 2



Summary for Subcatchment P20: Subarea 20

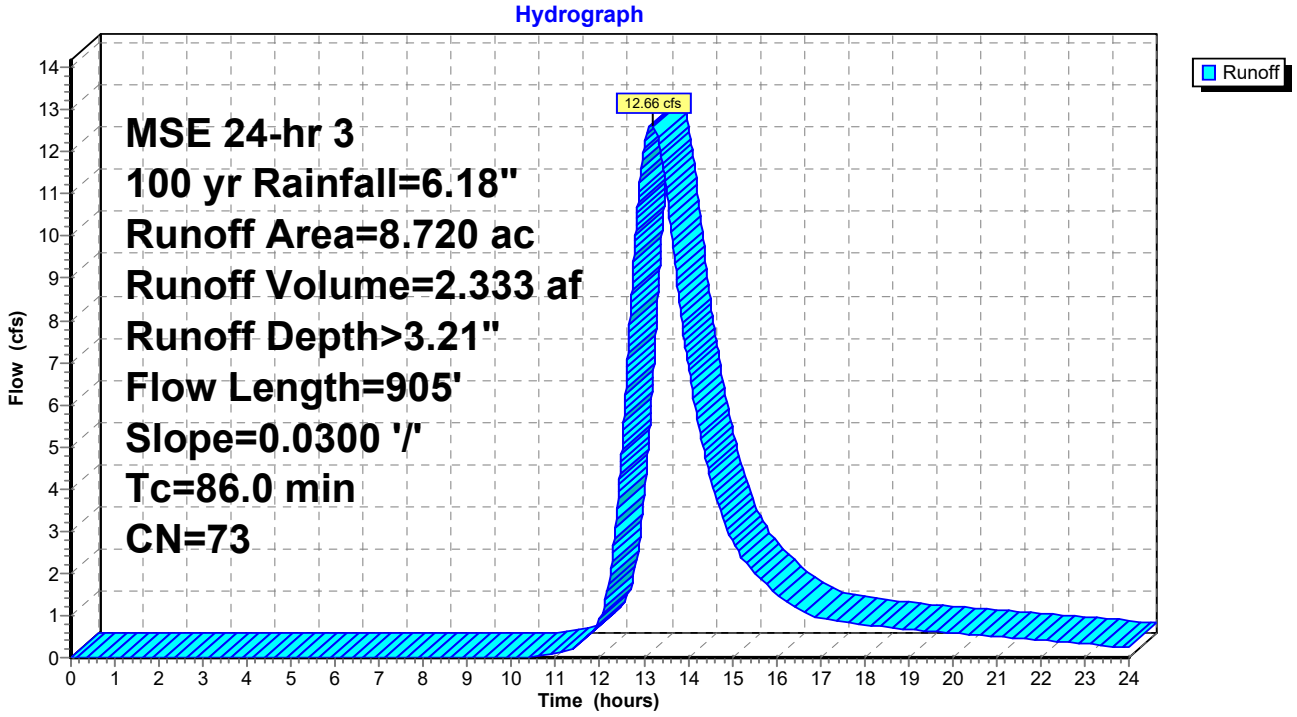
Runoff = 12.66 cfs @ 13.18 hrs, Volume= 2.333 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.380	55	woods
*	4.110	61	grass
*	0.150	98	water
*	2.830	98	impervious
*	0.250	69	cropland
	8.720	73	Weighted Average
	5.740		65.83% Pervious Area
	2.980		34.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.6	270	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	335		5.00		**Direct Entry,**
86.0	905	Total			

Subcatchment P20: Subarea 20



Summary for Subcatchment P21: Subarea 21

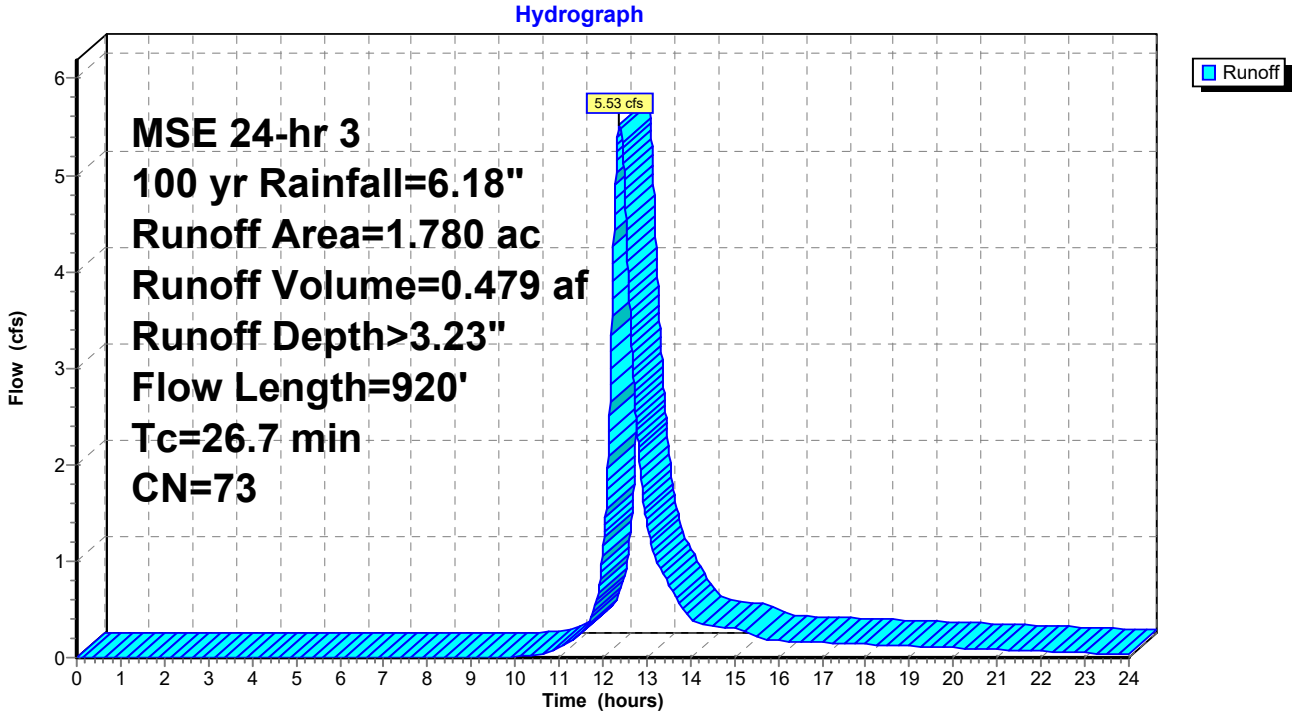
Runoff = 5.53 cfs @ 12.37 hrs, Volume= 0.479 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Subcatchment P21: Subarea 21



Summary for Subcatchment P3: Subarea 3

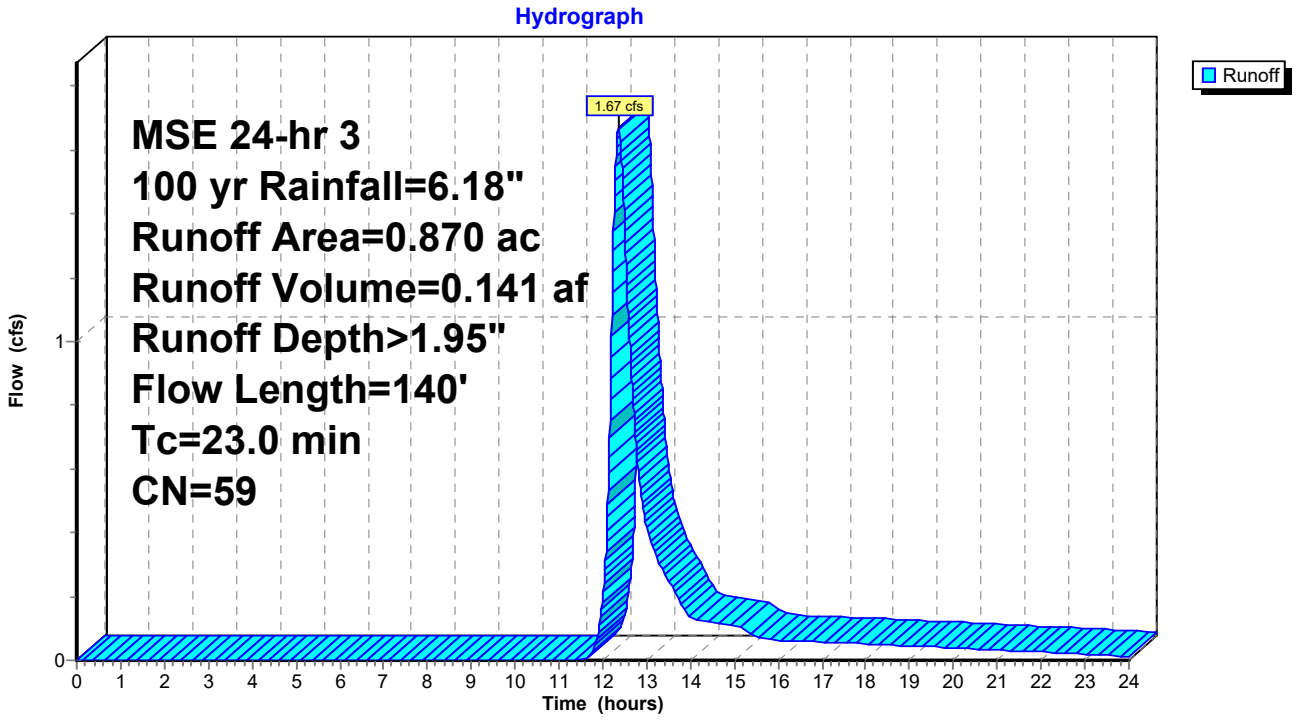
Runoff = 1.67 cfs @ 12.35 hrs, Volume= 0.141 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.560	55	woods
*	0.260	61	grass
*	0.050	98	impervious
	0.870	59	Weighted Average
	0.820		94.25% Pervious Area
	0.050		5.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	10	0.0500	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
21.3	130	0.1700	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
23.0	140	Total			

Subcatchment P3: Subarea 3



Summary for Subcatchment P5: Subarea 5

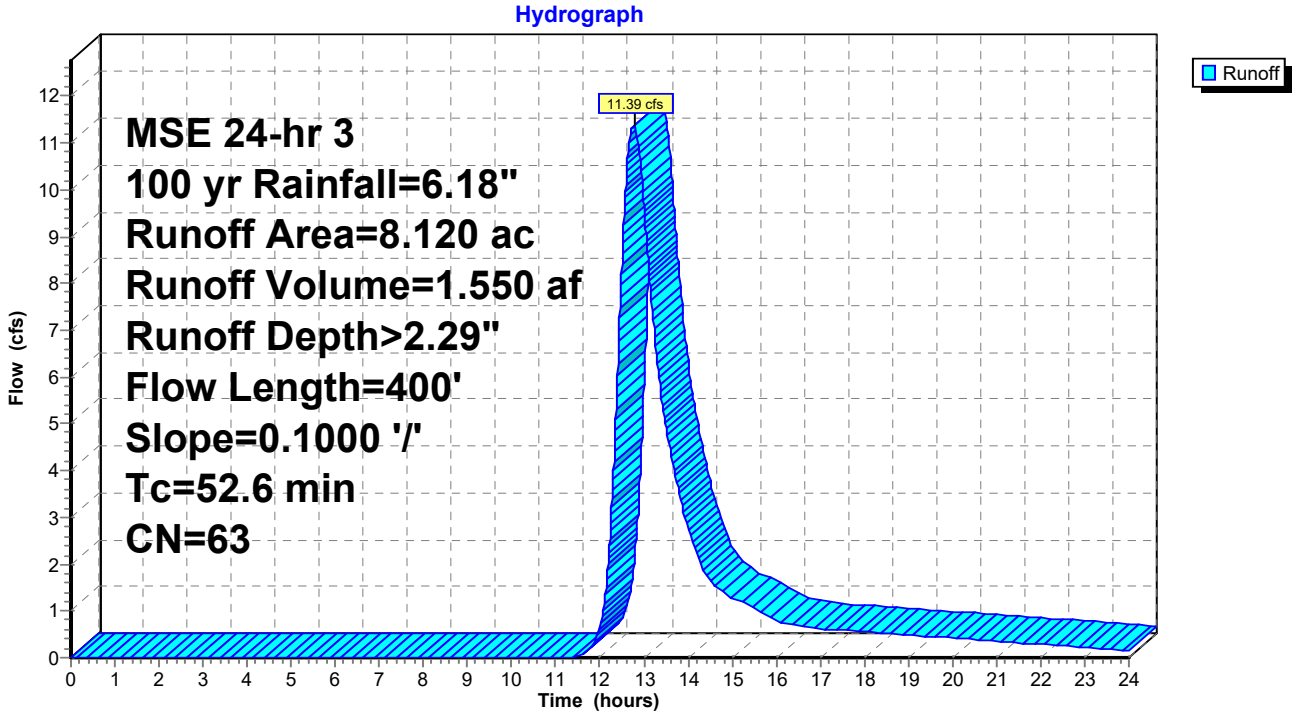
Runoff = 11.39 cfs @ 12.79 hrs, Volume= 1.550 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	5.820	55	woods
*	0.970	61	grass
*	0.240	98	water
*	1.090	98	impervious
	8.120	63	Weighted Average
	6.790		83.62% Pervious Area
	1.330		16.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.5	300	0.1000	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.1	100	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
52.6	400	Total			

Subcatchment P5: Subarea 5



Summary for Subcatchment P6: Subarea 6

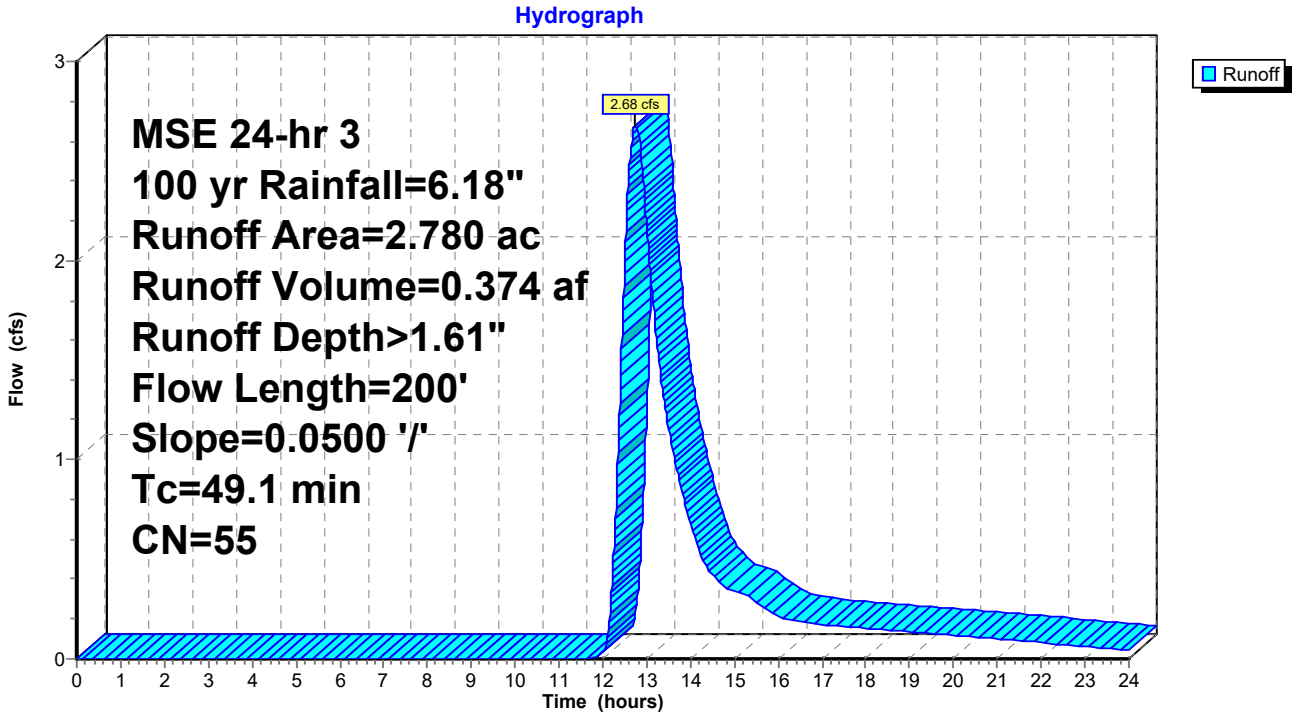
Runoff = 2.68 cfs @ 12.72 hrs, Volume= 0.374 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	2.780	55	woods
	2.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.1	200	0.0500	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment P6: Subarea 6



Summary for Pond 1K: Kettle 1

Inflow = 17.25 cfs @ 12.81 hrs, Volume= 4.089 af
Outflow = 0.24 cfs @ 24.00 hrs, Volume= 0.178 af, Atten= 99%, Lag= 671.2 min
Discarded = 0.24 cfs @ 24.00 hrs, Volume= 0.178 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 954.67' @ 24.00 hrs Surf.Area= 28,163 sf Storage= 170,365 cf

Plug-Flow detention time= 392.2 min calculated for 0.178 af (4% of inflow)
Center-of-Mass det. time= 168.7 min (1,131.6 - 962.9)

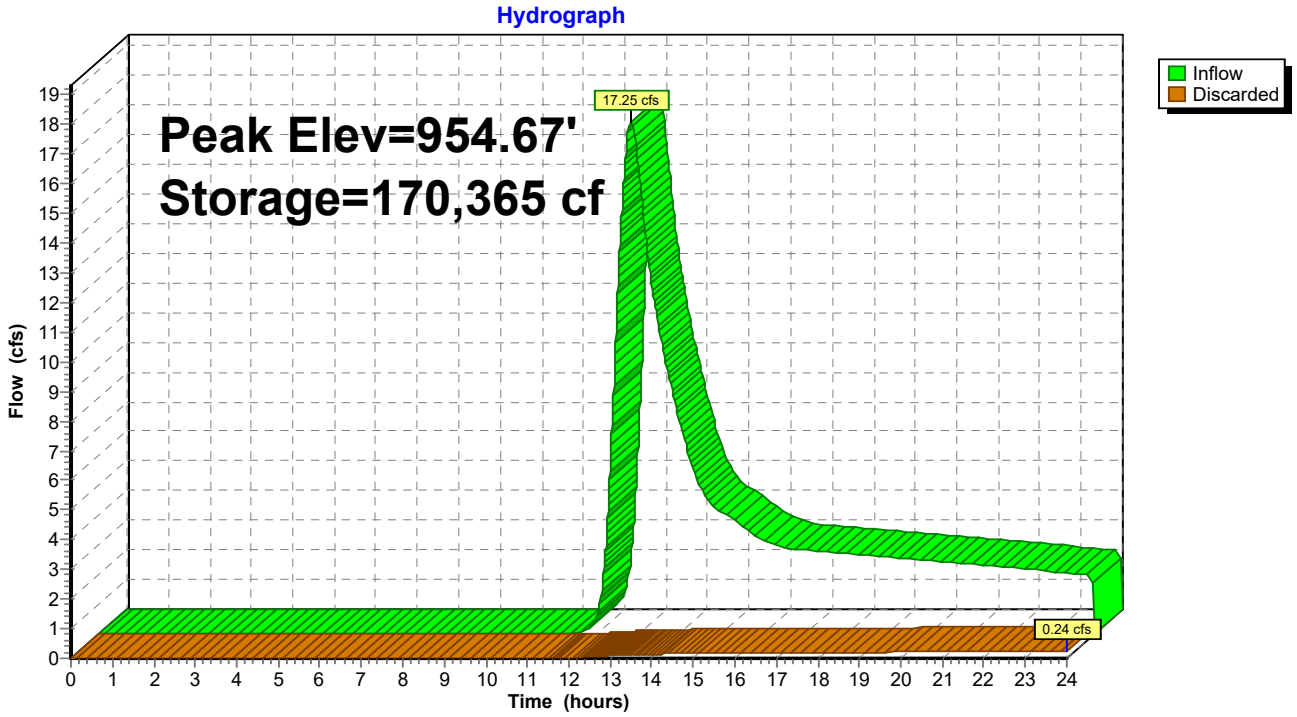
Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	999,288 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
970.00	89,147	438,997	999,288	90,886

Device	Routing	Invert	Outlet Devices
#1	Discarded	944.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 934.00' Phase-In= 0.01'

Discarded OutFlow Max=0.24 cfs @ 24.00 hrs HW=954.67' (Free Discharge)
↑**1=Exfiltration** (Controls 0.24 cfs)

Pond 1K: Kettle 1



Summary for Pond 2K: Kettle 2

Inflow Area = 13.800 ac, 10.94% Impervious, Inflow Depth > 1.28" for 100 yr event
Inflow = 3.20 cfs @ 12.67 hrs, Volume= 1.471 af
Outflow = 0.12 cfs @ 24.00 hrs, Volume= 0.081 af, Atten= 96%, Lag= 679.7 min
Discarded = 0.12 cfs @ 24.00 hrs, Volume= 0.081 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 973.16' @ 24.00 hrs Surf.Area= 16,860 sf Storage= 60,548 cf

Plug-Flow detention time= 407.6 min calculated for 0.081 af (5% of inflow)
Center-of-Mass det. time= 113.4 min (1,154.2 - 1,040.7)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,021 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

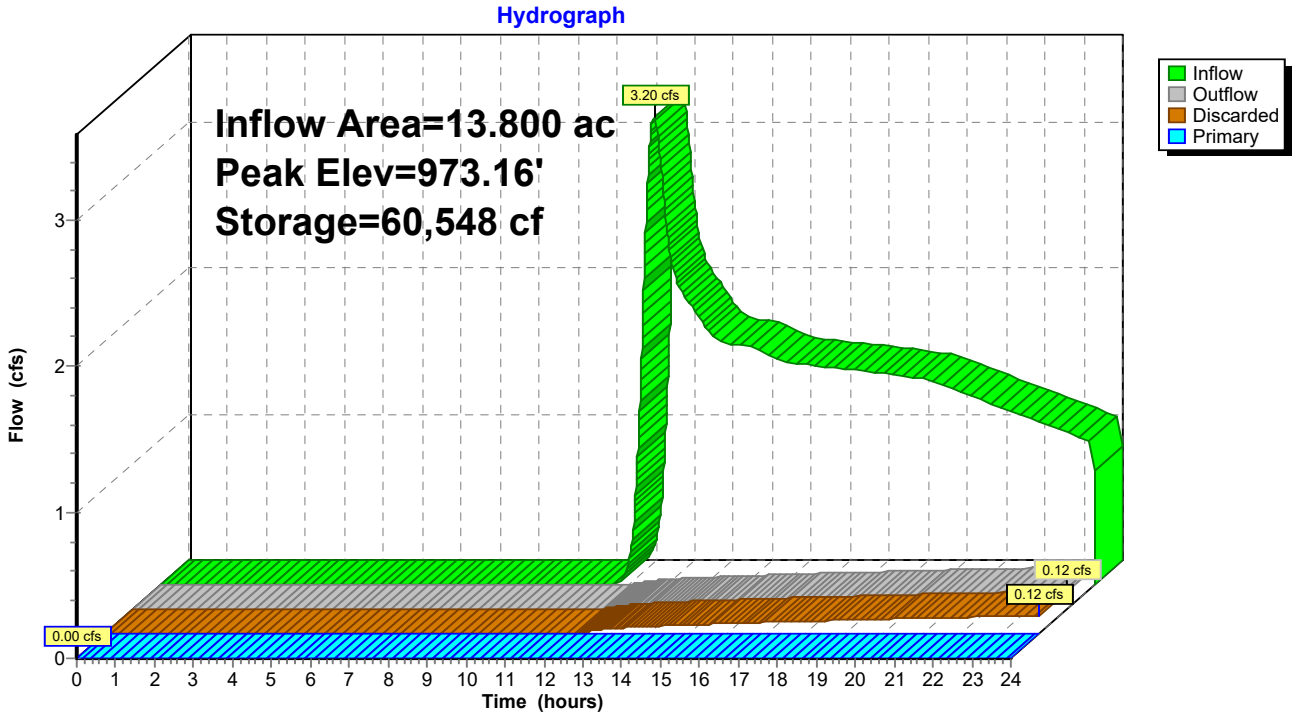
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	25,886	24,224	121,021	26,170

Device	Routing	Invert	Outlet Devices
#1	Discarded	966.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 956.00' Phase-In= 0.01'
#2	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 24.00 hrs HW=973.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=966.00' TW=964.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2K: Kettle 2



Summary for Pond 3K: Kettle 3

Inflow Area = 11.770 ac, 11.72% Impervious, Inflow Depth > 1.53" for 100 yr event
Inflow = 5.70 cfs @ 13.42 hrs, Volume= 1.498 af
Outflow = 1.43 cfs @ 15.45 hrs, Volume= 1.192 af, Atten= 75%, Lag= 121.7 min
Discarded = 0.06 cfs @ 15.45 hrs, Volume= 0.050 af
Primary = 1.37 cfs @ 15.45 hrs, Volume= 1.142 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 975.79' @ 15.45 hrs Surf.Area= 8,570 sf Storage= 20,375 cf

Plug-Flow detention time= 183.6 min calculated for 1.192 af (80% of inflow)
Center-of-Mass det. time= 102.5 min (1,093.0 - 990.4)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	44,405 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

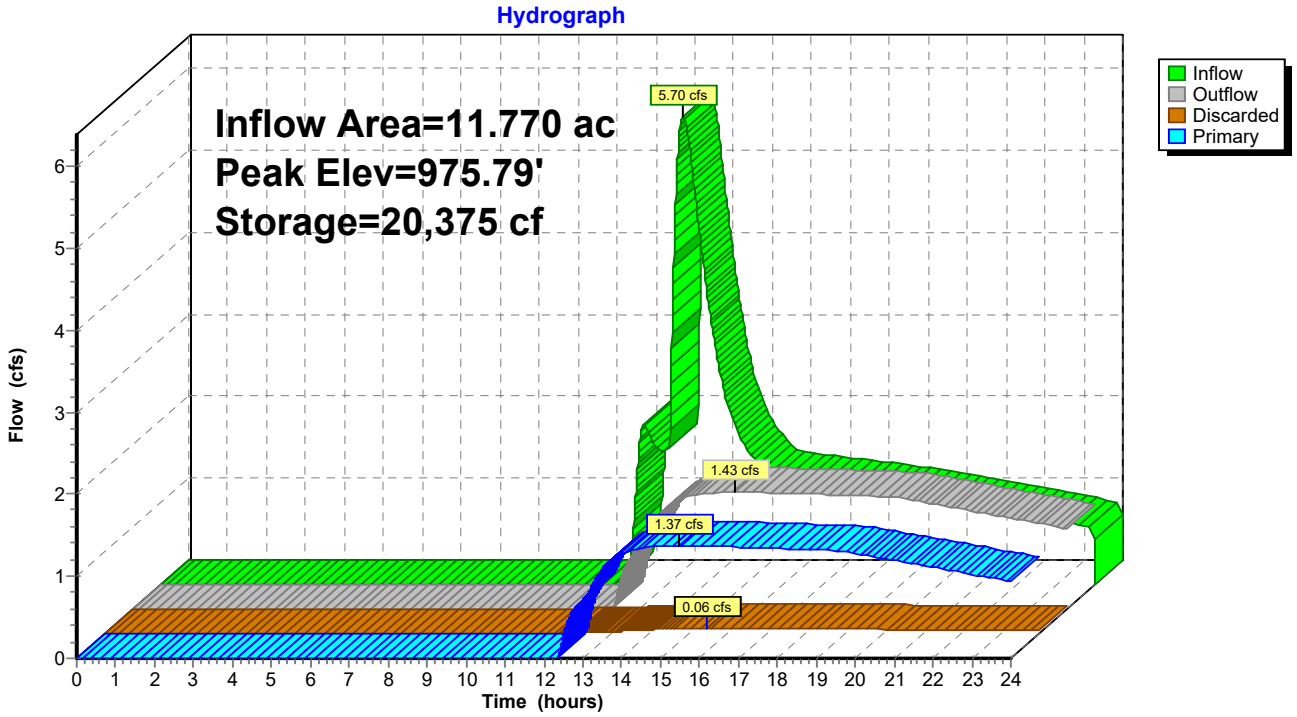
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,000	2,897	2,897	4,009
974.00	5,650	4,801	7,698	5,677
975.00	7,210	6,414	14,113	7,262
976.00	8,940	8,060	22,172	9,021
977.00	11,100	10,001	32,173	11,210
978.00	13,400	12,232	44,405	13,543

Device	Routing	Invert	Outlet Devices
#1	Discarded	972.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 962.00' Phase-In= 0.01'
#2	Primary	972.50'	**6.0" Round Culvert** L= 60.4' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 972.50' / 971.58' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf
#3	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 15.45 hrs HW=975.79' (Free Discharge)
└**1=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=1.37 cfs @ 15.45 hrs HW=975.79' TW=970.24' (Dynamic Tailwater)
├**2=Culvert** (Barrel Controls 1.37 cfs @ 6.97 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3K: Kettle 3



Summary for Pond 5P: Pond 5

Inflow Area = 10.900 ac, 12.20% Impervious, Inflow Depth > 1.71" for 100 yr event
Inflow = 11.39 cfs @ 12.79 hrs, Volume= 1.550 af
Outflow = 5.43 cfs @ 13.42 hrs, Volume= 1.357 af, Atten= 52%, Lag= 38.3 min
Primary = 5.43 cfs @ 13.42 hrs, Volume= 1.357 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 981.51' @ 13.42 hrs Surf.Area= 16,000 sf Storage= 29,372 cf

Plug-Flow detention time= 193.8 min calculated for 1.356 af (88% of inflow)
Center-of-Mass det. time= 144.0 min (1,005.9 - 861.9)

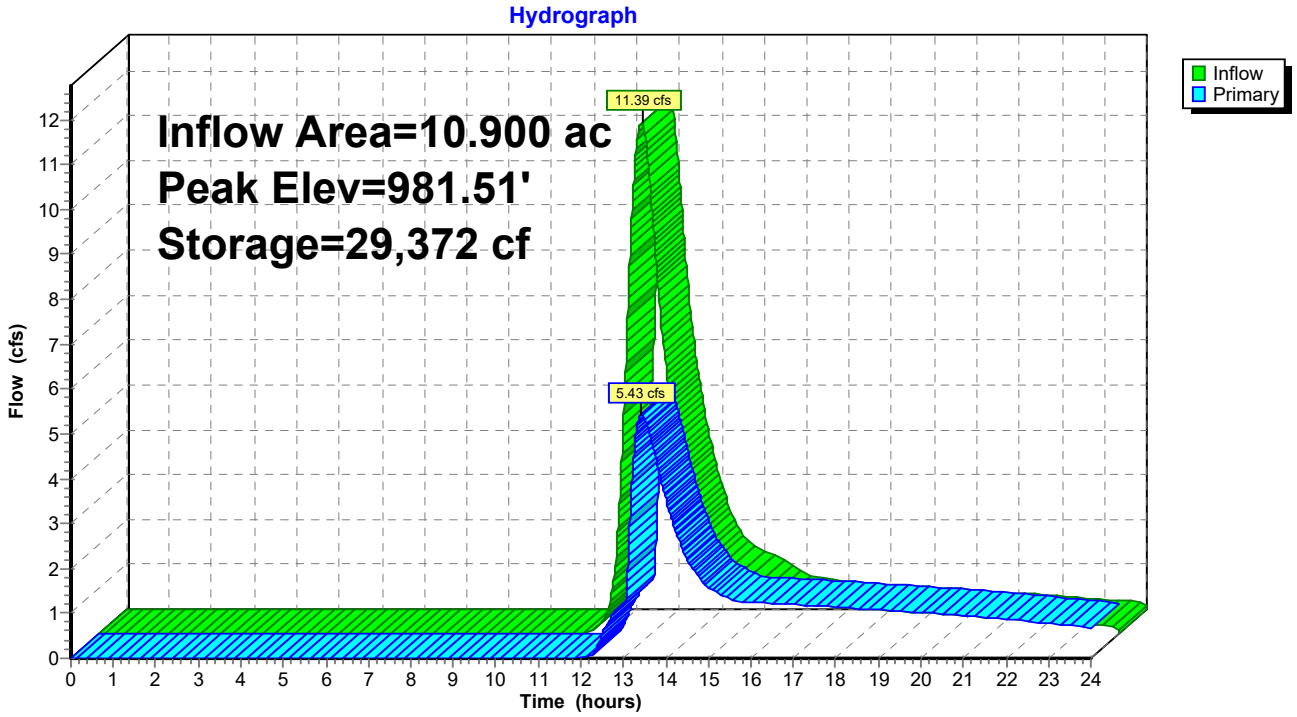
Volume	Invert	Avail.Storage	Storage Description
#1	979.25'	170,803 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.25	10,255	0	0	10,255
979.75	11,199	5,362	5,362	11,217
981.00	14,748	16,166	21,528	14,801
982.00	17,250	15,983	37,511	17,343
983.00	20,202	18,707	56,217	20,335
984.00	23,940	22,045	78,262	24,109
985.00	28,560	26,216	104,478	28,765
986.00	33,500	30,997	135,475	33,744
987.00	37,188	35,328	170,803	37,492

Device	Routing	Invert	Outlet Devices
#1	Primary	979.25'	**15.0" Round Culvert** L= 130.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 979.25' / 975.50' S= 0.0288 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	979.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	981.25'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	985.90'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.43 cfs @ 13.42 hrs HW=981.51' TW=974.20' (Dynamic Tailwater)
- **1=Culvert** (Passes 5.43 cfs of 7.56 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.34 cfs @ 6.83 fps)
  - **3=Orifice/Grate** (Weir Controls 4.09 cfs @ 1.67 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: Pond 5



Summary for Pond 6K: Kettle 6

Inflow Area = 2.780 ac, 0.00% Impervious, Inflow Depth > 1.61" for 100 yr event
Inflow = 2.68 cfs @ 12.72 hrs, Volume= 0.374 af
Outflow = 0.12 cfs @ 19.97 hrs, Volume= 0.110 af, Atten= 96%, Lag= 434.7 min
Discarded = 0.12 cfs @ 19.97 hrs, Volume= 0.110 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,011.81' @ 19.97 hrs Surf.Area= 20,263 sf Storage= 12,026 cf

Plug-Flow detention time= 343.8 min calculated for 0.110 af (29% of inflow)
Center-of-Mass det. time= 226.1 min (1,100.5 - 874.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	47,595 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

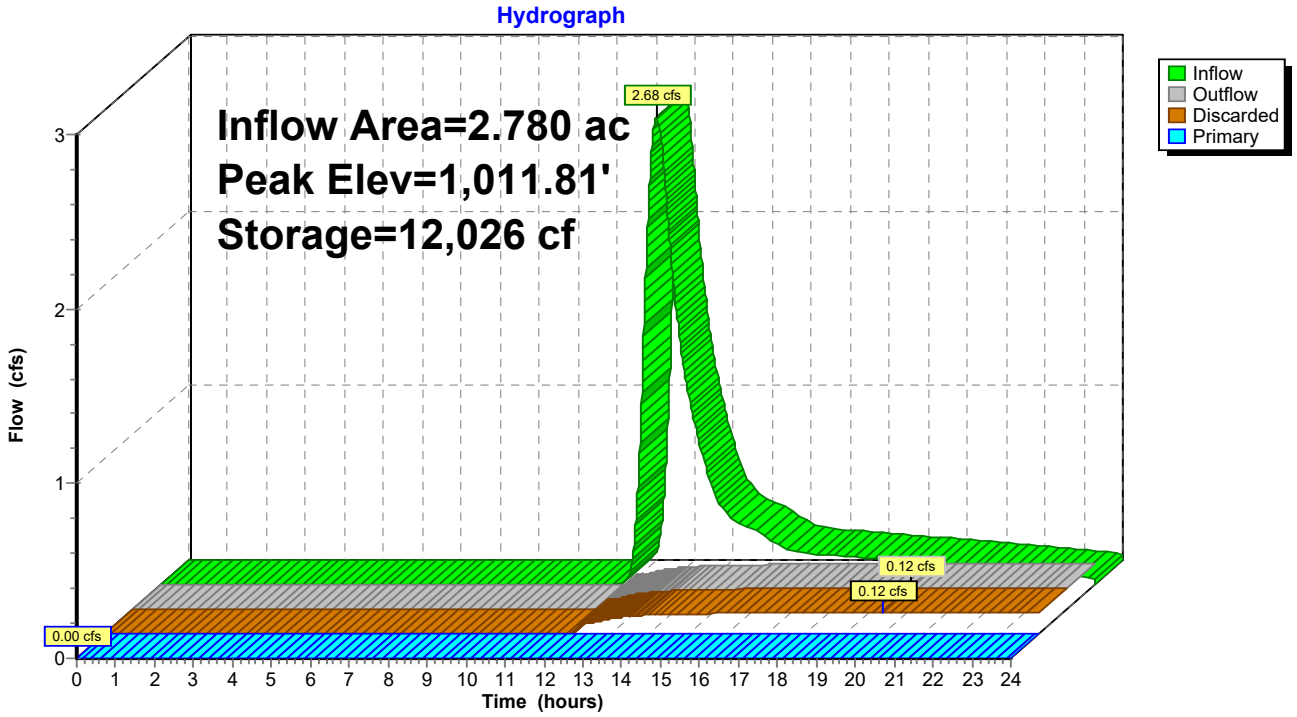
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	9,905	0	0	9,905
1,012.00	23,150	16,066	16,066	23,158
1,013.00	40,730	31,529	47,595	40,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.70'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 19.97 hrs HW=1,011.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,011.00' TW=979.25' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6K: Kettle 6



Summary for Pond 11B: Infiltration Basin 11

Inflow Area = 17.400 ac, 14.66% Impervious, Inflow Depth > 0.61" for 100 yr event
Inflow = 7.98 cfs @ 12.56 hrs, Volume= 0.882 af
Outflow = 2.92 cfs @ 13.22 hrs, Volume= 0.831 af, Atten= 63%, Lag= 39.2 min
Discarded = 0.73 cfs @ 13.22 hrs, Volume= 0.531 af
Primary = 2.19 cfs @ 13.22 hrs, Volume= 0.300 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 967.11' @ 13.22 hrs Surf.Area= 7,045 sf Storage= 16,199 cf

Plug-Flow detention time= 148.9 min calculated for 0.831 af (94% of inflow)
Center-of-Mass det. time= 121.6 min (960.8 - 839.2)

Volume	Invert	Avail.Storage	Storage Description
#1	964.00'	43,487 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

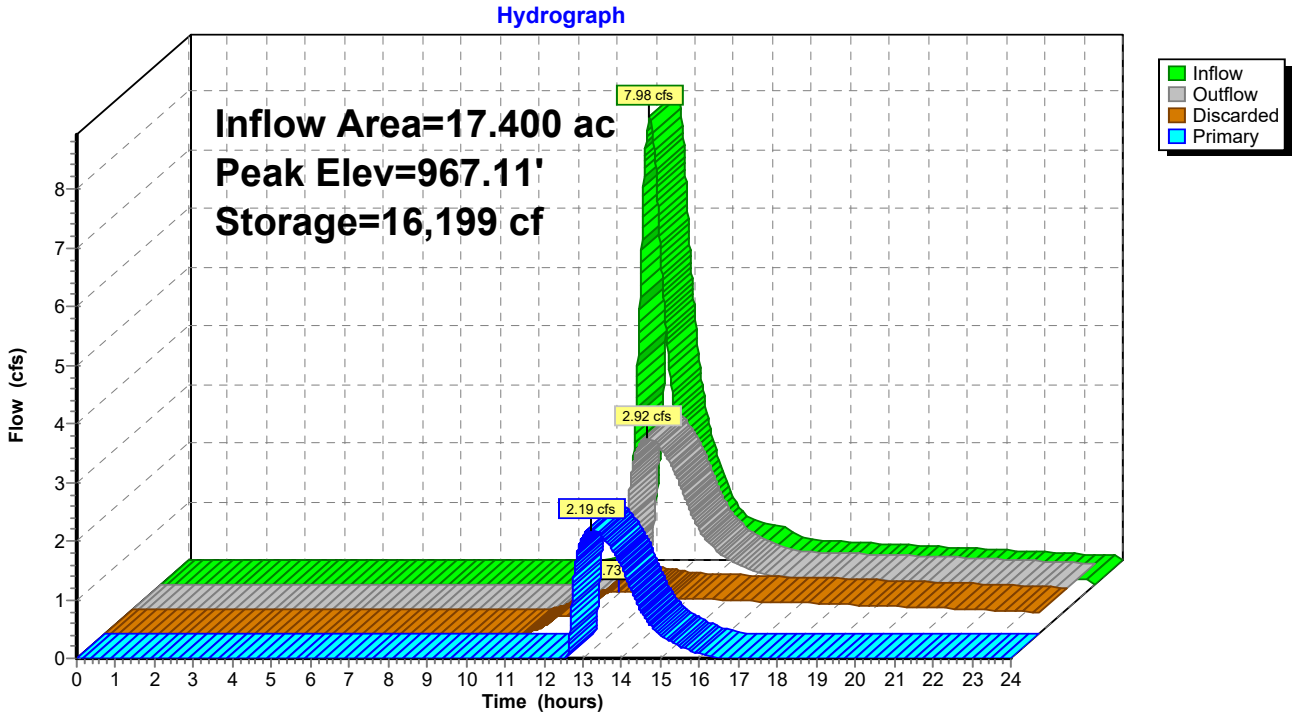
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
964.00	3,560	0	0	3,560
965.00	4,560	4,050	4,050	4,585
966.00	5,660	5,100	9,150	5,714
967.00	6,895	6,267	15,417	6,980
968.00	8,290	7,582	22,999	8,409
969.00	10,205	9,231	32,230	10,354
970.00	12,343	11,257	43,487	12,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	964.00'	**3.600 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 954.00' Phase-In= 0.01'
#2	Primary	966.00'	**10.0" Round Culvert** L= 65.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 966.00' / 962.00' S= 0.0615 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Primary	969.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.73 cfs @ 13.22 hrs HW=967.11' (Free Discharge)
└**1=Exfiltration** (Controls 0.73 cfs)

Primary OutFlow Max=2.19 cfs @ 13.22 hrs HW=967.11' TW=948.94' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 2.19 cfs @ 4.02 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 11B: Infiltration Basin 11



Summary for Pond 18B: Existing Infiltration Basin

Inflow	=	19.21 cfs @	12.51 hrs,	Volume=	2.300 af
Outflow	=	7.20 cfs @	13.08 hrs,	Volume=	1.413 af, Atten= 63%, Lag= 33.8 min
Discarded	=	0.73 cfs @	15.74 hrs,	Volume=	0.669 af
Primary	=	6.58 cfs @	13.08 hrs,	Volume=	0.744 af
Secondary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Tertiary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 993.78' @ 15.74 hrs Surf.Area= 18,968 sf Storage= 57,084 cf

Plug-Flow detention time= 255.0 min calculated for 1.413 af (61% of inflow)
Center-of-Mass det. time= 176.8 min (1,007.8 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	111,738 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249
996.00	31,138	28,054	111,738	31,336

Device	Routing	Invert	Outlet Devices
#1	Discarded	989.00'	**1.300 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 979.00' Phase-In= 0.01'
#2	Primary	991.00'	**15.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 990.55' / 991.00' S= -0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Secondary	994.00'	**45.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 0.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Tertiary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

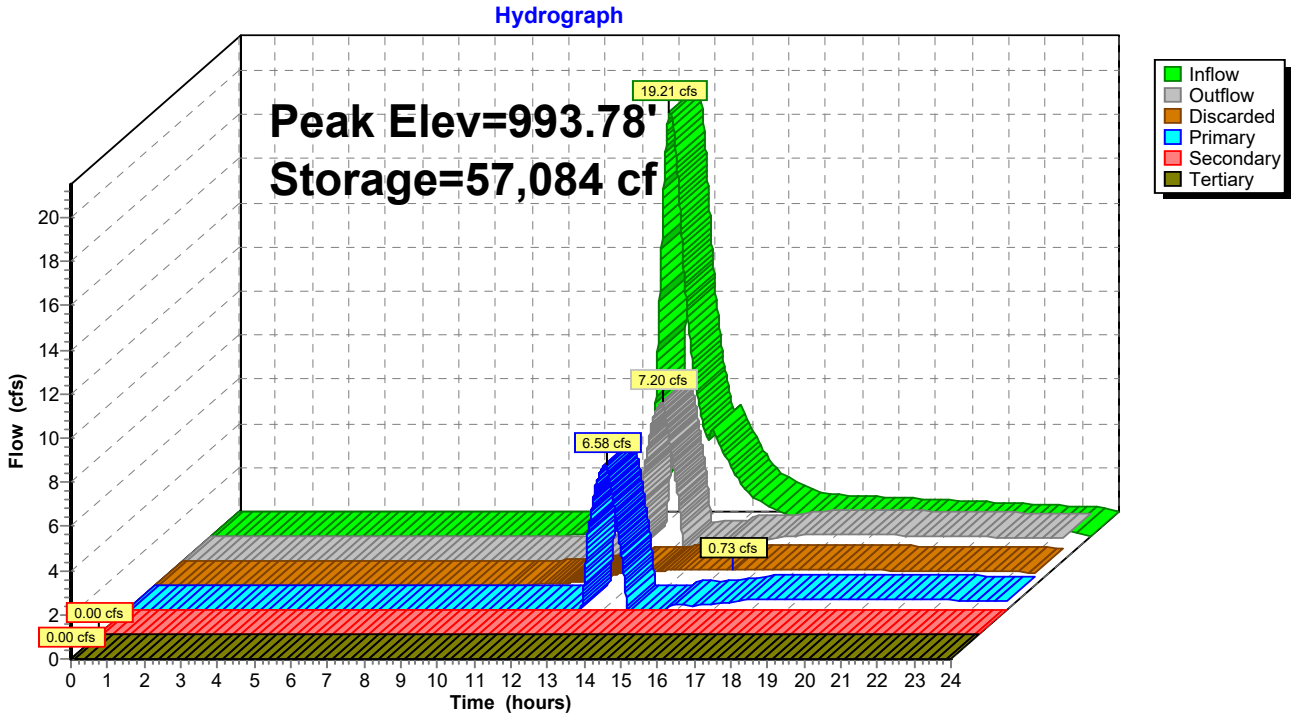
Discarded OutFlow Max=0.73 cfs @ 15.74 hrs HW=993.78' (Free Discharge)
└**1=Exfiltration** (Controls 0.73 cfs)

Primary OutFlow Max=6.55 cfs @ 13.08 hrs HW=992.94' TW=991.71' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 6.55 cfs @ 5.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' TW=989.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond 18B: Existing Infiltration Basin



Summary for Pond 20P: Pond 20 - Revised

Inflow	=	19.13 cfs @	13.09 hrs,	Volume=	3.076 af
Outflow	=	3.23 cfs @	13.90 hrs,	Volume=	1.882 af, Atten= 83%, Lag= 48.8 min
Primary	=	1.33 cfs @	13.87 hrs,	Volume=	0.102 af
Secondary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Tertiary	=	1.99 cfs @	15.72 hrs,	Volume=	1.779 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 993.78' @ 15.72 hrs Surf.Area= 23,937 sf Storage= 75,805 cf

Plug-Flow detention time= 292.9 min calculated for 1.882 af (61% of inflow)
Center-of-Mass det. time= 189.8 min (1,082.2 - 892.4)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	108,558 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	6,352	0	0	6,352
990.00	10,364	8,277	8,277	10,377
991.00	15,582	12,885	21,161	15,610
992.00	18,483	17,012	38,173	18,548
993.00	21,527	19,986	58,159	21,633
994.00	24,654	23,073	81,232	24,806
995.00	30,089	27,326	108,558	30,272

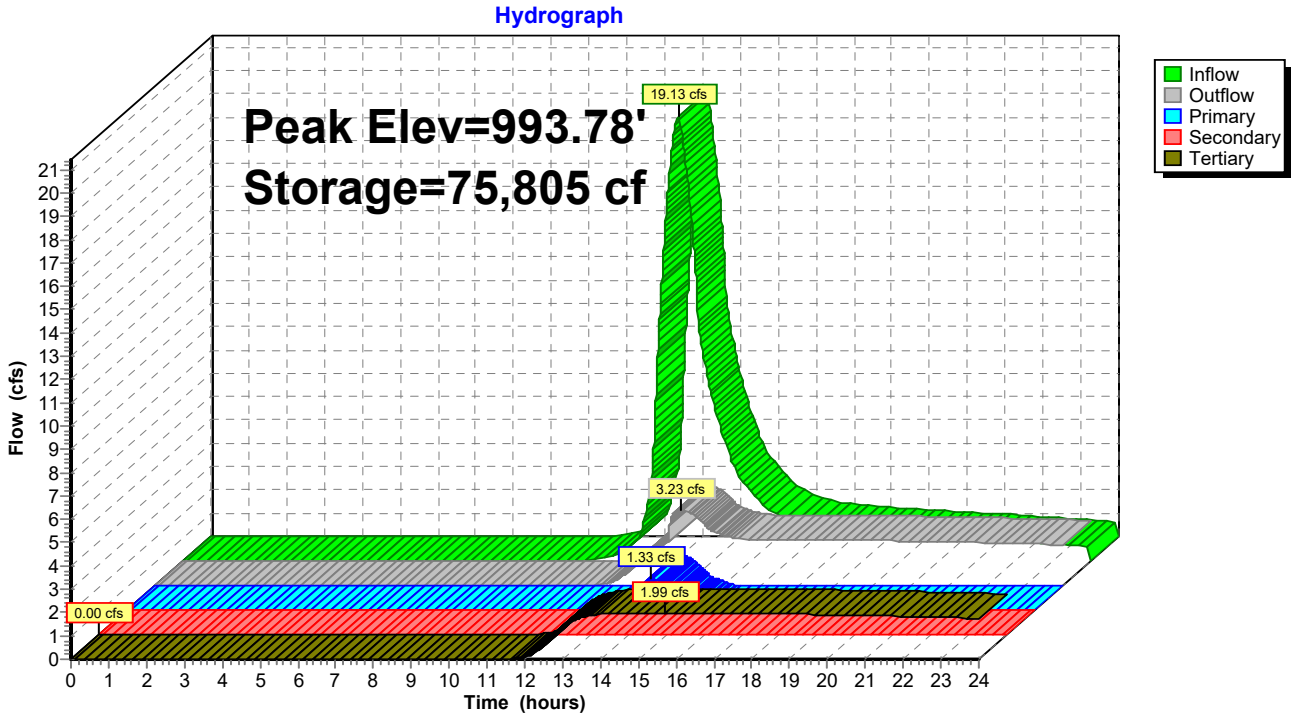
Device	Routing	Invert	Outlet Devices
#1	Primary	991.00'	**15.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 991.00' / 990.55' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Secondary	994.00'	**45.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Tertiary	994.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Tertiary	989.00'	**6.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 989.00' / 988.62' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

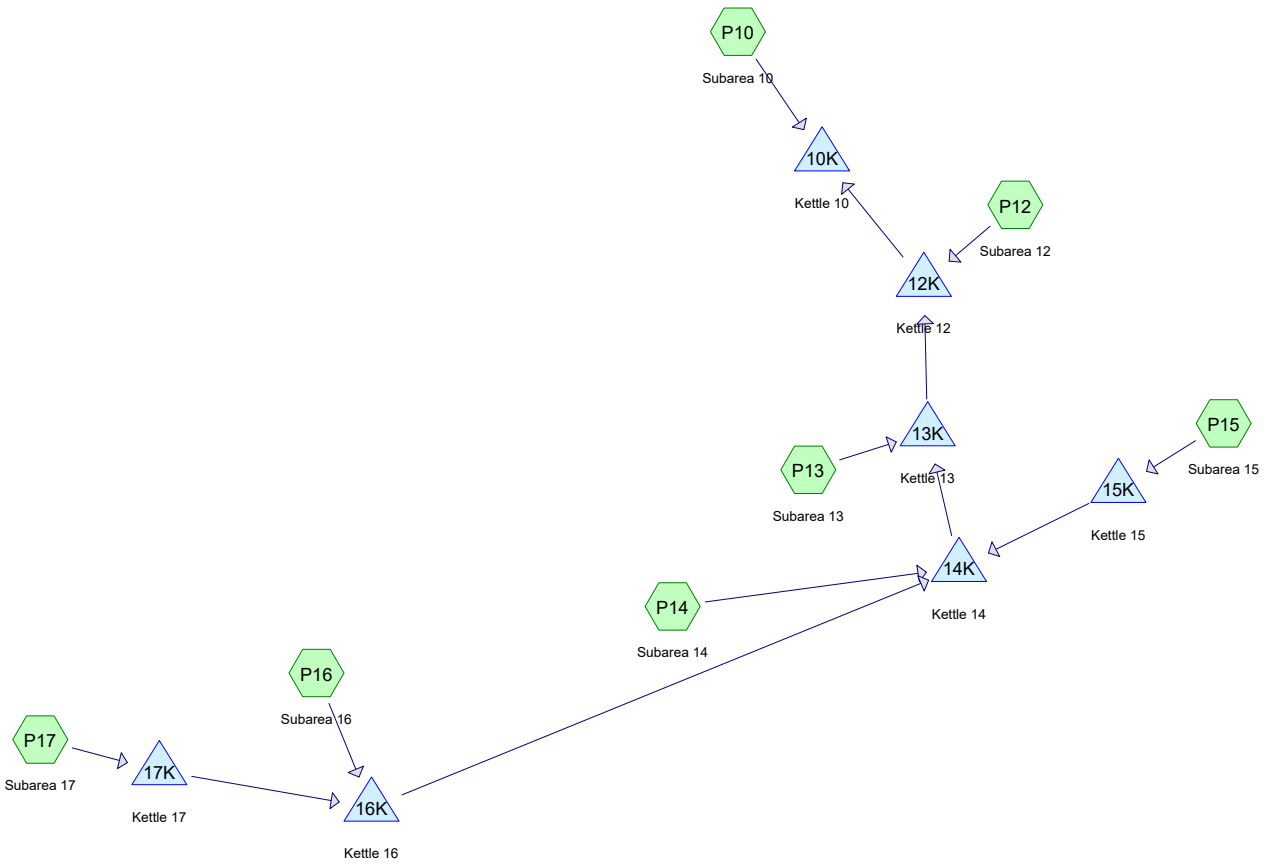
Primary OutFlow Max=1.22 cfs @ 13.87 hrs HW=993.35' TW=993.31' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.22 cfs @ 1.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' TW=989.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Tertiary OutFlow Max=1.99 cfs @ 15.72 hrs HW=993.78' TW=951.92' (Dynamic Tailwater)
├**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)
└**4=Culvert** (Barrel Controls 1.99 cfs @ 10.14 fps)

Pond 20P: Pond 20 - Revised





Subcat Reach Pond Link

Routing Diagram for Proposed_Kettle10
Prepared by HP Inc., Printed 8/26/2020
HydroCAD® 10.00-25 s/n 11025 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.110	75	1/4 acre lots (P10, P12, P13, P14, P15)
3.060	61	grass (P10, P12, P14, P15)
1.020	98	impervious (P12, P14, P15)
14.050	55	woods (P10, P12, P13, P14, P15, P16, P17)
20.240	**60**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>0.15"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.09 cfs 0.021 af

SubcatchmentP12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>0.31"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=0.50 cfs 0.067 af

SubcatchmentP13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.15"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.05 cfs 0.012 af

SubcatchmentP14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>0.16"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=0.32 cfs 0.110 af

SubcatchmentP15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.21"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.11 cfs 0.015 af

SubcatchmentP16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=0.02 cfs 0.009 af

SubcatchmentP17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>0.06"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=0.05 cfs 0.023 af

Pond 10K: Kettle 10 Peak Elev=954.37' Storage=715 cf Inflow=0.09 cfs 0.021 af
Discarded=0.01 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond 12K: Kettle 12 Peak Elev=956.90' Storage=2,310 cf Inflow=0.52 cfs 0.078 af
Discarded=0.03 cfs 0.028 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.028 af

Pond 13K: Kettle 13 Peak Elev=959.56' Storage=27 cf Inflow=0.05 cfs 0.012 af
Discarded=0.00 cfs 0.001 af Primary=0.05 cfs 0.011 af Outflow=0.05 cfs 0.012 af

Pond 14K: Kettle 14 Peak Elev=955.92' Storage=3,701 cf Inflow=0.32 cfs 0.110 af
Discarded=0.03 cfs 0.025 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.025 af

Pond 15K: Kettle 15 Peak Elev=970.19' Storage=331 cf Inflow=0.11 cfs 0.015 af
Discarded=0.01 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.010 af

Pond 16K: Kettle 16 Peak Elev=1,005.01' Storage=32 cf Inflow=0.02 cfs 0.009 af
Discarded=0.02 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.008 af

Pond 17K: Kettle 17 Peak Elev=1,011.09' Storage=299 cf Inflow=0.05 cfs 0.023 af
Discarded=0.02 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.018 af

Total Runoff Area = 20.240 ac Runoff Volume = 0.258 af Average Runoff Depth = 0.15"
94.96% Pervious = 19.220 ac 5.04% Impervious = 1.020 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.18 cfs 0.033 af

SubcatchmentP12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>0.44"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=0.79 cfs 0.094 af

SubcatchmentP13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.10 cfs 0.019 af

SubcatchmentP14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>0.25"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=0.55 cfs 0.171 af

SubcatchmentP15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.31"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.20 cfs 0.023 af

SubcatchmentP16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=0.05 cfs 0.016 af

SubcatchmentP17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>0.12"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=0.12 cfs 0.043 af

Pond 10K: Kettle 10 Peak Elev=954.76' Storage=1,169 cf Inflow=0.18 cfs 0.033 af
Discarded=0.01 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 12K: Kettle 12 Peak Elev=957.09' Storage=3,487 cf Inflow=0.85 cfs 0.112 af
Discarded=0.04 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.036 af

Pond 13K: Kettle 13 Peak Elev=959.59' Storage=39 cf Inflow=0.10 cfs 0.019 af
Discarded=0.00 cfs 0.001 af Primary=0.10 cfs 0.018 af Outflow=0.10 cfs 0.019 af

Pond 14K: Kettle 14 Peak Elev=956.36' Storage=6,118 cf Inflow=0.55 cfs 0.171 af
Discarded=0.04 cfs 0.030 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.030 af

Pond 15K: Kettle 15 Peak Elev=970.32' Storage=590 cf Inflow=0.20 cfs 0.023 af
Discarded=0.01 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.011 af

Pond 16K: Kettle 16 Peak Elev=1,005.03' Storage=130 cf Inflow=0.05 cfs 0.016 af
Discarded=0.03 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.016 af

Pond 17K: Kettle 17 Peak Elev=1,011.21' Storage=856 cf Inflow=0.12 cfs 0.043 af
Discarded=0.03 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.026 af

Total Runoff Area = 20.240 ac Runoff Volume = 0.400 af Average Runoff Depth = 0.24"
94.96% Pervious = 19.220 ac 5.04% Impervious = 1.020 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>0.67"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.74 cfs 0.097 af

SubcatchmentP12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>1.03"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=2.18 cfs 0.220 af

SubcatchmentP13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.67"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.44 cfs 0.056 af

SubcatchmentP14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>0.70"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=1.88 cfs 0.477 af

SubcatchmentP15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.81"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.71 cfs 0.059 af

SubcatchmentP16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=0.27 cfs 0.061 af

SubcatchmentP17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>0.45"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=0.70 cfs 0.161 af

Pond 10K: Kettle 10 Peak Elev=955.88' Storage=3,531 cf Inflow=0.74 cfs 0.097 af
Discarded=0.02 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.016 af

Pond 12K: Kettle 12 Peak Elev=957.81' Storage=9,600 cf Inflow=2.52 cfs 0.274 af
Discarded=0.06 cfs 0.057 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.057 af

Pond 13K: Kettle 13 Peak Elev=959.69' Storage=101 cf Inflow=0.44 cfs 0.056 af
Discarded=0.00 cfs 0.002 af Primary=0.42 cfs 0.054 af Outflow=0.43 cfs 0.056 af

Pond 14K: Kettle 14 Peak Elev=958.01' Storage=18,612 cf Inflow=1.88 cfs 0.477 af
Discarded=0.06 cfs 0.050 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.050 af

Pond 15K: Kettle 15 Peak Elev=970.88' Storage=1,942 cf Inflow=0.71 cfs 0.059 af
Discarded=0.02 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.016 af

Pond 16K: Kettle 16 Peak Elev=1,005.32' Storage=1,563 cf Inflow=0.27 cfs 0.061 af
Discarded=0.03 cfs 0.029 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.029 af

Pond 17K: Kettle 17 Peak Elev=1,011.62' Storage=4,530 cf Inflow=0.70 cfs 0.161 af
Discarded=0.07 cfs 0.064 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.064 af

Total Runoff Area = 20.240 ac Runoff Volume = 1.131 af Average Runoff Depth = 0.67"
94.96% Pervious = 19.220 ac 5.04% Impervious = 1.020 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=2.72 cfs 0.295 af

SubcatchmentP12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>2.66"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=6.13 cfs 0.570 af

SubcatchmentP13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=1.60 cfs 0.171 af

SubcatchmentP14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>2.10"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=6.35 cfs 1.420 af

SubcatchmentP15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>2.30"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=2.28 cfs 0.167 af

SubcatchmentP16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=1.25 cfs 0.217 af

SubcatchmentP17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=3.20 cfs 0.576 af

Pond 10K: Kettle 10 Peak Elev=957.64' Storage=11,381 cf Inflow=2.72 cfs 0.295 af
Discarded=0.04 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.034 af

Pond 12K: Kettle 12 Peak Elev=959.17' Storage=28,040 cf Inflow=7.46 cfs 0.738 af
Discarded=0.10 cfs 0.097 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.097 af

Pond 13K: Kettle 13 Peak Elev=959.88' Storage=329 cf Inflow=1.60 cfs 0.171 af
Discarded=0.01 cfs 0.003 af Primary=1.54 cfs 0.168 af Outflow=1.55 cfs 0.171 af

Pond 14K: Kettle 14 Peak Elev=961.28' Storage=57,960 cf Inflow=6.35 cfs 1.425 af
Discarded=0.12 cfs 0.094 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.094 af

Pond 15K: Kettle 15 Peak Elev=971.90' Storage=6,014 cf Inflow=2.28 cfs 0.167 af
Discarded=0.03 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.031 af

Pond 16K: Kettle 16 Peak Elev=1,007.01' Storage=15,507 cf Inflow=1.38 cfs 0.414 af
Discarded=0.07 cfs 0.058 af Primary=0.04 cfs 0.005 af Outflow=0.10 cfs 0.063 af

Pond 17K: Kettle 17 Peak Elev=1,012.09' Storage=13,197 cf Inflow=3.20 cfs 0.576 af
Discarded=0.14 cfs 0.124 af Primary=0.96 cfs 0.197 af Outflow=1.10 cfs 0.321 af

Total Runoff Area = 20.240 ac Runoff Volume = 3.415 af Average Runoff Depth = 2.02"
94.96% Pervious = 19.220 ac 5.04% Impervious = 1.020 ac

Summary for Subcatchment P10: Subarea 10

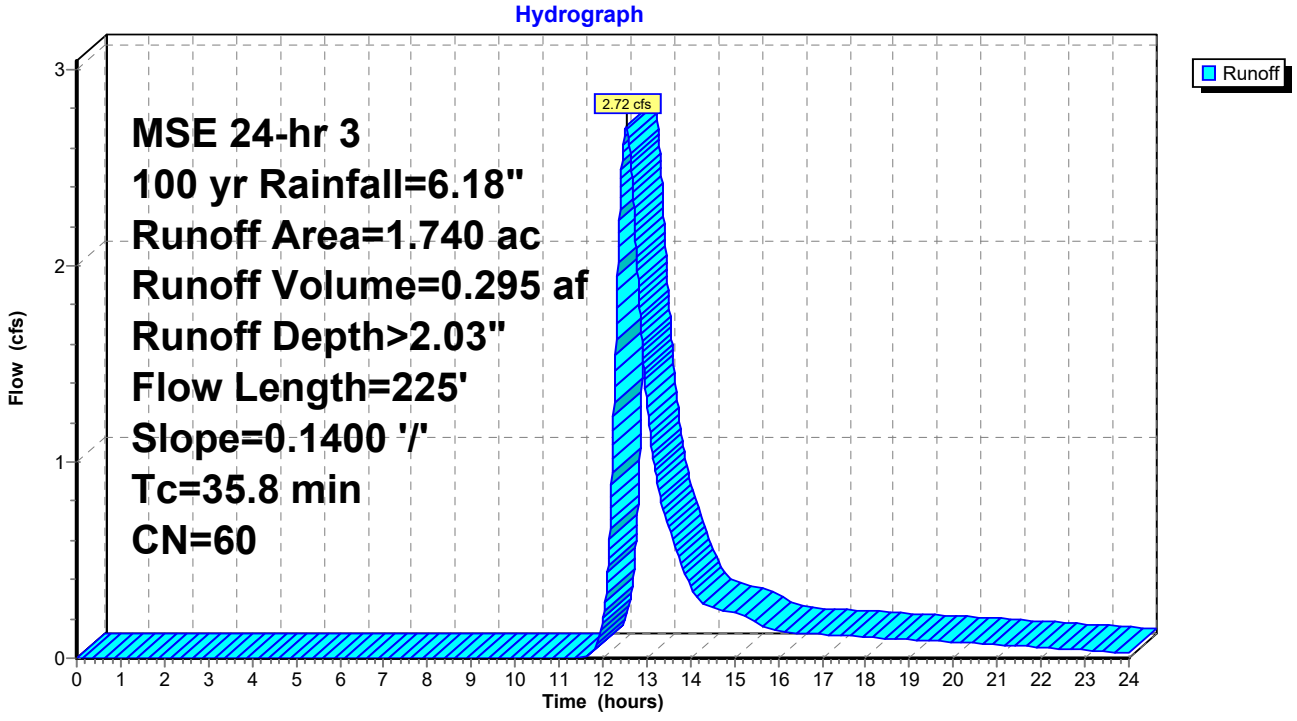
Runoff = 2.72 cfs @ 12.53 hrs, Volume= 0.295 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.270	55	woods
*	0.450	75	1/4 acre lots
*	0.020	61	grass
	1.740	60	Weighted Average
	1.740		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment P10: Subarea 10



Summary for Subcatchment P12: Subarea 12

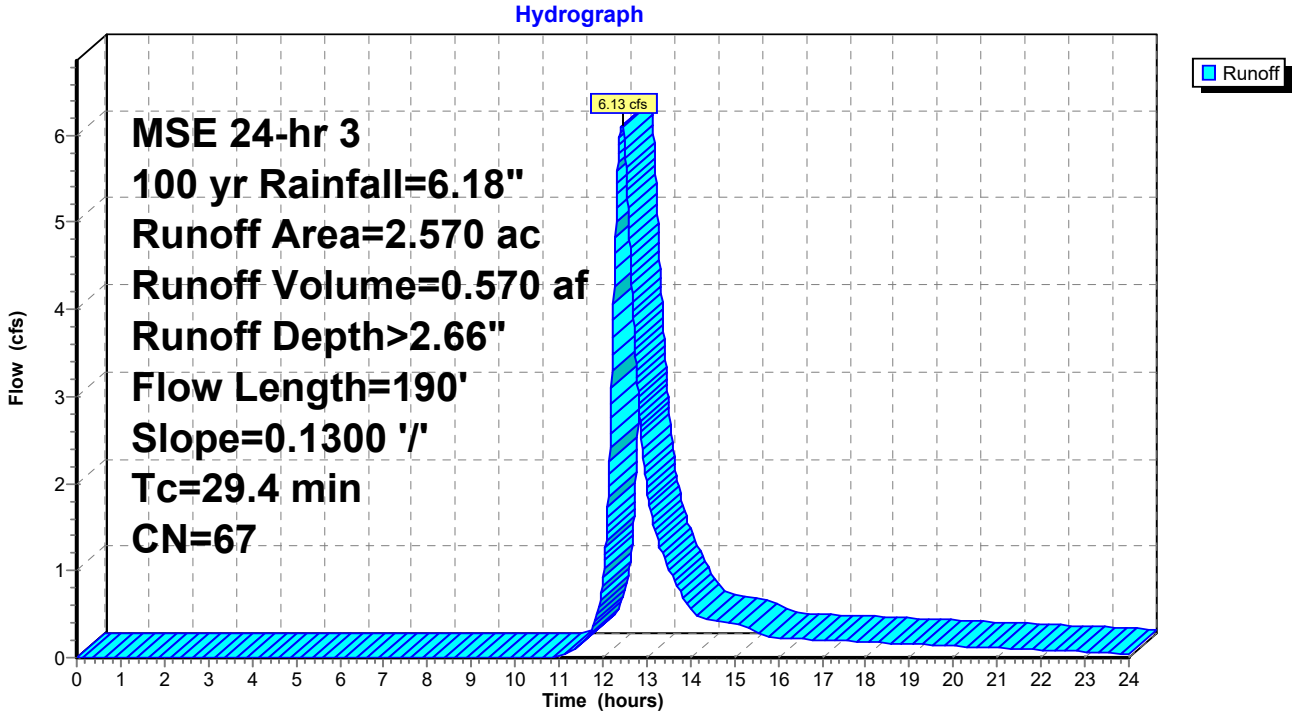
Runoff = 6.13 cfs @ 12.44 hrs, Volume= 0.570 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.970	55	woods
*	0.350	61	grass
*	0.180	98	impervious
	1.070	75	1/4 acre lots
	2.570	67	Weighted Average
	2.390		93.00% Pervious Area
	0.180		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1300	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
25.2	140	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
29.4	190	Total			

Subcatchment P12: Subarea 12



Summary for Subcatchment P13: Subarea 13

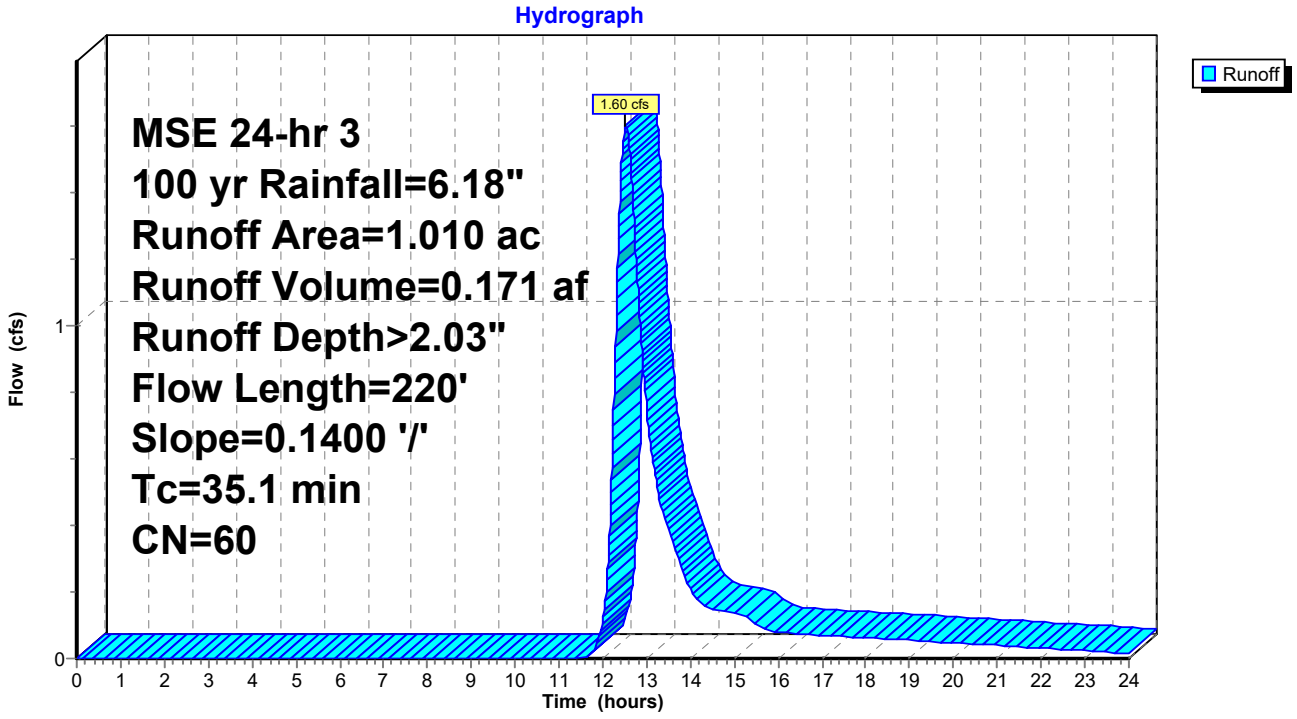
Runoff = 1.60 cfs @ 12.52 hrs, Volume= 0.171 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.760	55	woods
	0.250	75	1/4 acre lots
	1.010	60	Weighted Average
	1.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment P13: Subarea 13



Summary for Subcatchment P14: Subarea 14

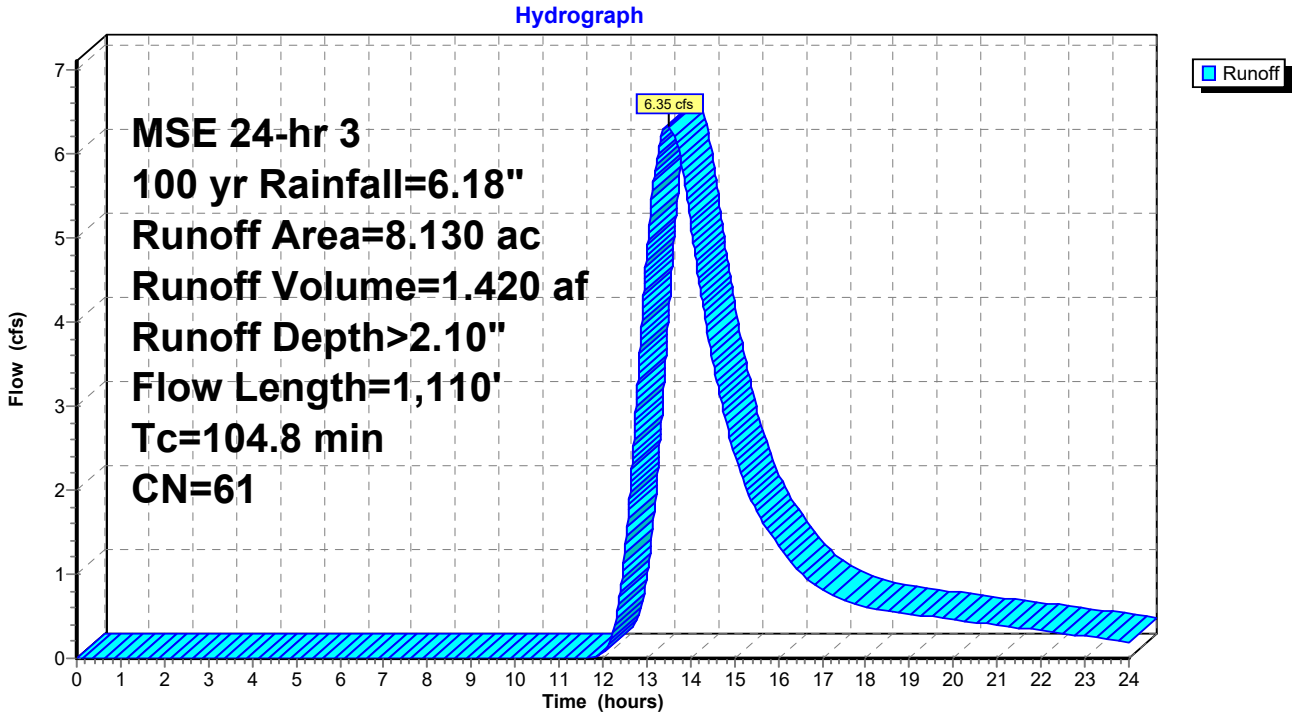
Runoff = 6.35 cfs @ 13.50 hrs, Volume= 1.420 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.650	55	woods
*	2.600	61	grass
*	0.830	98	impervious
*	0.050	75	1/4 acre lots
	8.130	61	Weighted Average
	7.300		89.79% Pervious Area
	0.830		10.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
98.0	300	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.0	170	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
104.8	1,110	Total			

Subcatchment P14: Subarea 14



Summary for Subcatchment P15: Subarea 15

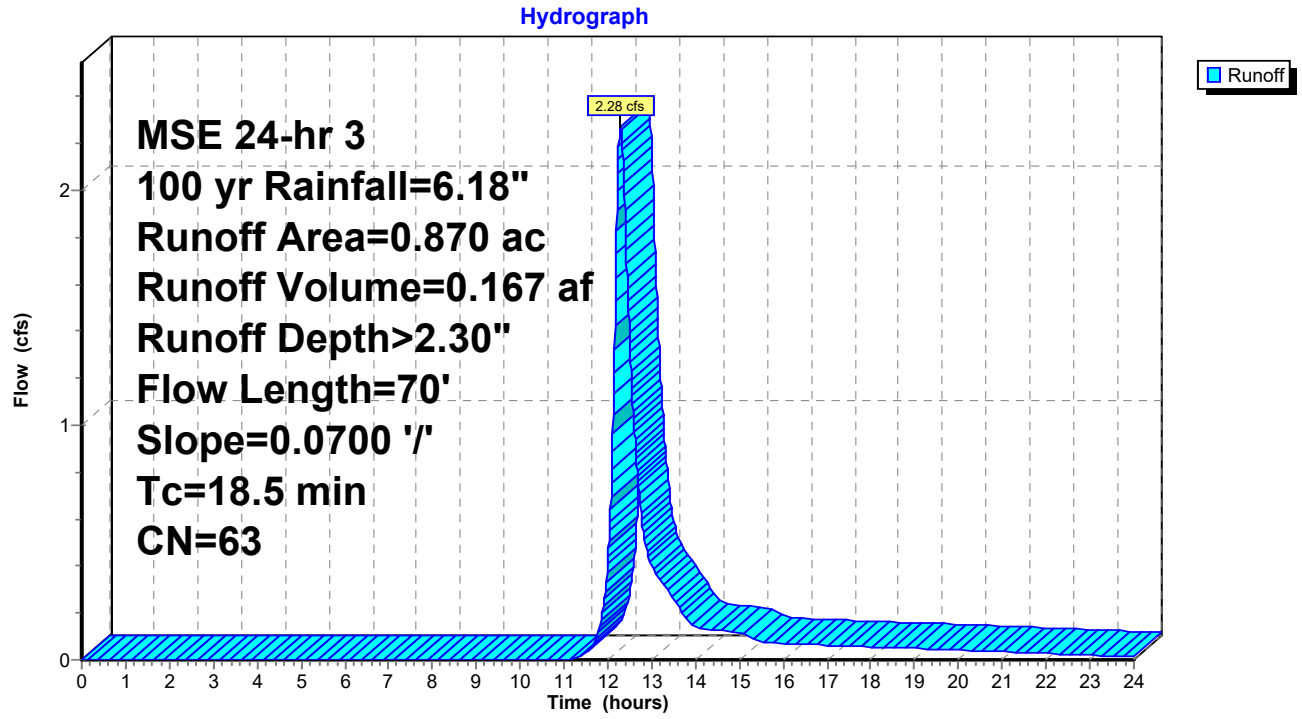
Runoff = 2.28 cfs @ 12.29 hrs, Volume= 0.167 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.480	55	woods
*	0.090	61	grass
*	0.010	98	impervious
*	0.290	75	1/4 acre lots
	0.870	63	Weighted Average
	0.860		98.85% Pervious Area
	0.010		1.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment P15: Subarea 15



Summary for Subcatchment P16: Subarea 16

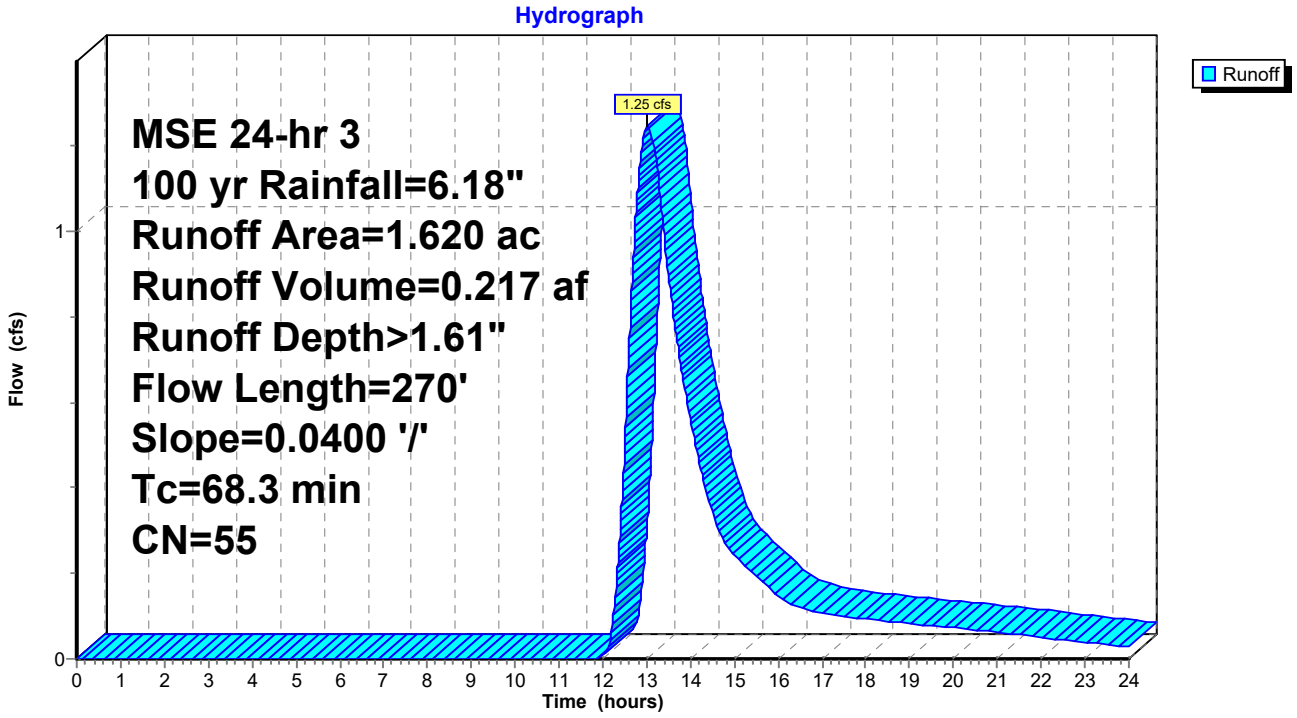
Runoff = 1.25 cfs @ 12.98 hrs, Volume= 0.217 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.620	55	woods
	1.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.3	270	0.0400	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment P16: Subarea 16



Summary for Subcatchment P17: Subarea 17

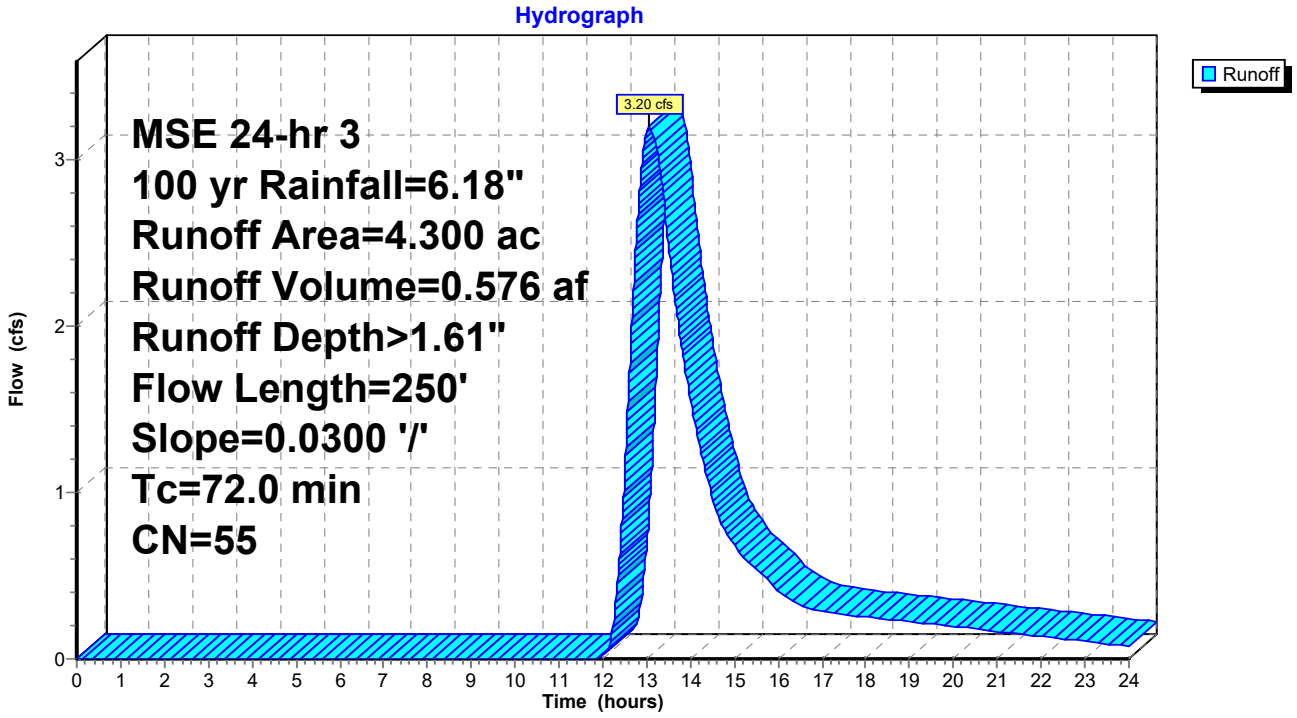
Runoff = 3.20 cfs @ 13.04 hrs, Volume= 0.576 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.300	55	woods
	4.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0	250	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment P17: Subarea 17



Summary for Pond 10K: Kettle 10

Inflow Area = 20.240 ac, 5.04% Impervious, Inflow Depth > 0.17" for 100 yr event
Inflow = 2.72 cfs @ 12.53 hrs, Volume= 0.295 af
Outflow = 0.04 cfs @ 23.19 hrs, Volume= 0.034 af, Atten= 99%, Lag= 639.3 min
Discarded = 0.04 cfs @ 23.19 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 957.64' @ 23.19 hrs Surf.Area= 5,826 sf Storage= 11,381 cf

Plug-Flow detention time= 373.2 min calculated for 0.034 af (11% of inflow)
Center-of-Mass det. time= 254.9 min (1,107.9 - 853.0)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

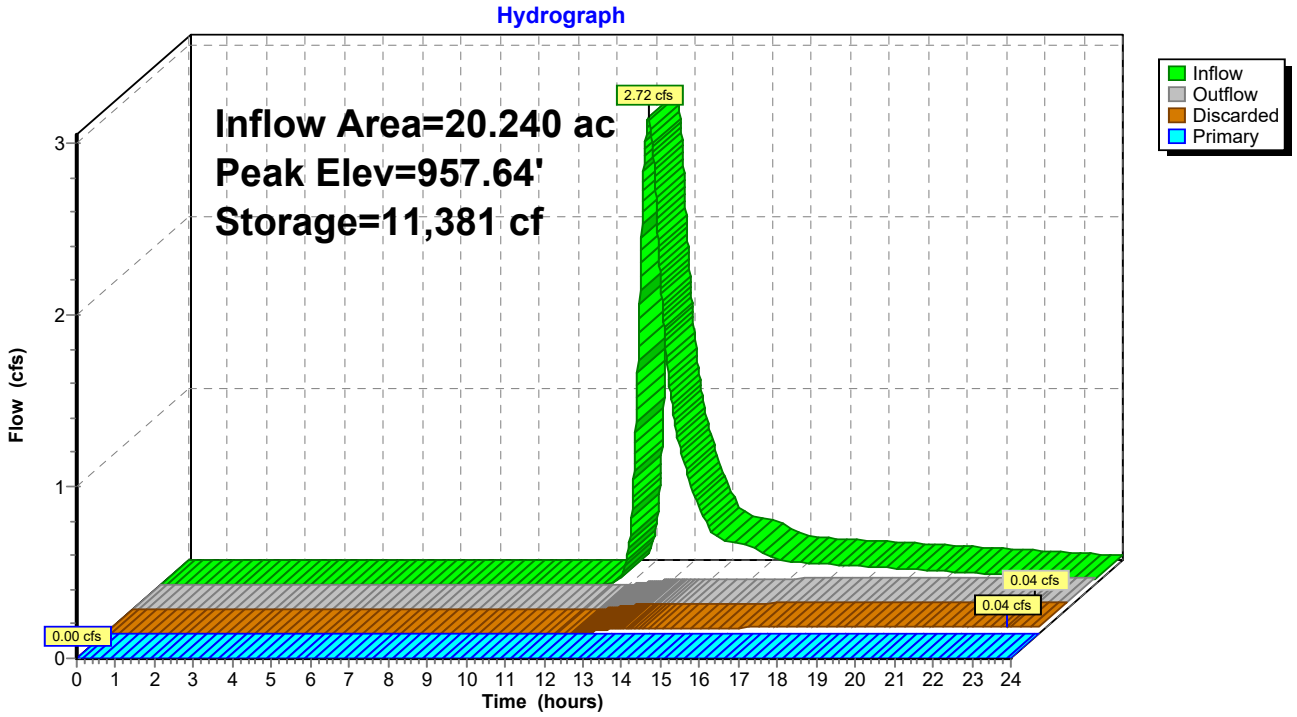
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 943.00' Phase-In= 0.01'
#2	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.04 cfs @ 23.19 hrs HW=957.64' (Free Discharge)
↑**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 10K: Kettle 10



Summary for Pond 12K: Kettle 12

Inflow Area = 18.500 ac, 5.51% Impervious, Inflow Depth > 0.48" for 100 yr event
Inflow = 7.46 cfs @ 12.45 hrs, Volume= 0.738 af
Outflow = 0.10 cfs @ 22.53 hrs, Volume= 0.097 af, Atten= 99%, Lag= 604.6 min
Discarded = 0.10 cfs @ 22.53 hrs, Volume= 0.097 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 959.17' @ 22.53 hrs Surf.Area= 16,181 sf Storage= 28,040 cf

Plug-Flow detention time= 370.1 min calculated for 0.097 af (13% of inflow)
Center-of-Mass det. time= 257.7 min (1,097.1 - 839.5)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

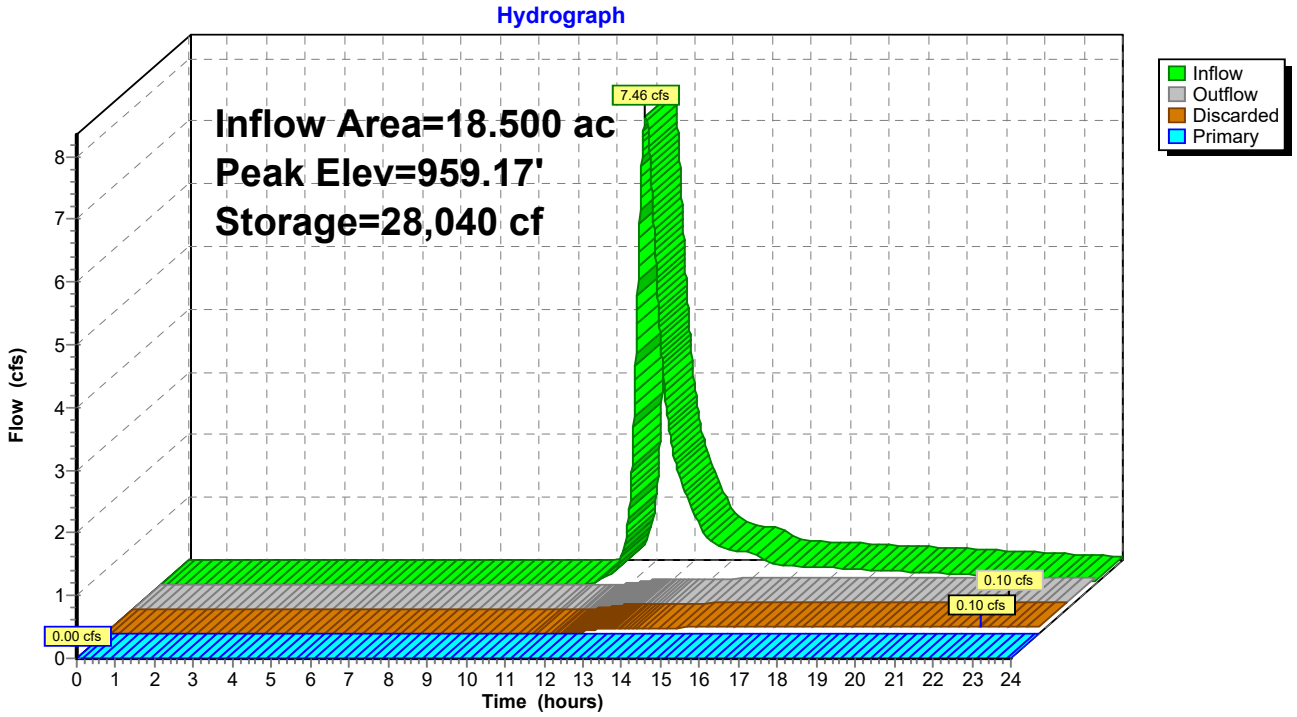
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 946.00' Phase-In= 0.01'
#2	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.10 cfs @ 22.53 hrs HW=959.17' (Free Discharge)
↑**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=956.00' TW=953.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 12K: Kettle 12



Summary for Pond 13K: Kettle 13

Inflow Area = 15.930 ac, 5.27% Impervious, Inflow Depth > 0.13" for 100 yr event
Inflow = 1.60 cfs @ 12.52 hrs, Volume= 0.171 af
Outflow = 1.55 cfs @ 12.59 hrs, Volume= 0.171 af, Atten= 3%, Lag= 4.1 min
Discarded = 0.01 cfs @ 12.59 hrs, Volume= 0.003 af
Primary = 1.54 cfs @ 12.59 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 959.88' @ 12.59 hrs Surf.Area= 1,730 sf Storage= 329 cf

Plug-Flow detention time= 5.0 min calculated for 0.171 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (856.0 - 852.4)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

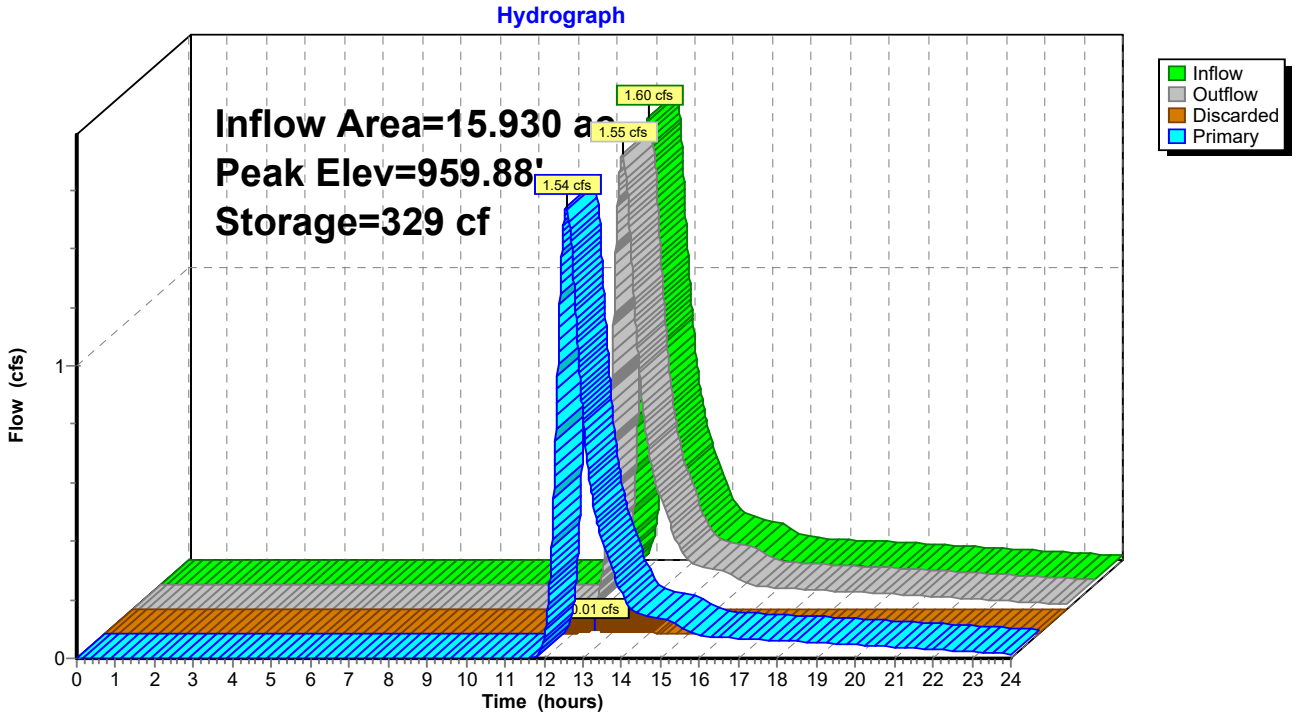
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.40'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 949.00' Phase-In= 0.01'
#2	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#3	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.59 hrs HW=959.88' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.54 cfs @ 12.59 hrs HW=959.88' TW=957.94' (Dynamic Tailwater)
├**2=Culvert** (Barrel Controls 1.54 cfs @ 2.65 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13K: Kettle 13



Summary for Pond 14K: Kettle 14

Inflow Area = 14.920 ac, 5.63% Impervious, Inflow Depth > 1.15" for 100 yr event
Inflow = 6.35 cfs @ 13.50 hrs, Volume= 1.425 af
Outflow = 0.12 cfs @ 24.00 hrs, Volume= 0.094 af, Atten= 98%, Lag= 630.0 min
Discarded = 0.12 cfs @ 24.00 hrs, Volume= 0.094 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 961.28' @ 24.00 hrs Surf.Area= 15,555 sf Storage= 57,960 cf

Plug-Flow detention time= 371.0 min calculated for 0.094 af (7% of inflow)
Center-of-Mass det. time= 219.9 min (1,129.6 - 909.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

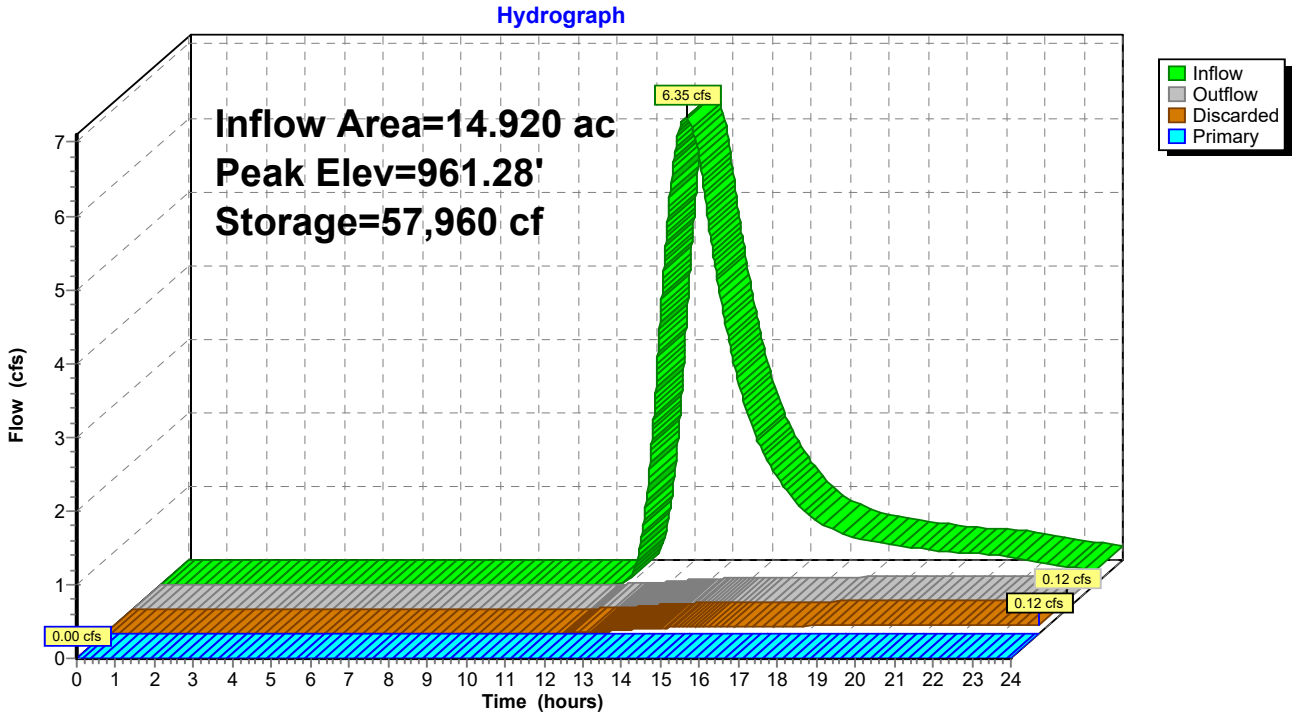
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
965.00	23,972	62,065	131,899	24,362
967.00	28,808	52,706	184,605	29,333

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 945.00' Phase-In= 0.01'
#2	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 24.00 hrs HW=961.28' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.00' TW=959.40' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 14K: Kettle 14



Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac, 1.15% Impervious, Inflow Depth > 2.30" for 100 yr event
Inflow = 2.28 cfs @ 12.29 hrs, Volume= 0.167 af
Outflow = 0.03 cfs @ 21.23 hrs, Volume= 0.031 af, Atten= 99%, Lag= 536.5 min
Discarded = 0.03 cfs @ 21.23 hrs, Volume= 0.031 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 971.90' @ 21.23 hrs Surf.Area= 5,308 sf Storage= 6,014 cf

Plug-Flow detention time= 365.9 min calculated for 0.031 af (19% of inflow)
Center-of-Mass det. time= 259.2 min (1,091.8 - 832.6)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

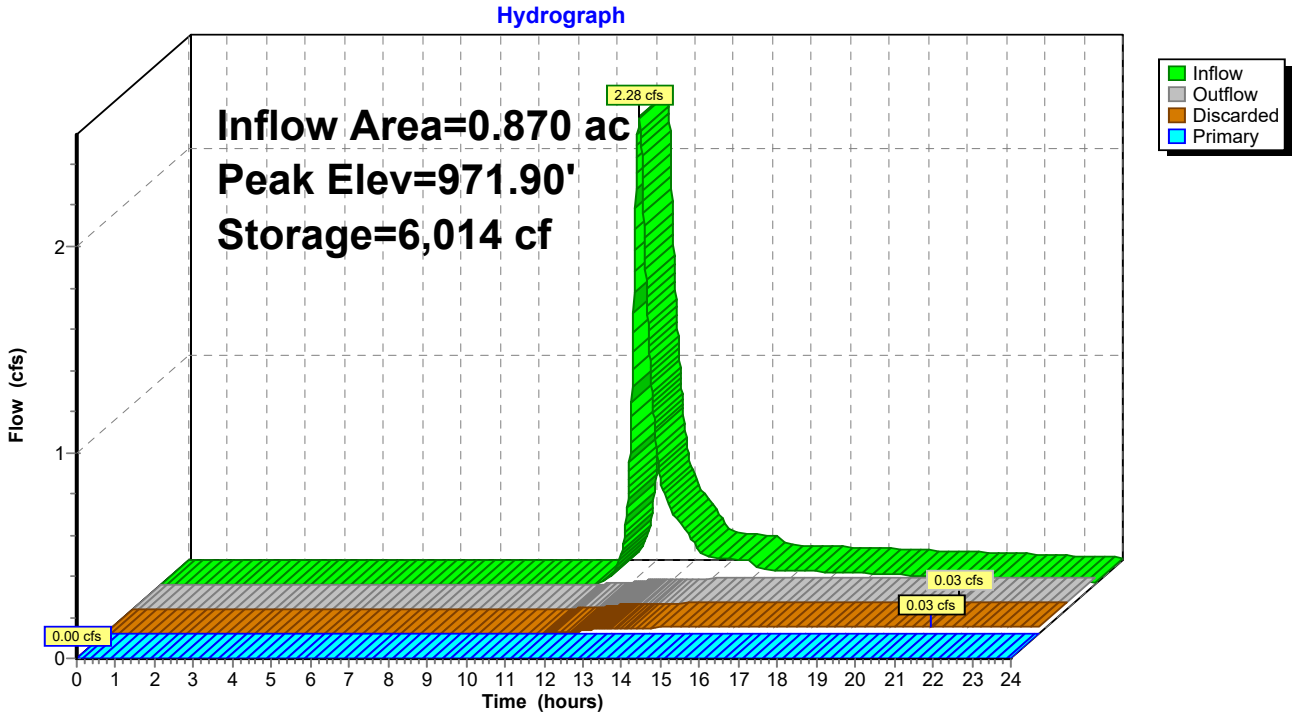
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	970.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 960.00' Phase-In= 0.01'
#2	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 21.23 hrs HW=971.90' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=970.00' TW=955.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15K: Kettle 15



Summary for Pond 16K: Kettle 16

Inflow Area = 5.920 ac, 0.00% Impervious, Inflow Depth > 0.84" for 100 yr event
Inflow = 1.38 cfs @ 14.23 hrs, Volume= 0.414 af
Outflow = 0.10 cfs @ 21.38 hrs, Volume= 0.063 af, Atten= 92%, Lag= 429.0 min
Discarded = 0.07 cfs @ 21.38 hrs, Volume= 0.058 af
Primary = 0.04 cfs @ 21.38 hrs, Volume= 0.005 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,007.01' @ 21.38 hrs Surf.Area= 10,650 sf Storage= 15,507 cf

Plug-Flow detention time= 364.6 min calculated for 0.063 af (15% of inflow)
Center-of-Mass det. time= 211.2 min (1,133.5 - 922.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

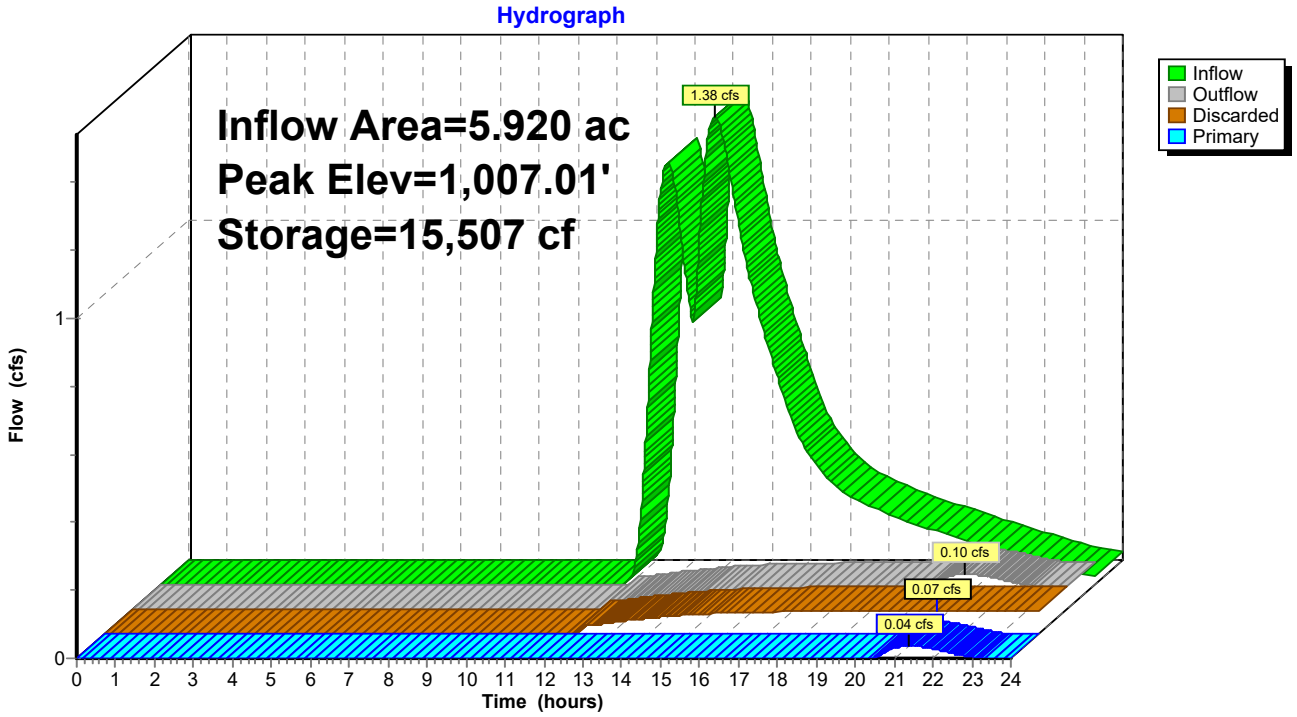
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,005.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 995.00' Phase-In= 0.01'
#2	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 21.38 hrs HW=1,007.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.04 cfs @ 21.38 hrs HW=1,007.01' TW=961.17' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.25 fps)

Pond 16K: Kettle 16



Summary for Pond 17K: Kettle 17

Inflow Area = 4.300 ac, 0.00% Impervious, Inflow Depth > 1.61" for 100 yr event
Inflow = 3.20 cfs @ 13.04 hrs, Volume= 0.576 af
Outflow = 1.10 cfs @ 14.37 hrs, Volume= 0.321 af, Atten= 66%, Lag= 79.3 min
Discarded = 0.14 cfs @ 14.37 hrs, Volume= 0.124 af
Primary = 0.96 cfs @ 14.37 hrs, Volume= 0.197 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.09' @ 14.37 hrs Surf.Area= 24,000 sf Storage= 13,197 cf

Plug-Flow detention time= 221.5 min calculated for 0.321 af (56% of inflow)
Center-of-Mass det. time= 120.2 min (1,013.9 - 893.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

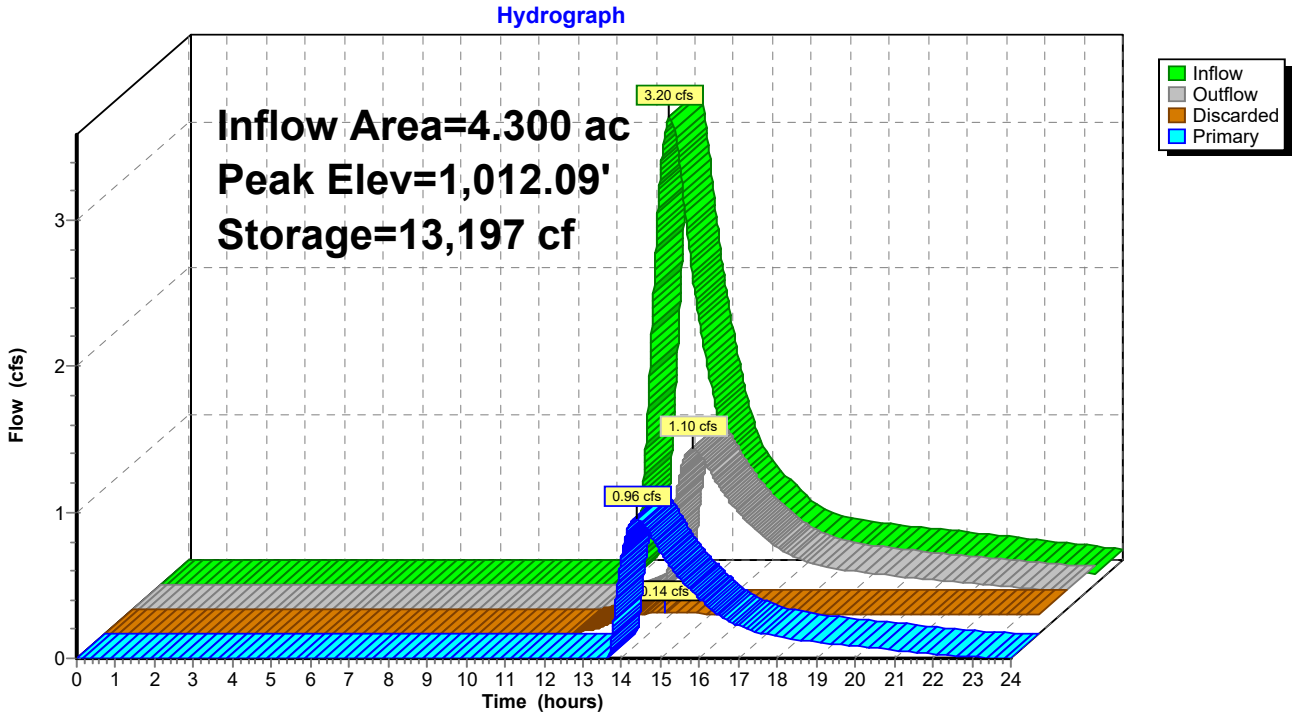
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.14 cfs @ 14.37 hrs HW=1,012.09' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.14 cfs)

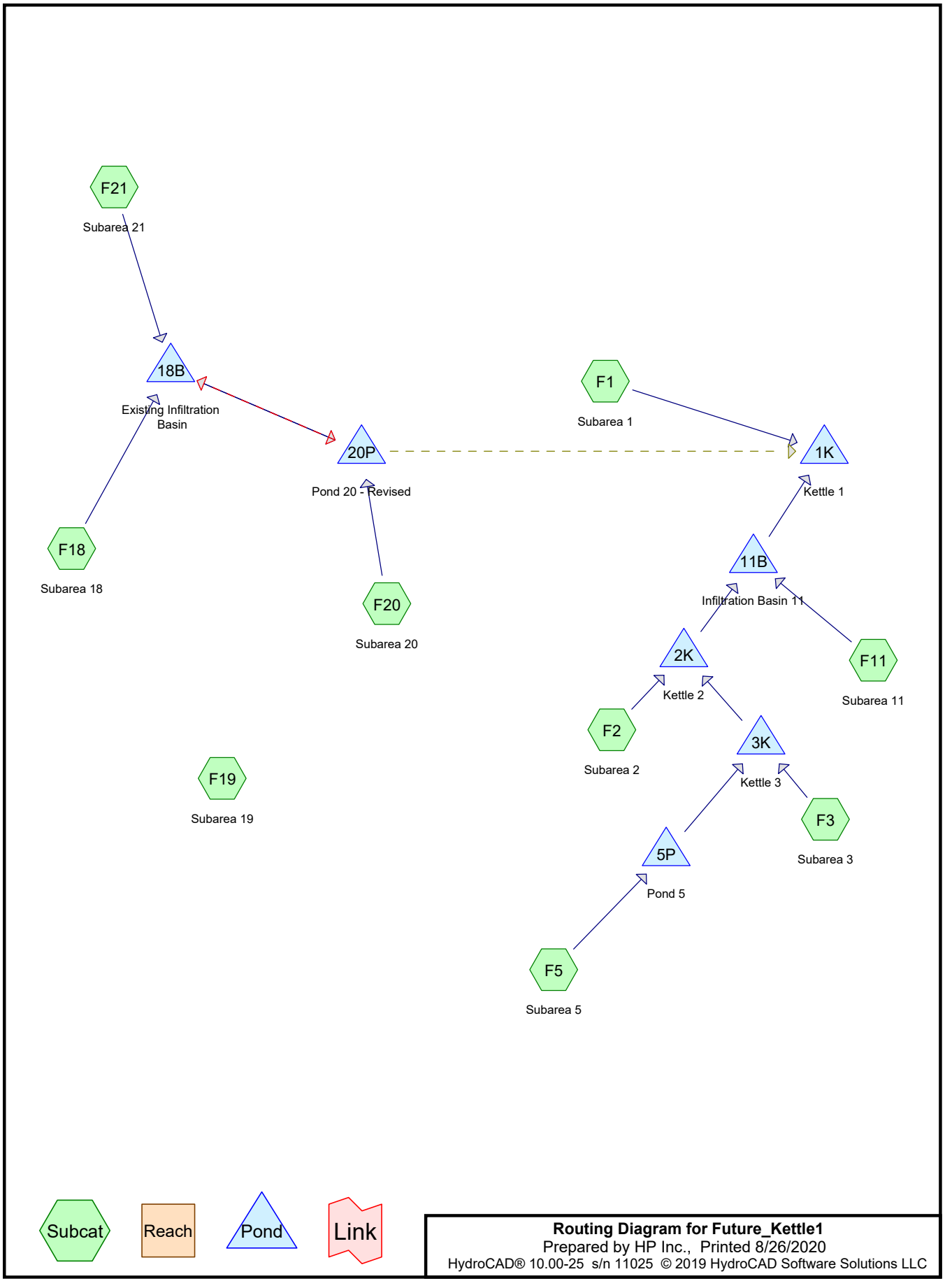
Primary OutFlow Max=0.96 cfs @ 14.37 hrs HW=1,012.09' TW=1,006.14' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.96 cfs @ 0.73 fps)

Pond 17K: Kettle 17



Future Conditions

HydroCAD Modeling



Routing Diagram for Future_Kettle1
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	70	1/2 acre lots (F1)
4.290	78	Area C from LCL High School Report (F18)
1.830	69	cropland (F1, F20, F21)
12.950	61	grass (F1, F11, F18, F19, F2, F20, F21, F3, F5)
12.090	98	impervious (F1, F11, F18, F19, F2, F20, F21, F3, F5)
0.390	98	water (F20, F5)
14.140	55	woods (F1, F11, F18, F2, F20, F3, F5)
48.260	**71**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentF1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>0.15"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=0.53 cfs 0.144 af

SubcatchmentF11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>0.41"
Flow Length=220' Tc=39.8 min CN=70 Runoff=0.87 cfs 0.122 af

SubcatchmentF18: Subarea 18 Runoff Area=5.860 ac 8.87% Impervious Runoff Depth>0.63"
Tc=42.8 min CN=76 Runoff=2.42 cfs 0.308 af

SubcatchmentF19: Subarea 19 Runoff Area=0.100 ac 60.00% Impervious Runoff Depth>0.98"
Tc=6.0 min CN=83 Runoff=0.18 cfs 0.008 af

SubcatchmentF2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>0.13"
Flow Length=240' Tc=42.4 min CN=59 Runoff=0.08 cfs 0.021 af

SubcatchmentF20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>0.51"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=1.72 cfs 0.369 af

SubcatchmentF21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>0.51"
Flow Length=920' Tc=26.7 min CN=73 Runoff=0.75 cfs 0.076 af

SubcatchmentF3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>0.13"
Flow Length=140' Tc=23.0 min CN=59 Runoff=0.04 cfs 0.009 af

SubcatchmentF5: Subarea 5 Runoff Area=13.400 ac 54.10% Impervious Runoff Depth>0.82"
Flow Length=300' Slope=0.0500 '/' Tc=39.5 min CN=80 Runoff=7.98 cfs 0.913 af

Pond 1K: Kettle 1 Peak Elev=946.69' Storage=18,841 cf Inflow=1.02 cfs 0.484 af
Outflow=0.07 cfs 0.051 af

Pond 2K: Kettle 2 Peak Elev=971.00' Storage=30,482 cf Inflow=0.94 cfs 0.746 af
Discarded=0.08 cfs 0.047 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.047 af

Pond 3K: Kettle 3 Peak Elev=973.79' Storage=6,525 cf Inflow=1.17 cfs 0.824 af
Discarded=0.03 cfs 0.028 af Primary=0.93 cfs 0.725 af Outflow=0.96 cfs 0.753 af

Pond 5P: Pond 5 Peak Elev=981.00' Storage=21,552 cf Inflow=7.98 cfs 0.912 af
Outflow=1.16 cfs 0.815 af

Pond 11B: Infiltration Basin 11 Peak Elev=964.33' Storage=1,226 cf Inflow=0.87 cfs 0.122 af
Discarded=0.33 cfs 0.122 af Primary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.122 af

Pond 18B: Existing Infiltration Basin Peak Elev=990.50' Storage=9,223 cf Inflow=2.99 cfs 0.385 af
s 0.309 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.309 af

Pond 20P: Pond 20 - Revised Peak Elev=989.78' Storage=6,136 cf Inflow=1.72 cfs 0.369 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.69 cfs 0.340 af Outflow=0.69 cfs 0.340 af

Total Runoff Area = 48.260 ac Runoff Volume = 1.971 af Average Runoff Depth = 0.49"
74.14% Pervious = 35.780 ac 25.86% Impervious = 12.480 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentF1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>0.23"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=1.01 cfs 0.228 af

SubcatchmentF11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>0.55"
Flow Length=220' Tc=39.8 min CN=70 Runoff=1.26 cfs 0.165 af

SubcatchmentF18: Subarea 18 Runoff Area=5.860 ac 8.87% Impervious Runoff Depth>0.81"
Tc=42.8 min CN=76 Runoff=3.22 cfs 0.398 af

SubcatchmentF19: Subarea 19 Runoff Area=0.100 ac 60.00% Impervious Runoff Depth>1.21"
Tc=6.0 min CN=83 Runoff=0.23 cfs 0.010 af

SubcatchmentF2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>0.21"
Flow Length=240' Tc=42.4 min CN=59 Runoff=0.16 cfs 0.035 af

SubcatchmentF20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>0.67"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=2.37 cfs 0.487 af

SubcatchmentF21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>0.68"
Flow Length=920' Tc=26.7 min CN=73 Runoff=1.04 cfs 0.100 af

SubcatchmentF3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>0.21"
Flow Length=140' Tc=23.0 min CN=59 Runoff=0.09 cfs 0.015 af

SubcatchmentF5: Subarea 5 Runoff Area=13.400 ac 54.10% Impervious Runoff Depth>1.03"
Flow Length=300' Slope=0.0500 '/' Tc=39.5 min CN=80 Runoff=10.18 cfs 1.146 af

Pond 1K: Kettle 1 Peak Elev=947.45' Storage=27,061 cf Inflow=1.43 cfs 0.682 af
Outflow=0.08 cfs 0.061 af

Pond 2K: Kettle 2 Peak Elev=971.58' Storage=37,387 cf Inflow=1.07 cfs 0.911 af
Discarded=0.09 cfs 0.052 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.052 af

Pond 3K: Kettle 3 Peak Elev=974.25' Storage=9,133 cf Inflow=2.24 cfs 1.023 af
Discarded=0.04 cfs 0.033 af Primary=1.05 cfs 0.876 af Outflow=1.08 cfs 0.909 af

Pond 5P: Pond 5 Peak Elev=981.35' Storage=26,782 cf Inflow=10.18 cfs 1.146 af
Outflow=2.21 cfs 1.009 af

Pond 11B: Infiltration Basin 11 Peak Elev=964.59' Storage=2,288 cf Inflow=1.26 cfs 0.165 af
Discarded=0.37 cfs 0.165 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.165 af

Pond 18B: Existing Infiltration Basin Peak Elev=990.83' Storage=12,883 cf Inflow=4.01 cfs 0.498 af
s 0.344 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.344 af

Pond 20P: Pond 20 - Revised Peak Elev=990.04' Storage=8,705 cf Inflow=2.37 cfs 0.487 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=0.84 cfs 0.454 af Outflow=0.84 cfs 0.454 af

Total Runoff Area = 48.260 ac Runoff Volume = 2.585 af Average Runoff Depth = 0.64"
74.14% Pervious = 35.780 ac 25.86% Impervious = 12.480 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentF1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>0.67"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=4.03 cfs 0.660 af

SubcatchmentF11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>1.20"
Flow Length=220' Tc=39.8 min CN=70 Runoff=3.09 cfs 0.360 af

SubcatchmentF18: Subarea 18 Runoff Area=5.860 ac 8.87% Impervious Runoff Depth>1.59"
Tc=42.8 min CN=76 Runoff=6.64 cfs 0.775 af

SubcatchmentF19: Subarea 19 Runoff Area=0.100 ac 60.00% Impervious Runoff Depth>2.12"
Tc=6.0 min CN=83 Runoff=0.39 cfs 0.018 af

SubcatchmentF2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>0.62"
Flow Length=240' Tc=42.4 min CN=59 Runoff=0.71 cfs 0.105 af

SubcatchmentF20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>1.38"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=5.23 cfs 1.001 af

SubcatchmentF21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>1.39"
Flow Length=920' Tc=26.7 min CN=73 Runoff=2.30 cfs 0.206 af

SubcatchmentF3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>0.62"
Flow Length=140' Tc=23.0 min CN=59 Runoff=0.43 cfs 0.045 af

SubcatchmentF5: Subarea 5 Runoff Area=13.400 ac 54.10% Impervious Runoff Depth>1.88"
Flow Length=300' Slope=0.0500 '/' Tc=39.5 min CN=80 Runoff=19.12 cfs 2.099 af

Pond 1K: Kettle 1 Peak Elev=950.45' Storage=72,572 cf Inflow=4.58 cfs 1.765 af
Outflow=0.14 cfs 0.099 af

Pond 2K: Kettle 2 Peak Elev=973.51' Storage=66,648 cf Inflow=7.93 cfs 1.618 af
Discarded=0.13 cfs 0.089 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.089 af

Pond 3K: Kettle 3 Peak Elev=976.30' Storage=24,944 cf Inflow=8.67 cfs 1.929 af
Discarded=0.07 cfs 0.055 af Primary=7.67 cfs 1.514 af Outflow=7.74 cfs 1.569 af

Pond 5P: Pond 5 Peak Elev=981.96' Storage=36,824 cf Inflow=19.12 cfs 2.099 af
Outflow=8.53 cfs 1.884 af

Pond 11B: Infiltration Basin 11 Peak Elev=965.70' Storage=7,523 cf Inflow=3.09 cfs 0.360 af
Discarded=0.51 cfs 0.360 af Primary=0.00 cfs 0.000 af Outflow=0.51 cfs 0.360 af

Pond 18B: Existing Infiltration Basin Peak Elev=991.62' Storage=22,594 cf Inflow=8.36 cfs 0.981 af
s 0.412 af Primary=1.62 cfs 0.278 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=2.08 cfs 0.690 af

Pond 20P: Pond 20 - Revised Peak Elev=991.49' Storage=29,187 cf Inflow=6.65 cfs 1.279 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Tertiary=1.42 cfs 1.106 af Outflow=1.42 cfs 1.106 af

Total Runoff Area = 48.260 ac Runoff Volume = 5.270 af Average Runoff Depth = 1.31"
74.14% Pervious = 35.780 ac 25.86% Impervious = 12.480 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentF1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>2.03"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=14.68 cfs 2.012 af

SubcatchmentF11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>2.94"
Flow Length=220' Tc=39.8 min CN=70 Runoff=7.98 cfs 0.882 af

SubcatchmentF18: Subarea 18 Runoff Area=5.860 ac 8.87% Impervious Runoff Depth>3.52"
Tc=42.8 min CN=76 Runoff=15.04 cfs 1.721 af

SubcatchmentF19: Subarea 19 Runoff Area=0.100 ac 60.00% Impervious Runoff Depth>4.26"
Tc=6.0 min CN=83 Runoff=0.76 cfs 0.035 af

SubcatchmentF2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>1.95"
Flow Length=240' Tc=42.4 min CN=59 Runoff=2.70 cfs 0.329 af

SubcatchmentF20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>3.21"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=12.66 cfs 2.333 af

SubcatchmentF21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>3.23"
Flow Length=920' Tc=26.7 min CN=73 Runoff=5.53 cfs 0.479 af

SubcatchmentF3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>1.95"
Flow Length=140' Tc=23.0 min CN=59 Runoff=1.67 cfs 0.141 af

SubcatchmentF5: Subarea 5 Runoff Area=13.400 ac 54.10% Impervious Runoff Depth>3.93"
Flow Length=300' Slope=0.0500 '/' Tc=39.5 min CN=80 Runoff=40.12 cfs 4.392 af

Pond 1K: Kettle 1 Peak Elev=956.97' Storage=241,961 cf Inflow=17.25 cfs 5.768 af
Outflow=0.30 cfs 0.213 af

Pond 2K: Kettle 2 Peak Elev=974.48' Storage=85,551 cf Inflow=13.87 cfs 3.923 af
Discarded=0.16 cfs 0.127 af Primary=9.32 cfs 2.108 af Outflow=9.47 cfs 2.236 af

Pond 3K: Kettle 3 Peak Elev=976.44' Storage=26,270 cf Inflow=12.75 cfs 4.164 af
Discarded=0.07 cfs 0.064 af Primary=12.66 cfs 3.595 af Outflow=12.73 cfs 3.658 af

Pond 5P: Pond 5 Peak Elev=984.30' Storage=85,663 cf Inflow=40.12 cfs 4.391 af
Outflow=12.43 cfs 4.023 af

Pond 11B: Infiltration Basin 11 Peak Elev=969.18' Storage=34,135 cf Inflow=9.89 cfs 2.989 af
Discarded=1.16 cfs 0.752 af Primary=7.30 cfs 1.978 af Outflow=8.46 cfs 2.731 af

Pond 18B: Existing Infiltration Basin Peak Elev=993.78' Storage=57,128 cf Inflow=19.23 cfs 2.302 af
s 0.670 af Primary=6.59 cfs 0.745 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=7.21 cfs 1.415 af

Pond 20P: Pond 20 - Revised Peak Elev=993.78' Storage=75,860 cf Inflow=19.13 cfs 3.077 af
Primary=1.32 cfs 0.102 af Secondary=0.00 cfs 0.000 af Tertiary=1.99 cfs 1.780 af Outflow=3.22 cfs 1.882 af

Total Runoff Area = 48.260 ac Runoff Volume = 12.324 af Average Runoff Depth = 3.06"
74.14% Pervious = 35.780 ac 25.86% Impervious = 12.480 ac

Summary for Subcatchment F1: Subarea 1

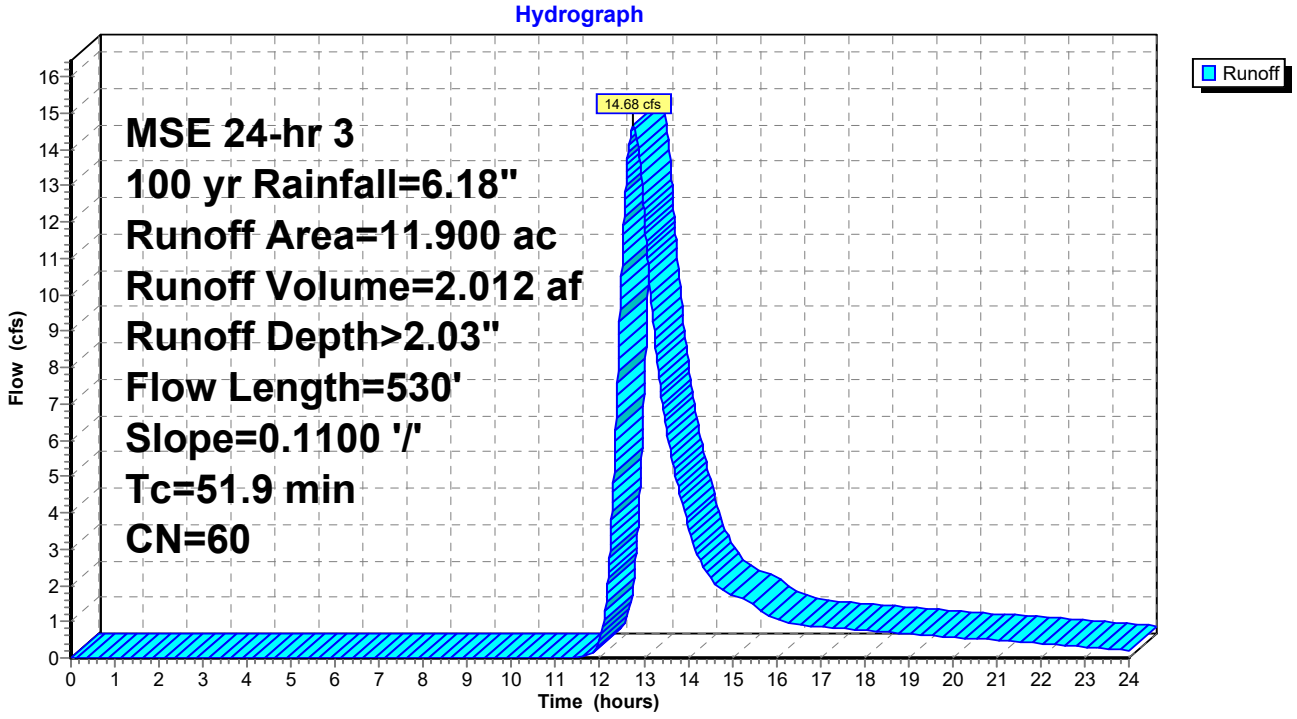
Runoff = 14.68 cfs @ 12.75 hrs, Volume= 2.012 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	8.010	55	woods
	2.570	70	1/2 acre lots
*	0.700	69	cropland
*	0.540	61	grass
*	0.080	98	impervious
	11.900	60	Weighted Average
	11.820		99.33% Pervious Area
	0.080		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Subcatchment F1: Subarea 1



Summary for Subcatchment F11: Subarea 11

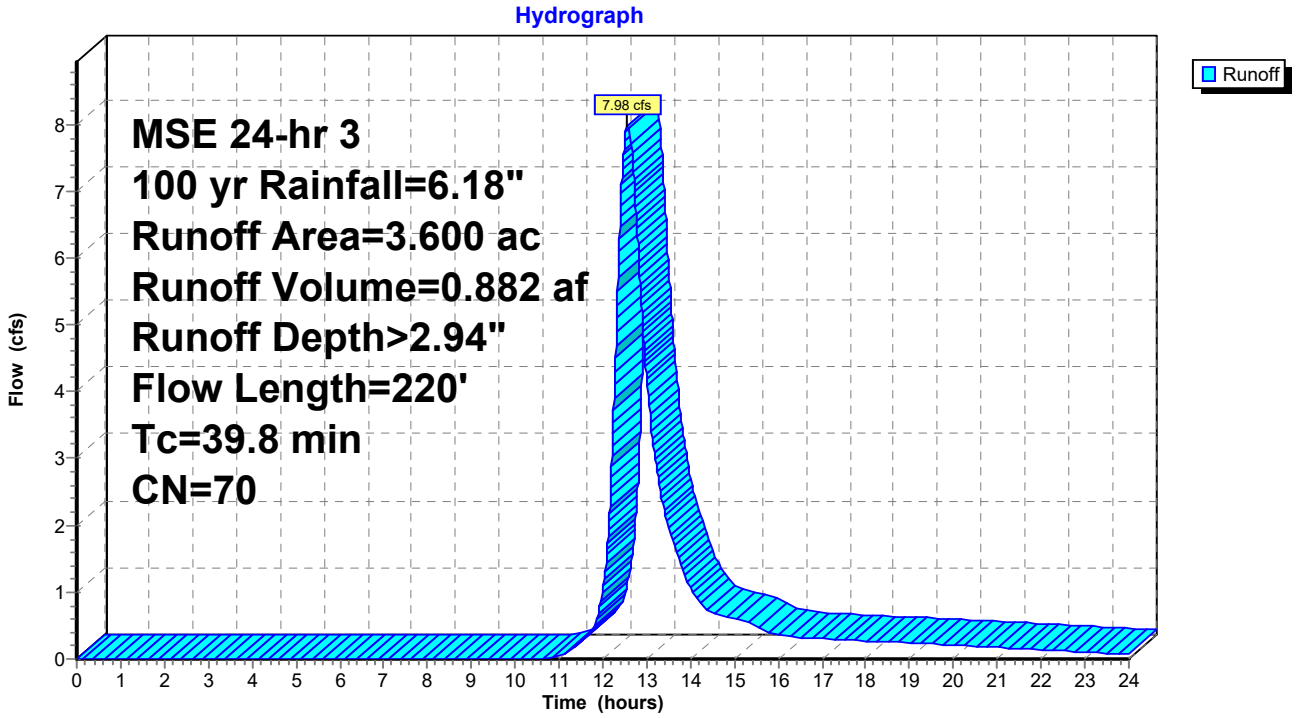
Runoff = 7.98 cfs @ 12.56 hrs, Volume= 0.882 af, Depth> 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.000	55	woods
*	1.120	61	grass
*	1.000	98	impervious
*	0.040	98	impervious
*	0.440	61	grass
	3.600	70	Weighted Average
	2.560		71.11% Pervious Area
	1.040		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0300	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
17.9	80	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
16.2	105	0.2200	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
39.8	220	Total			

Subcatchment F11: Subarea 11



Summary for Subcatchment F18: Subarea 18

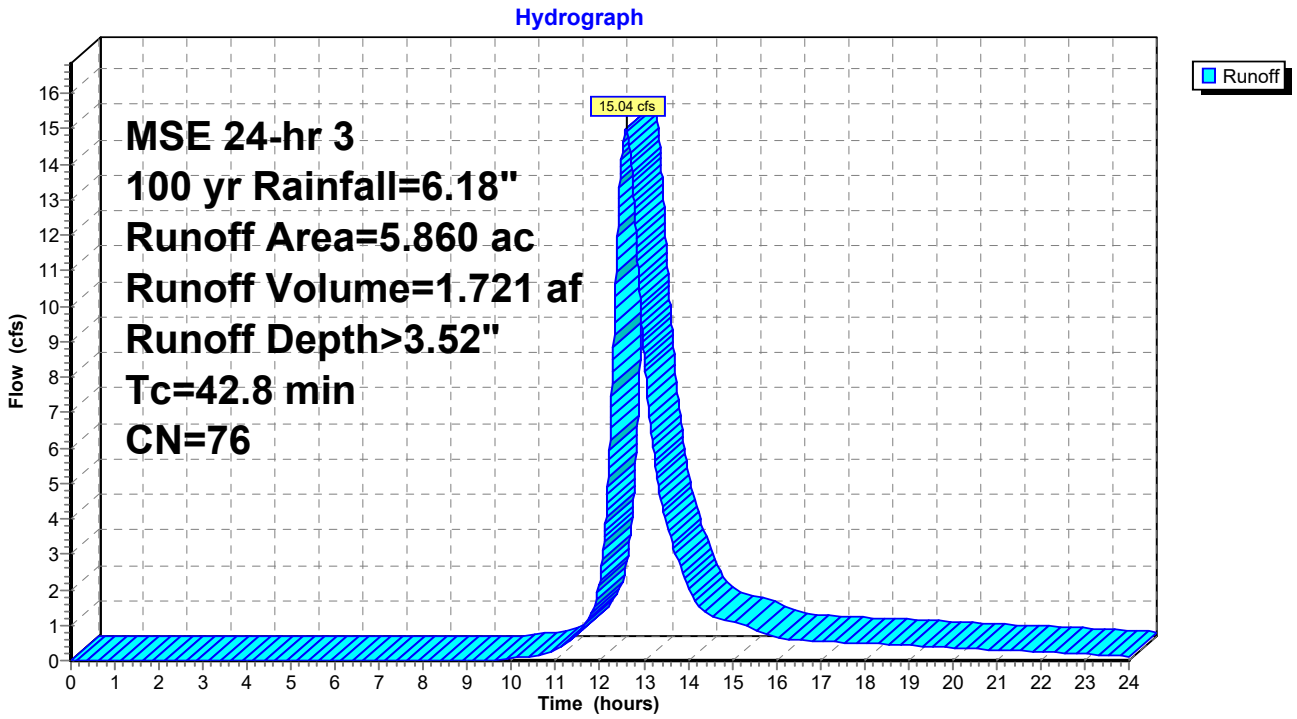
Runoff = 15.04 cfs @ 12.60 hrs, Volume= 1.721 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.290	78	Area C from LCL High School Report
*	0.270	55	woods
*	0.780	61	grass
*	0.520	98	impervious
	5.860	76	Weighted Average
	5.340		91.13% Pervious Area
	0.520		8.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Subcatchment F18: Subarea 18



Summary for Subcatchment F19: Subarea 19

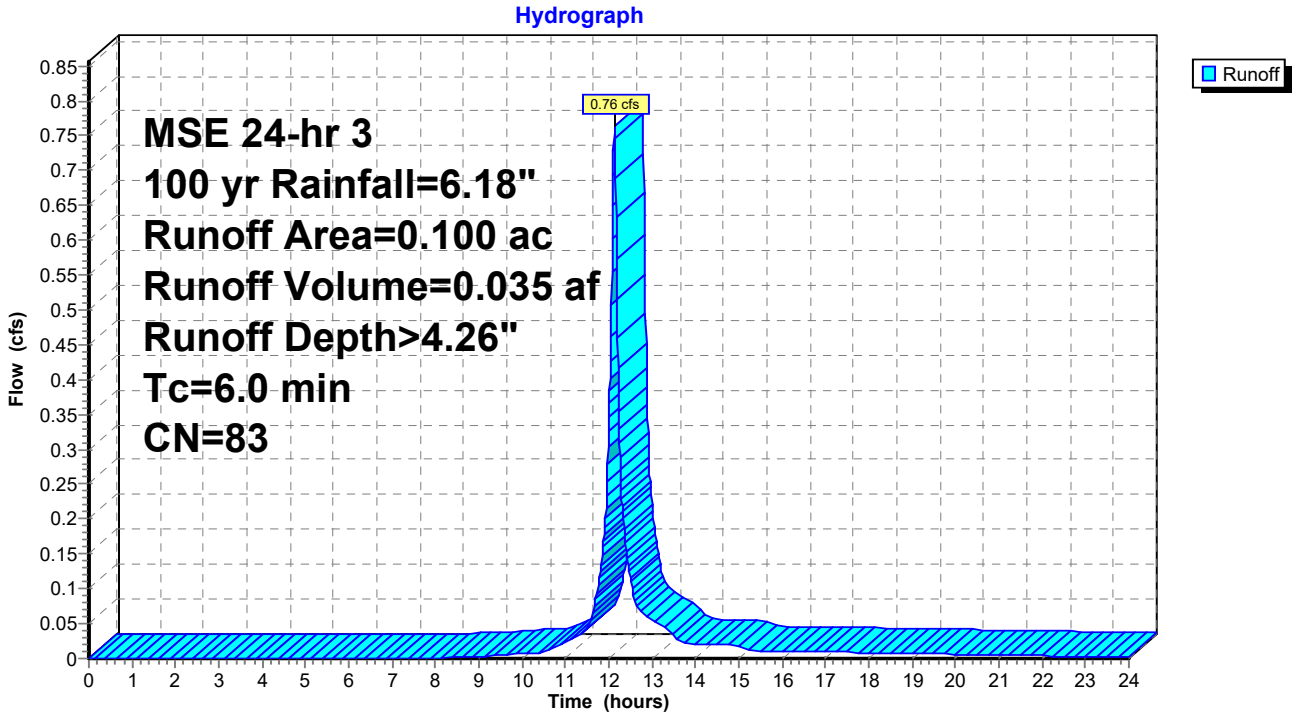
Runoff = 0.76 cfs @ 12.13 hrs, Volume= 0.035 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.040	61	grass
*	0.060	98	impervious
	0.100	83	Weighted Average
	0.040		40.00% Pervious Area
	0.060		60.00% Impervious Area

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

Subcatchment F19: Subarea 19



Summary for Subcatchment F2: Subarea 2

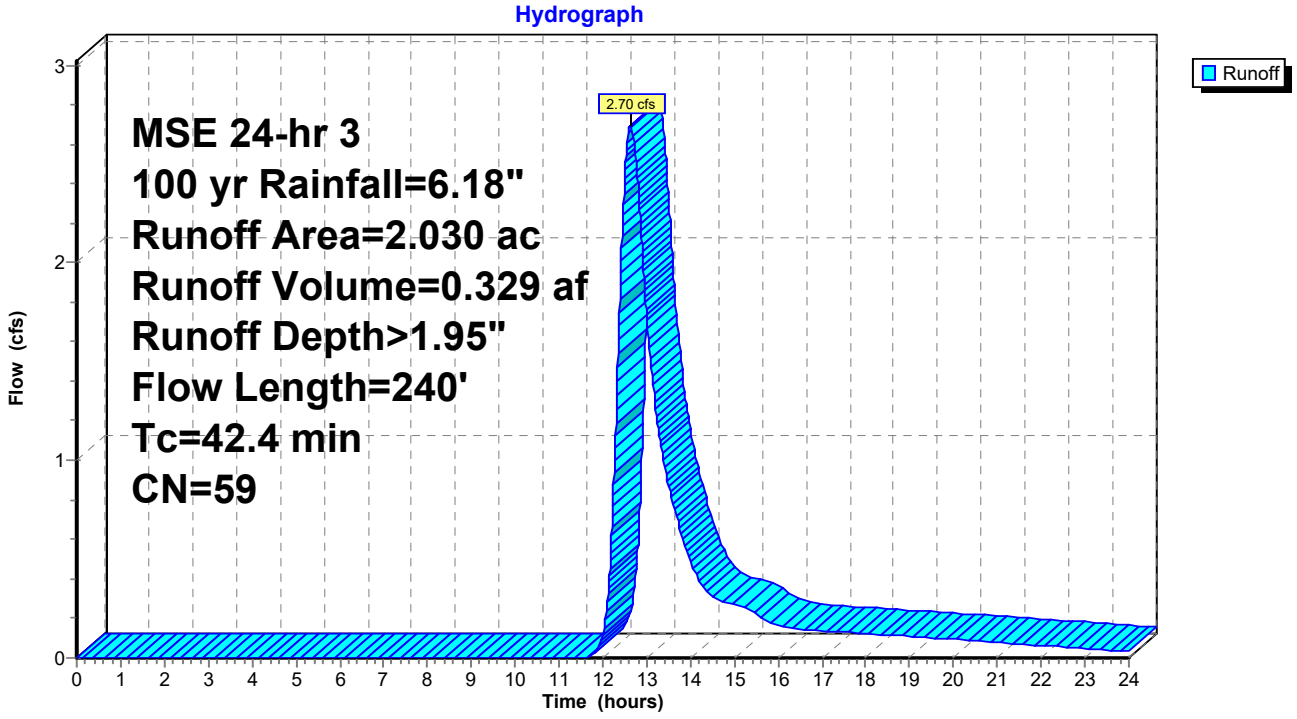
Runoff = 2.70 cfs @ 12.63 hrs, Volume= 0.329 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.330	55	woods
*	0.570	61	grass
*	0.130	98	impervious
	2.030	59	Weighted Average
	1.900		93.60% Pervious Area
	0.130		6.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0600	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
15.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
21.6	140	0.1900	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
42.4	240	Total			

Subcatchment F2: Subarea 2



Summary for Subcatchment F20: Subarea 20

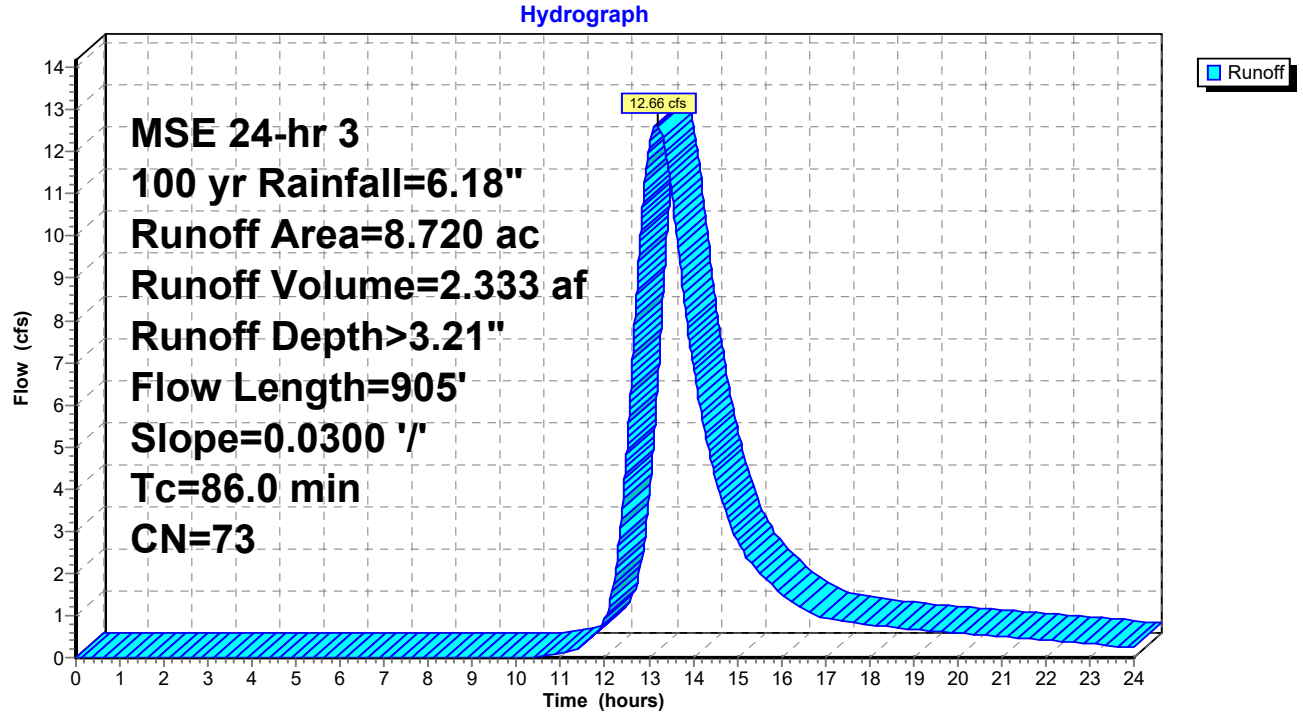
Runoff = 12.66 cfs @ 13.18 hrs, Volume= 2.333 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.380	55	woods
*	4.110	61	grass
*	0.150	98	water
*	2.830	98	impervious
*	0.250	69	cropland
	8.720	73	Weighted Average
	5.740		65.83% Pervious Area
	2.980		34.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.6	270	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	335		5.00		**Direct Entry,**
86.0	905	Total			

Subcatchment F20: Subarea 20



Summary for Subcatchment F21: Subarea 21

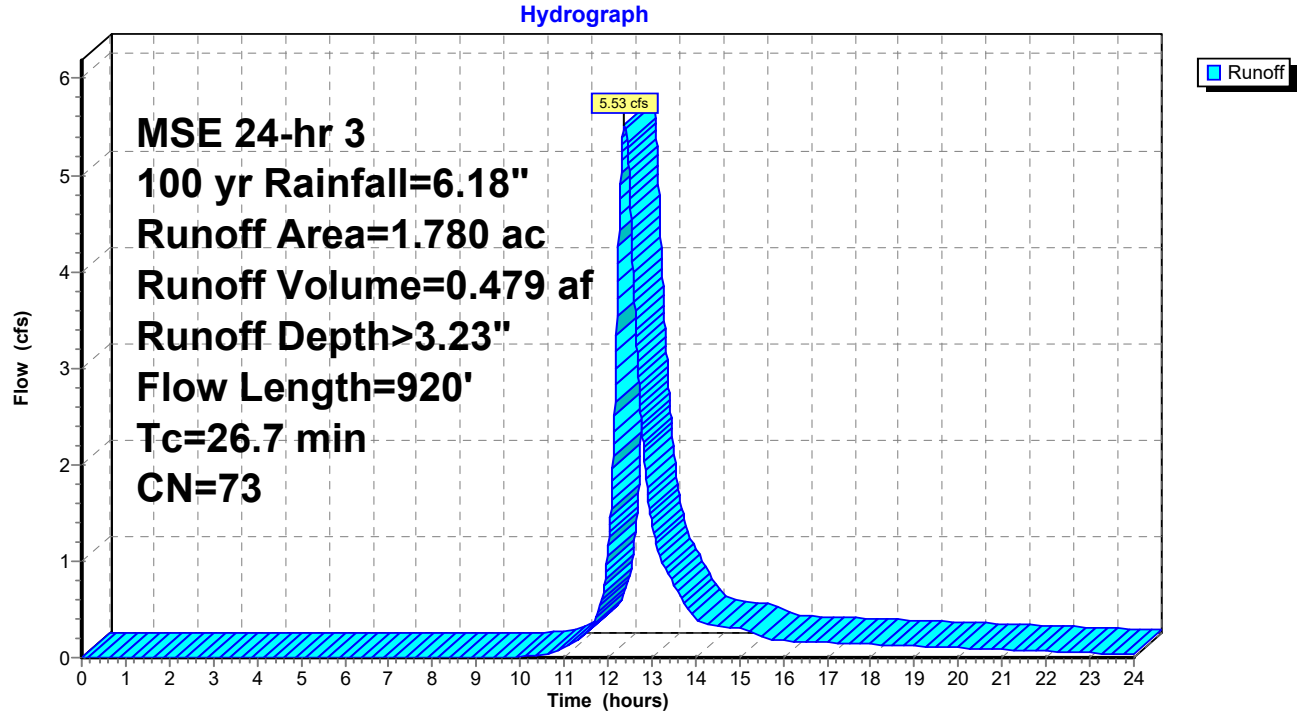
Runoff = 5.53 cfs @ 12.37 hrs, Volume= 0.479 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Subcatchment F21: Subarea 21



Summary for Subcatchment F3: Subarea 3

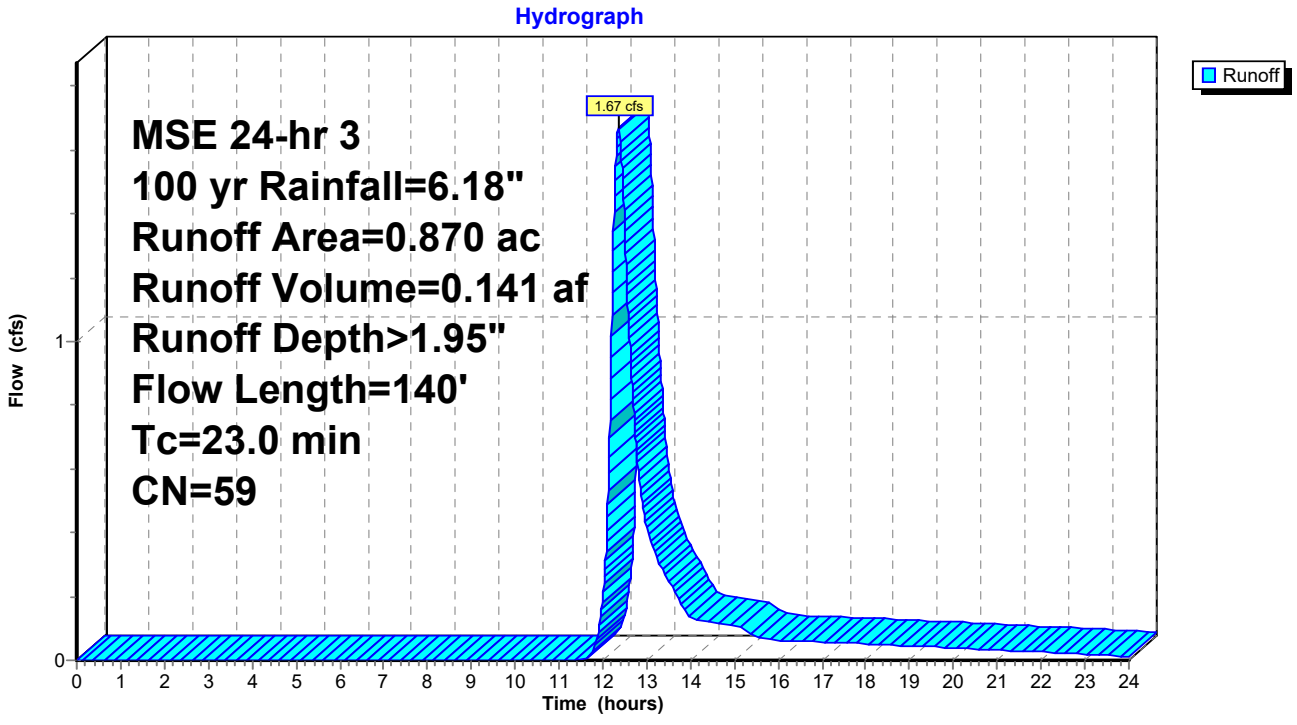
Runoff = 1.67 cfs @ 12.35 hrs, Volume= 0.141 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.560	55	woods
*	0.260	61	grass
*	0.050	98	impervious
	0.870	59	Weighted Average
	0.820		94.25% Pervious Area
	0.050		5.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	10	0.0500	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
21.3	130	0.1700	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
23.0	140	Total			

Subcatchment F3: Subarea 3



Summary for Subcatchment F5: Subarea 5

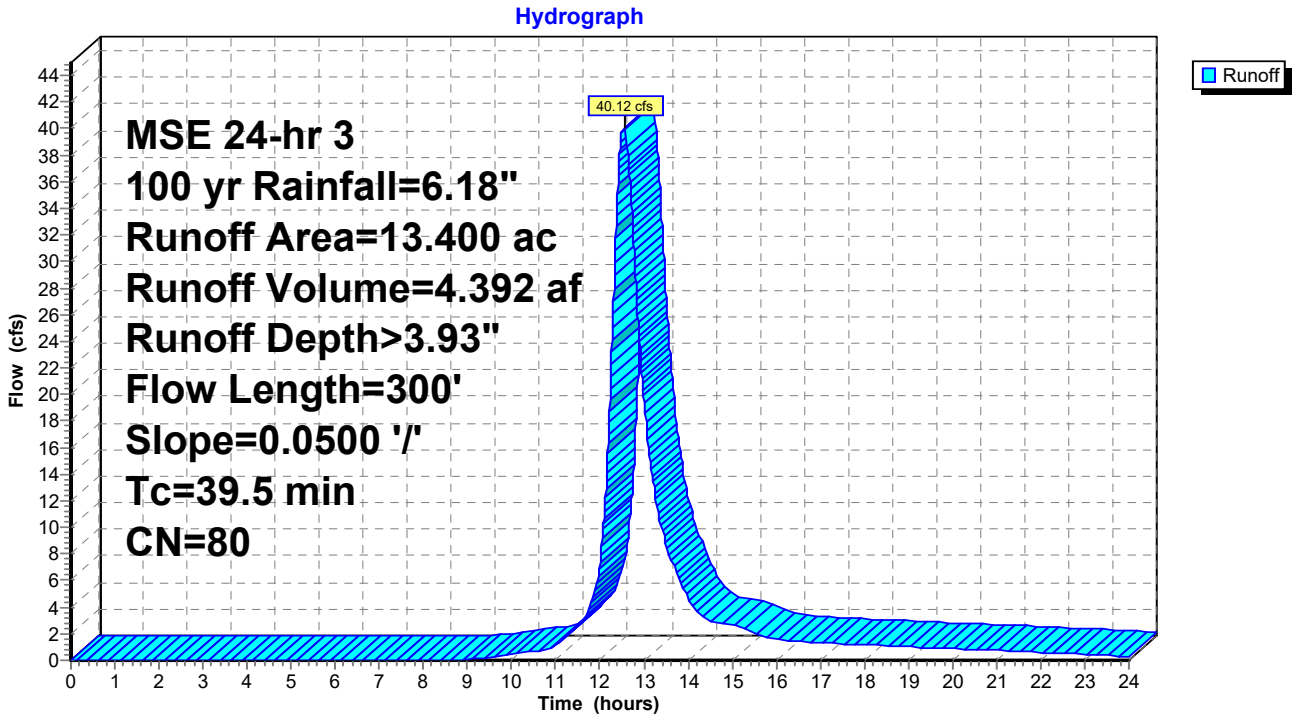
Runoff = 40.12 cfs @ 12.55 hrs, Volume= 4.392 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.590	55	woods
*	4.560	61	grass
*	0.240	98	water
*	7.010	98	impervious
	13.400	80	Weighted Average
	6.150		45.90% Pervious Area
	7.250		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.0	150	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
0.5	150		5.00		**Direct Entry,**
39.5	300	Total			

Subcatchment F5: Subarea 5



Summary for Pond 1K: Kettle 1

Inflow = 17.25 cfs @ 12.81 hrs, Volume= 5.768 af
Outflow = 0.30 cfs @ 24.00 hrs, Volume= 0.213 af, Atten= 98%, Lag= 671.2 min
Discarded = 0.30 cfs @ 24.00 hrs, Volume= 0.213 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 956.97' @ 24.00 hrs Surf.Area= 34,059 sf Storage= 241,961 cf

Plug-Flow detention time= 404.7 min calculated for 0.213 af (4% of inflow)
Center-of-Mass det. time= 157.5 min (1,145.9 - 988.4)

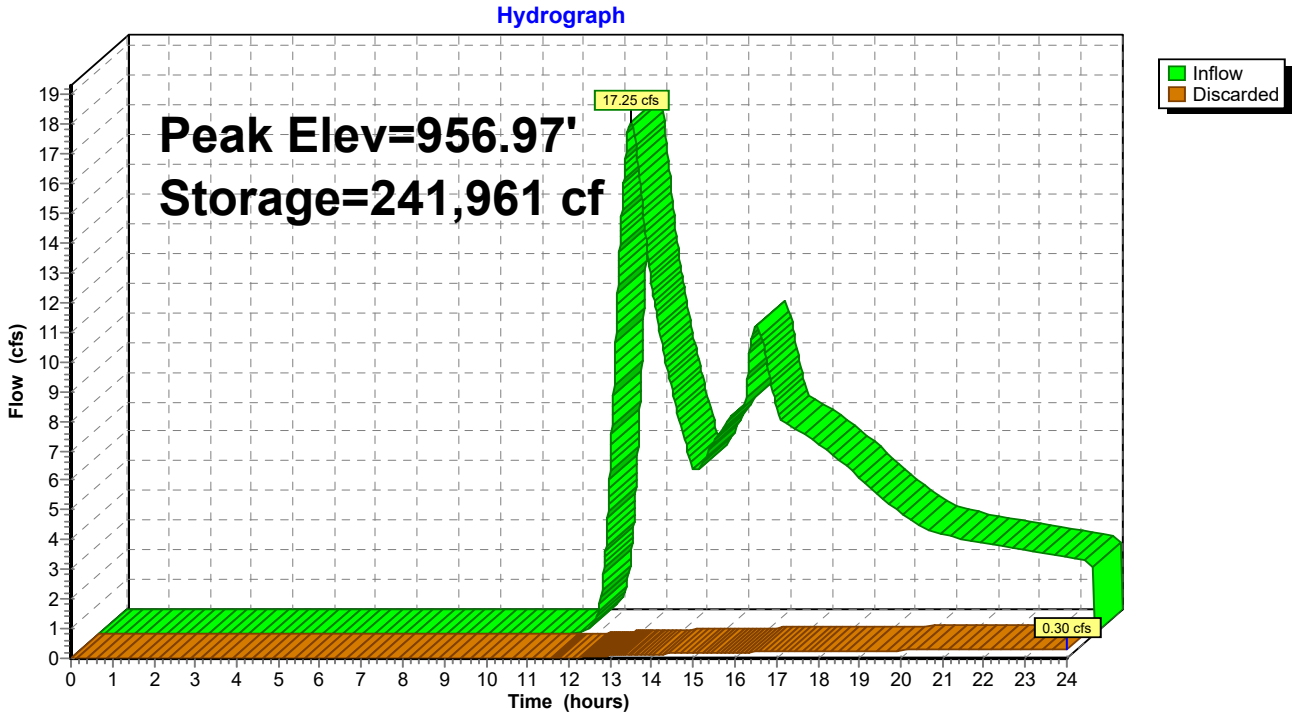
Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	999,288 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
970.00	89,147	438,997	999,288	90,886

Device	Routing	Invert	Outlet Devices
#1	Discarded	944.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 934.00' Phase-In= 0.01'

Discarded OutFlow Max=0.30 cfs @ 24.00 hrs HW=956.97' (Free Discharge)
↑**1=Exfiltration** (Controls 0.30 cfs)

Pond 1K: Kettle 1



Summary for Pond 2K: Kettle 2

Inflow Area = 16.300 ac, 45.58% Impervious, Inflow Depth > 2.89" for 100 yr event
Inflow = 13.87 cfs @ 13.18 hrs, Volume= 3.923 af
Outflow = 9.47 cfs @ 15.25 hrs, Volume= 2.236 af, Atten= 32%, Lag= 124.3 min
Discarded = 0.16 cfs @ 15.25 hrs, Volume= 0.127 af
Primary = 9.32 cfs @ 15.25 hrs, Volume= 2.108 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 974.48' @ 15.25 hrs Surf.Area= 20,893 sf Storage= 85,551 cf

Plug-Flow detention time= 205.2 min calculated for 2.236 af (57% of inflow)
Center-of-Mass det. time= 104.6 min (1,030.0 - 925.4)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,021 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

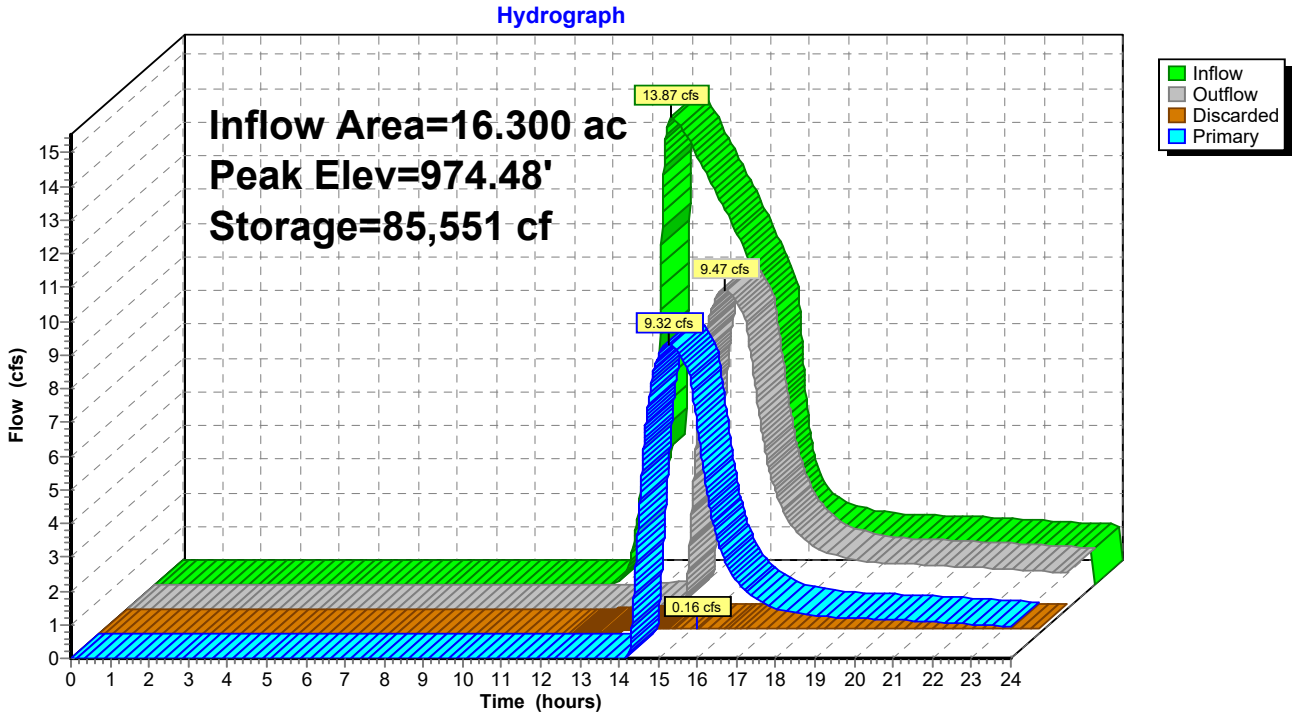
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	25,886	24,224	121,021	26,170

Device	Routing	Invert	Outlet Devices
#1	Discarded	966.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 956.00' Phase-In= 0.01'
#2	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.16 cfs @ 15.25 hrs HW=974.48' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=9.32 cfs @ 15.25 hrs HW=974.48' TW=968.46' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 9.32 cfs @ 2.38 fps)

Pond 2K: Kettle 2



Summary for Pond 3K: Kettle 3

Inflow Area = 14.270 ac, 51.16% Impervious, Inflow Depth > 3.50" for 100 yr event
Inflow = 12.75 cfs @ 13.17 hrs, Volume= 4.164 af
Outflow = 12.73 cfs @ 13.30 hrs, Volume= 3.658 af, Atten= 0%, Lag= 7.8 min
Discarded = 0.07 cfs @ 13.30 hrs, Volume= 0.064 af
Primary = 12.66 cfs @ 13.30 hrs, Volume= 3.595 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 976.44' @ 13.30 hrs Surf.Area= 9,854 sf Storage= 26,270 cf

Plug-Flow detention time= 79.0 min calculated for 3.657 af (88% of inflow)
Center-of-Mass det. time= 27.7 min (933.9 - 906.2)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	44,405 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

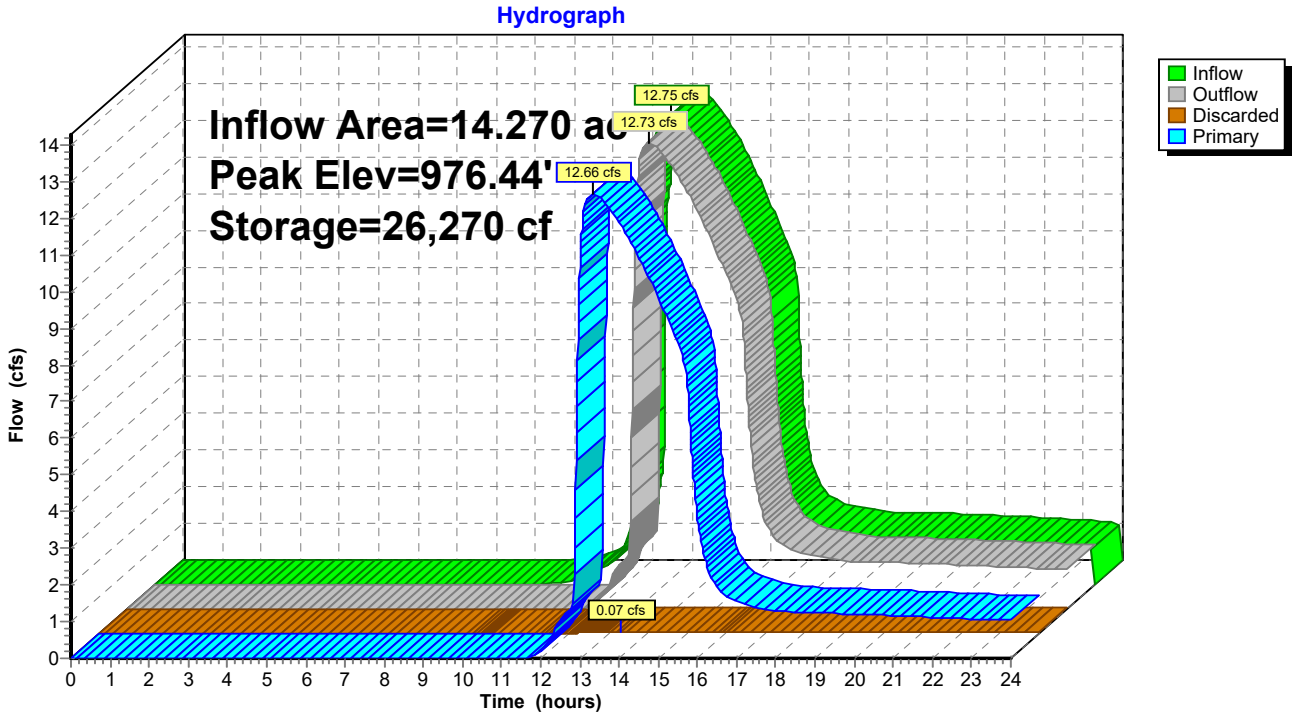
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,000	2,897	2,897	4,009
974.00	5,650	4,801	7,698	5,677
975.00	7,210	6,414	14,113	7,262
976.00	8,940	8,060	22,172	9,021
977.00	11,100	10,001	32,173	11,210
978.00	13,400	12,232	44,405	13,543

Device	Routing	Invert	Outlet Devices
#1	Discarded	972.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 962.00' Phase-In= 0.01'
#2	Primary	972.50'	**6.0" Round Culvert** L= 60.4' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 972.50' / 971.58' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf
#3	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 13.30 hrs HW=976.44' (Free Discharge)
└**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=12.66 cfs @ 13.30 hrs HW=976.44' TW=970.70' (Dynamic Tailwater)
├**2=Culvert** (Barrel Controls 1.48 cfs @ 7.55 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 11.18 cfs @ 1.71 fps)

Pond 3K: Kettle 3



Summary for Pond 5P: Pond 5

Inflow Area = 13.400 ac, 54.10% Impervious, Inflow Depth > 3.93" for 100 yr event
Inflow = 40.12 cfs @ 12.55 hrs, Volume= 4.391 af
Outflow = 12.43 cfs @ 13.26 hrs, Volume= 4.023 af, Atten= 69%, Lag= 42.6 min
Primary = 12.43 cfs @ 13.26 hrs, Volume= 4.023 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 984.30' @ 13.26 hrs Surf.Area= 25,287 sf Storage= 85,663 cf

Plug-Flow detention time= 122.5 min calculated for 4.023 af (92% of inflow)
Center-of-Mass det. time= 86.0 min (908.5 - 822.5)

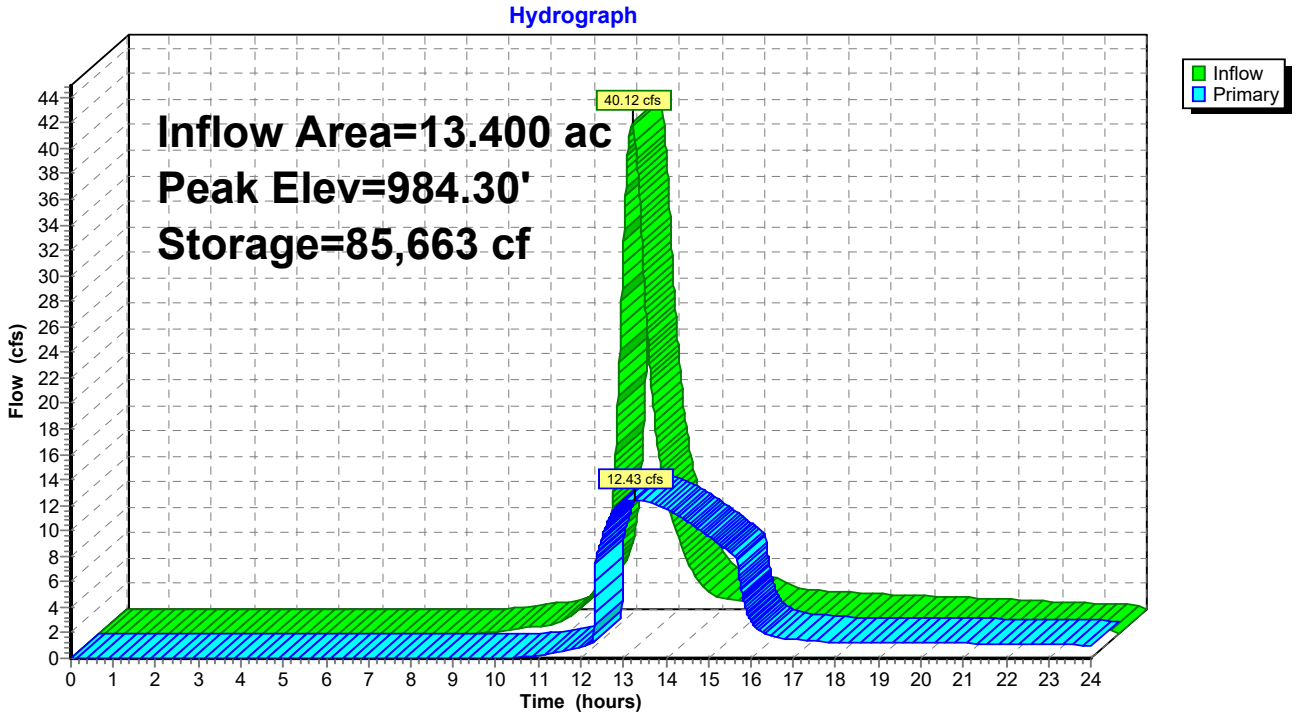
Volume	Invert	Avail.Storage	Storage Description
#1	979.25'	170,803 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.25	10,255	0	0	10,255
979.75	11,199	5,362	5,362	11,217
981.00	14,748	16,166	21,528	14,801
982.00	17,250	15,983	37,511	17,343
983.00	20,202	18,707	56,217	20,335
984.00	23,940	22,045	78,262	24,109
985.00	28,560	26,216	104,478	28,765
986.00	33,500	30,997	135,475	33,744
987.00	37,188	35,328	170,803	37,492

Device	Routing	Invert	Outlet Devices
#1	Primary	979.25'	**15.0" Round Culvert** L= 130.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 979.25' / 975.50' S= 0.0288 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	979.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	981.25'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	985.90'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=12.43 cfs @ 13.26 hrs HW=984.30' TW=976.44' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 12.43 cfs @ 10.13 fps)
  - **2=Orifice/Grate** (Passes < 2.07 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 59.45 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: Pond 5



Summary for Pond 11B: Infiltration Basin 11

Inflow Area = 19.900 ac, 42.56% Impervious, Inflow Depth > 1.80" for 100 yr event
Inflow = 9.89 cfs @ 15.23 hrs, Volume= 2.989 af
Outflow = 8.46 cfs @ 15.86 hrs, Volume= 2.731 af, Atten= 14%, Lag= 37.5 min
Discarded = 1.16 cfs @ 15.86 hrs, Volume= 0.752 af
Primary = 7.30 cfs @ 15.86 hrs, Volume= 1.978 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 969.18' @ 15.86 hrs Surf.Area= 10,582 sf Storage= 34,135 cf

Plug-Flow detention time= 94.0 min calculated for 2.729 af (91% of inflow)
Center-of-Mass det. time= 57.6 min (1,027.7 - 970.1)

Volume	Invert	Avail.Storage	Storage Description
#1	964.00'	43,487 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

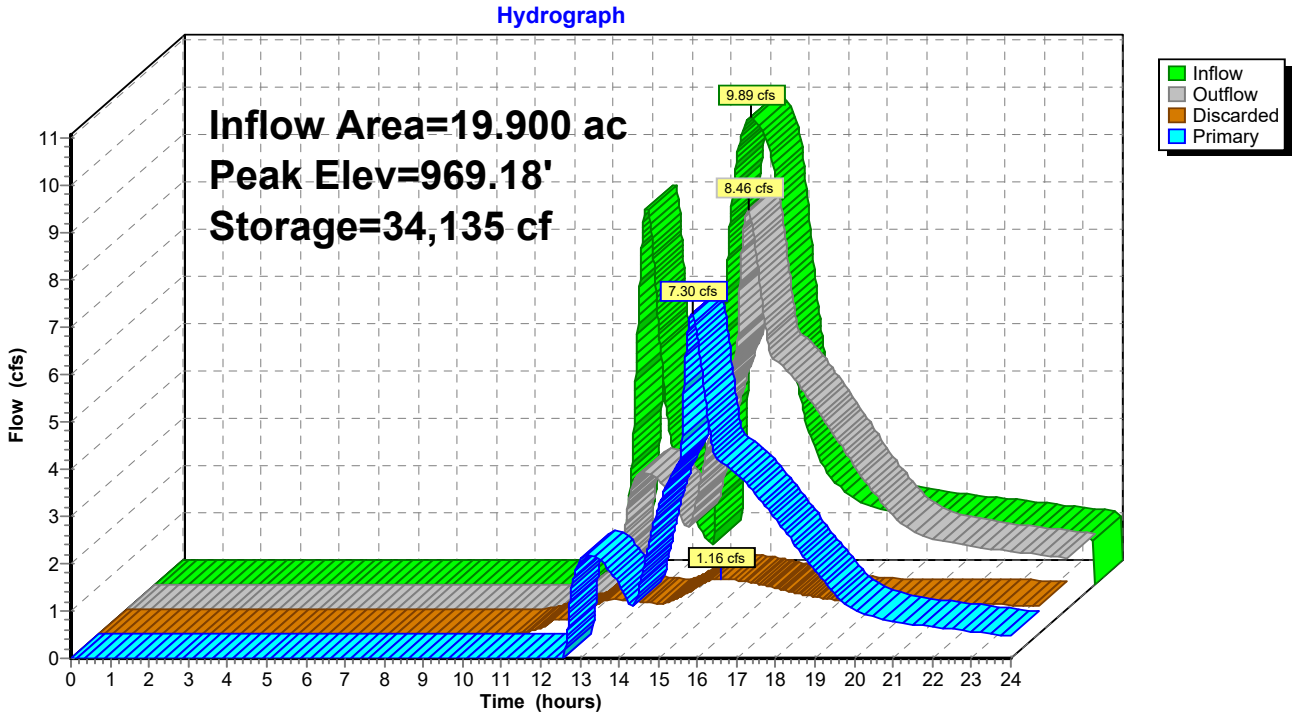
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
964.00	3,560	0	0	3,560
965.00	4,560	4,050	4,050	4,585
966.00	5,660	5,100	9,150	5,714
967.00	6,895	6,267	15,417	6,980
968.00	8,290	7,582	22,999	8,409
969.00	10,205	9,231	32,230	10,354
970.00	12,343	11,257	43,487	12,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	964.00'	**3.600 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 954.00' Phase-In= 0.01'
#2	Primary	966.00'	**10.0" Round Culvert** L= 65.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 966.00' / 962.00' S= 0.0615 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Primary	969.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=1.16 cfs @ 15.86 hrs HW=969.18' (Free Discharge)
└**1=Exfiltration** (Controls 1.16 cfs)

Primary OutFlow Max=7.30 cfs @ 15.86 hrs HW=969.18' TW=952.72' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 4.37 cfs @ 8.01 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 2.93 cfs @ 1.07 fps)

Pond 11B: Infiltration Basin 11



Summary for Pond 18B: Existing Infiltration Basin

Inflow	=	19.23 cfs @	12.51 hrs,	Volume=	2.302 af
Outflow	=	7.21 cfs @	13.08 hrs,	Volume=	1.415 af, Atten= 63%, Lag= 33.8 min
Discarded	=	0.73 cfs @	15.74 hrs,	Volume=	0.670 af
Primary	=	6.59 cfs @	13.08 hrs,	Volume=	0.745 af
Secondary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Tertiary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 993.78' @ 15.74 hrs Surf.Area= 18,975 sf Storage= 57,128 cf

Plug-Flow detention time= 255.1 min calculated for 1.415 af (61% of inflow)
Center-of-Mass det. time= 176.7 min (1,007.7 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	111,738 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249
996.00	31,138	28,054	111,738	31,336

Device	Routing	Invert	Outlet Devices
#1	Discarded	989.00'	**1.300 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 979.00' Phase-In= 0.01'
#2	Primary	991.00'	**15.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 990.55' / 991.00' S= -0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Secondary	994.00'	**45.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 0.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Tertiary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

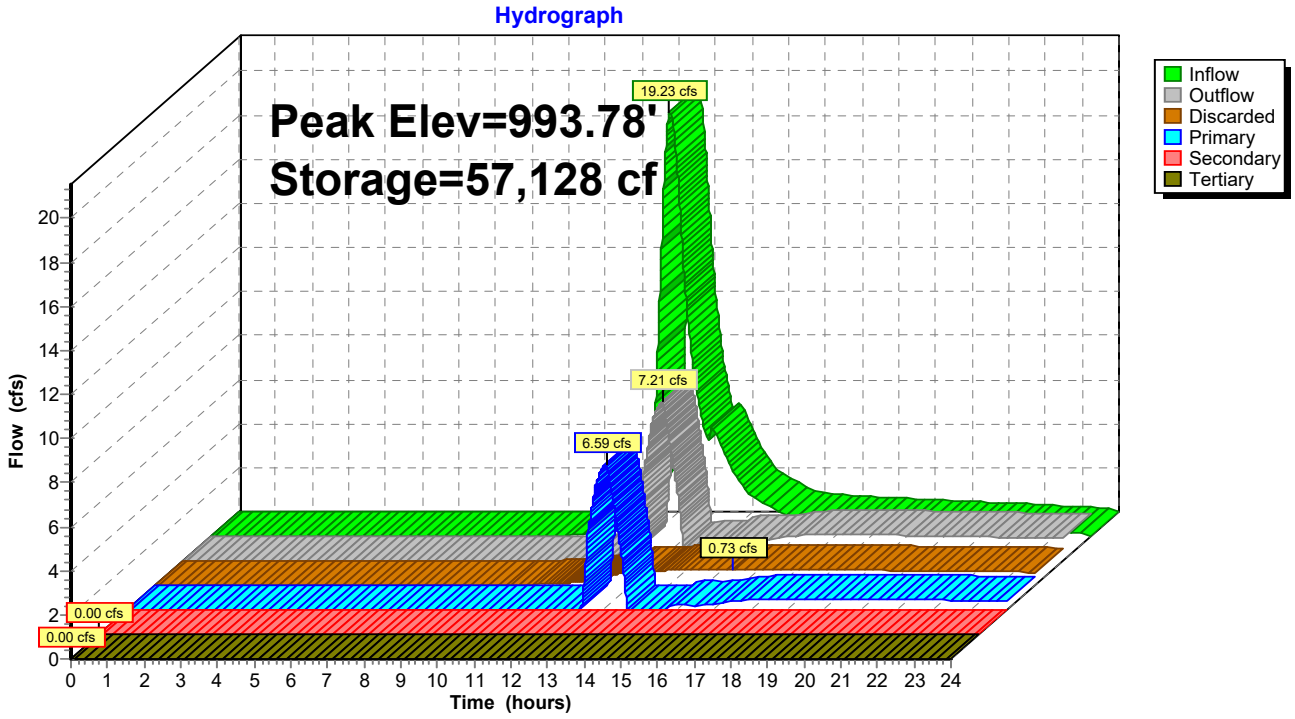
Discarded OutFlow Max=0.73 cfs @ 15.74 hrs HW=993.78' (Free Discharge)
└**1=Exfiltration** (Controls 0.73 cfs)

Primary OutFlow Max=6.56 cfs @ 13.08 hrs HW=992.94' TW=991.71' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 6.56 cfs @ 5.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' TW=989.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond 18B: Existing Infiltration Basin



Summary for Pond 20P: Pond 20 - Revised

Inflow	=	19.13 cfs @	13.09 hrs,	Volume=	3.077 af
Outflow	=	3.22 cfs @	13.90 hrs,	Volume=	1.882 af, Atten= 83%, Lag= 48.8 min
Primary	=	1.32 cfs @	13.87 hrs,	Volume=	0.102 af
Secondary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Tertiary	=	1.99 cfs @	15.72 hrs,	Volume=	1.780 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 993.78' @ 15.72 hrs Surf.Area= 23,944 sf Storage= 75,860 cf

Plug-Flow detention time= 293.0 min calculated for 1.882 af (61% of inflow)
Center-of-Mass det. time= 189.9 min (1,082.3 - 892.4)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	108,558 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	6,352	0	0	6,352
990.00	10,364	8,277	8,277	10,377
991.00	15,582	12,885	21,161	15,610
992.00	18,483	17,012	38,173	18,548
993.00	21,527	19,986	58,159	21,633
994.00	24,654	23,073	81,232	24,806
995.00	30,089	27,326	108,558	30,272

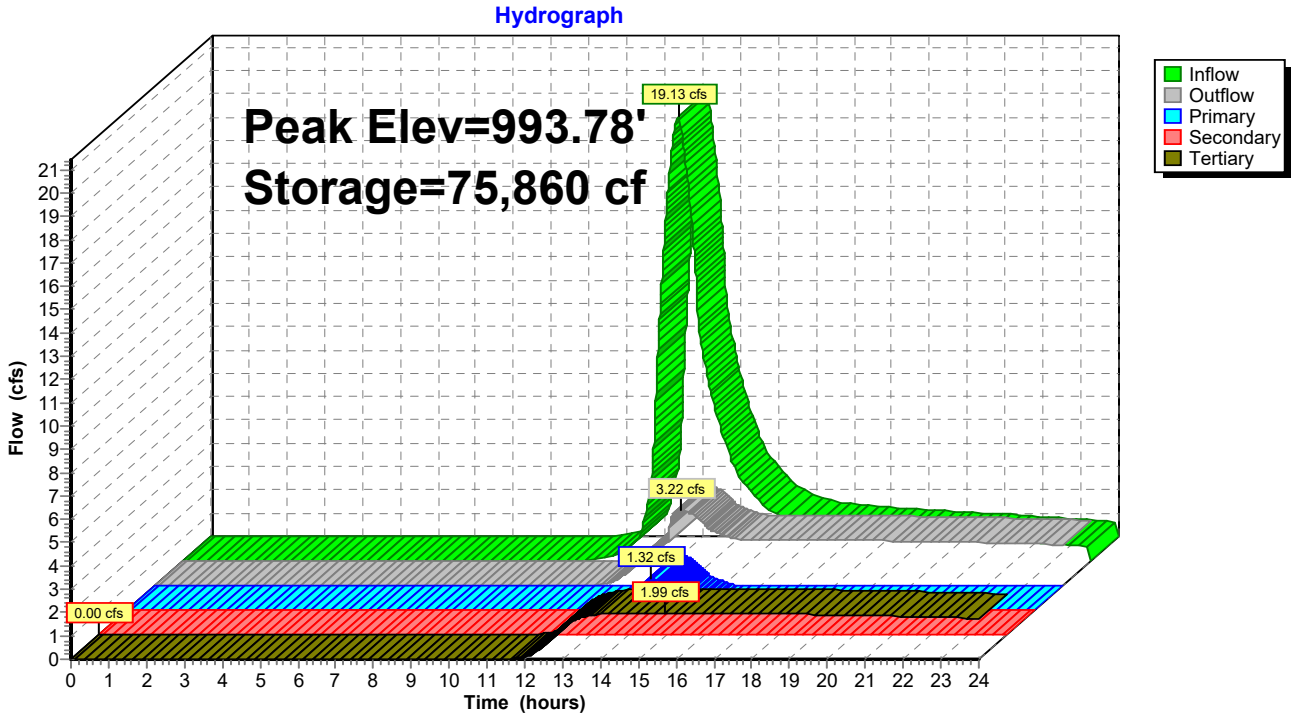
Device	Routing	Invert	Outlet Devices
#1	Primary	991.00'	**15.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 991.00' / 990.55' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Secondary	994.00'	**45.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 0.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Tertiary	994.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Tertiary	989.00'	**6.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 989.00' / 988.62' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

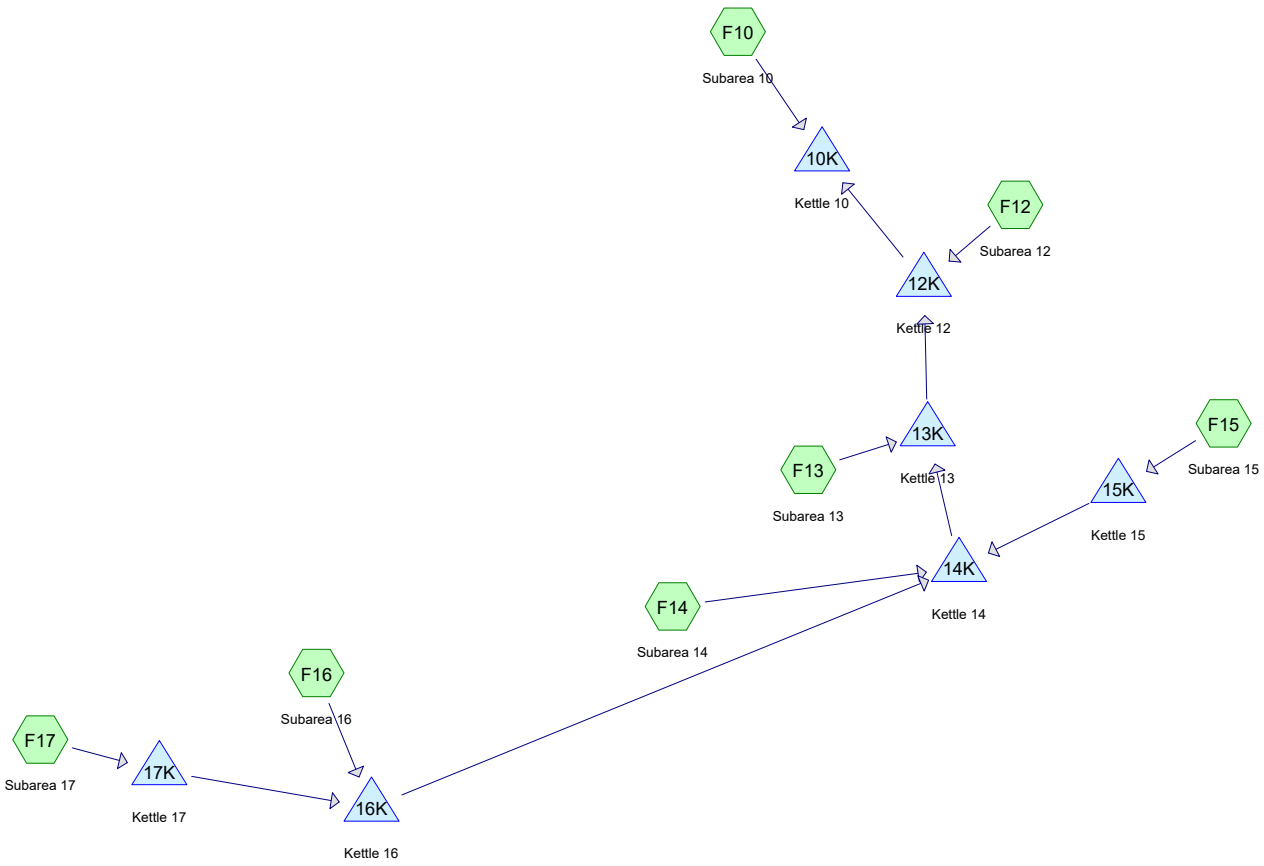
Primary OutFlow Max=1.22 cfs @ 13.87 hrs HW=993.36' TW=993.31' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.22 cfs @ 0.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' TW=989.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Tertiary OutFlow Max=1.99 cfs @ 15.72 hrs HW=993.78' TW=952.52' (Dynamic Tailwater)
├**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)
└**4=Culvert** (Barrel Controls 1.99 cfs @ 10.14 fps)

Pond 20P: Pond 20 - Revised





Subcat Reach Pond Link

Routing Diagram for Future_Kettle10
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.110	75	1/4 acre lots (F10, F12, F13, F14, F15)
3.330	61	grass (F10, F12, F14, F15, F16, F17)
1.170	98	impervious (F12, F14, F15, F16, F17)
11.120	55	woods (F10, F12, F13, F14, F15, F16, F17)
17.730	**61**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentF10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>0.15"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.09 cfs 0.021 af

SubcatchmentF12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>0.31"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=0.50 cfs 0.067 af

SubcatchmentF13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.15"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.05 cfs 0.012 af

SubcatchmentF14: Subarea 14 Runoff Area=7.000 ac 12.71% Impervious Runoff Depth>0.21"
Flow Length=895' Tc=76.0 min CN=63 Runoff=0.45 cfs 0.121 af

SubcatchmentF15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.21"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.11 cfs 0.015 af

SubcatchmentF16: Subarea 16 Runoff Area=1.060 ac 0.94% Impervious Runoff Depth>0.08"
Flow Length=205' Slope=0.0800 '/' Tc=41.5 min CN=56 Runoff=0.02 cfs 0.007 af

SubcatchmentF17: Subarea 17 Runoff Area=3.480 ac 2.30% Impervious Runoff Depth>0.08"
Flow Length=225' Slope=0.0600 '/' Tc=50.2 min CN=56 Runoff=0.06 cfs 0.023 af

Pond 10K: Kettle 10 Peak Elev=954.37' Storage=715 cf Inflow=0.09 cfs 0.021 af
Discarded=0.01 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond 12K: Kettle 12 Peak Elev=956.90' Storage=2,310 cf Inflow=0.52 cfs 0.078 af
Discarded=0.03 cfs 0.028 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.028 af

Pond 13K: Kettle 13 Peak Elev=959.56' Storage=27 cf Inflow=0.05 cfs 0.012 af
Discarded=0.00 cfs 0.001 af Primary=0.05 cfs 0.011 af Outflow=0.05 cfs 0.012 af

Pond 14K: Kettle 14 Peak Elev=956.00' Storage=4,111 cf Inflow=0.45 cfs 0.121 af
Discarded=0.03 cfs 0.027 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.027 af

Pond 15K: Kettle 15 Peak Elev=970.19' Storage=331 cf Inflow=0.11 cfs 0.015 af
Discarded=0.01 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.010 af

Pond 16K: Kettle 16 Peak Elev=1,005.01' Storage=30 cf Inflow=0.02 cfs 0.007 af
Discarded=0.02 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.007 af

Pond 17K: Kettle 17 Peak Elev=1,011.09' Storage=306 cf Inflow=0.06 cfs 0.023 af
Discarded=0.02 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.019 af

Total Runoff Area = 17.730 ac Runoff Volume = 0.267 af Average Runoff Depth = 0.18"
93.40% Pervious = 16.560 ac 6.60% Impervious = 1.170 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentF10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.18 cfs 0.033 af

SubcatchmentF12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>0.44"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=0.79 cfs 0.094 af

SubcatchmentF13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.23"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.10 cfs 0.019 af

SubcatchmentF14: Subarea 14 Runoff Area=7.000 ac 12.71% Impervious Runoff Depth>0.31"
Flow Length=895' Tc=76.0 min CN=63 Runoff=0.75 cfs 0.181 af

SubcatchmentF15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.31"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.20 cfs 0.023 af

SubcatchmentF16: Subarea 16 Runoff Area=1.060 ac 0.94% Impervious Runoff Depth>0.14"
Flow Length=205' Slope=0.0800 '/' Tc=41.5 min CN=56 Runoff=0.05 cfs 0.012 af

SubcatchmentF17: Subarea 17 Runoff Area=3.480 ac 2.30% Impervious Runoff Depth>0.14"
Flow Length=225' Slope=0.0600 '/' Tc=50.2 min CN=56 Runoff=0.14 cfs 0.041 af

Pond 10K: Kettle 10 Peak Elev=954.76' Storage=1,169 cf Inflow=0.18 cfs 0.033 af
Discarded=0.01 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 12K: Kettle 12 Peak Elev=957.09' Storage=3,487 cf Inflow=0.85 cfs 0.112 af
Discarded=0.04 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.036 af

Pond 13K: Kettle 13 Peak Elev=959.59' Storage=39 cf Inflow=0.10 cfs 0.019 af
Discarded=0.00 cfs 0.001 af Primary=0.10 cfs 0.018 af Outflow=0.10 cfs 0.019 af

Pond 14K: Kettle 14 Peak Elev=956.42' Storage=6,478 cf Inflow=0.75 cfs 0.181 af
Discarded=0.04 cfs 0.032 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.032 af

Pond 15K: Kettle 15 Peak Elev=970.32' Storage=590 cf Inflow=0.20 cfs 0.023 af
Discarded=0.01 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.011 af

Pond 16K: Kettle 16 Peak Elev=1,005.02' Storage=92 cf Inflow=0.05 cfs 0.012 af
Discarded=0.02 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.012 af

Pond 17K: Kettle 17 Peak Elev=1,011.20' Storage=800 cf Inflow=0.14 cfs 0.041 af
Discarded=0.03 cfs 0.026 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.026 af

Total Runoff Area = 17.730 ac Runoff Volume = 0.404 af Average Runoff Depth = 0.27"
93.40% Pervious = 16.560 ac 6.60% Impervious = 1.170 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentF10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>0.67"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=0.74 cfs 0.097 af

SubcatchmentF12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>1.03"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=2.18 cfs 0.220 af

SubcatchmentF13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>0.67"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=0.44 cfs 0.056 af

SubcatchmentF14: Subarea 14 Runoff Area=7.000 ac 12.71% Impervious Runoff Depth>0.81"
Flow Length=895' Tc=76.0 min CN=63 Runoff=2.39 cfs 0.471 af

SubcatchmentF15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>0.81"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=0.71 cfs 0.059 af

SubcatchmentF16: Subarea 16 Runoff Area=1.060 ac 0.94% Impervious Runoff Depth>0.49"
Flow Length=205' Slope=0.0800 '/' Tc=41.5 min CN=56 Runoff=0.27 cfs 0.044 af

SubcatchmentF17: Subarea 17 Runoff Area=3.480 ac 2.30% Impervious Runoff Depth>0.49"
Flow Length=225' Slope=0.0600 '/' Tc=50.2 min CN=56 Runoff=0.79 cfs 0.143 af

Pond 10K: Kettle 10 Peak Elev=955.88' Storage=3,531 cf Inflow=0.74 cfs 0.097 af
Discarded=0.02 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.016 af

Pond 12K: Kettle 12 Peak Elev=957.81' Storage=9,600 cf Inflow=2.52 cfs 0.274 af
Discarded=0.06 cfs 0.057 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.057 af

Pond 13K: Kettle 13 Peak Elev=959.69' Storage=101 cf Inflow=0.44 cfs 0.056 af
Discarded=0.00 cfs 0.002 af Primary=0.42 cfs 0.054 af Outflow=0.43 cfs 0.056 af

Pond 14K: Kettle 14 Peak Elev=957.97' Storage=18,268 cf Inflow=2.39 cfs 0.471 af
Discarded=0.06 cfs 0.051 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.051 af

Pond 15K: Kettle 15 Peak Elev=970.88' Storage=1,942 cf Inflow=0.71 cfs 0.059 af
Discarded=0.02 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.016 af

Pond 16K: Kettle 16 Peak Elev=1,005.21' Storage=1,018 cf Inflow=0.27 cfs 0.044 af
Discarded=0.03 cfs 0.027 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.027 af

Pond 17K: Kettle 17 Peak Elev=1,011.58' Storage=3,946 cf Inflow=0.79 cfs 0.143 af
Discarded=0.07 cfs 0.061 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.061 af

Total Runoff Area = 17.730 ac Runoff Volume = 1.089 af Average Runoff Depth = 0.74"
93.40% Pervious = 16.560 ac 6.60% Impervious = 1.170 ac

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentF10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=2.72 cfs 0.295 af

SubcatchmentF12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>2.66"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=6.13 cfs 0.570 af

SubcatchmentF13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=1.60 cfs 0.171 af

SubcatchmentF14: Subarea 14 Runoff Area=7.000 ac 12.71% Impervious Runoff Depth>2.28"
Flow Length=895' Tc=76.0 min CN=63 Runoff=7.67 cfs 1.332 af

SubcatchmentF15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>2.30"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=2.28 cfs 0.167 af

SubcatchmentF16: Subarea 16 Runoff Area=1.060 ac 0.94% Impervious Runoff Depth>1.70"
Flow Length=205' Slope=0.0800 '/' Tc=41.5 min CN=56 Runoff=1.21 cfs 0.150 af

SubcatchmentF17: Subarea 17 Runoff Area=3.480 ac 2.30% Impervious Runoff Depth>1.69"
Flow Length=225' Slope=0.0600 '/' Tc=50.2 min CN=56 Runoff=3.52 cfs 0.491 af

Pond 10K: Kettle 10 Peak Elev=957.64' Storage=11,381 cf Inflow=2.72 cfs 0.295 af
Discarded=0.04 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.034 af

Pond 12K: Kettle 12 Peak Elev=959.17' Storage=28,040 cf Inflow=7.46 cfs 0.738 af
Discarded=0.10 cfs 0.097 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.097 af

Pond 13K: Kettle 13 Peak Elev=959.88' Storage=329 cf Inflow=1.60 cfs 0.171 af
Discarded=0.01 cfs 0.003 af Primary=1.54 cfs 0.168 af Outflow=1.55 cfs 0.171 af

Pond 14K: Kettle 14 Peak Elev=961.02' Storage=53,910 cf Inflow=7.67 cfs 1.332 af
Discarded=0.11 cfs 0.094 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.094 af

Pond 15K: Kettle 15 Peak Elev=971.90' Storage=6,014 cf Inflow=2.28 cfs 0.167 af
Discarded=0.03 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.031 af

Pond 16K: Kettle 16 Peak Elev=1,006.42' Storage=9,724 cf Inflow=1.21 cfs 0.267 af
Discarded=0.06 cfs 0.050 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.050 af

Pond 17K: Kettle 17 Peak Elev=1,012.06' Storage=12,563 cf Inflow=3.52 cfs 0.491 af
Discarded=0.14 cfs 0.125 af Primary=0.56 cfs 0.117 af Outflow=0.69 cfs 0.242 af

Total Runoff Area = 17.730 ac Runoff Volume = 3.175 af Average Runoff Depth = 2.15"
93.40% Pervious = 16.560 ac 6.60% Impervious = 1.170 ac

Summary for Subcatchment F10: Subarea 10

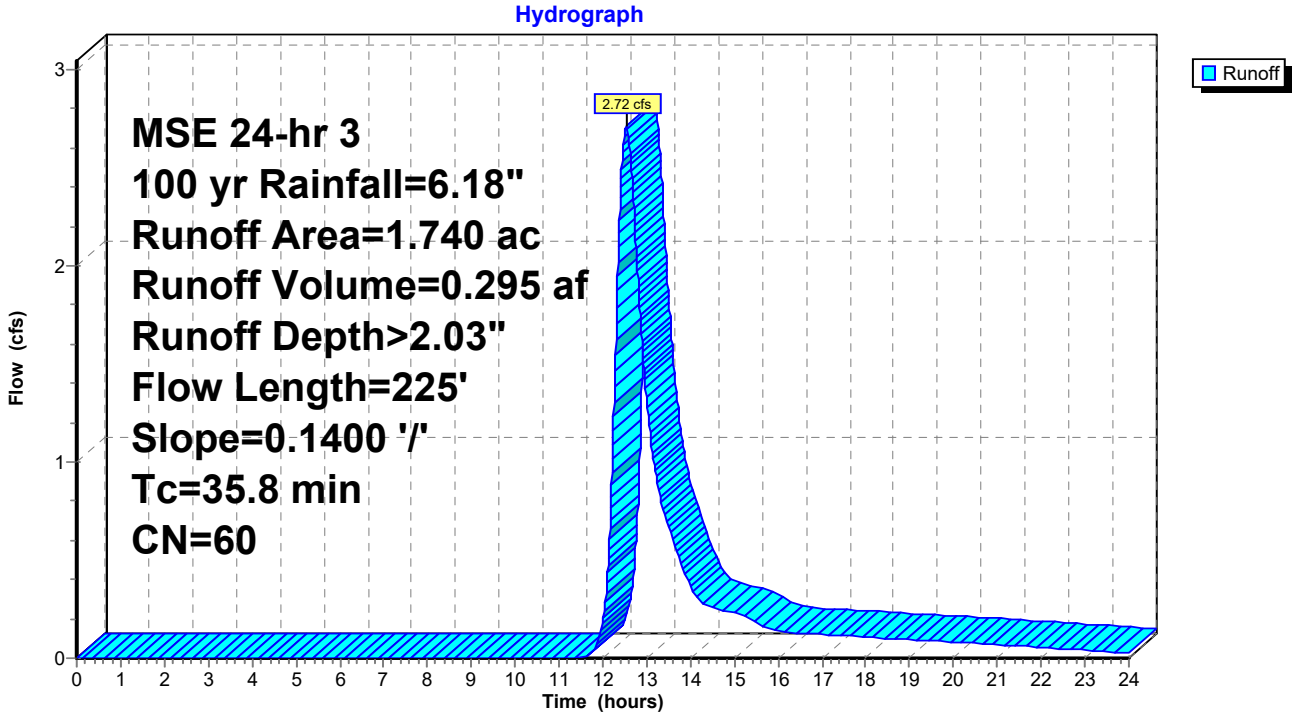
Runoff = 2.72 cfs @ 12.53 hrs, Volume= 0.295 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.270	55	woods
*	0.450	75	1/4 acre lots
*	0.020	61	grass
	1.740	60	Weighted Average
	1.740		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment F10: Subarea 10



Summary for Subcatchment F12: Subarea 12

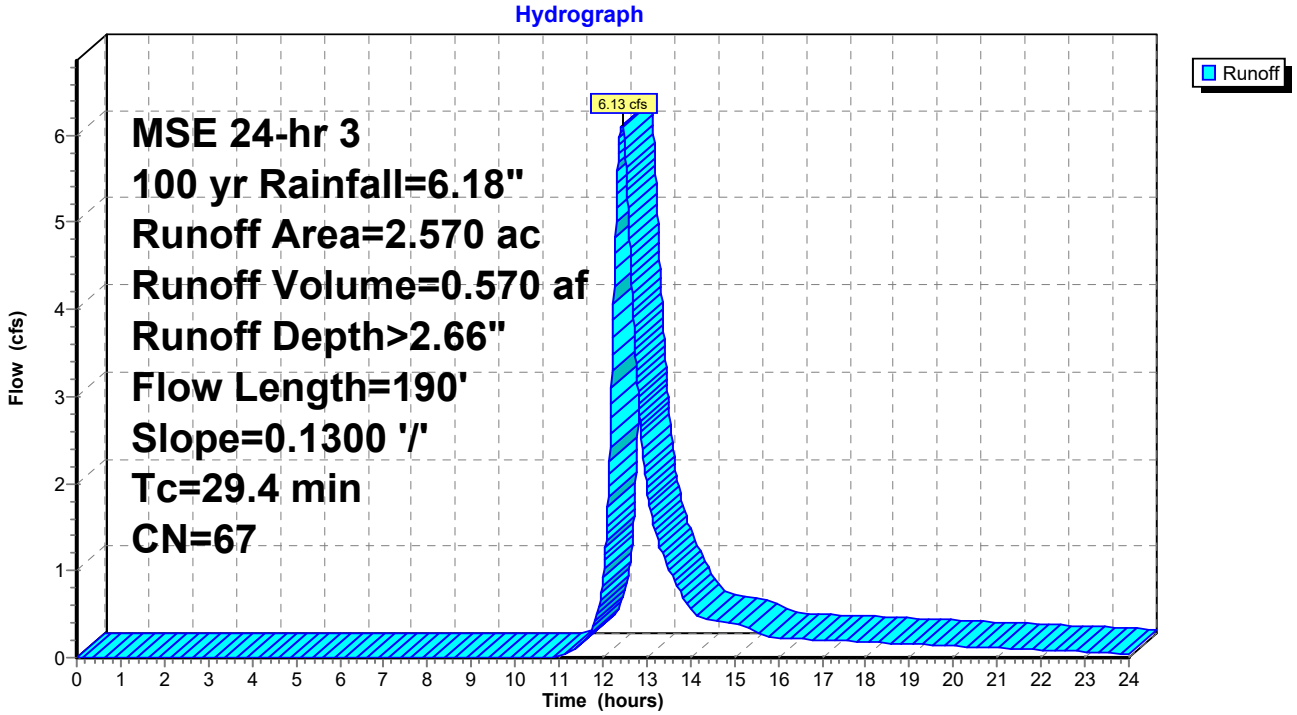
Runoff = 6.13 cfs @ 12.44 hrs, Volume= 0.570 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.970	55	woods
*	0.350	61	grass
*	0.180	98	impervious
	1.070	75	1/4 acre lots
	2.570	67	Weighted Average
	2.390		93.00% Pervious Area
	0.180		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1300	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
25.2	140	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
29.4	190	Total			

Subcatchment F12: Subarea 12



Summary for Subcatchment F13: Subarea 13

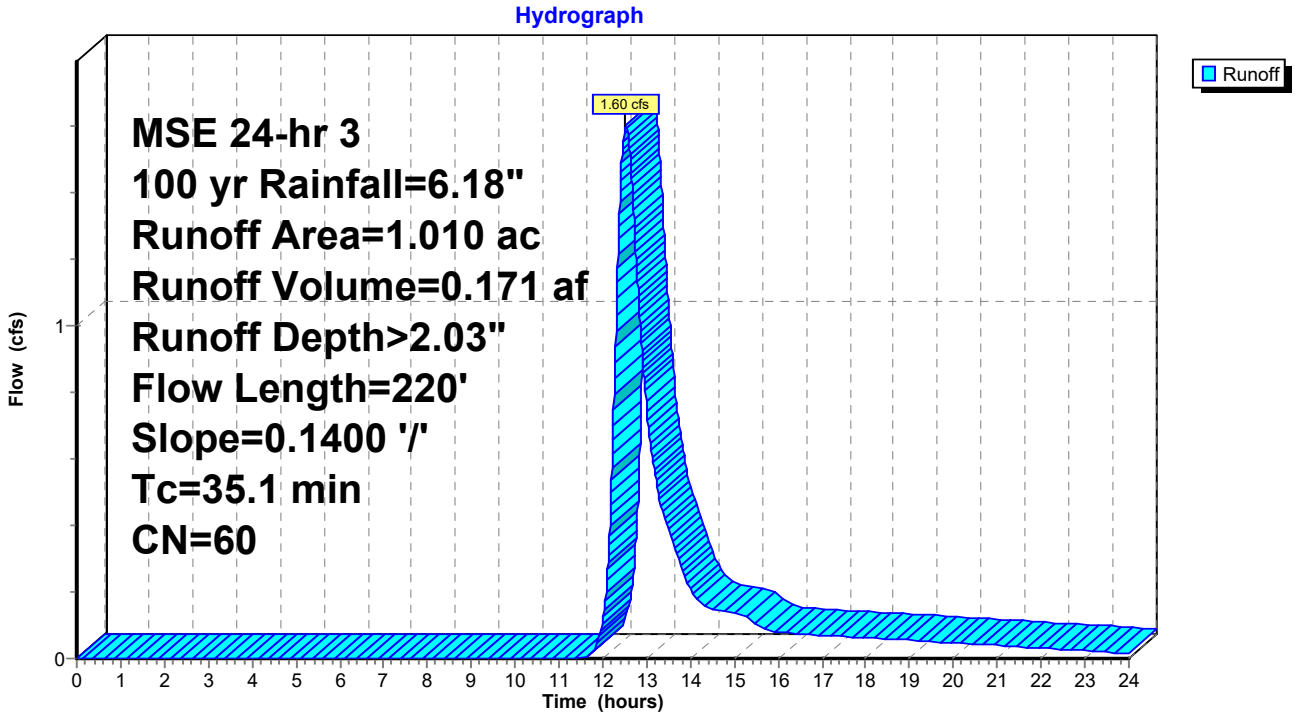
Runoff = 1.60 cfs @ 12.52 hrs, Volume= 0.171 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.760	55	woods
	0.250	75	1/4 acre lots
	1.010	60	Weighted Average
	1.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment F13: Subarea 13



Summary for Subcatchment F14: Subarea 14

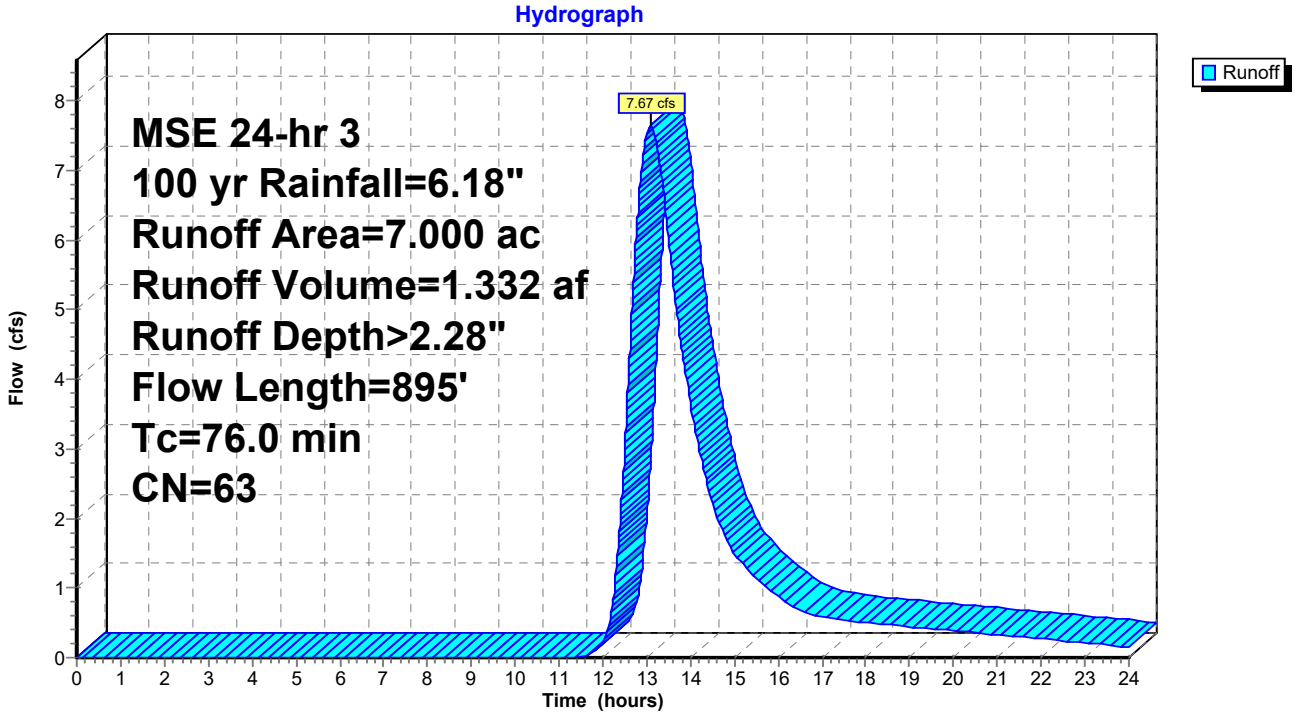
Runoff = 7.67 cfs @ 13.09 hrs, Volume= 1.332 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	3.340	55	woods
*	2.720	61	grass
*	0.890	98	impervious
*	0.050	75	1/4 acre lots
	7.000	63	Weighted Average
	6.110		87.29% Pervious Area
	0.890		12.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.2	255	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
76.0	895	Total			

Subcatchment F14: Subarea 14



Summary for Subcatchment F15: Subarea 15

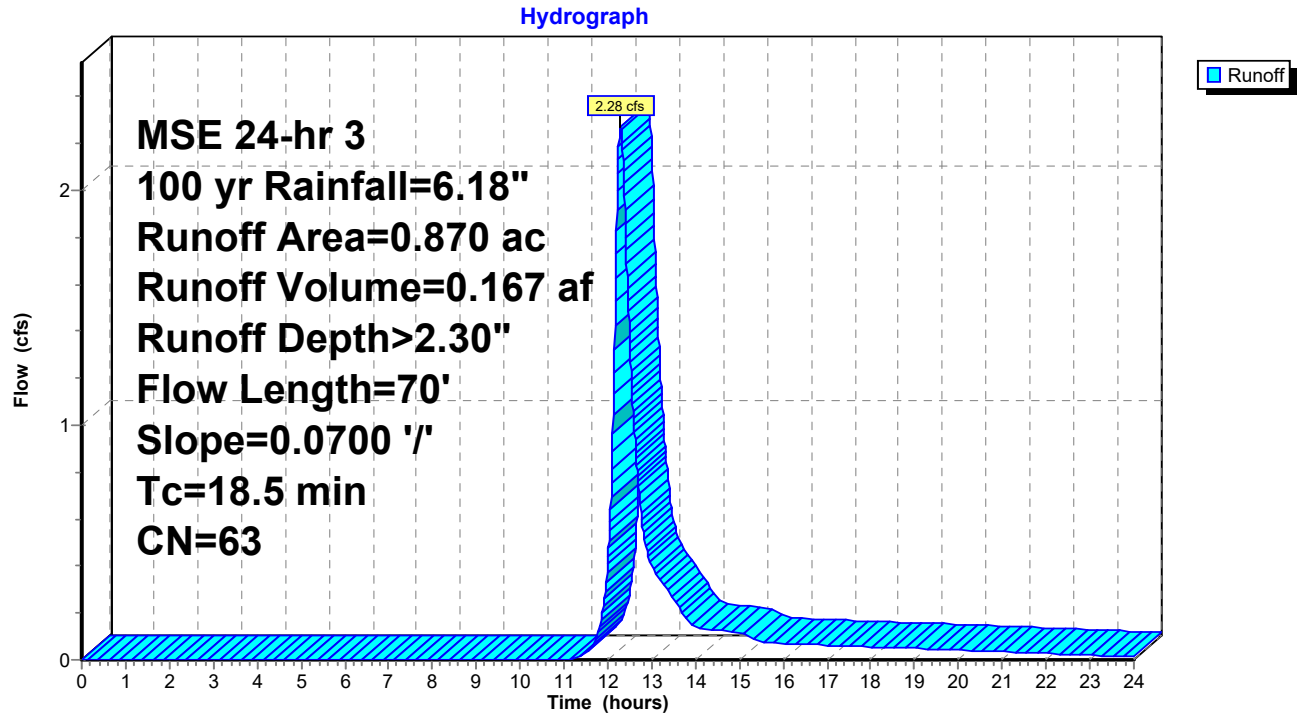
Runoff = 2.28 cfs @ 12.29 hrs, Volume= 0.167 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.480	55	woods
*	0.090	61	grass
*	0.010	98	impervious
*	0.290	75	1/4 acre lots
	0.870	63	Weighted Average
	0.860		98.85% Pervious Area
	0.010		1.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment F15: Subarea 15



Summary for Subcatchment F16: Subarea 16

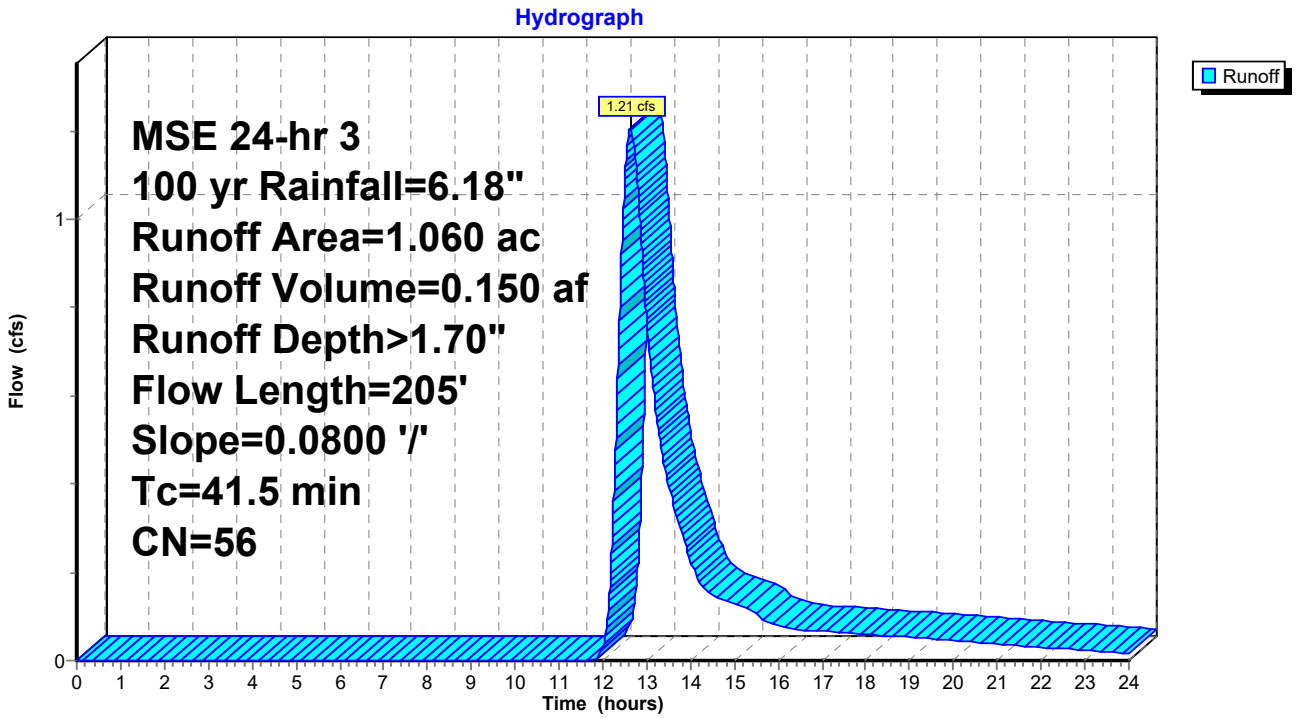
Runoff = 1.21 cfs @ 12.63 hrs, Volume= 0.150 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.020	55	woods
*	0.030	61	grass
*	0.010	98	impervious
	1.060	56	Weighted Average
	1.050		99.06% Pervious Area
	0.010		0.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.5	205	0.0800	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment F16: Subarea 16



Summary for Subcatchment F17: Subarea 17

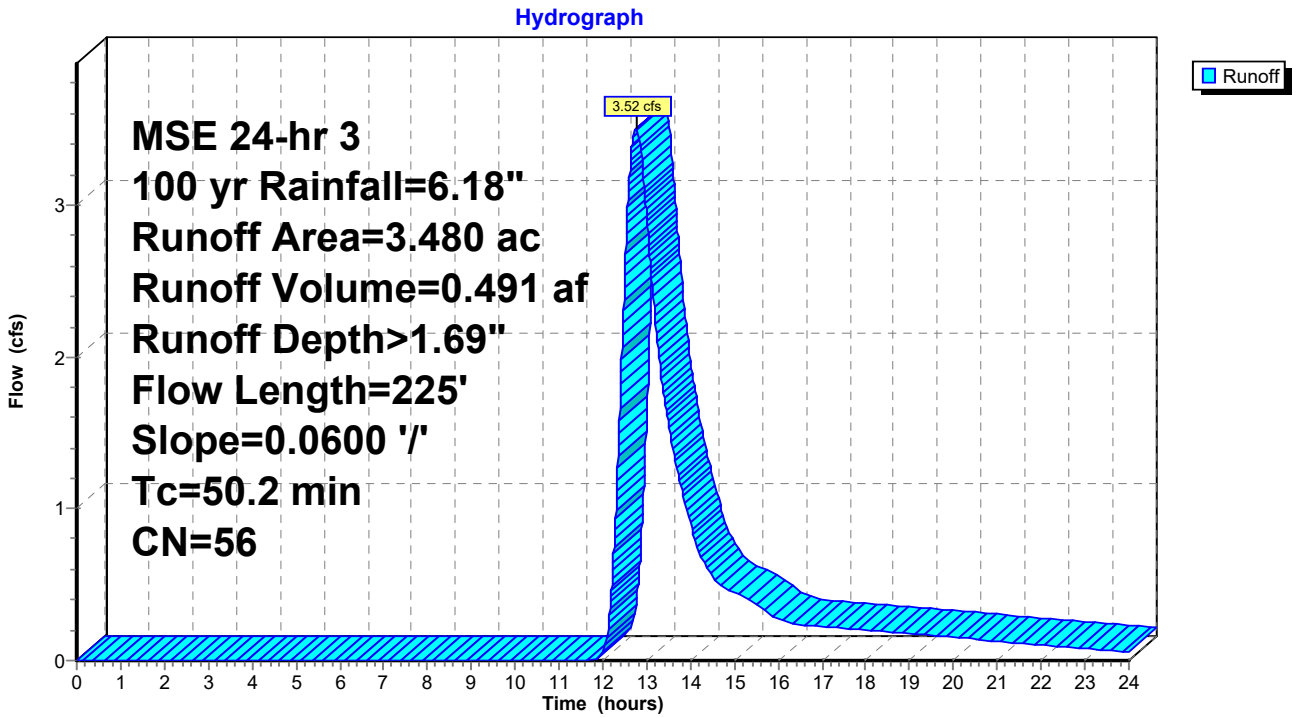
Runoff = 3.52 cfs @ 12.77 hrs, Volume= 0.491 af, Depth> 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	3.280	55	woods
*	0.120	61	grass
*	0.080	98	impervious
	3.480	56	Weighted Average
	3.400		97.70% Pervious Area
	0.080		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.2	225	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Subcatchment F17: Subarea 17



Summary for Pond 10K: Kettle 10

Inflow Area = 17.730 ac, 6.60% Impervious, Inflow Depth > 0.20" for 100 yr event
Inflow = 2.72 cfs @ 12.53 hrs, Volume= 0.295 af
Outflow = 0.04 cfs @ 23.19 hrs, Volume= 0.034 af, Atten= 99%, Lag= 639.3 min
Discarded = 0.04 cfs @ 23.19 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 957.64' @ 23.19 hrs Surf.Area= 5,826 sf Storage= 11,381 cf

Plug-Flow detention time= 373.2 min calculated for 0.034 af (11% of inflow)
Center-of-Mass det. time= 254.9 min (1,107.9 - 853.0)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

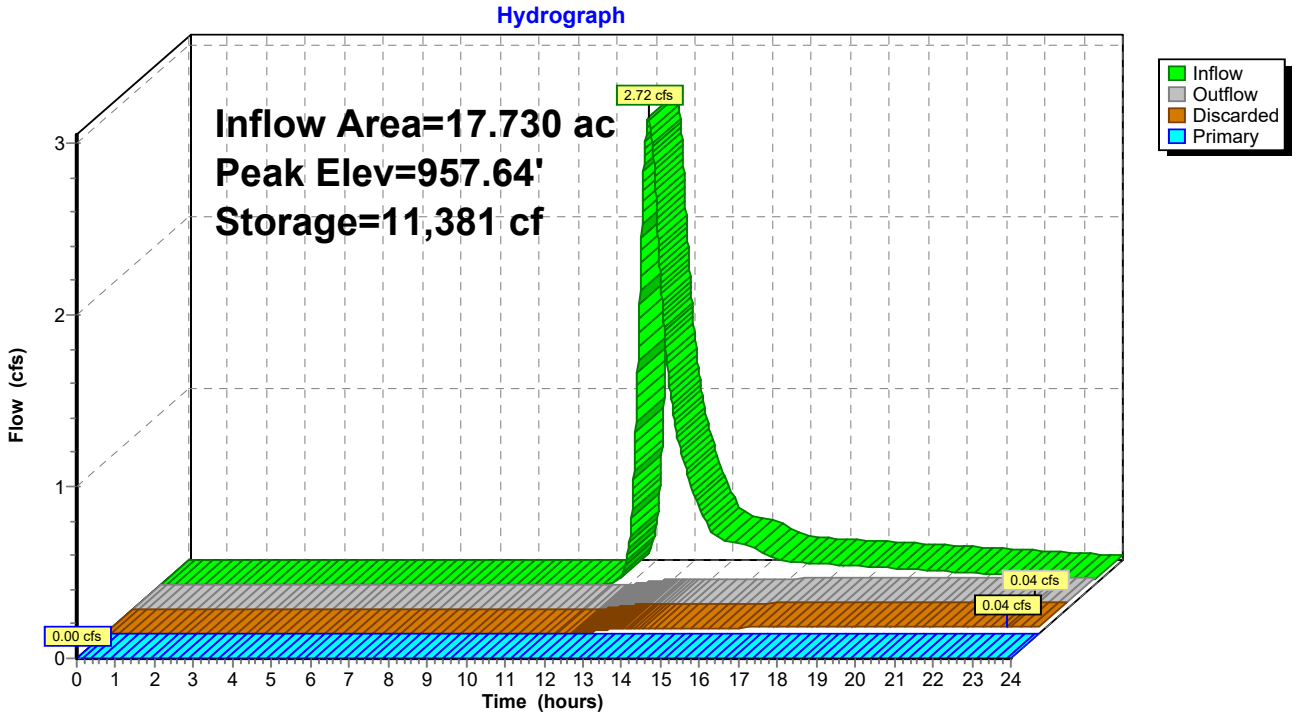
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 943.00' Phase-In= 0.01'
#2	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.04 cfs @ 23.19 hrs HW=957.64' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 10K: Kettle 10



Summary for Pond 12K: Kettle 12

Inflow Area = 15.990 ac, 7.32% Impervious, Inflow Depth > 0.55" for 100 yr event
Inflow = 7.46 cfs @ 12.45 hrs, Volume= 0.738 af
Outflow = 0.10 cfs @ 22.53 hrs, Volume= 0.097 af, Atten= 99%, Lag= 604.6 min
Discarded = 0.10 cfs @ 22.53 hrs, Volume= 0.097 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 959.17' @ 22.53 hrs Surf.Area= 16,181 sf Storage= 28,040 cf

Plug-Flow detention time= 370.1 min calculated for 0.097 af (13% of inflow)
Center-of-Mass det. time= 257.7 min (1,097.1 - 839.5)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

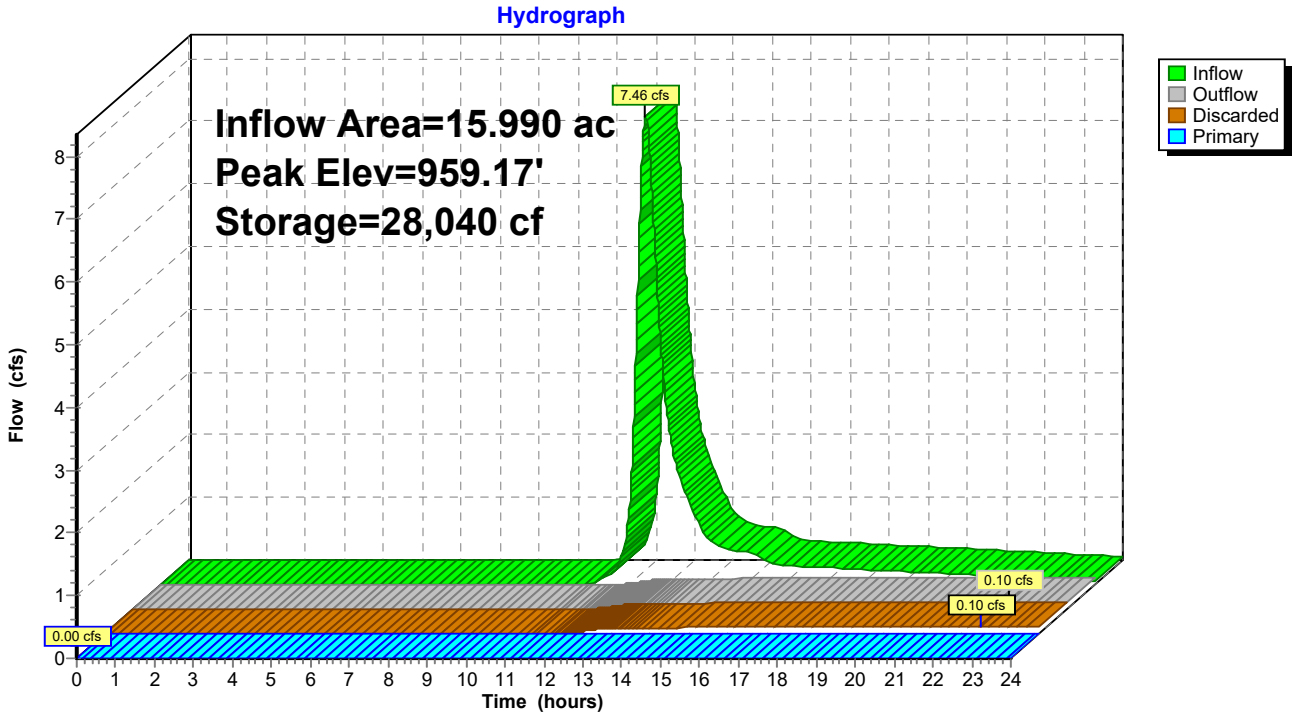
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 946.00' Phase-In= 0.01'
#2	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.10 cfs @ 22.53 hrs HW=959.17' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=956.00' TW=953.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 12K: Kettle 12



Summary for Pond 13K: Kettle 13

Inflow Area = 13.420 ac, 7.38% Impervious, Inflow Depth > 0.15" for 100 yr event
Inflow = 1.60 cfs @ 12.52 hrs, Volume= 0.171 af
Outflow = 1.55 cfs @ 12.59 hrs, Volume= 0.171 af, Atten= 3%, Lag= 4.1 min
Discarded = 0.01 cfs @ 12.59 hrs, Volume= 0.003 af
Primary = 1.54 cfs @ 12.59 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 959.88' @ 12.59 hrs Surf.Area= 1,730 sf Storage= 329 cf

Plug-Flow detention time= 5.0 min calculated for 0.171 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (856.0 - 852.4)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

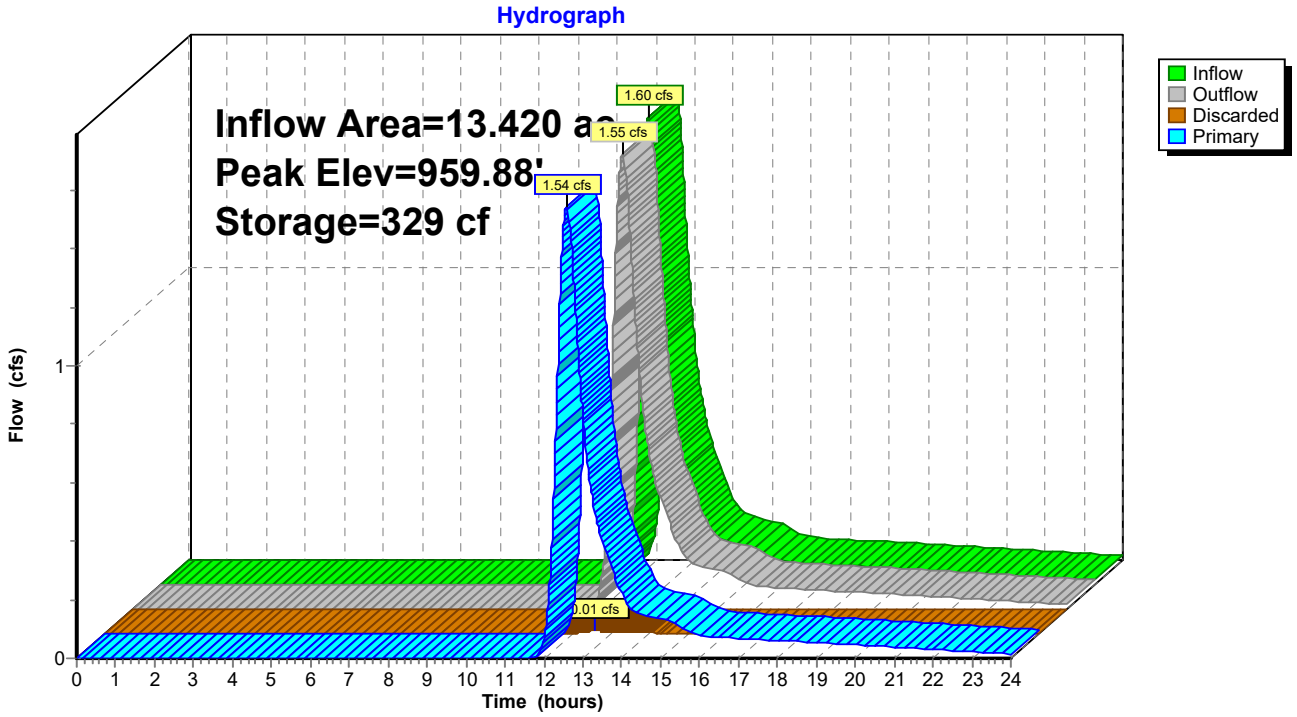
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.40'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 949.00' Phase-In= 0.01'
#2	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#3	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.59 hrs HW=959.88' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.54 cfs @ 12.59 hrs HW=959.88' TW=957.94' (Dynamic Tailwater)
├**2=Culvert** (Barrel Controls 1.54 cfs @ 2.65 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13K: Kettle 13



Summary for Pond 14K: Kettle 14

Inflow Area = 12.410 ac, 7.98% Impervious, Inflow Depth > 1.29" for 100 yr event
Inflow = 7.67 cfs @ 13.09 hrs, Volume= 1.332 af
Outflow = 0.11 cfs @ 24.00 hrs, Volume= 0.094 af, Atten= 99%, Lag= 654.7 min
Discarded = 0.11 cfs @ 24.00 hrs, Volume= 0.094 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 961.02' @ 24.00 hrs Surf.Area= 14,838 sf Storage= 53,910 cf

Plug-Flow detention time= 371.9 min calculated for 0.094 af (7% of inflow)
Center-of-Mass det. time= 236.4 min (1,118.1 - 881.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

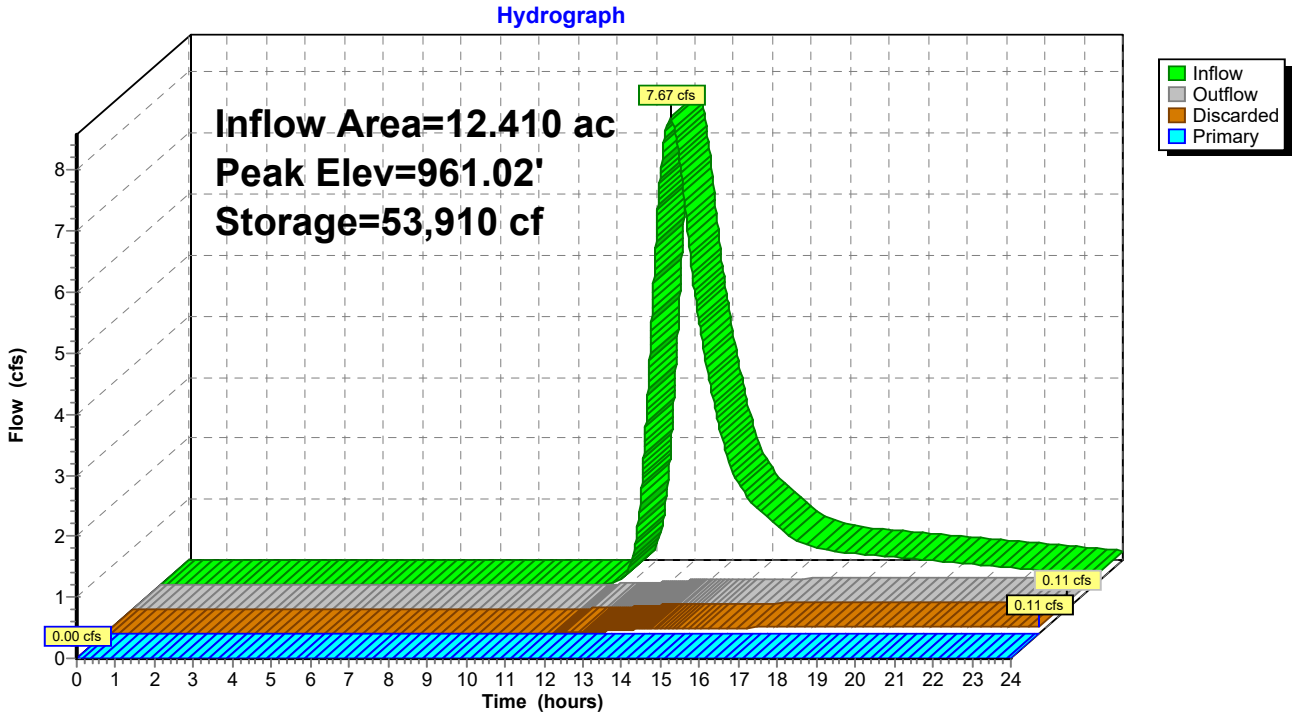
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
965.00	23,972	62,065	131,899	24,362
967.00	28,808	52,706	184,605	29,333

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 945.00' Phase-In= 0.01'
#2	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.11 cfs @ 24.00 hrs HW=961.02' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.00' TW=959.40' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 14K: Kettle 14



Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac, 1.15% Impervious, Inflow Depth > 2.30" for 100 yr event
Inflow = 2.28 cfs @ 12.29 hrs, Volume= 0.167 af
Outflow = 0.03 cfs @ 21.23 hrs, Volume= 0.031 af, Atten= 99%, Lag= 536.5 min
Discarded = 0.03 cfs @ 21.23 hrs, Volume= 0.031 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 971.90' @ 21.23 hrs Surf.Area= 5,308 sf Storage= 6,014 cf

Plug-Flow detention time= 365.9 min calculated for 0.031 af (19% of inflow)
Center-of-Mass det. time= 259.2 min (1,091.8 - 832.6)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

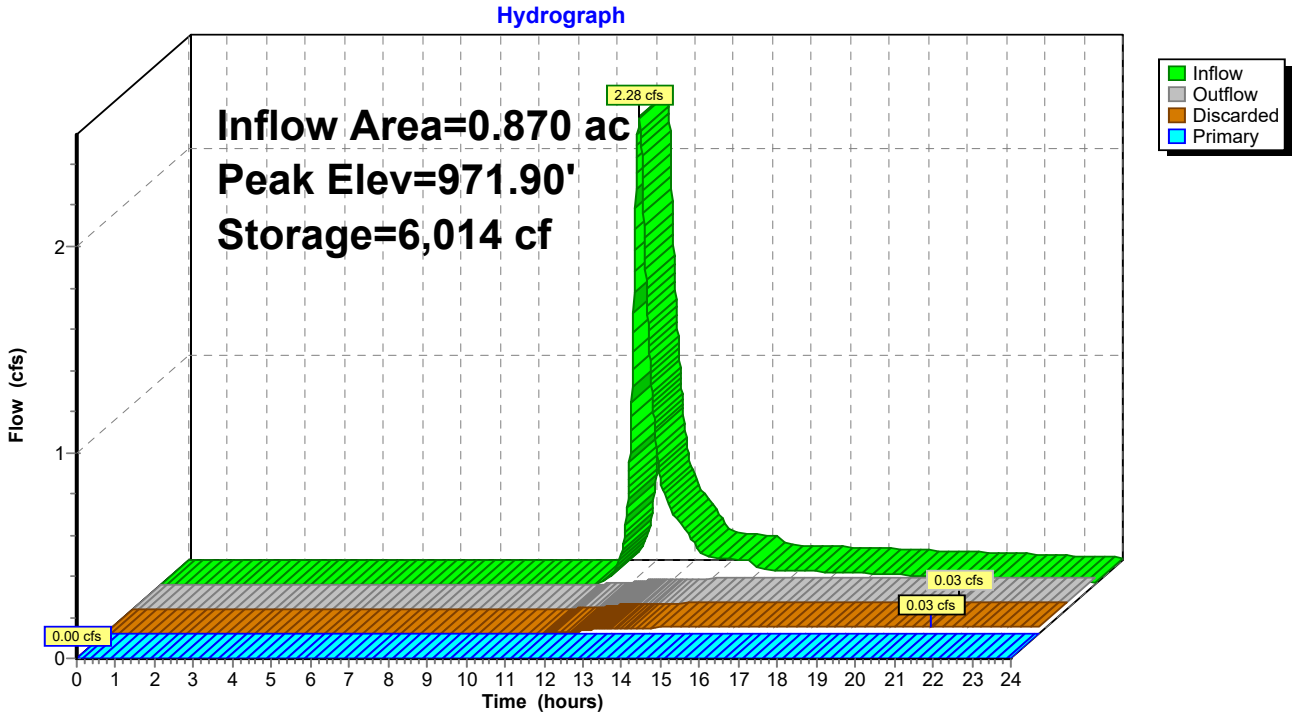
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	970.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 960.00' Phase-In= 0.01'
#2	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 21.23 hrs HW=971.90' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=970.00' TW=955.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15K: Kettle 15



Summary for Pond 16K: Kettle 16

Inflow Area = 4.540 ac, 1.98% Impervious, Inflow Depth > 0.71" for 100 yr event
Inflow = 1.21 cfs @ 12.63 hrs, Volume= 0.267 af
Outflow = 0.06 cfs @ 21.18 hrs, Volume= 0.050 af, Atten= 95%, Lag= 512.6 min
Discarded = 0.06 cfs @ 21.18 hrs, Volume= 0.050 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,006.42' @ 21.18 hrs Surf.Area= 9,071 sf Storage= 9,724 cf

Plug-Flow detention time= 355.6 min calculated for 0.050 af (19% of inflow)
Center-of-Mass det. time= 208.2 min (1,108.6 - 900.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

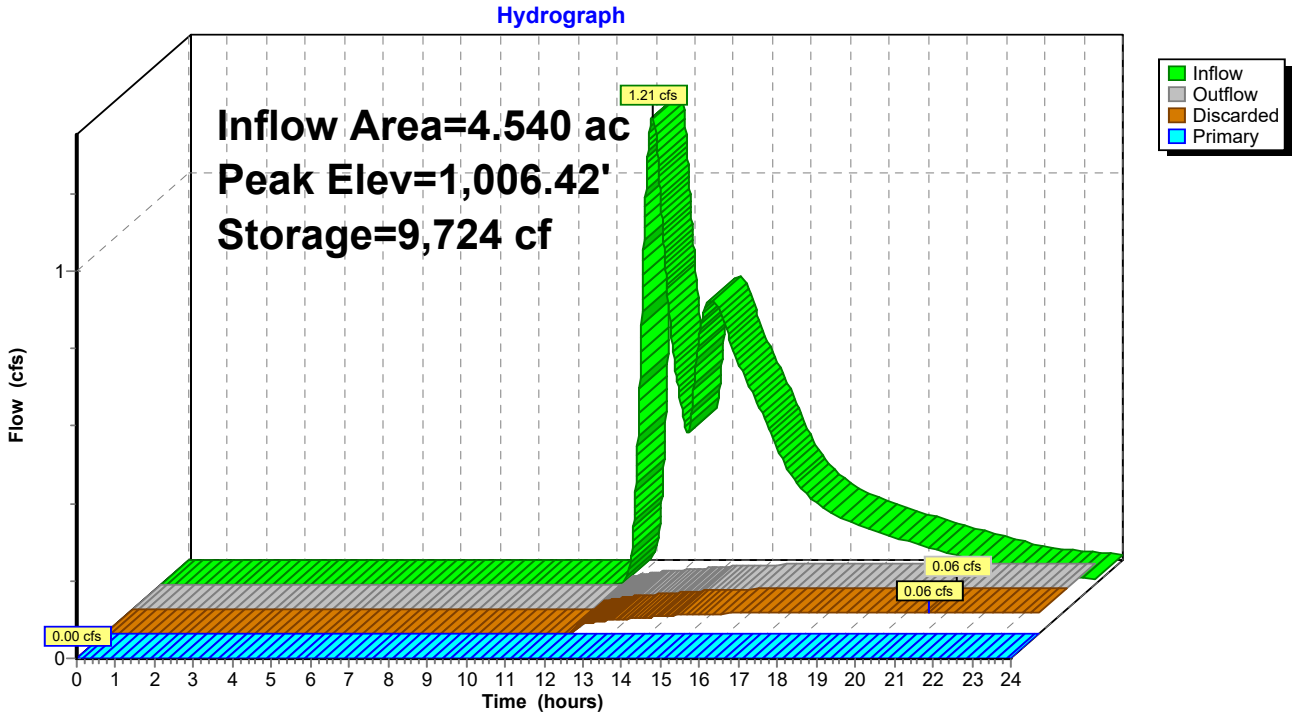
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,005.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 995.00' Phase-In= 0.01'
#2	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 21.18 hrs HW=1,006.42' (Free Discharge)
1=Exfiltration (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,005.00' TW=955.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 16K: Kettle 16



Summary for Pond 17K: Kettle 17

Inflow Area = 3.480 ac, 2.30% Impervious, Inflow Depth > 1.69" for 100 yr event
Inflow = 3.52 cfs @ 12.77 hrs, Volume= 0.491 af
Outflow = 0.69 cfs @ 14.24 hrs, Volume= 0.242 af, Atten= 80%, Lag= 88.0 min
Discarded = 0.14 cfs @ 14.24 hrs, Volume= 0.125 af
Primary = 0.56 cfs @ 14.24 hrs, Volume= 0.117 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.06' @ 14.24 hrs Surf.Area= 23,621 sf Storage= 12,563 cf

Plug-Flow detention time= 255.3 min calculated for 0.242 af (49% of inflow)
Center-of-Mass det. time= 150.7 min (1,024.0 - 873.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

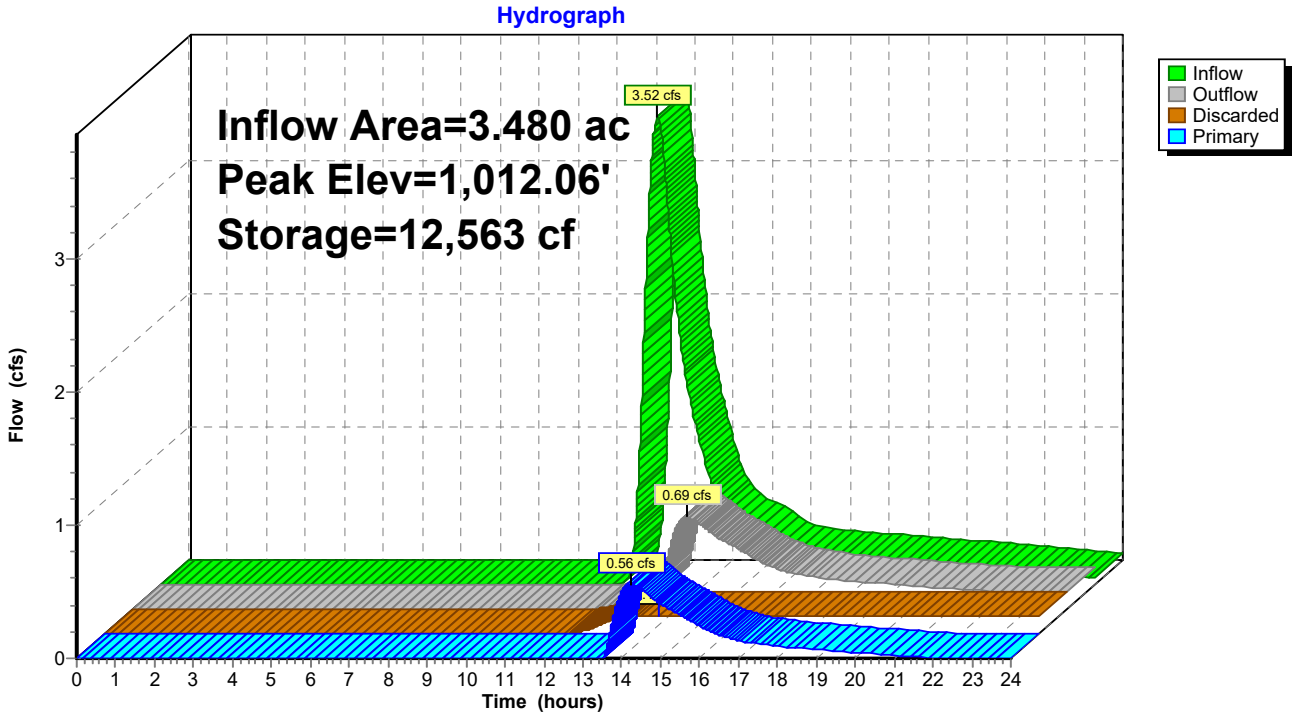
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.14 cfs @ 14.24 hrs HW=1,012.06' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.56 cfs @ 14.24 hrs HW=1,012.06' TW=1,005.87' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.56 cfs @ 0.61 fps)

Pond 17K: Kettle 17

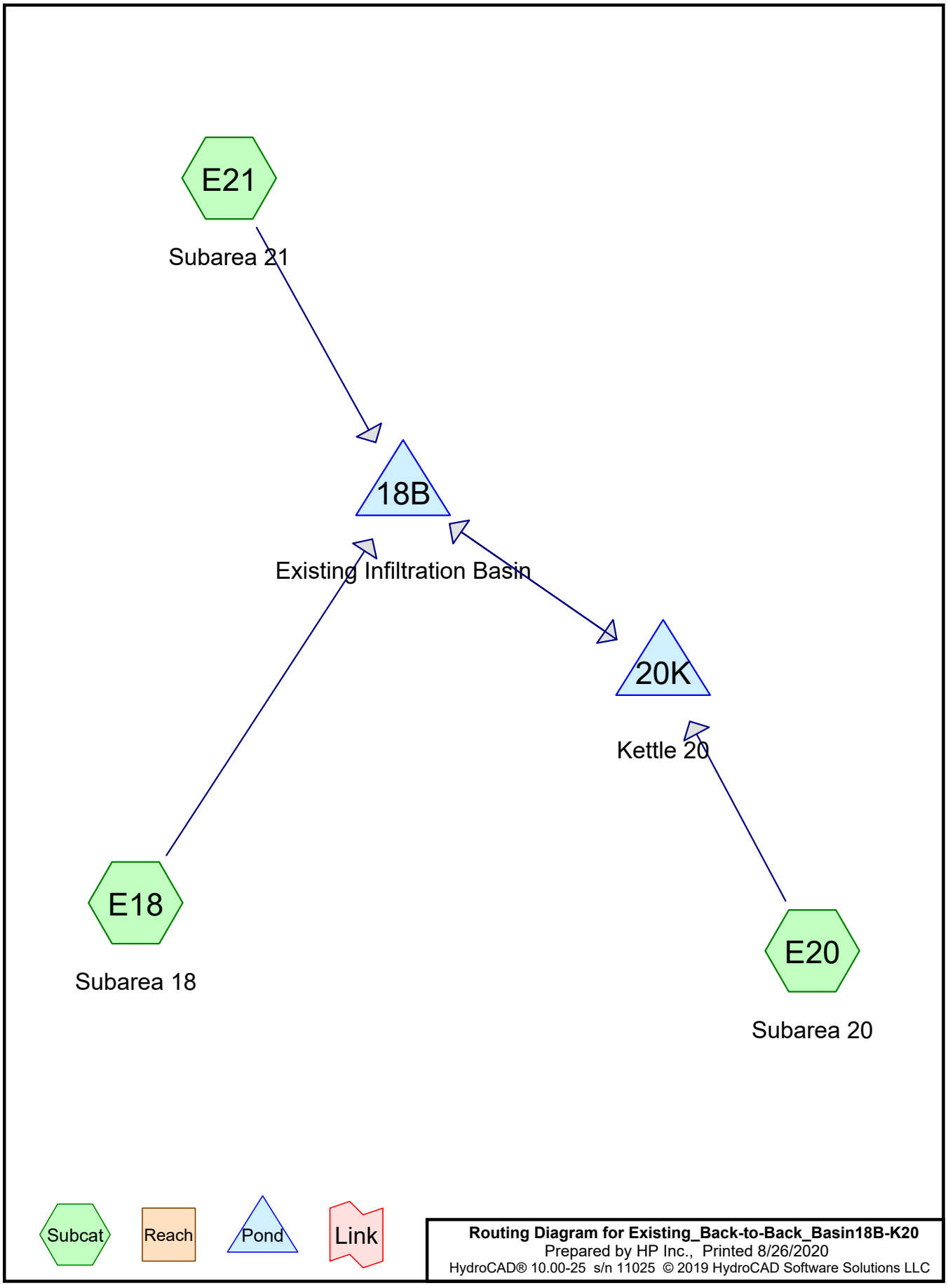


APPENDIX 4

Back-To-Back
100-yr HydroCAD Modeling

Existing Back-To-Back 100-year Conditions

HydroCAD Modeling


E21
Subarea 21
18B
Existing Infiltration Basin
20K
Kettle 20
E18
Subarea 18
E20
Subarea 20
Subcat
Reach
Pond
Link
Routing Diagram for Existing_Back-to-Back_Basin18B-K20
Prepared by HP Inc., Printed 8/26/2020
HydroCAD® 10.00-25 s/n 11025 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.290	78	Area C from LCL High School Report (E18)
0.880	69	cropland (E21)
1.260	61	grass (E18, E20, E21)
0.600	98	impervious (E18, E21)
5.550	55	woods (E18, E20)
12.580	**66**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.010 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentE18: Subarea 18 Runoff Area=5.990 ac 3.84% Impervious Runoff Depth>8.94"
Tc=42.8 min CN=74 Runoff=21.14 cfs 4.465 af

SubcatchmentE20: Subarea 20 Runoff Area=4.810 ac 0.00% Impervious Runoff Depth>6.05"
Flow Length=525' Slope=0.0300 '/' Tc=87.6 min CN=55 Runoff=8.52 cfs 2.427 af

SubcatchmentE21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>8.81"
Flow Length=920' Tc=26.7 min CN=73 Runoff=8.14 cfs 1.306 af

Pond 18B: Existing Infiltration Basin Peak Elev=995.19' Storage=88,442 cf Inflow=27.48 cfs 6.698 af
Discarded=1.03 cfs 2.419 af Primary=15.62 cfs 0.941 af Secondary=9.18 cfs 1.607 af Outflow=25.83 cfs 4.967 af

Pond 20K: Kettle 20 Peak Elev=995.10' Storage=100,468 cf Inflow=21.28 cfs 3.368 af
Discarded=0.37 cfs 0.646 af Primary=3.93 cfs 0.927 af Outflow=4.30 cfs 1.574 af

Total Runoff Area = 12.580 ac Runoff Volume = 8.198 af Average Runoff Depth = 7.82"
95.23% Pervious = 11.980 ac 4.77% Impervious = 0.600 ac

Summary for Subcatchment E18: Subarea 18

Runoff = 21.14 cfs @ 36.57 hrs, Volume= 4.465 af, Depth> 8.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.290	78	Area C from LCL High School Report
*	0.850	55	woods
*	0.620	61	grass
*	0.230	98	impervious
	5.990	74	Weighted Average
	5.760		96.16% Pervious Area
	0.230		3.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Summary for Subcatchment E20: Subarea 20

Runoff = 8.52 cfs @ 37.09 hrs, Volume= 2.427 af, Depth> 6.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.700	55	woods
*	0.110	61	grass
	4.810	55	Weighted Average
	4.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.3	225	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
87.6	525	Total			

Summary for Subcatchment E21: Subarea 21

Runoff = 8.14 cfs @ 36.37 hrs, Volume= 1.306 af, Depth> 8.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Summary for Pond 18B: Existing Infiltration Basin

Inflow	=	27.48 cfs @	36.48 hrs, Volume=	6.698 af
Outflow	=	25.83 cfs @	36.62 hrs, Volume=	4.967 af, Atten= 6%, Lag= 8.1 min
Discarded	=	1.03 cfs @	36.62 hrs, Volume=	2.419 af
Primary	=	15.62 cfs @	36.62 hrs, Volume=	0.941 af
Secondary	=	9.18 cfs @	36.62 hrs, Volume=	1.607 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 995.19' @ 36.62 hrs Surf.Area= 26,156 sf Storage= 88,442 cf

Plug-Flow detention time= 488.4 min calculated for 4.967 af (74% of inflow)
Center-of-Mass det. time= 270.6 min (2,061.7 - 1,791.1)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	111,738 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249
996.00	31,138	28,054	111,738	31,336

Device	Routing	Invert	Outlet Devices
#1	Discarded	989.00'	**1.300 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 979.00'
#2	Primary	994.65'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=1.03 cfs @ 36.62 hrs HW=995.19' (Free Discharge)
↑—**1=Exfiltration** (Controls 1.03 cfs)

Primary OutFlow Max=15.62 cfs @ 36.62 hrs HW=995.19' TW=993.96' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 15.62 cfs @ 1.94 fps)

Secondary OutFlow Max=9.18 cfs @ 36.62 hrs HW=995.19' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Weir Controls 9.18 cfs @ 1.59 fps)

Summary for Pond 20K: Kettle 20

Inflow	=	21.28 cfs @	36.69 hrs, Volume=	3.368 af
Outflow	=	4.30 cfs @	38.16 hrs, Volume=	1.574 af, Atten= 80%, Lag= 88.3 min
Discarded	=	0.37 cfs @	38.05 hrs, Volume=	0.646 af
Primary	=	3.93 cfs @	38.16 hrs, Volume=	0.927 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 995.10' @ 38.05 hrs Surf.Area= 57,049 sf Storage= 100,468 cf

Plug-Flow detention time= 619.6 min calculated for 1.573 af (47% of inflow)
Center-of-Mass det. time= 264.3 min (2,244.9 - 1,980.6)

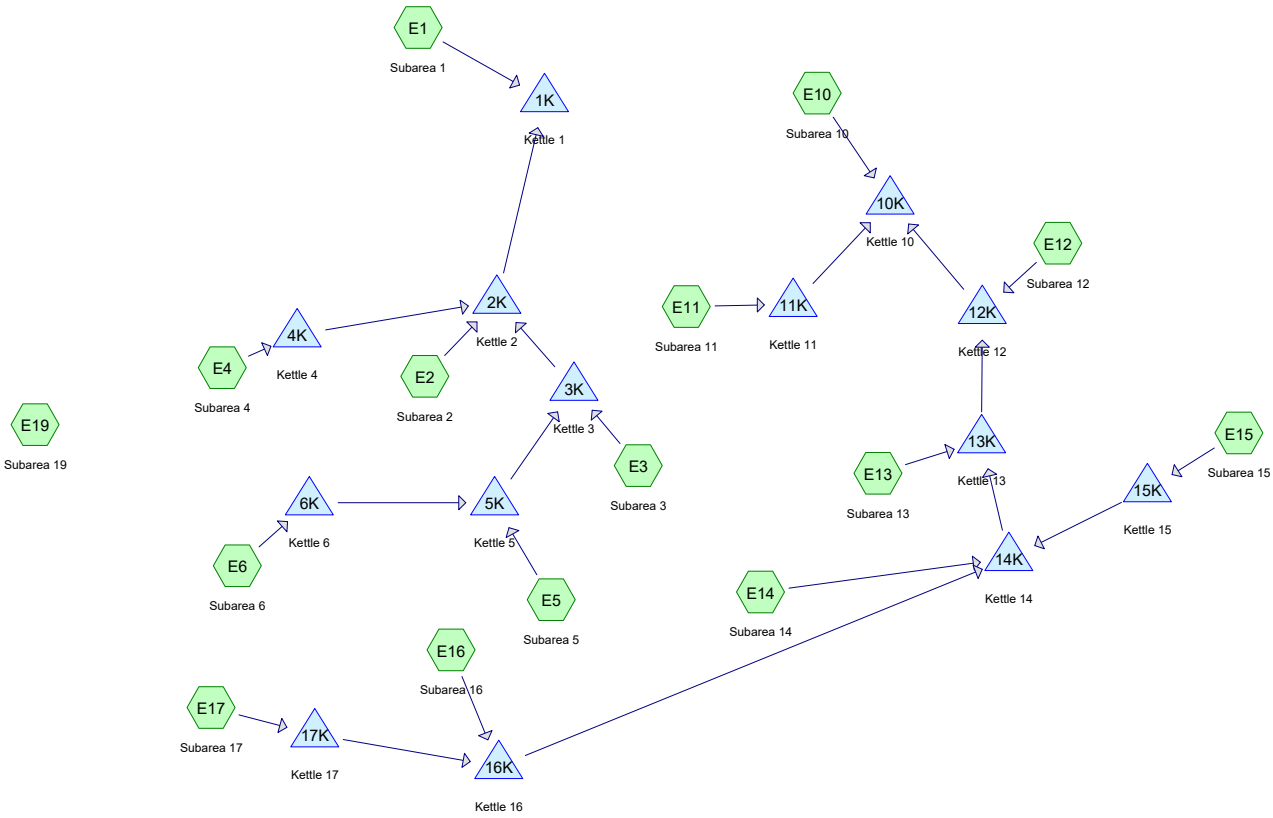
Volume	Invert	Avail.Storage	Storage Description
#1	992.00'	157,706 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
992.00	6,330	0	0	6,330
993.00	24,655	14,493	14,493	24,660
994.00	40,640	32,316	46,809	40,657
995.00	55,600	47,925	94,734	55,638
996.00	70,643	62,972	157,706	70,707

Device	Routing	Invert	Outlet Devices
#1	Discarded	992.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 982.00' Phase-In= 0.01'
#2	Primary	994.65'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.37 cfs @ 38.05 hrs HW=995.10' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.37 cfs)

Primary OutFlow Max=3.96 cfs @ 38.16 hrs HW=995.10' TW=995.08' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 3.96 cfs @ 0.59 fps)



Subcat Reach Pond Link

Routing Diagram for Existing_010
Prepared by HP Inc., Printed 8/26/2020

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	70	1/2 acre lots (E1)
2.110	75	1/4 acre lots (E10, E12, E13, E14, E15)
0.960	69	cropland (E1)
3.690	61	grass (E12, E14, E15, E19, E2, E3, E4, E5)
1.200	98	impervious (E12, E14, E15, E19, E2, E3)
42.880	55	woods (E1, E10, E11, E12, E13, E14, E15, E16, E17, E2, E3, E4, E5, E6)
53.410	**58**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.010 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE1: Subarea 1 Runoff Area=15.480 ac 0.00% Impervious Runoff Depth>6.54"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=58 Runoff=40.72 cfs 8.442 af

SubcatchmentE10: Subarea 10 Runoff Area=1.920 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=6.52 cfs 1.098 af

SubcatchmentE11: Subarea 11 Runoff Area=0.730 ac 0.00% Impervious Runoff Depth>6.07"
Flow Length=100' Slope=0.0300 '/' Tc=34.6 min CN=55 Runoff=2.33 cfs 0.370 af

SubcatchmentE12: Subarea 12 Runoff Area=2.900 ac 3.79% Impervious Runoff Depth>7.63"
Flow Length=255' Slope=0.1100 '/' Tc=43.5 min CN=65 Runoff=9.31 cfs 1.843 af

SubcatchmentE13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=3.47 cfs 0.578 af

SubcatchmentE14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>6.99"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=13.97 cfs 4.734 af

SubcatchmentE15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>7.33"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=4.35 cfs 0.531 af

SubcatchmentE16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>6.06"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=3.39 cfs 0.818 af

SubcatchmentE17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>6.06"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=8.69 cfs 2.172 af

SubcatchmentE19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>9.24"
Tc=6.0 min CN=76 Runoff=0.86 cfs 0.077 af

SubcatchmentE2: Subarea 2 Runoff Area=5.430 ac 1.66% Impervious Runoff Depth>6.23"
Flow Length=470' Slope=0.0800 '/' Tc=58.3 min CN=56 Runoff=12.84 cfs 2.817 af

SubcatchmentE3: Subarea 3 Runoff Area=1.590 ac 7.55% Impervious Runoff Depth>6.71"
Flow Length=150' Slope=0.1300 '/' Tc=26.6 min CN=59 Runoff=6.27 cfs 0.889 af

SubcatchmentE4: Subarea 4 Runoff Area=0.370 ac 0.00% Impervious Runoff Depth>6.07"
Flow Length=110' Slope=0.0300 '/' Tc=37.4 min CN=55 Runoff=1.13 cfs 0.187 af

SubcatchmentE5: Subarea 5 Runoff Area=6.180 ac 0.00% Impervious Runoff Depth>6.07"
Flow Length=400' Slope=0.0900 '/' Tc=54.8 min CN=55 Runoff=14.97 cfs 3.125 af

SubcatchmentE6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>6.07"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=7.21 cfs 1.406 af

Pond 1K: Kettle 1 Peak Elev=963.24' Storage=517,381 cf Inflow=57.18 cfs 12.659 af
Outflow=0.51 cfs 0.782 af

Pond 2K: Kettle 2 Peak Elev=975.00' Storage=96,781 cf Inflow=22.60 cfs 6.202 af
Discarded=0.17 cfs 0.344 af Primary=19.85 cfs 4.217 af Outflow=20.02 cfs 4.561 af

Pond 3K: Kettle 3 Peak Elev=976.41' Storage=26,826 cf Inflow=10.28 cfs 4.063 af
Discarded=0.07 cfs 0.191 af Primary=9.96 cfs 3.342 af Outflow=10.03 cfs 3.534 af

Pond 4K: Kettle 4 Peak Elev=1,008.58' Storage=4,266 cf Inflow=1.13 cfs 0.187 af
Discarded=0.03 cfs 0.061 af Primary=0.53 cfs 0.043 af Outflow=0.56 cfs 0.104 af

Pond 5K: Kettle 5 Peak Elev=984.35' Storage=24,928 cf Inflow=14.97 cfs 3.287 af
Discarded=0.15 cfs 0.109 af Primary=7.93 cfs 3.174 af Outflow=8.08 cfs 3.282 af

Pond 6K: Kettle 6 Peak Elev=1,012.81' Storage=40,095 cf Inflow=7.21 cfs 1.406 af
Discarded=0.23 cfs 0.436 af Primary=0.70 cfs 0.162 af Outflow=0.92 cfs 0.598 af

Pond 10K: Kettle 10 Peak Elev=964.56' Storage=95,901 cf Inflow=17.52 cfs 2.565 af
Discarded=0.15 cfs 0.215 af Primary=0.50 cfs 0.165 af Outflow=0.65 cfs 0.380 af

Pond 11K: Kettle 11 Peak Elev=980.65' Storage=5,273 cf Inflow=2.33 cfs 0.370 af
Discarded=0.04 cfs 0.091 af Primary=2.16 cfs 0.182 af Outflow=2.20 cfs 0.273 af

Pond 12K: Kettle 12 Peak Elev=964.56' Storage=156,177 cf Inflow=17.92 cfs 5.288 af
Discarded=0.25 cfs 0.446 af Primary=16.57 cfs 1.284 af Outflow=16.79 cfs 1.730 af

Pond 13K: Kettle 13 Peak Elev=964.56' Storage=27,996 cf Inflow=33.73 cfs 4.148 af
Discarded=0.06 cfs 0.068 af Primary=16.56 cfs 3.445 af Outflow=16.61 cfs 3.513 af

Pond 14K: Kettle 14 Peak Elev=964.55' Storage=121,446 cf Inflow=24.85 cfs 6.726 af
Discarded=0.19 cfs 0.386 af Primary=33.48 cfs 3.570 af Outflow=33.65 cfs 3.956 af

Pond 15K: Kettle 15 Peak Elev=972.71' Storage=11,345 cf Inflow=4.35 cfs 0.531 af
Discarded=0.05 cfs 0.110 af Primary=3.55 cfs 0.202 af Outflow=3.60 cfs 0.311 af

Pond 16K: Kettle 16 Peak Elev=1,007.42' Storage=20,120 cf Inflow=10.81 cfs 2.338 af
Discarded=0.08 cfs 0.193 af Primary=10.60 cfs 1.790 af Outflow=10.68 cfs 1.983 af

Pond 17K: Kettle 17 Peak Elev=1,012.35' Storage=19,913 cf Inflow=8.69 cfs 2.172 af
Discarded=0.17 cfs 0.393 af Primary=7.77 cfs 1.520 af Outflow=7.94 cfs 1.913 af

Total Runoff Area = 53.410 ac Runoff Volume = 29.087 af Average Runoff Depth = 6.54"
97.75% Pervious = 52.210 ac 2.25% Impervious = 1.200 ac

Summary for Subcatchment E1: Subarea 1

Runoff = 40.72 cfs @ 36.68 hrs, Volume= 8.442 af, Depth> 6.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	11.950	55	woods
	2.570	70	1/2 acre lots
*	0.960	69	cropland
	15.480	58	Weighted Average
	15.480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Summary for Subcatchment E10: Subarea 10

Runoff = 6.52 cfs @ 36.48 hrs, Volume= 1.098 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.470	55	woods
*	0.450	75	1/4 acre lots
	1.920	60	Weighted Average
	1.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E11: Subarea 11

Runoff = 2.33 cfs @ 36.48 hrs, Volume= 0.370 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.730	55	woods
	0.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.6	100	0.0300	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E12: Subarea 12

Runoff = 9.31 cfs @ 36.59 hrs, Volume= 1.843 af, Depth> 7.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.450	55	woods
*	0.270	61	grass
*	0.110	98	impervious
	1.070	75	1/4 acre lots
	2.900	65	Weighted Average
	2.790		96.21% Pervious Area
	0.110		3.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	255	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E13: Subarea 13

Runoff = 3.47 cfs @ 36.47 hrs, Volume= 0.578 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.760	55	woods
	0.250	75	1/4 acre lots
	1.010	60	Weighted Average
	1.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E14: Subarea 14

Runoff = 13.97 cfs @ 37.37 hrs, Volume= 4.734 af, Depth> 6.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.650	55	woods
*	2.600	61	grass
*	0.830	98	impervious
*	0.050	75	1/4 acre lots
	8.130	61	Weighted Average
	7.300		89.79% Pervious Area
	0.830		10.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
98.0	300	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.0	170	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
104.8	1,110	Total			

Summary for Subcatchment E15: Subarea 15

Runoff = 4.35 cfs @ 36.26 hrs, Volume= 0.531 af, Depth> 7.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.480	55	woods
*	0.090	61	grass
*	0.010	98	impervious
*	0.290	75	1/4 acre lots
	0.870	63	Weighted Average
	0.860		98.85% Pervious Area
	0.010		1.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E16: Subarea 16

Runoff = 3.39 cfs @ 36.88 hrs, Volume= 0.818 af, Depth> 6.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.620	55	woods
	1.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.3	270	0.0400	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E17: Subarea 17

Runoff = 8.69 cfs @ 36.96 hrs, Volume= 2.172 af, Depth> 6.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.300	55	woods
	4.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0	250	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E19: Subarea 19

Runoff = 0.86 cfs @ 36.13 hrs, Volume= 0.077 af, Depth> 9.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.060	61	grass
*	0.040	98	impervious
	0.100	76	Weighted Average
	0.060		60.00% Pervious Area
	0.040		40.00% Impervious Area

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

Summary for Subcatchment E2: Subarea 2

Runoff = 12.84 cfs @ 36.73 hrs, Volume= 2.817 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.960	55	woods
*	0.380	61	grass
*	0.090	98	impervious
	5.430	56	Weighted Average
	5.340		98.34% Pervious Area
	0.090		1.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.3	300	0.0800	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.0	170	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
58.3	470	Total			

Summary for Subcatchment E3: Subarea 3

Runoff = 6.27 cfs @ 36.38 hrs, Volume= 0.889 af, Depth> 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.280	55	woods
*	0.190	61	grass
*	0.120	98	impervious
	1.590	59	Weighted Average
	1.470		92.45% Pervious Area
	0.120		7.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.6	150	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E4: Subarea 4

Runoff = 1.13 cfs @ 36.52 hrs, Volume= 0.187 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.350	55	woods
*	0.020	61	grass
	0.370	55	Weighted Average
	0.370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.4	110	0.0300	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E5: Subarea 5

Runoff = 14.97 cfs @ 36.72 hrs, Volume= 3.125 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	6.100	55	woods
*	0.080	61	grass
	6.180	55	Weighted Average
	6.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	300	0.0900	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.1	100	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
54.8	400	Total			

Summary for Subcatchment E6: Subarea 6

Runoff = 7.21 cfs @ 36.66 hrs, Volume= 1.406 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	2.780	55	woods
	2.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.1	200	0.0500	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 1K: Kettle 1

Inflow Area = 31.830 ac, 0.66% Impervious, Inflow Depth > 4.77" for 100 yr x2 event
Inflow = 57.18 cfs @ 36.74 hrs, Volume= 12.659 af
Outflow = 0.51 cfs @ 48.00 hrs, Volume= 0.782 af, Atten= 99%, Lag= 675.7 min
Discarded = 0.51 cfs @ 48.00 hrs, Volume= 0.782 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 963.24' @ 48.00 hrs Surf.Area= 55,292 sf Storage= 517,381 cf

Plug-Flow detention time= 1,359.3 min calculated for 0.782 af (6% of inflow)
Center-of-Mass det. time= 125.8 min (2,117.6 - 1,991.8)

Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	560,290 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	944.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 934.00' Phase-In= 0.01'

Discarded OutFlow Max=0.51 cfs @ 48.00 hrs HW=963.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.51 cfs)

Summary for Pond 2K: Kettle 2

Inflow Area = 16.350 ac, 1.28% Impervious, Inflow Depth > 4.55" for 100 yr x2 event
Inflow = 22.60 cfs @ 36.74 hrs, Volume= 6.202 af
Outflow = 20.02 cfs @ 37.05 hrs, Volume= 4.561 af, Atten= 11%, Lag= 18.5 min
Discarded = 0.17 cfs @ 37.05 hrs, Volume= 0.344 af
Primary = 19.85 cfs @ 37.05 hrs, Volume= 4.217 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 975.00' @ 37.05 hrs Surf.Area= 22,598 sf Storage= 96,781 cf

Plug-Flow detention time= 450.9 min calculated for 4.561 af (74% of inflow)
Center-of-Mass det. time= 295.9 min (2,279.3 - 1,983.4)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	96,797 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838

Device	Routing	Invert	Outlet Devices
#1	Discarded	966.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 956.00' Phase-In= 0.01'
#2	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.17 cfs @ 37.05 hrs HW=975.00' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=19.85 cfs @ 37.05 hrs HW=975.00' TW=958.47' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 19.85 cfs @ 3.05 fps)

Summary for Pond 3K: Kettle 3

Inflow Area = 10.550 ac, 1.14% Impervious, Inflow Depth > 4.62" for 100 yr x2 event
Inflow = 10.28 cfs @ 36.45 hrs, Volume= 4.063 af
Outflow = 10.03 cfs @ 36.55 hrs, Volume= 3.534 af, Atten= 2%, Lag= 6.1 min
Discarded = 0.07 cfs @ 36.55 hrs, Volume= 0.191 af
Primary = 9.96 cfs @ 36.55 hrs, Volume= 3.342 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 976.41' @ 36.55 hrs Surf.Area= 10,314 sf Storage= 26,826 cf

Plug-Flow detention time= 267.3 min calculated for 3.534 af (87% of inflow)
Center-of-Mass det. time= 174.2 min (2,071.4 - 1,897.2)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	46,349 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,020	2,906	2,906	4,029
974.00	5,770	4,869	7,775	5,796
975.00	7,510	6,621	14,396	7,560
976.00	9,385	8,430	22,826	9,463
977.00	11,750	10,545	33,371	11,855
978.00	14,245	12,977	46,349	14,383

Device	Routing	Invert	Outlet Devices
#1	Discarded	972.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 962.00' Phase-In= 0.01'
#2	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 36.55 hrs HW=976.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=9.96 cfs @ 36.55 hrs HW=976.41' TW=974.64' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 9.96 cfs @ 1.63 fps)

Summary for Pond 4K: Kettle 4

Inflow Area = 0.370 ac, 0.00% Impervious, Inflow Depth > 6.07" for 100 yr x2 event
Inflow = 1.13 cfs @ 36.52 hrs, Volume= 0.187 af
Outflow = 0.56 cfs @ 36.93 hrs, Volume= 0.104 af, Atten= 50%, Lag= 24.5 min
Discarded = 0.03 cfs @ 36.93 hrs, Volume= 0.061 af
Primary = 0.53 cfs @ 36.93 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,008.58' @ 36.93 hrs Surf.Area= 5,273 sf Storage= 4,266 cf

Plug-Flow detention time= 591.0 min calculated for 0.104 af (55% of inflow)
Center-of-Mass det. time= 234.4 min (2,083.8 - 1,849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,007.00'	6,875 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,007.00	750	0	0	750
1,008.00	3,220	1,841	1,841	3,224
1,009.00	7,100	5,034	6,875	7,113

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,007.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 997.00' Phase-In= 0.01'
#2	Primary	1,008.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 36.93 hrs HW=1,008.58' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.53 cfs @ 36.93 hrs HW=1,008.58' TW=974.98' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 0.69 fps)

Summary for Pond 5K: Kettle 5

Inflow Area = 8.960 ac, 0.00% Impervious, Inflow Depth > 4.40" for 100 yr x2 event
Inflow = 14.97 cfs @ 36.72 hrs, Volume= 3.287 af
Outflow = 8.08 cfs @ 37.25 hrs, Volume= 3.282 af, Atten= 46%, Lag= 32.2 min
Discarded = 0.15 cfs @ 37.25 hrs, Volume= 0.109 af
Primary = 7.93 cfs @ 37.25 hrs, Volume= 3.174 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 984.35' @ 37.25 hrs Surf.Area= 25,191 sf Storage= 24,928 cf

Plug-Flow detention time= 33.8 min calculated for 3.282 af (100% of inflow)
Center-of-Mass det. time= 32.5 min (1,921.8 - 1,889.2)

Volume	Invert	Avail.Storage	Storage Description
#1	982.50'	80,797 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
982.50	50	0	0	50
983.00	9,605	1,725	1,725	9,605
984.00	21,410	15,118	16,843	21,418
985.00	33,125	27,055	43,898	33,148
986.00	40,805	36,898	80,797	40,858

Device	Routing	Invert	Outlet Devices
#1	Discarded	982.50'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 972.50' Phase-In= 0.01'
#2	Primary	982.57'	**15.0" Round Culvert** L= 48.4' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 982.57' / 980.88' S= 0.0349 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Primary	985.10'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.15 cfs @ 37.25 hrs HW=984.35' (Free Discharge)
└**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=7.93 cfs @ 37.25 hrs HW=984.35' TW=976.38' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 7.93 cfs @ 6.46 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6K: Kettle 6

Inflow Area = 2.780 ac, 0.00% Impervious, Inflow Depth > 6.07" for 100 yr x2 event
Inflow = 7.21 cfs @ 36.66 hrs, Volume= 1.406 af
Outflow = 0.92 cfs @ 38.16 hrs, Volume= 0.598 af, Atten= 87%, Lag= 90.5 min
Discarded = 0.23 cfs @ 38.16 hrs, Volume= 0.436 af
Primary = 0.70 cfs @ 38.16 hrs, Volume= 0.162 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.81' @ 38.16 hrs Surf.Area= 36,950 sf Storage= 40,095 cf

Plug-Flow detention time= 786.4 min calculated for 0.598 af (43% of inflow)
Center-of-Mass det. time= 221.5 min (2,081.1 - 1,859.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	47,595 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	9,905	0	0	9,905
1,012.00	23,150	16,066	16,066	23,158
1,013.00	40,730	31,529	47,595	40,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.70'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.23 cfs @ 38.16 hrs HW=1,012.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.23 cfs)

Primary OutFlow Max=0.70 cfs @ 38.16 hrs HW=1,012.81' TW=983.99' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.70 cfs @ 0.81 fps)

Summary for Pond 10K: Kettle 10

Inflow Area = 21.480 ac, 4.42% Impervious, Inflow Depth > 1.43" for 100 yr x2 event
Inflow = 17.52 cfs @ 37.87 hrs, Volume= 2.565 af
Outflow = 0.65 cfs @ 44.44 hrs, Volume= 0.380 af, Atten= 96%, Lag= 394.4 min
Discarded = 0.15 cfs @ 44.44 hrs, Volume= 0.215 af
Primary = 0.50 cfs @ 44.44 hrs, Volume= 0.165 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.56' @ 44.44 hrs Surf.Area= 20,440 sf Storage= 95,901 cf

Plug-Flow detention time= 1,407.5 min calculated for 0.380 af (15% of inflow)
Center-of-Mass det. time= 286.8 min (2,392.1 - 2,105.3)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 943.00' Phase-In= 0.01'
#2	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.15 cfs @ 44.44 hrs HW=964.56' (Free Discharge)
↑**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.50 cfs @ 44.44 hrs HW=964.56' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.50 cfs @ 0.59 fps)

Summary for Pond 11K: Kettle 11

Inflow Area = 0.730 ac, 0.00% Impervious, Inflow Depth > 6.07" for 100 yr x2 event
Inflow = 2.33 cfs @ 36.48 hrs, Volume= 0.370 af
Outflow = 2.20 cfs @ 36.56 hrs, Volume= 0.273 af, Atten= 6%, Lag= 5.0 min
Discarded = 0.04 cfs @ 36.56 hrs, Volume= 0.091 af
Primary = 2.16 cfs @ 36.56 hrs, Volume= 0.182 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 980.65' @ 36.56 hrs Surf.Area= 6,921 sf Storage= 5,273 cf

Plug-Flow detention time= 449.1 min calculated for 0.273 af (74% of inflow)
Center-of-Mass det. time= 269.3 min (2,116.2 - 1,846.9)

Volume	Invert	Avail.Storage	Storage Description
#1	979.00'	8,105 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.00	805	0	0	805
980.00	3,445	1,972	1,972	3,450
981.00	9,295	6,133	8,105	9,306

Device	Routing	Invert	Outlet Devices
#1	Discarded	979.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 969.00' Phase-In= 0.01'
#2	Primary	980.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.04 cfs @ 36.56 hrs HW=980.65' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=2.16 cfs @ 36.56 hrs HW=980.65' TW=960.02' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 2.16 cfs @ 0.96 fps)

Summary for Pond 12K: Kettle 12

Inflow Area = 18.830 ac, 5.05% Impervious, Inflow Depth > 3.37" for 100 yr x2 event
Inflow = 17.92 cfs @ 37.86 hrs, Volume= 5.288 af
Outflow = 16.79 cfs @ 37.87 hrs, Volume= 1.730 af, Atten= 6%, Lag= 0.6 min
Discarded = 0.25 cfs @ 44.46 hrs, Volume= 0.446 af
Primary = 16.57 cfs @ 37.87 hrs, Volume= 1.284 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.56' @ 44.46 hrs Surf.Area= 32,713 sf Storage= 156,177 cf

Plug-Flow detention time= 752.3 min calculated for 1.730 af (33% of inflow)
Center-of-Mass det. time= 220.7 min (2,268.8 - 2,048.1)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 946.00' Phase-In= 0.01'
#2	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.25 cfs @ 44.46 hrs HW=964.56' (Free Discharge)
1=Exfiltration (Controls 0.25 cfs)

Primary OutFlow Max=16.43 cfs @ 37.87 hrs HW=963.56' TW=963.04' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 16.43 cfs @ 1.97 fps)

Summary for Pond 13K: Kettle 13

Inflow Area = 15.930 ac, 5.27% Impervious, Inflow Depth > 3.12" for 100 yr x2 event
Inflow = 33.73 cfs @ 38.18 hrs, Volume= 4.148 af
Outflow = 16.61 cfs @ 37.89 hrs, Volume= 3.513 af, Atten= 51%, Lag= 0.0 min
Discarded = 0.06 cfs @ 44.04 hrs, Volume= 0.068 af
Primary = 16.56 cfs @ 37.89 hrs, Volume= 3.445 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.56' @ 44.04 hrs Surf.Area= 9,159 sf Storage= 27,996 cf

Plug-Flow detention time= 53.4 min calculated for 3.513 af (85% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.40'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 949.00' Phase-In= 0.01'
#2	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#3	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 44.04 hrs HW=964.56' (Free Discharge)
└**1=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=16.49 cfs @ 37.89 hrs HW=963.81' TW=963.56' (Dynamic Tailwater)
├**2=Culvert** (Outlet Controls 16.49 cfs @ 2.63 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 14K: Kettle 14

Inflow Area = 14.920 ac, 5.63% Impervious, Inflow Depth > 5.41" for 100 yr x2 event
Inflow = 24.85 cfs @ 37.24 hrs, Volume= 6.726 af
Outflow = 33.65 cfs @ 38.18 hrs, Volume= 3.956 af, Atten= 0%, Lag= 56.4 min
Discarded = 0.19 cfs @ 44.40 hrs, Volume= 0.386 af
Primary = 33.48 cfs @ 38.18 hrs, Volume= 3.570 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.55' @ 44.40 hrs Surf.Area= 22,959 sf Storage= 121,446 cf

Plug-Flow detention time= 535.7 min calculated for 3.955 af (59% of inflow)
Center-of-Mass det. time= 267.8 min (2,243.4 - 1,975.6)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
965.00	23,972	62,065	131,899	24,362
967.00	28,808	52,706	184,605	29,333

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 945.00' Phase-In= 0.01'
#2	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.19 cfs @ 44.40 hrs HW=964.55' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 38.18 hrs HW=963.84' TW=963.84' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac, 1.15% Impervious, Inflow Depth > 7.33" for 100 yr x2 event
Inflow = 4.35 cfs @ 36.26 hrs, Volume= 0.531 af
Outflow = 3.60 cfs @ 36.37 hrs, Volume= 0.311 af, Atten= 17%, Lag= 6.2 min
Discarded = 0.05 cfs @ 36.37 hrs, Volume= 0.110 af
Primary = 3.55 cfs @ 36.37 hrs, Volume= 0.202 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 972.71' @ 36.37 hrs Surf.Area= 8,002 sf Storage= 11,345 cf

Plug-Flow detention time= 713.5 min calculated for 0.311 af (59% of inflow)
Center-of-Mass det. time= 351.6 min (2,112.8 - 1,761.2)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	970.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 960.00' Phase-In= 0.01'
#2	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.05 cfs @ 36.37 hrs HW=972.71' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=3.55 cfs @ 36.37 hrs HW=972.71' TW=961.64' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 3.55 cfs @ 1.14 fps)

Summary for Pond 16K: Kettle 16

Inflow Area = 5.920 ac, 0.00% Impervious, Inflow Depth > 4.74" for 100 yr x2 event
Inflow = 10.81 cfs @ 37.09 hrs, Volume= 2.338 af
Outflow = 10.68 cfs @ 37.17 hrs, Volume= 1.983 af, Atten= 1%, Lag= 4.8 min
Discarded = 0.08 cfs @ 37.17 hrs, Volume= 0.193 af
Primary = 10.60 cfs @ 37.17 hrs, Volume= 1.790 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,007.42' @ 37.17 hrs Surf.Area= 11,726 sf Storage= 20,120 cf

Plug-Flow detention time= 289.1 min calculated for 1.983 af (85% of inflow)
Center-of-Mass det. time= 208.8 min (2,231.4 - 2,022.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,005.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 995.00' Phase-In= 0.01'
#2	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.08 cfs @ 37.17 hrs HW=1,007.42' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=10.60 cfs @ 37.17 hrs HW=1,007.42' TW=963.03' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 10.60 cfs @ 1.67 fps)

Summary for Pond 17K: Kettle 17

Inflow Area = 4.300 ac, 0.00% Impervious, Inflow Depth > 6.06" for 100 yr x2 event
Inflow = 8.69 cfs @ 36.96 hrs, Volume= 2.172 af
Outflow = 7.94 cfs @ 37.17 hrs, Volume= 1.913 af, Atten= 9%, Lag= 12.8 min
Discarded = 0.17 cfs @ 37.17 hrs, Volume= 0.393 af
Primary = 7.77 cfs @ 37.17 hrs, Volume= 1.520 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.35' @ 37.17 hrs Surf.Area= 27,853 sf Storage= 19,913 cf

Plug-Flow detention time= 254.2 min calculated for 1.913 af (88% of inflow)
Center-of-Mass det. time= 166.8 min (2,046.3 - 1,879.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

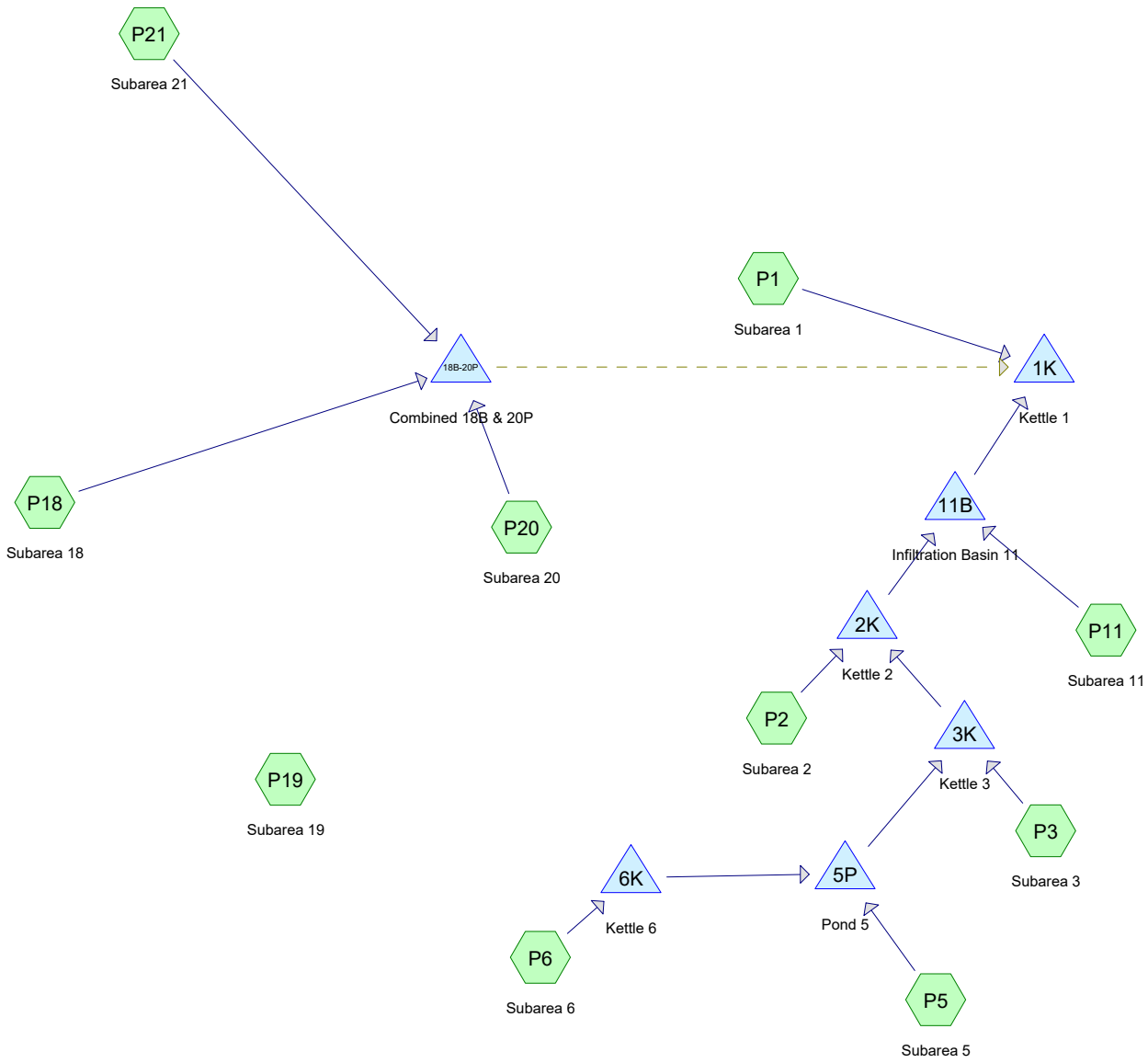
Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.17 cfs @ 37.17 hrs HW=1,012.35' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=7.77 cfs @ 37.17 hrs HW=1,012.35' TW=1,007.42' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 7.77 cfs @ 1.50 fps)

Proposed Back-To-Back 100-year Conditions

HydroCAD Modeling



Subcat Reach Pond Link

Routing Diagram for Proposed_Back-to-Back_Combined-18B-20P
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	70	1/2 acre lots (P1)
4.290	78	Area C from LCL High School Report (P18)
1.830	69	cropland (P1, P20, P21)
9.360	61	grass (P1, P11, P18, P19, P2, P20, P21, P3, P5)
6.050	98	impervious (P1, P11, P18, P19, P2, P20, P21, P3, P5)
0.390	98	water (P20, P5)
21.260	55	woods (P1, P11, P18, P2, P20, P3, P5, P6)
45.750	**66**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.010 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentP1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>6.86"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=32.24 cfs 6.800 af

SubcatchmentP11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>8.37"
Flow Length=220' Tc=39.8 min CN=70 Runoff=12.83 cfs 2.511 af

SubcatchmentP18: Subarea 18 Runoff Area=5.850 ac 7.18% Impervious Runoff Depth>9.23"
Tc=42.8 min CN=76 Runoff=20.94 cfs 4.498 af

SubcatchmentP19: Subarea 19 Runoff Area=0.100 ac 40.00% Impervious Runoff Depth>9.24"
Tc=6.0 min CN=76 Runoff=0.86 cfs 0.077 af

SubcatchmentP2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>6.70"
Flow Length=240' Tc=42.4 min CN=59 Runoff=6.14 cfs 1.134 af

SubcatchmentP20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>8.78"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=19.49 cfs 6.382 af

SubcatchmentP21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>8.81"
Flow Length=920' Tc=26.7 min CN=73 Runoff=8.14 cfs 1.306 af

SubcatchmentP3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>6.71"
Flow Length=140' Tc=23.0 min CN=59 Runoff=3.69 cfs 0.487 af

SubcatchmentP5: Subarea 5 Runoff Area=8.120 ac 16.38% Impervious Runoff Depth>7.32"
Flow Length=400' Slope=0.1000 '/' Tc=52.6 min CN=63 Runoff=22.68 cfs 4.952 af

SubcatchmentP6: Subarea 6 Runoff Area=2.780 ac 0.00% Impervious Runoff Depth>6.07"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=55 Runoff=7.21 cfs 1.406 af

Pond 1K: Kettle 1 Peak Elev=967.27' Storage=776,418 cf Inflow=57.97 cfs 18.888 af
Outflow=0.70 cfs 1.063 af

Pond 2K: Kettle 2 Peak Elev=974.64' Storage=88,960 cf Inflow=14.67 cfs 5.834 af
Discarded=0.16 cfs 0.358 af Primary=12.30 cfs 3.789 af Outflow=12.46 cfs 4.148 af

Pond 3K: Kettle 3 Peak Elev=976.41' Storage=25,970 cf Inflow=10.96 cfs 5.336 af
Discarded=0.07 cfs 0.151 af Primary=10.88 cfs 4.701 af Outflow=10.95 cfs 4.852 af

Pond 5P: Pond 5 Peak Elev=983.03' Storage=56,849 cf Inflow=22.68 cfs 5.114 af
Outflow=10.50 cfs 4.851 af

Pond 6K: Kettle 6 Peak Elev=1,012.81' Storage=40,104 cf Inflow=7.21 cfs 1.406 af
Discarded=0.23 cfs 0.436 af Primary=0.70 cfs 0.162 af Outflow=0.92 cfs 0.598 af

Pond 11B: Infiltration Basin 11 Peak Elev=969.43' Storage=36,851 cf Inflow=17.26 cfs 6.299 af
Discarded=1.22 cfs 1.759 af Primary=15.63 cfs 4.143 af Outflow=16.86 cfs 5.902 af

Pond 18B-20P: Combined 18B & 20P Peak Elev=994.57' Storage=169,564 cf Inflow=38.45 cfs 12.186 af
Discarded=0.88 cfs 1.864 af Secondary=0.00 cfs 0.000 af Tertiary=25.21 cfs 7.947 af Outflow=26.10 cfs 9.811 af

Total Runoff Area = 45.750 ac Runoff Volume = 29.553 af Average Runoff Depth = 7.75"
85.92% Pervious = 39.310 ac 14.08% Impervious = 6.440 ac

Summary for Subcatchment P1: Subarea 1

Runoff = 32.24 cfs @ 36.68 hrs, Volume= 6.800 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	8.010	55	woods
	2.570	70	1/2 acre lots
*	0.700	69	cropland
*	0.540	61	grass
*	0.080	98	impervious
	11.900	60	Weighted Average
	11.820		99.33% Pervious Area
	0.080		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Summary for Subcatchment P11: Subarea 11

Runoff = 12.83 cfs @ 36.53 hrs, Volume= 2.511 af, Depth> 8.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.000	55	woods
*	1.120	61	grass
*	1.000	98	impervious
*	0.040	98	impervious
*	0.440	61	grass
	3.600	70	Weighted Average
	2.560		71.11% Pervious Area
	1.040		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0300	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
17.9	80	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
16.2	105	0.2200	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
39.8	220	Total			

Summary for Subcatchment P18: Subarea 18

Runoff = 20.94 cfs @ 36.57 hrs, Volume= 4.498 af, Depth> 9.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.290	78	Area C from LCL High School Report
*	0.380	55	woods
*	0.760	61	grass
*	0.420	98	impervious
	5.850	76	Weighted Average
	5.430		92.82% Pervious Area
	0.420		7.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Summary for Subcatchment P19: Subarea 19

Runoff = 0.86 cfs @ 36.13 hrs, Volume= 0.077 af, Depth> 9.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.060	61	grass
*	0.040	98	impervious
	0.100	76	Weighted Average
	0.060		60.00% Pervious Area
	0.040		40.00% Impervious Area

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

Summary for Subcatchment P2: Subarea 2

Runoff = 6.14 cfs @ 36.56 hrs, Volume= 1.134 af, Depth> 6.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.330	55	woods
*	0.570	61	grass
*	0.130	98	impervious
	2.030	59	Weighted Average
	1.900		93.60% Pervious Area
	0.130		6.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0600	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
15.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
21.6	140	0.1900	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
42.4	240	Total			

Summary for Subcatchment P20: Subarea 20

Runoff = 19.49 cfs @ 37.08 hrs, Volume= 6.382 af, Depth> 8.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.380	55	woods
*	4.110	61	grass
*	0.150	98	water
*	2.830	98	impervious
*	0.250	69	cropland
	8.720	73	Weighted Average
	5.740		65.83% Pervious Area
	2.980		34.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.6	270	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	335		5.00		**Direct Entry,**
86.0	905	Total			

Summary for Subcatchment P21: Subarea 21

Runoff = 8.14 cfs @ 36.37 hrs, Volume= 1.306 af, Depth> 8.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Summary for Subcatchment P3: Subarea 3

Runoff = 3.69 cfs @ 36.32 hrs, Volume= 0.487 af, Depth> 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.560	55	woods
*	0.260	61	grass
*	0.050	98	impervious
	0.870	59	Weighted Average
	0.820		94.25% Pervious Area
	0.050		5.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	10	0.0500	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
21.3	130	0.1700	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
23.0	140	Total			

Summary for Subcatchment P5: Subarea 5

Runoff = 22.68 cfs @ 36.70 hrs, Volume= 4.952 af, Depth> 7.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	5.820	55	woods
*	0.970	61	grass
*	0.240	98	water
*	1.090	98	impervious
	8.120	63	Weighted Average
	6.790		83.62% Pervious Area
	1.330		16.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.5	300	0.1000	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.1	100	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
52.6	400	Total			

Summary for Subcatchment P6: Subarea 6

Runoff = 7.21 cfs @ 36.66 hrs, Volume= 1.406 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	2.780	55	woods
	2.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.1	200	0.0500	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 1K: Kettle 1

Inflow Area = 29.300 ac, 8.98% Impervious, Inflow Depth > 7.74" for 100 yr x2 event
Inflow = 57.97 cfs @ 37.07 hrs, Volume= 18.888 af
Outflow = 0.70 cfs @ 48.00 hrs, Volume= 1.063 af, Atten= 99%, Lag= 655.9 min
Discarded = 0.70 cfs @ 48.00 hrs, Volume= 1.063 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 967.27' @ 48.00 hrs Surf.Area= 74,284 sf Storage= 776,418 cf

Plug-Flow detention time= 1,357.6 min calculated for 1.063 af (6% of inflow)
Center-of-Mass det. time= 152.7 min (2,120.2 - 1,967.5)

Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	999,288 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
970.00	89,147	438,997	999,288	90,886

Device	Routing	Invert	Outlet Devices
#1	Discarded	944.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 934.00' Phase-In= 0.01'

Discarded OutFlow Max=0.70 cfs @ 48.00 hrs HW=967.27' (Free Discharge)
↑**1=Exfiltration** (Controls 0.70 cfs)

Summary for Pond 2K: Kettle 2

Inflow Area = 13.800 ac, 10.94% Impervious, Inflow Depth > 5.07" for 100 yr x2 event
Inflow = 14.67 cfs @ 36.80 hrs, Volume= 5.834 af
Outflow = 12.46 cfs @ 37.40 hrs, Volume= 4.148 af, Atten= 15%, Lag= 36.1 min
Discarded = 0.16 cfs @ 37.40 hrs, Volume= 0.358 af
Primary = 12.30 cfs @ 37.40 hrs, Volume= 3.789 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 974.64' @ 37.40 hrs Surf.Area= 21,417 sf Storage= 88,960 cf

Plug-Flow detention time= 560.4 min calculated for 4.147 af (71% of inflow)
Center-of-Mass det. time= 346.1 min (2,298.0 - 1,951.9)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,021 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	25,886	24,224	121,021	26,170

Device	Routing	Invert	Outlet Devices
#1	Discarded	966.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 956.00' Phase-In= 0.01'
#2	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.16 cfs @ 37.40 hrs HW=974.64' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=12.30 cfs @ 37.40 hrs HW=974.64' TW=969.40' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 12.30 cfs @ 2.61 fps)

Summary for Pond 3K: Kettle 3

Inflow Area = 11.770 ac, 11.72% Impervious, Inflow Depth > 5.44" for 100 yr x2 event
Inflow = 10.96 cfs @ 37.19 hrs, Volume= 5.336 af
Outflow = 10.95 cfs @ 37.28 hrs, Volume= 4.852 af, Atten= 0%, Lag= 5.0 min
Discarded = 0.07 cfs @ 37.28 hrs, Volume= 0.151 af
Primary = 10.88 cfs @ 37.28 hrs, Volume= 4.701 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 976.41' @ 37.28 hrs Surf.Area= 9,788 sf Storage= 25,970 cf

Plug-Flow detention time= 147.4 min calculated for 4.852 af (91% of inflow)
Center-of-Mass det. time= 68.2 min (1,980.8 - 1,912.6)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	44,405 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,000	2,897	2,897	4,009
974.00	5,650	4,801	7,698	5,677
975.00	7,210	6,414	14,113	7,262
976.00	8,940	8,060	22,172	9,021
977.00	11,100	10,001	32,173	11,210
978.00	13,400	12,232	44,405	13,543

Device	Routing	Invert	Outlet Devices
#1	Discarded	972.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 962.00' Phase-In= 0.01'
#2	Primary	972.50'	**6.0" Round Culvert** L= 60.4' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 972.50' / 971.58' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf
#3	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 37.28 hrs HW=976.41' (Free Discharge)
└**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=10.88 cfs @ 37.28 hrs HW=976.41' TW=974.64' (Dynamic Tailwater)
├**2=Culvert** (Outlet Controls 0.94 cfs @ 4.81 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 9.94 cfs @ 1.63 fps)

Summary for Pond 5P: Pond 5

Inflow Area = 10.900 ac, 12.20% Impervious, Inflow Depth > 5.63" for 100 yr x2 event
Inflow = 22.68 cfs @ 36.70 hrs, Volume= 5.114 af
Outflow = 10.50 cfs @ 37.31 hrs, Volume= 4.851 af, Atten= 54%, Lag= 36.5 min
Primary = 10.50 cfs @ 37.31 hrs, Volume= 4.851 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 983.03' @ 37.31 hrs Surf.Area= 20,314 sf Storage= 56,849 cf

Plug-Flow detention time= 160.0 min calculated for 4.850 af (95% of inflow)
Center-of-Mass det. time= 114.7 min (1,924.0 - 1,809.3)

Volume	Invert	Avail.Storage	Storage Description
#1	979.25'	170,803 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.25	10,255	0	0	10,255
979.75	11,199	5,362	5,362	11,217
981.00	14,748	16,166	21,528	14,801
982.00	17,250	15,983	37,511	17,343
983.00	20,202	18,707	56,217	20,335
984.00	23,940	22,045	78,262	24,109
985.00	28,560	26,216	104,478	28,765
986.00	33,500	30,997	135,475	33,744
987.00	37,188	35,328	170,803	37,492

Device	Routing	Invert	Outlet Devices
#1	Primary	979.25'	**15.0" Round Culvert** L= 130.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 979.25' / 975.50' S= 0.0288 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	979.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	981.25'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	985.90'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=10.50 cfs @ 37.31 hrs HW=983.03' TW=976.41' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 10.50 cfs @ 8.55 fps)
  - **2=Orifice/Grate** (Passes < 1.78 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 45.42 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6K: Kettle 6

Inflow Area = 2.780 ac, 0.00% Impervious, Inflow Depth > 6.07" for 100 yr x2 event
Inflow = 7.21 cfs @ 36.66 hrs, Volume= 1.406 af
Outflow = 0.92 cfs @ 38.17 hrs, Volume= 0.598 af, Atten= 87%, Lag= 90.7 min
Discarded = 0.23 cfs @ 38.17 hrs, Volume= 0.436 af
Primary = 0.70 cfs @ 38.17 hrs, Volume= 0.162 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.81' @ 38.17 hrs Surf.Area= 36,954 sf Storage= 40,104 cf

Plug-Flow detention time= 786.5 min calculated for 0.598 af (43% of inflow)
Center-of-Mass det. time= 221.7 min (2,081.3 - 1,859.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	47,595 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	9,905	0	0	9,905
1,012.00	23,150	16,066	16,066	23,158
1,013.00	40,730	31,529	47,595	40,749

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.70'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.23 cfs @ 38.17 hrs HW=1,012.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.23 cfs)

Primary OutFlow Max=0.70 cfs @ 38.17 hrs HW=1,012.81' TW=982.46' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.70 cfs @ 0.81 fps)

Summary for Pond 11B: Infiltration Basin 11

Inflow Area = 17.400 ac, 14.66% Impervious, Inflow Depth > 4.34" for 100 yr x2 event
Inflow = 17.26 cfs @ 36.76 hrs, Volume= 6.299 af
Outflow = 16.86 cfs @ 37.01 hrs, Volume= 5.902 af, Atten= 2%, Lag= 15.1 min
Discarded = 1.22 cfs @ 37.01 hrs, Volume= 1.759 af
Primary = 15.63 cfs @ 37.01 hrs, Volume= 4.143 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 969.43' @ 37.01 hrs Surf.Area= 11,108 sf Storage= 36,851 cf

Plug-Flow detention time= 85.5 min calculated for 5.901 af (94% of inflow)
Center-of-Mass det. time= 40.9 min (2,129.7 - 2,088.8)

Volume	Invert	Avail.Storage	Storage Description
#1	964.00'	43,487 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
964.00	3,560	0	0	3,560
965.00	4,560	4,050	4,050	4,585
966.00	5,660	5,100	9,150	5,714
967.00	6,895	6,267	15,417	6,980
968.00	8,290	7,582	22,999	8,409
969.00	10,205	9,231	32,230	10,354
970.00	12,343	11,257	43,487	12,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	964.00'	**3.600 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 954.00' Phase-In= 0.01'
#2	Primary	966.00'	**10.0" Round Culvert** L= 65.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 966.00' / 962.00' S= 0.0615 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Primary	969.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=1.22 cfs @ 37.01 hrs HW=969.43' (Free Discharge)
└**1=Exfiltration** (Controls 1.22 cfs)

Primary OutFlow Max=15.63 cfs @ 37.01 hrs HW=969.43' TW=960.65' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 4.56 cfs @ 8.36 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 11.07 cfs @ 1.70 fps)

Summary for Pond 18B-20P: Combined 18B & 20P

Inflow Area = 16.350 ac, 23.06% Impervious, Inflow Depth > 8.94" for 100 yr x2 event
Inflow = 38.45 cfs @ 36.62 hrs, Volume= 12.186 af
Outflow = 26.10 cfs @ 37.30 hrs, Volume= 9.811 af, Atten= 32%, Lag= 40.7 min
Discarded = 0.88 cfs @ 37.30 hrs, Volume= 1.864 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 25.21 cfs @ 37.30 hrs, Volume= 7.947 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 994.57' @ 37.30 hrs Surf.Area= 22,664 sf Storage= 169,564 cf

Plug-Flow detention time= 395.8 min calculated for 9.811 af (81% of inflow)
Center-of-Mass det. time= 229.1 min (1,940.0 - 1,710.9)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	83,684 cf	**Existing Infilltration Basin 18B (Conic)** Listed below (Recalc)
#2	989.00'	108,558 cf	**Pond 20 (Conic)** Listed below (Recalc) -Impervious
		192,242 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	6,352	0	0	6,352
990.00	10,364	8,277	8,277	10,377
991.00	15,582	12,885	21,161	15,610
992.00	18,483	17,012	38,173	18,548
993.00	21,527	19,986	58,159	21,633
994.00	24,654	23,073	81,232	24,806
995.00	30,089	27,326	108,558	30,272

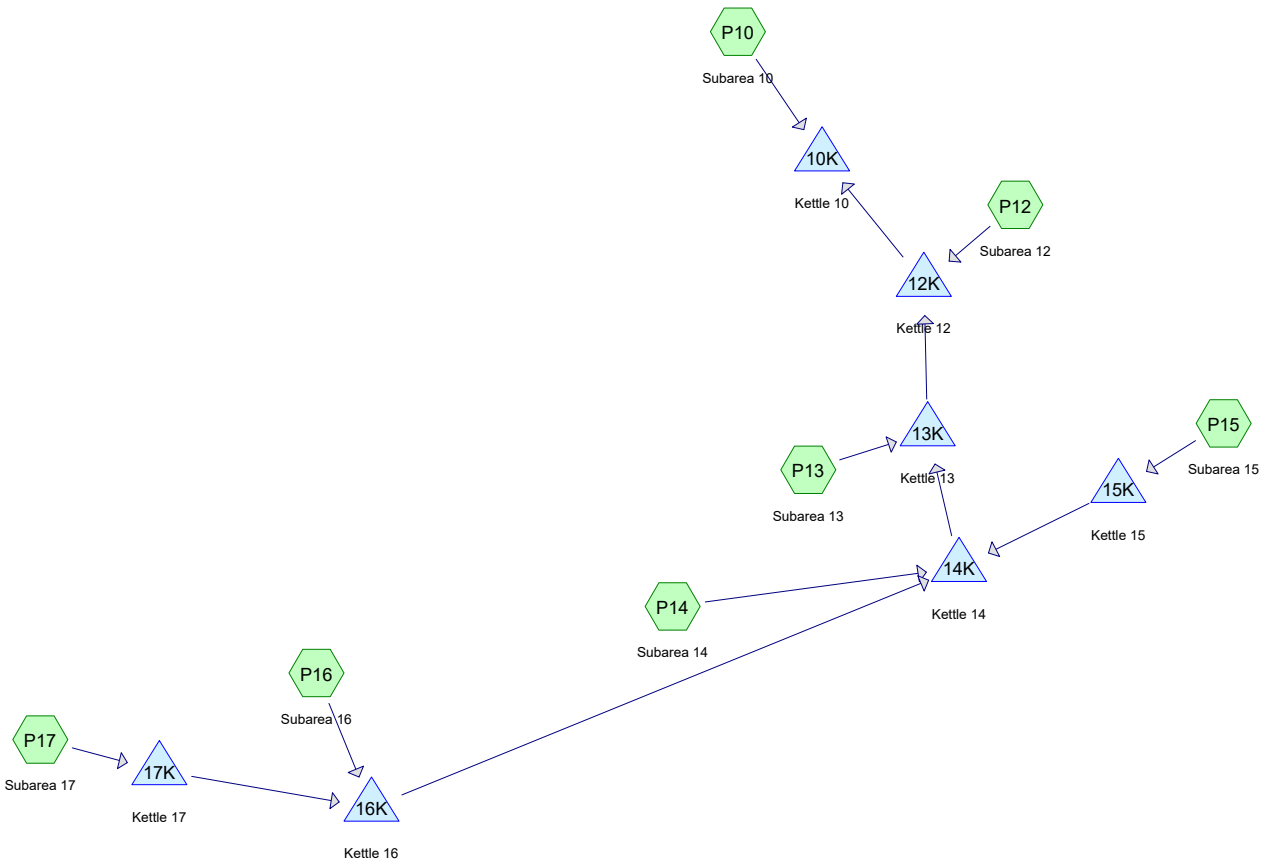
Device	Routing	Invert	Outlet Devices
#1	Discarded	989.00'	**1.300 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 979.00'
#2	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Tertiary	994.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Tertiary	989.00'	**6.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 989.00' / 988.62' S= 0.0152 '/' Cc= 0.900
n= 0.011, Flow Area= 0.20 sf

Discarded OutFlow Max=0.88 cfs @ 37.30 hrs HW=994.57' (Free Discharge)
└**1=Exfiltration** (Controls 0.88 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Tertiary OutFlow Max=25.21 cfs @ 37.30 hrs HW=994.57' TW=961.88' (Dynamic Tailwater)
├**3=Broad-Crested Rectangular Weir**(Weir Controls 23.06 cfs @ 2.02 fps)
└**4=Culvert** (Barrel Controls 2.15 cfs @ 10.97 fps)



Subcat Reach Pond Link

Routing Diagram for Proposed_Kettle10
Prepared by HP Inc., Printed 8/26/2020
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.110	75	1/4 acre lots (P10, P12, P13, P14, P15)
3.060	61	grass (P10, P12, P14, P15)
1.020	98	impervious (P12, P14, P15)
14.050	55	woods (P10, P12, P13, P14, P15, P16, P17)
20.240	**60**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.010 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=5.91 cfs 0.995 af

SubcatchmentP12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>7.93"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=10.57 cfs 1.698 af

SubcatchmentP13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=3.47 cfs 0.578 af

SubcatchmentP14: Subarea 14 Runoff Area=8.130 ac 10.21% Impervious Runoff Depth>6.99"
Flow Length=1,110' Tc=104.8 min CN=61 Runoff=13.97 cfs 4.734 af

SubcatchmentP15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>7.33"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=4.35 cfs 0.531 af

SubcatchmentP16: Subarea 16 Runoff Area=1.620 ac 0.00% Impervious Runoff Depth>6.06"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=55 Runoff=3.39 cfs 0.818 af

SubcatchmentP17: Subarea 17 Runoff Area=4.300 ac 0.00% Impervious Runoff Depth>6.06"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=55 Runoff=8.69 cfs 2.172 af

Pond 10K: Kettle 10 Peak Elev=964.40' Storage=92,806 cf Inflow=16.74 cfs 2.331 af
Discarded=0.15 cfs 0.205 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.205 af

Pond 12K: Kettle 12 Peak Elev=964.40' Storage=151,240 cf Inflow=17.99 cfs 5.240 af
Discarded=0.25 cfs 0.438 af Primary=16.25 cfs 1.336 af Outflow=16.47 cfs 1.774 af

Pond 13K: Kettle 13 Peak Elev=964.40' Storage=26,601 cf Inflow=31.16 cfs 4.216 af
Discarded=0.06 cfs 0.066 af Primary=16.26 cfs 3.541 af Outflow=16.31 cfs 3.608 af

Pond 14K: Kettle 14 Peak Elev=964.40' Storage=117,977 cf Inflow=24.85 cfs 6.726 af
Discarded=0.18 cfs 0.383 af Primary=30.94 cfs 3.639 af Outflow=31.11 cfs 4.022 af

Pond 15K: Kettle 15 Peak Elev=972.71' Storage=11,345 cf Inflow=4.35 cfs 0.531 af
Discarded=0.05 cfs 0.110 af Primary=3.55 cfs 0.202 af Outflow=3.60 cfs 0.311 af

Pond 16K: Kettle 16 Peak Elev=1,007.42' Storage=20,120 cf Inflow=10.81 cfs 2.338 af
Discarded=0.08 cfs 0.193 af Primary=10.60 cfs 1.790 af Outflow=10.68 cfs 1.983 af

Pond 17K: Kettle 17 Peak Elev=1,012.35' Storage=19,913 cf Inflow=8.69 cfs 2.172 af
Discarded=0.17 cfs 0.393 af Primary=7.77 cfs 1.520 af Outflow=7.94 cfs 1.913 af

Total Runoff Area = 20.240 ac Runoff Volume = 11.527 af Average Runoff Depth = 6.83"
94.96% Pervious = 19.220 ac 5.04% Impervious = 1.020 ac

Summary for Subcatchment P10: Subarea 10

Runoff = 5.91 cfs @ 36.48 hrs, Volume= 0.995 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.270	55	woods
*	0.450	75	1/4 acre lots
*	0.020	61	grass
	1.740	60	Weighted Average
	1.740		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P12: Subarea 12

Runoff = 10.57 cfs @ 36.40 hrs, Volume= 1.698 af, Depth> 7.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.970	55	woods
*	0.350	61	grass
*	0.180	98	impervious
	1.070	75	1/4 acre lots
	2.570	67	Weighted Average
	2.390		93.00% Pervious Area
	0.180		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1300	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
25.2	140	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
29.4	190	Total			

Summary for Subcatchment P13: Subarea 13

Runoff = 3.47 cfs @ 36.47 hrs, Volume= 0.578 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.760	55	woods
	0.250	75	1/4 acre lots
	1.010	60	Weighted Average
	1.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P14: Subarea 14

Runoff = 13.97 cfs @ 37.37 hrs, Volume= 4.734 af, Depth> 6.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.650	55	woods
*	2.600	61	grass
*	0.830	98	impervious
*	0.050	75	1/4 acre lots
	8.130	61	Weighted Average
	7.300		89.79% Pervious Area
	0.830		10.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
98.0	300	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.0	170	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
104.8	1,110	Total			

Summary for Subcatchment P15: Subarea 15

Runoff = 4.35 cfs @ 36.26 hrs, Volume= 0.531 af, Depth> 7.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.480	55	woods
*	0.090	61	grass
*	0.010	98	impervious
*	0.290	75	1/4 acre lots
	0.870	63	Weighted Average
	0.860		98.85% Pervious Area
	0.010		1.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P16: Subarea 16

Runoff = 3.39 cfs @ 36.88 hrs, Volume= 0.818 af, Depth> 6.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.620	55	woods
	1.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.3	270	0.0400	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P17: Subarea 17

Runoff = 8.69 cfs @ 36.96 hrs, Volume= 2.172 af, Depth> 6.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.300	55	woods
	4.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0	250	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 10K: Kettle 10

Inflow Area = 20.240 ac, 5.04% Impervious, Inflow Depth > 1.38" for 100 yr x2 event
Inflow = 16.74 cfs @ 38.04 hrs, Volume= 2.331 af
Outflow = 0.15 cfs @ 46.69 hrs, Volume= 0.205 af, Atten= 99%, Lag= 519.2 min
Discarded = 0.15 cfs @ 46.69 hrs, Volume= 0.205 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.40' @ 46.69 hrs Surf.Area= 20,046 sf Storage= 92,806 cf

Plug-Flow detention time= 1,404.3 min calculated for 0.205 af (9% of inflow)
Center-of-Mass det. time= 80.0 min (2,173.3 - 2,093.3)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 943.00' Phase-In= 0.01'
#2	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.15 cfs @ 46.69 hrs HW=964.40' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 12K: Kettle 12

Inflow Area = 18.500 ac, 5.51% Impervious, Inflow Depth > 3.40" for 100 yr x2 event
Inflow = 17.99 cfs @ 36.42 hrs, Volume= 5.240 af
Outflow = 16.47 cfs @ 38.06 hrs, Volume= 1.774 af, Atten= 8%, Lag= 98.3 min
Discarded = 0.25 cfs @ 46.60 hrs, Volume= 0.438 af
Primary = 16.25 cfs @ 38.06 hrs, Volume= 1.336 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.40' @ 46.60 hrs Surf.Area= 32,000 sf Storage= 151,240 cf

Plug-Flow detention time= 693.7 min calculated for 1.774 af (34% of inflow)
Center-of-Mass det. time= 196.0 min (2,242.9 - 2,046.9)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 946.00' Phase-In= 0.01'
#2	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.25 cfs @ 46.60 hrs HW=964.40' (Free Discharge)
1=Exfiltration (Controls 0.25 cfs)

Primary OutFlow Max=16.25 cfs @ 38.06 hrs HW=963.55' TW=962.93' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 16.25 cfs @ 1.97 fps)

Summary for Pond 13K: Kettle 13

Inflow Area = 15.930 ac, 5.27% Impervious, Inflow Depth > 3.18" for 100 yr x2 event
Inflow = 31.16 cfs @ 38.37 hrs, Volume= 4.216 af
Outflow = 16.31 cfs @ 37.87 hrs, Volume= 3.608 af, Atten= 48%, Lag= 0.0 min
Discarded = 0.06 cfs @ 46.35 hrs, Volume= 0.066 af
Primary = 16.26 cfs @ 37.87 hrs, Volume= 3.541 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.40' @ 46.35 hrs Surf.Area= 8,953 sf Storage= 26,601 cf

Plug-Flow detention time= 45.9 min calculated for 3.607 af (86% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.40'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 949.00' Phase-In= 0.01'
#2	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#3	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 46.35 hrs HW=964.40' (Free Discharge)
└**1=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=16.20 cfs @ 37.87 hrs HW=963.78' TW=963.54' (Dynamic Tailwater)
├**2=Culvert** (Outlet Controls 16.20 cfs @ 2.58 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 14K: Kettle 14

Inflow Area = 14.920 ac, 5.63% Impervious, Inflow Depth > 5.41" for 100 yr x2 event
Inflow = 24.85 cfs @ 37.24 hrs, Volume= 6.726 af
Outflow = 31.11 cfs @ 38.37 hrs, Volume= 4.022 af, Atten= 0%, Lag= 67.8 min
Discarded = 0.18 cfs @ 46.66 hrs, Volume= 0.383 af
Primary = 30.94 cfs @ 38.37 hrs, Volume= 3.639 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 964.40' @ 46.66 hrs Surf.Area= 22,617 sf Storage= 117,977 cf

Plug-Flow detention time= 523.7 min calculated for 4.021 af (60% of inflow)
Center-of-Mass det. time= 264.5 min (2,240.2 - 1,975.6)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
965.00	23,972	62,065	131,899	24,362
967.00	28,808	52,706	184,605	29,333

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 945.00' Phase-In= 0.01'
#2	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.18 cfs @ 46.66 hrs HW=964.40' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 38.37 hrs HW=963.75' TW=963.75' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac, 1.15% Impervious, Inflow Depth > 7.33" for 100 yr x2 event
Inflow = 4.35 cfs @ 36.26 hrs, Volume= 0.531 af
Outflow = 3.60 cfs @ 36.37 hrs, Volume= 0.311 af, Atten= 17%, Lag= 6.2 min
Discarded = 0.05 cfs @ 36.37 hrs, Volume= 0.110 af
Primary = 3.55 cfs @ 36.37 hrs, Volume= 0.202 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 972.71' @ 36.37 hrs Surf.Area= 8,002 sf Storage= 11,345 cf

Plug-Flow detention time= 713.5 min calculated for 0.311 af (59% of inflow)
Center-of-Mass det. time= 351.6 min (2,112.8 - 1,761.2)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	970.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 960.00' Phase-In= 0.01'
#2	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.05 cfs @ 36.37 hrs HW=972.71' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=3.55 cfs @ 36.37 hrs HW=972.71' TW=961.64' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 3.55 cfs @ 1.14 fps)

Summary for Pond 16K: Kettle 16

Inflow Area = 5.920 ac, 0.00% Impervious, Inflow Depth > 4.74" for 100 yr x2 event
Inflow = 10.81 cfs @ 37.09 hrs, Volume= 2.338 af
Outflow = 10.68 cfs @ 37.17 hrs, Volume= 1.983 af, Atten= 1%, Lag= 4.8 min
Discarded = 0.08 cfs @ 37.17 hrs, Volume= 0.193 af
Primary = 10.60 cfs @ 37.17 hrs, Volume= 1.790 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,007.42' @ 37.17 hrs Surf.Area= 11,726 sf Storage= 20,120 cf

Plug-Flow detention time= 289.1 min calculated for 1.983 af (85% of inflow)
Center-of-Mass det. time= 208.8 min (2,231.4 - 2,022.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,005.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 995.00' Phase-In= 0.01'
#2	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.08 cfs @ 37.17 hrs HW=1,007.42' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=10.60 cfs @ 37.17 hrs HW=1,007.42' TW=963.01' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 10.60 cfs @ 1.67 fps)

Summary for Pond 17K: Kettle 17

Inflow Area = 4.300 ac, 0.00% Impervious, Inflow Depth > 6.06" for 100 yr x2 event
Inflow = 8.69 cfs @ 36.96 hrs, Volume= 2.172 af
Outflow = 7.94 cfs @ 37.17 hrs, Volume= 1.913 af, Atten= 9%, Lag= 12.8 min
Discarded = 0.17 cfs @ 37.17 hrs, Volume= 0.393 af
Primary = 7.77 cfs @ 37.17 hrs, Volume= 1.520 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.35' @ 37.17 hrs Surf.Area= 27,853 sf Storage= 19,913 cf

Plug-Flow detention time= 254.2 min calculated for 1.913 af (88% of inflow)
Center-of-Mass det. time= 166.8 min (2,046.3 - 1,879.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

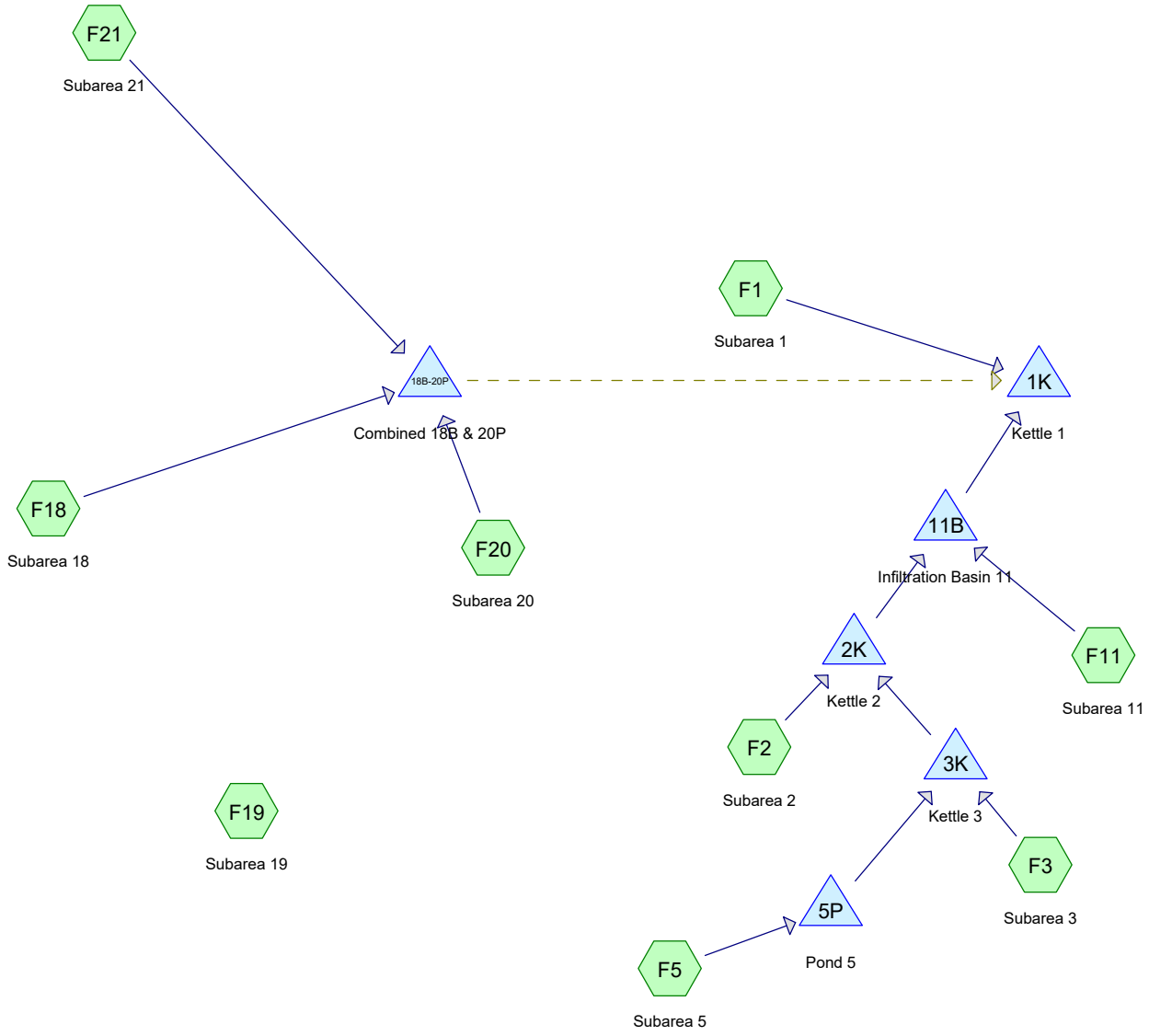
Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.17 cfs @ 37.17 hrs HW=1,012.35' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=7.77 cfs @ 37.17 hrs HW=1,012.35' TW=1,007.42' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 7.77 cfs @ 1.50 fps)

Future Back-To-Back 100-year Conditions

HydroCAD Modeling



Subcat Reach Pond Link

Routing Diagram for Future_Back-to-Back_Combined-18B-20P
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	70	1/2 acre lots (F1)
4.290	78	Area C from LCL High School Report (F18)
1.830	69	cropland (F1, F20, F21)
12.950	61	grass (F1, F11, F18, F19, F2, F20, F21, F3, F5)
12.090	98	impervious (F1, F11, F18, F19, F2, F20, F21, F3, F5)
0.390	98	water (F20, F5)
14.140	55	woods (F1, F11, F18, F2, F20, F3, F5)
48.260	**71**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.010 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentF1: Subarea 1 Runoff Area=11.900 ac 0.67% Impervious Runoff Depth>6.86"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=60 Runoff=32.24 cfs 6.800 af

SubcatchmentF11: Subarea 11 Runoff Area=3.600 ac 28.89% Impervious Runoff Depth>8.37"
Flow Length=220' Tc=39.8 min CN=70 Runoff=12.83 cfs 2.511 af

SubcatchmentF18: Subarea 18 Runoff Area=5.860 ac 8.87% Impervious Runoff Depth>9.23"
Tc=42.8 min CN=76 Runoff=20.97 cfs 4.506 af

SubcatchmentF19: Subarea 19 Runoff Area=0.100 ac 60.00% Impervious Runoff Depth>10.20"
Tc=6.0 min CN=83 Runoff=0.89 cfs 0.085 af

SubcatchmentF2: Subarea 2 Runoff Area=2.030 ac 6.40% Impervious Runoff Depth>6.70"
Flow Length=240' Tc=42.4 min CN=59 Runoff=6.14 cfs 1.134 af

SubcatchmentF20: Subarea 20 Runoff Area=8.720 ac 34.17% Impervious Runoff Depth>8.78"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=73 Runoff=19.49 cfs 6.382 af

SubcatchmentF21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>8.81"
Flow Length=920' Tc=26.7 min CN=73 Runoff=8.14 cfs 1.306 af

SubcatchmentF3: Subarea 3 Runoff Area=0.870 ac 5.75% Impervious Runoff Depth>6.71"
Flow Length=140' Tc=23.0 min CN=59 Runoff=3.69 cfs 0.487 af

SubcatchmentF5: Subarea 5 Runoff Area=13.400 ac 54.10% Impervious Runoff Depth>9.78"
Flow Length=300' Slope=0.0500 '/' Tc=39.5 min CN=80 Runoff=51.51 cfs 10.925 af

Pond 1K: Kettle 1 Peak Elev=969.52' Storage=957,383 cf Inflow=65.52 cfs 23.257 af
Outflow=0.81 cfs 1.279 af

Pond 2K: Kettle 2 Peak Elev=974.92' Storage=94,905 cf Inflow=20.27 cfs 11.463 af
Discarded=0.17 cfs 0.414 af Primary=18.02 cfs 9.360 af Outflow=18.19 cfs 9.774 af

Pond 3K: Kettle 3 Peak Elev=976.49' Storage=26,798 cf Inflow=14.49 cfs 11.021 af
Discarded=0.07 cfs 0.184 af Primary=14.37 cfs 10.329 af Outflow=14.44 cfs 10.514 af

Pond 5P: Pond 5 Peak Elev=985.67' Storage=124,580 cf Inflow=51.51 cfs 10.924 af
Outflow=13.81 cfs 10.536 af

Pond 11B: Infiltration Basin 11 Peak Elev=969.66' Storage=39,476 cf Inflow=28.34 cfs 11.869 af
Discarded=1.28 cfs 2.539 af Primary=26.67 cfs 8.505 af Outflow=27.95 cfs 11.045 af

Pond 18B-20P: Combined 18B & 20P Peak Elev=994.57' Storage=169,595 cf Inflow=38.48 cfs 12.194 af
Discarded=0.88 cfs 1.865 af Secondary=0.00 cfs 0.000 af Tertiary=25.25 cfs 7.954 af Outflow=26.14 cfs 9.819 af

Total Runoff Area = 48.260 ac Runoff Volume = 34.135 af Average Runoff Depth = 8.49"
74.14% Pervious = 35.780 ac 25.86% Impervious = 12.480 ac

Summary for Subcatchment F1: Subarea 1

Runoff = 32.24 cfs @ 36.68 hrs, Volume= 6.800 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	8.010	55	woods
	2.570	70	1/2 acre lots
*	0.700	69	cropland
*	0.540	61	grass
*	0.080	98	impervious
	11.900	60	Weighted Average
	11.820		99.33% Pervious Area
	0.080		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Summary for Subcatchment F11: Subarea 11

Runoff = 12.83 cfs @ 36.53 hrs, Volume= 2.511 af, Depth> 8.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.000	55	woods
*	1.120	61	grass
*	1.000	98	impervious
*	0.040	98	impervious
*	0.440	61	grass
	3.600	70	Weighted Average
	2.560		71.11% Pervious Area
	1.040		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0300	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
17.9	80	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
16.2	105	0.2200	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
39.8	220	Total			

Summary for Subcatchment F18: Subarea 18

Runoff = 20.97 cfs @ 36.57 hrs, Volume= 4.506 af, Depth> 9.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	4.290	78	Area C from LCL High School Report
*	0.270	55	woods
*	0.780	61	grass
*	0.520	98	impervious
	5.860	76	Weighted Average
	5.340		91.13% Pervious Area
	0.520		8.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Summary for Subcatchment F19: Subarea 19

Runoff = 0.89 cfs @ 36.13 hrs, Volume= 0.085 af, Depth>10.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.040	61	grass
*	0.060	98	impervious
	0.100	83	Weighted Average
	0.040		40.00% Pervious Area
	0.060		60.00% Impervious Area

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

Summary for Subcatchment F2: Subarea 2

Runoff = 6.14 cfs @ 36.56 hrs, Volume= 1.134 af, Depth> 6.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.330	55	woods
*	0.570	61	grass
*	0.130	98	impervious
	2.030	59	Weighted Average
	1.900		93.60% Pervious Area
	0.130		6.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0600	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
15.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
21.6	140	0.1900	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
42.4	240	Total			

Summary for Subcatchment F20: Subarea 20

Runoff = 19.49 cfs @ 37.08 hrs, Volume= 6.382 af, Depth> 8.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.380	55	woods
*	4.110	61	grass
*	0.150	98	water
*	2.830	98	impervious
*	0.250	69	cropland
	8.720	73	Weighted Average
	5.740		65.83% Pervious Area
	2.980		34.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.6	270	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	335		5.00		**Direct Entry,**
86.0	905	Total			

Summary for Subcatchment F21: Subarea 21

Runoff = 8.14 cfs @ 36.37 hrs, Volume= 1.306 af, Depth> 8.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Summary for Subcatchment F3: Subarea 3

Runoff = 3.69 cfs @ 36.32 hrs, Volume= 0.487 af, Depth> 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.560	55	woods
*	0.260	61	grass
*	0.050	98	impervious
	0.870	59	Weighted Average
	0.820		94.25% Pervious Area
	0.050		5.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	10	0.0500	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
21.3	130	0.1700	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
23.0	140	Total			

Summary for Subcatchment F5: Subarea 5

Runoff = 51.51 cfs @ 36.52 hrs, Volume= 10.925 af, Depth> 9.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.590	55	woods
*	4.560	61	grass
*	0.240	98	water
*	7.010	98	impervious
	13.400	80	Weighted Average
	6.150		45.90% Pervious Area
	7.250		54.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.0	150	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
0.5	150		5.00		**Direct Entry,**
39.5	300	Total			

Summary for Pond 1K: Kettle 1

Inflow Area = 31.800 ac, 26.89% Impervious, Inflow Depth > 8.78" for 100 yr x2 event
Inflow = 65.52 cfs @ 37.00 hrs, Volume= 23.257 af
Outflow = 0.81 cfs @ 48.00 hrs, Volume= 1.279 af, Atten= 99%, Lag= 659.9 min
Discarded = 0.81 cfs @ 48.00 hrs, Volume= 1.279 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 969.52' @ 48.00 hrs Surf.Area= 86,452 sf Storage= 957,383 cf

Plug-Flow detention time= 1,349.1 min calculated for 1.279 af (5% of inflow)
Center-of-Mass det. time= 191.0 min (2,116.9 - 1,925.9)

Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	999,288 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
970.00	89,147	438,997	999,288	90,886

Device	Routing	Invert	Outlet Devices
#1	Discarded	944.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 934.00' Phase-In= 0.01'

Discarded OutFlow Max=0.81 cfs @ 48.00 hrs HW=969.52' (Free Discharge)
↑**1=Exfiltration** (Controls 0.81 cfs)

Summary for Pond 2K: Kettle 2

Inflow Area = 16.300 ac, 45.58% Impervious, Inflow Depth > 8.44" for 100 yr x2 event
Inflow = 20.27 cfs @ 36.60 hrs, Volume= 11.463 af
Outflow = 18.19 cfs @ 36.92 hrs, Volume= 9.774 af, Atten= 10%, Lag= 18.9 min
Discarded = 0.17 cfs @ 36.92 hrs, Volume= 0.414 af
Primary = 18.02 cfs @ 36.92 hrs, Volume= 9.360 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 974.92' @ 36.92 hrs Surf.Area= 22,317 sf Storage= 94,905 cf

Plug-Flow detention time= 313.3 min calculated for 9.772 af (85% of inflow)
Center-of-Mass det. time= 187.5 min (1,987.8 - 1,800.2)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,021 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	25,886	24,224	121,021	26,170

Device	Routing	Invert	Outlet Devices
#1	Discarded	966.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 956.00' Phase-In= 0.01'
#2	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.17 cfs @ 36.92 hrs HW=974.92' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=18.02 cfs @ 36.92 hrs HW=974.92' TW=969.63' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 18.02 cfs @ 2.96 fps)

Summary for Pond 3K: Kettle 3

Inflow Area = 14.270 ac, 51.16% Impervious, Inflow Depth > 9.27" for 100 yr x2 event
Inflow = 14.49 cfs @ 36.71 hrs, Volume= 11.021 af
Outflow = 14.44 cfs @ 36.77 hrs, Volume= 10.514 af, Atten= 0%, Lag= 3.8 min
Discarded = 0.07 cfs @ 36.78 hrs, Volume= 0.184 af
Primary = 14.37 cfs @ 36.77 hrs, Volume= 10.329 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 976.49' @ 36.78 hrs Surf.Area= 9,968 sf Storage= 26,798 cf

Plug-Flow detention time= 95.8 min calculated for 10.511 af (95% of inflow)
Center-of-Mass det. time= 48.9 min (1,798.4 - 1,749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	44,405 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,000	2,897	2,897	4,009
974.00	5,650	4,801	7,698	5,677
975.00	7,210	6,414	14,113	7,262
976.00	8,940	8,060	22,172	9,021
977.00	11,100	10,001	32,173	11,210
978.00	13,400	12,232	44,405	13,543

Device	Routing	Invert	Outlet Devices
#1	Discarded	972.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 962.00' Phase-In= 0.01'
#2	Primary	972.50'	**6.0" Round Culvert** L= 60.4' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 972.50' / 971.58' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf
#3	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 36.78 hrs HW=976.49' (Free Discharge)
└**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=14.37 cfs @ 36.77 hrs HW=976.49' TW=974.90' (Dynamic Tailwater)
├**2=Culvert** (Outlet Controls 0.90 cfs @ 4.56 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 13.47 cfs @ 1.83 fps)

Summary for Pond 5P: Pond 5

Inflow Area = 13.400 ac, 54.10% Impervious, Inflow Depth > 9.78" for 100 yr x2 event
Inflow = 51.51 cfs @ 36.52 hrs, Volume= 10.924 af
Outflow = 13.81 cfs @ 37.29 hrs, Volume= 10.536 af, Atten= 73%, Lag= 45.9 min
Primary = 13.81 cfs @ 37.29 hrs, Volume= 10.536 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 985.67' @ 37.29 hrs Surf.Area= 31,808 sf Storage= 124,580 cf

Plug-Flow detention time= 140.4 min calculated for 10.536 af (96% of inflow)
Center-of-Mass det. time= 102.9 min (1,747.3 - 1,644.4)

Volume	Invert	Avail.Storage	Storage Description
#1	979.25'	170,803 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.25	10,255	0	0	10,255
979.75	11,199	5,362	5,362	11,217
981.00	14,748	16,166	21,528	14,801
982.00	17,250	15,983	37,511	17,343
983.00	20,202	18,707	56,217	20,335
984.00	23,940	22,045	78,262	24,109
985.00	28,560	26,216	104,478	28,765
986.00	33,500	30,997	135,475	33,744
987.00	37,188	35,328	170,803	37,492

Device	Routing	Invert	Outlet Devices
#1	Primary	979.25'	**15.0" Round Culvert** L= 130.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 979.25' / 975.50' S= 0.0288 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	979.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	981.25'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	985.90'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=13.81 cfs @ 37.29 hrs HW=985.67' TW=976.49' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 13.81 cfs @ 11.26 fps)
  - **2=Orifice/Grate** (Passes < 2.35 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 71.52 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 11B: Infiltration Basin 11

Inflow Area = 19.900 ac, 42.56% Impervious, Inflow Depth > 7.16" for 100 yr x2 event
Inflow = 28.34 cfs @ 36.65 hrs, Volume= 11.869 af
Outflow = 27.95 cfs @ 36.73 hrs, Volume= 11.045 af, Atten= 1%, Lag= 4.4 min
Discarded = 1.28 cfs @ 36.73 hrs, Volume= 2.539 af
Primary = 26.67 cfs @ 36.73 hrs, Volume= 8.505 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 969.66' @ 36.73 hrs Surf.Area= 11,604 sf Storage= 39,476 cf

Plug-Flow detention time= 79.0 min calculated for 11.045 af (93% of inflow)
Center-of-Mass det. time= 25.1 min (1,961.7 - 1,936.7)

Volume	Invert	Avail.Storage	Storage Description
#1	964.00'	43,487 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
964.00	3,560	0	0	3,560
965.00	4,560	4,050	4,050	4,585
966.00	5,660	5,100	9,150	5,714
967.00	6,895	6,267	15,417	6,980
968.00	8,290	7,582	22,999	8,409
969.00	10,205	9,231	32,230	10,354
970.00	12,343	11,257	43,487	12,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	964.00'	**3.600 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 954.00' Phase-In= 0.01'
#2	Primary	966.00'	**10.0" Round Culvert** L= 65.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 966.00' / 962.00' S= 0.0615 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#3	Primary	969.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=1.28 cfs @ 36.73 hrs HW=969.66' (Free Discharge)
└**1=Exfiltration** (Controls 1.28 cfs)

Primary OutFlow Max=26.67 cfs @ 36.73 hrs HW=969.66' TW=961.95' (Dynamic Tailwater)
├**2=Culvert** (Inlet Controls 4.73 cfs @ 8.68 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 21.93 cfs @ 2.20 fps)

Summary for Pond 18B-20P: Combined 18B & 20P

Inflow Area = 16.360 ac, 23.66% Impervious, Inflow Depth > 8.94" for 100 yr x2 event
Inflow = 38.48 cfs @ 36.62 hrs, Volume= 12.194 af
Outflow = 26.14 cfs @ 37.29 hrs, Volume= 9.819 af, Atten= 32%, Lag= 40.6 min
Discarded = 0.88 cfs @ 37.29 hrs, Volume= 1.865 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 25.25 cfs @ 37.29 hrs, Volume= 7.954 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 994.57' @ 37.29 hrs Surf.Area= 22,667 sf Storage= 169,595 cf

Plug-Flow detention time= 395.8 min calculated for 9.819 af (81% of inflow)
Center-of-Mass det. time= 229.2 min (1,940.1 - 1,710.9)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	83,684 cf	**Existing Infilltration Basin 18B (Conic)** Listed below (Recalc)
#2	989.00'	108,558 cf	**Pond 20 (Conic)** Listed below (Recalc) -Impervious
		192,242 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	6,352	0	0	6,352
990.00	10,364	8,277	8,277	10,377
991.00	15,582	12,885	21,161	15,610
992.00	18,483	17,012	38,173	18,548
993.00	21,527	19,986	58,159	21,633
994.00	24,654	23,073	81,232	24,806
995.00	30,089	27,326	108,558	30,272

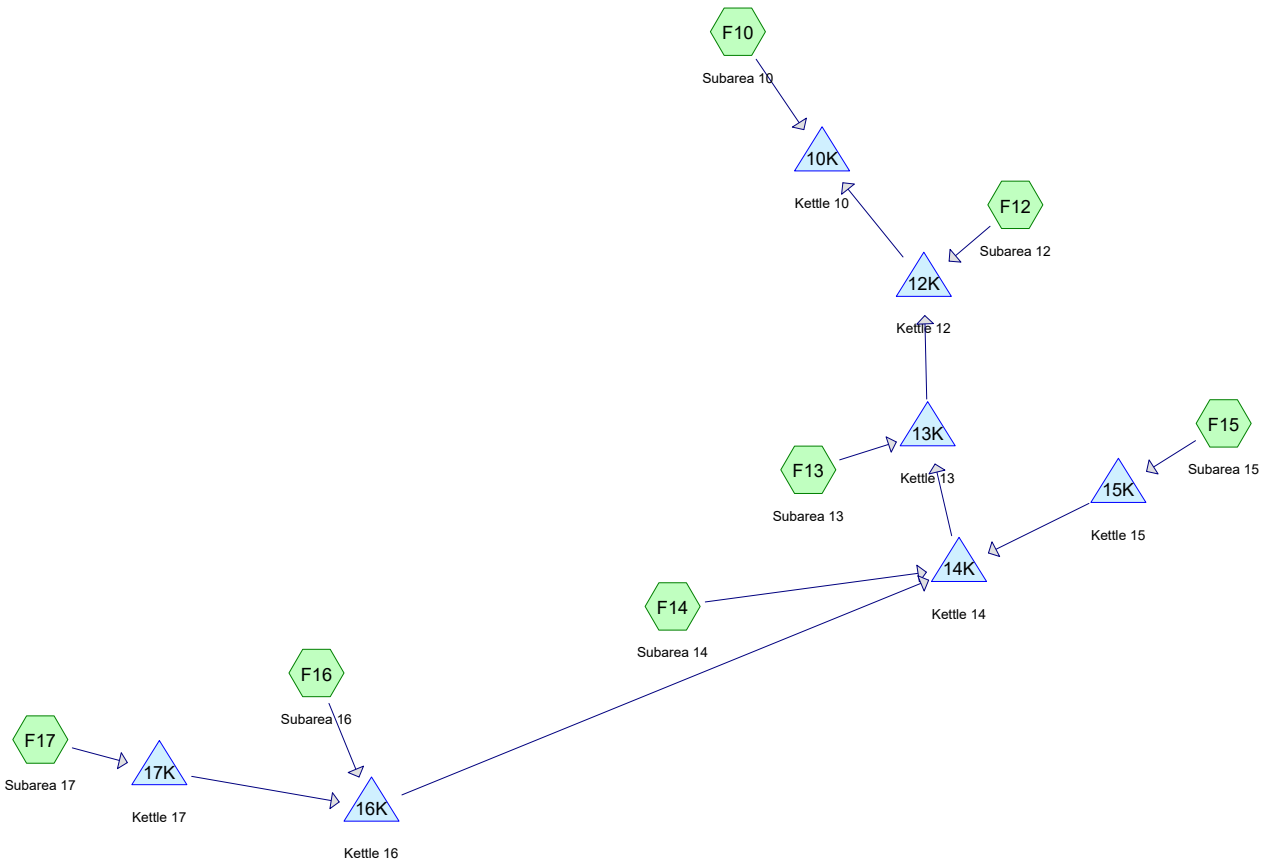
Device	Routing	Invert	Outlet Devices
#1	Discarded	989.00'	**1.300 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 979.00'
#2	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Tertiary	994.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Tertiary	989.00'	**6.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 989.00' / 988.62' S= 0.0152 '/' Cc= 0.900
n= 0.011, Flow Area= 0.20 sf

Discarded OutFlow Max=0.88 cfs @ 37.29 hrs HW=994.57' (Free Discharge)
└**1=Exfiltration** (Controls 0.88 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=25.25 cfs @ 37.29 hrs HW=994.57' TW=964.29' (Dynamic Tailwater)
├**3=Broad-Crested Rectangular Weir** (Weir Controls 23.10 cfs @ 2.02 fps)
└**4=Culvert** (Barrel Controls 2.15 cfs @ 10.97 fps)



Subcat Reach Pond Link

Routing Diagram for Future_Kettle10
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.110	75	1/4 acre lots (F10, F12, F13, F14, F15)
3.330	61	grass (F10, F12, F14, F15, F16, F17)
1.170	98	impervious (F12, F14, F15, F16, F17)
11.120	55	woods (F10, F12, F13, F14, F15, F16, F17)
17.730	**61**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.010 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentF10: Subarea 10 Runoff Area=1.740 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=60 Runoff=5.91 cfs 0.995 af

SubcatchmentF12: Subarea 12 Runoff Area=2.570 ac 7.00% Impervious Runoff Depth>7.93"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=67 Runoff=10.57 cfs 1.698 af

SubcatchmentF13: Subarea 13 Runoff Area=1.010 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=60 Runoff=3.47 cfs 0.578 af

SubcatchmentF14: Subarea 14 Runoff Area=7.000 ac 12.71% Impervious Runoff Depth>7.31"
Flow Length=895' Tc=76.0 min CN=63 Runoff=15.38 cfs 4.264 af

SubcatchmentF15: Subarea 15 Runoff Area=0.870 ac 1.15% Impervious Runoff Depth>7.33"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=63 Runoff=4.35 cfs 0.531 af

SubcatchmentF16: Subarea 16 Runoff Area=1.060 ac 0.94% Impervious Runoff Depth>6.23"
Flow Length=205' Slope=0.0800 '/' Tc=41.5 min CN=56 Runoff=3.09 cfs 0.550 af

SubcatchmentF17: Subarea 17 Runoff Area=3.480 ac 2.30% Impervious Runoff Depth>6.23"
Flow Length=225' Slope=0.0600 '/' Tc=50.2 min CN=56 Runoff=9.06 cfs 1.806 af

Pond 10K: Kettle 10 Peak Elev=963.85' Storage=82,188 cf Inflow=12.28 cfs 2.076 af
Discarded=0.14 cfs 0.196 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.196 af

Pond 12K: Kettle 12 Peak Elev=963.85' Storage=134,358 cf Inflow=20.71 cfs 4.575 af
Discarded=0.23 cfs 0.420 af Primary=11.65 cfs 1.081 af Outflow=11.87 cfs 1.501 af

Pond 13K: Kettle 13 Peak Elev=963.85' Storage=21,887 cf Inflow=30.90 cfs 3.436 af
Discarded=0.06 cfs 0.060 af Primary=12.26 cfs 2.877 af Outflow=12.32 cfs 2.937 af

Pond 14K: Kettle 14 Peak Elev=963.85' Storage=105,901 cf Inflow=25.73 cfs 5.653 af
Discarded=0.17 cfs 0.370 af Primary=30.58 cfs 2.859 af Outflow=30.74 cfs 3.229 af

Pond 15K: Kettle 15 Peak Elev=972.71' Storage=11,345 cf Inflow=4.35 cfs 0.531 af
Discarded=0.05 cfs 0.110 af Primary=3.55 cfs 0.202 af Outflow=3.60 cfs 0.311 af

Pond 16K: Kettle 16 Peak Elev=1,007.40' Storage=19,812 cf Inflow=9.86 cfs 1.712 af
Discarded=0.08 cfs 0.173 af Primary=9.56 cfs 1.188 af Outflow=9.64 cfs 1.360 af

Pond 17K: Kettle 17 Peak Elev=1,012.34' Storage=19,790 cf Inflow=9.06 cfs 1.806 af
Discarded=0.16 cfs 0.390 af Primary=7.62 cfs 1.161 af Outflow=7.78 cfs 1.551 af

Total Runoff Area = 17.730 ac Runoff Volume = 10.423 af Average Runoff Depth = 7.05"
93.40% Pervious = 16.560 ac 6.60% Impervious = 1.170 ac

Summary for Subcatchment F10: Subarea 10

Runoff = 5.91 cfs @ 36.48 hrs, Volume= 0.995 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.270	55	woods
*	0.450	75	1/4 acre lots
*	0.020	61	grass
	1.740	60	Weighted Average
	1.740		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F12: Subarea 12

Runoff = 10.57 cfs @ 36.40 hrs, Volume= 1.698 af, Depth> 7.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.970	55	woods
*	0.350	61	grass
*	0.180	98	impervious
	1.070	75	1/4 acre lots
	2.570	67	Weighted Average
	2.390		93.00% Pervious Area
	0.180		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1300	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
25.2	140	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
29.4	190	Total			

Summary for Subcatchment F13: Subarea 13

Runoff = 3.47 cfs @ 36.47 hrs, Volume= 0.578 af, Depth> 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.760	55	woods
	0.250	75	1/4 acre lots
	1.010	60	Weighted Average
	1.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F14: Subarea 14

Runoff = 15.38 cfs @ 36.99 hrs, Volume= 4.264 af, Depth> 7.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	3.340	55	woods
*	2.720	61	grass
*	0.890	98	impervious
*	0.050	75	1/4 acre lots
	7.000	63	Weighted Average
	6.110		87.29% Pervious Area
	0.890		12.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.2	255	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
76.0	895	Total			

Summary for Subcatchment F15: Subarea 15

Runoff = 4.35 cfs @ 36.26 hrs, Volume= 0.531 af, Depth> 7.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	0.480	55	woods
*	0.090	61	grass
*	0.010	98	impervious
*	0.290	75	1/4 acre lots
	0.870	63	Weighted Average
	0.860		98.85% Pervious Area
	0.010		1.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F16: Subarea 16

Runoff = 3.09 cfs @ 36.56 hrs, Volume= 0.550 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	1.020	55	woods
*	0.030	61	grass
*	0.010	98	impervious
	1.060	56	Weighted Average
	1.050		99.06% Pervious Area
	0.010		0.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.5	205	0.0800	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F17: Subarea 17

Runoff = 9.06 cfs @ 36.65 hrs, Volume= 1.806 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr x2 Rainfall=6.18" x 2

	Area (ac)	CN	Description
*	3.280	55	woods
*	0.120	61	grass
*	0.080	98	impervious
	3.480	56	Weighted Average
	3.400		97.70% Pervious Area
	0.080		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.2	225	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 10K: Kettle 10

Inflow Area = 17.730 ac, 6.60% Impervious, Inflow Depth > 1.41" for 100 yr x2 event
Inflow = 12.28 cfs @ 37.84 hrs, Volume= 2.076 af
Outflow = 0.14 cfs @ 46.06 hrs, Volume= 0.196 af, Atten= 99%, Lag= 493.1 min
Discarded = 0.14 cfs @ 46.06 hrs, Volume= 0.196 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 963.85' @ 46.06 hrs Surf.Area= 18,548 sf Storage= 82,188 cf

Plug-Flow detention time= 1,387.1 min calculated for 0.196 af (9% of inflow)
Center-of-Mass det. time= 90.8 min (2,152.9 - 2,062.1)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 943.00' Phase-In= 0.01'
#2	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.14 cfs @ 46.06 hrs HW=963.85' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 12K: Kettle 12

Inflow Area = 15.990 ac, 7.32% Impervious, Inflow Depth > 3.43" for 100 yr x2 event
Inflow = 20.71 cfs @ 36.49 hrs, Volume= 4.575 af
Outflow = 11.87 cfs @ 37.87 hrs, Volume= 1.501 af, Atten= 43%, Lag= 82.6 min
Discarded = 0.23 cfs @ 46.06 hrs, Volume= 0.420 af
Primary = 11.65 cfs @ 37.87 hrs, Volume= 1.081 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 963.85' @ 46.06 hrs Surf.Area= 29,649 sf Storage= 134,358 cf

Plug-Flow detention time= 762.9 min calculated for 1.501 af (33% of inflow)
Center-of-Mass det. time= 210.9 min (2,222.1 - 2,011.2)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	956.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 946.00' Phase-In= 0.01'
#2	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.23 cfs @ 46.06 hrs HW=963.85' (Free Discharge)
↑**1=Exfiltration** (Controls 0.23 cfs)

Primary OutFlow Max=11.65 cfs @ 37.87 hrs HW=963.45' TW=962.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 11.65 cfs @ 1.73 fps)

Summary for Pond 13K: Kettle 13

Inflow Area = 13.420 ac, 7.38% Impervious, Inflow Depth > 3.07" for 100 yr x2 event
Inflow = 30.90 cfs @ 37.94 hrs, Volume= 3.436 af
Outflow = 12.32 cfs @ 37.80 hrs, Volume= 2.937 af, Atten= 60%, Lag= 0.0 min
Discarded = 0.06 cfs @ 46.05 hrs, Volume= 0.060 af
Primary = 12.26 cfs @ 37.80 hrs, Volume= 2.877 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 963.85' @ 46.05 hrs Surf.Area= 8,230 sf Storage= 21,887 cf

Plug-Flow detention time= 43.8 min calculated for 2.936 af (85% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.40'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 949.00' Phase-In= 0.01'
#2	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#3	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 46.05 hrs HW=963.85' (Free Discharge)
└**1=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=12.15 cfs @ 37.80 hrs HW=963.58' TW=963.44' (Dynamic Tailwater)
├**2=Culvert** (Outlet Controls 12.15 cfs @ 1.93 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 14K: Kettle 14

Inflow Area = 12.410 ac, 7.98% Impervious, Inflow Depth > 5.47" for 100 yr x2 event
Inflow = 25.73 cfs @ 36.90 hrs, Volume= 5.653 af
Outflow = 30.74 cfs @ 37.94 hrs, Volume= 3.229 af, Atten= 0%, Lag= 62.2 min
Discarded = 0.17 cfs @ 46.14 hrs, Volume= 0.370 af
Primary = 30.58 cfs @ 37.94 hrs, Volume= 2.859 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 963.85' @ 46.14 hrs Surf.Area= 21,408 sf Storage= 105,901 cf

Plug-Flow detention time= 607.9 min calculated for 3.228 af (57% of inflow)
Center-of-Mass det. time= 304.4 min (2,226.0 - 1,921.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
965.00	23,972	62,065	131,899	24,362
967.00	28,808	52,706	184,605	29,333

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 945.00' Phase-In= 0.01'
#2	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.17 cfs @ 46.14 hrs HW=963.85' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=17.11 cfs @ 37.94 hrs HW=963.56' TW=963.55' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 17.11 cfs @ 0.50 fps)

Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac, 1.15% Impervious, Inflow Depth > 7.33" for 100 yr x2 event
Inflow = 4.35 cfs @ 36.26 hrs, Volume= 0.531 af
Outflow = 3.60 cfs @ 36.37 hrs, Volume= 0.311 af, Atten= 17%, Lag= 6.2 min
Discarded = 0.05 cfs @ 36.37 hrs, Volume= 0.110 af
Primary = 3.55 cfs @ 36.37 hrs, Volume= 0.202 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 972.71' @ 36.37 hrs Surf.Area= 8,002 sf Storage= 11,345 cf

Plug-Flow detention time= 713.5 min calculated for 0.311 af (59% of inflow)
Center-of-Mass det. time= 351.6 min (2,112.8 - 1,761.2)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Discarded	970.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 960.00' Phase-In= 0.01'
#2	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.05 cfs @ 36.37 hrs HW=972.71' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=3.55 cfs @ 36.37 hrs HW=972.71' TW=961.65' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 3.55 cfs @ 1.14 fps)

Summary for Pond 16K: Kettle 16

Inflow Area = 4.540 ac, 1.98% Impervious, Inflow Depth > 4.52" for 100 yr x2 event
Inflow = 9.86 cfs @ 36.78 hrs, Volume= 1.712 af
Outflow = 9.64 cfs @ 36.88 hrs, Volume= 1.360 af, Atten= 2%, Lag= 5.9 min
Discarded = 0.08 cfs @ 36.88 hrs, Volume= 0.173 af
Primary = 9.56 cfs @ 36.88 hrs, Volume= 1.188 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,007.40' @ 36.88 hrs Surf.Area= 11,656 sf Storage= 19,812 cf

Plug-Flow detention time= 280.1 min calculated for 1.360 af (79% of inflow)
Center-of-Mass det. time= 185.6 min (2,217.3 - 2,031.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,005.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 995.00' Phase-In= 0.01'
#2	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.08 cfs @ 36.88 hrs HW=1,007.40' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=9.56 cfs @ 36.88 hrs HW=1,007.40' TW=962.52' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 9.56 cfs @ 1.61 fps)

Summary for Pond 17K: Kettle 17

Inflow Area = 3.480 ac, 2.30% Impervious, Inflow Depth > 6.23" for 100 yr x2 event
Inflow = 9.06 cfs @ 36.65 hrs, Volume= 1.806 af
Outflow = 7.78 cfs @ 36.88 hrs, Volume= 1.551 af, Atten= 14%, Lag= 13.7 min
Discarded = 0.16 cfs @ 36.88 hrs, Volume= 0.390 af
Primary = 7.62 cfs @ 36.88 hrs, Volume= 1.161 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.34' @ 36.88 hrs Surf.Area= 27,785 sf Storage= 19,790 cf

Plug-Flow detention time= 298.2 min calculated for 1.551 af (86% of inflow)
Center-of-Mass det. time= 195.9 min (2,047.0 - 1,851.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,011.00'	**0.240 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 1,001.00' Phase-In= 0.01'
#2	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

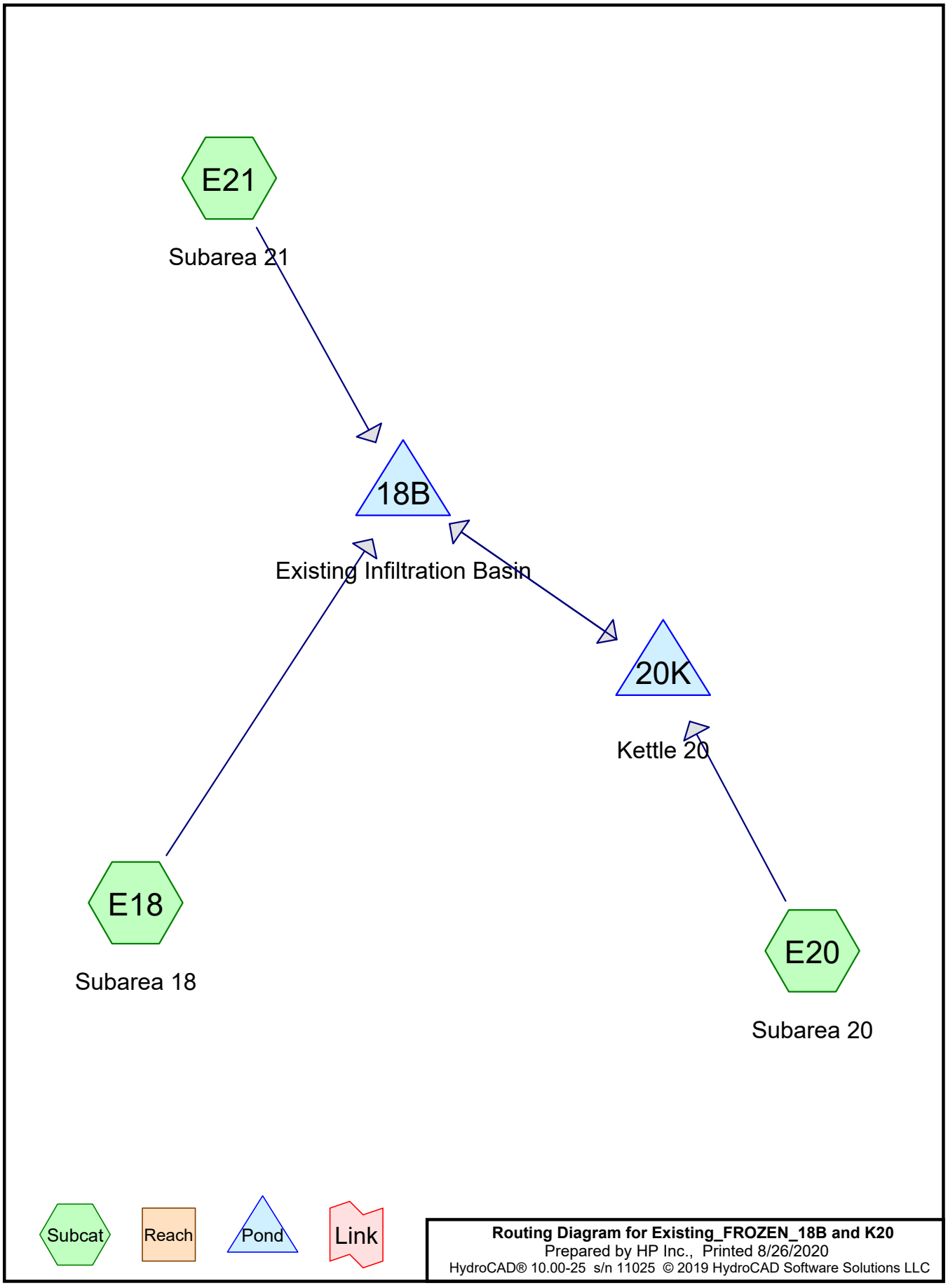
Discarded OutFlow Max=0.16 cfs @ 36.88 hrs HW=1,012.34' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=7.62 cfs @ 36.88 hrs HW=1,012.34' TW=1,007.40' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 7.62 cfs @ 1.49 fps)

APPENDIX 5

Frozen Ground (CN=98)
100-yr HydroCAD Modeling

Existing
Frozen Conditions
HydroCAD Modeling



Routing Diagram for Existing_FROZEN_18B and K20
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.290	98	Area C from LCL High School Report (E18)
0.880	69	cropland (E21)
0.730	98	grass (E18, E20)
0.530	61	grass (E21)
0.600	98	impervious (E18, E21)
5.550	98	woods (E18, E20)
12.580	**94**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentE18: Subarea 18 Runoff Area=5.990 ac 100.00% Impervious Runoff Depth>5.93"
Tc=42.8 min CN=98 Runoff=23.02 cfs 2.959 af

SubcatchmentE20: Subarea 20 Runoff Area=4.810 ac 100.00% Impervious Runoff Depth>5.91"
Flow Length=525' Slope=0.0300 '/' Tc=87.6 min CN=98 Runoff=11.66 cfs 2.368 af

SubcatchmentE21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>3.23"
Flow Length=920' Tc=26.7 min CN=73 Runoff=5.53 cfs 0.479 af

Pond 18B: Existing Infiltration Basin Peak Elev=995.07' Storage=85,478 cf Inflow=27.53 cfs 4.400 af
Primary=10.55 cfs 0.595 af Secondary=5.32 cfs 1.964 af Outflow=15.87 cfs 2.558 af

Pond 20K: Kettle 20 Peak Elev=995.08' Storage=99,069 cf Inflow=21.72 cfs 2.962 af
Outflow=3.28 cfs 0.962 af

Total Runoff Area = 12.580 ac Runoff Volume = 5.806 af Average Runoff Depth = 5.54"
11.21% Pervious = 1.410 ac 88.79% Impervious = 11.170 ac

Summary for Subcatchment E18: Subarea 18

Runoff = 23.02 cfs @ 12.56 hrs, Volume= 2.959 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.290	98	Area C from LCL High School Report
*	0.850	98	woods
*	0.620	98	grass
*	0.230	98	impervious
	5.990	98	Weighted Average
	5.990		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Summary for Subcatchment E20: Subarea 20

Runoff = 11.66 cfs @ 13.14 hrs, Volume= 2.368 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.700	98	woods
*	0.110	98	grass
	4.810	98	Weighted Average
	4.810		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.3	225	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
87.6	525	Total			

Summary for Subcatchment E21: Subarea 21

Runoff = 5.53 cfs @ 12.37 hrs, Volume= 0.479 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Summary for Pond 18B: Existing Infiltration Basin

Inflow	=	27.53 cfs @	12.51 hrs,	Volume=	4.400 af
Outflow	=	15.87 cfs @	12.93 hrs,	Volume=	2.558 af, Atten= 42%, Lag= 25.0 min
Primary	=	10.55 cfs @	12.93 hrs,	Volume=	0.595 af
Secondary	=	5.32 cfs @	12.93 hrs,	Volume=	1.964 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 995.07' @ 12.93 hrs Surf.Area= 25,488 sf Storage= 85,478 cf

Plug-Flow detention time= 228.2 min calculated for 2.557 af (58% of inflow)
Center-of-Mass det. time= 113.0 min (943.8 - 830.8)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	111,738 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249
996.00	31,138	28,054	111,738	31,336

Device	Routing	Invert	Outlet Devices
#1	Primary	994.65'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=10.55 cfs @ 12.93 hrs HW=995.07' TW=993.86' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 10.55 cfs @ 1.67 fps)

Secondary OutFlow Max=5.32 cfs @ 12.93 hrs HW=995.07' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 5.32 cfs @ 1.31 fps)

Summary for Pond 20K: Kettle 20

Inflow	=	21.72 cfs @	12.95 hrs,	Volume=	2.962 af
Outflow	=	3.28 cfs @	14.49 hrs,	Volume=	0.962 af, Atten= 85%, Lag= 92.6 min
Primary	=	3.28 cfs @	14.49 hrs,	Volume=	0.962 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 995.08' @ 14.55 hrs Surf.Area= 56,697 sf Storage= 99,069 cf

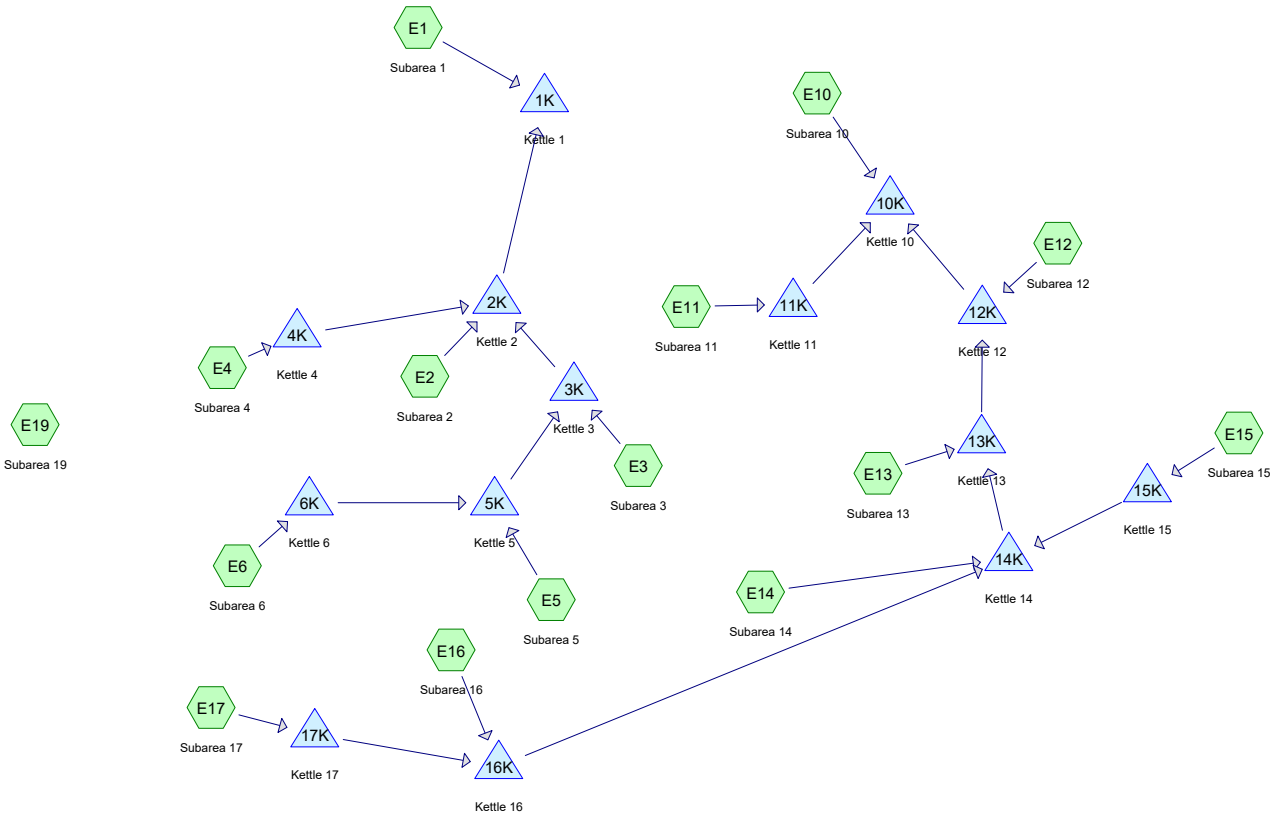
Plug-Flow detention time= 315.9 min calculated for 0.961 af (32% of inflow)
Center-of-Mass det. time= 197.4 min (1,006.5 - 809.1)

Volume	Invert	Avail.Storage	Storage Description
#1	992.00'	157,706 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
992.00	6,330	0	0	6,330
993.00	24,655	14,493	14,493	24,660
994.00	40,640	32,316	46,809	40,657
995.00	55,600	47,925	94,734	55,638
996.00	70,643	62,972	157,706	70,707

Device	Routing	Invert	Outlet Devices
#1	Primary	994.65'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.27 cfs @ 14.49 hrs HW=995.08' TW=995.06' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 3.27 cfs @ 0.51 fps)



Subcat Reach Pond Link

Routing Diagram for Existing_FROZEN_K1 and K10
Prepared by HP Inc., Printed 8/19/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	98	1/2 acre lots (E1)
2.110	98	1/4 acre lots (E10, E12, E13, E14, E15)
0.960	98	cropland (E1)
3.690	98	grass (E12, E14, E15, E19, E2, E3, E4, E5)
1.200	98	impervious (E12, E14, E15, E19, E2, E3)
42.880	98	woods (E1, E10, E11, E12, E13, E14, E15, E16, E17, E2, E3, E4, E5, E6)
53.410	**98**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.0010 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE1: Subarea 1 Runoff Area=15.480 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=98 Runoff=52.90 cfs 7.642 af

SubcatchmentE10: Subarea 10 Runoff Area=1.920 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=98 Runoff=8.19 cfs 0.949 af

SubcatchmentE11: Subarea 11 Runoff Area=0.730 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=100' Slope=0.0300 '/' Tc=34.6 min CN=98 Runoff=3.17 cfs 0.361 af

SubcatchmentE12: Subarea 12 Runoff Area=2.900 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=255' Slope=0.1100 '/' Tc=43.5 min CN=98 Runoff=11.05 cfs 1.433 af

SubcatchmentE13: Subarea 13 Runoff Area=1.010 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=98 Runoff=4.35 cfs 0.499 af

SubcatchmentE14: Subarea 14 Runoff Area=8.130 ac 100.00% Impervious Runoff Depth>5.90"
Flow Length=1,110' Tc=104.8 min CN=98 Runoff=17.38 cfs 3.995 af

SubcatchmentE15: Subarea 15 Runoff Area=0.870 ac 100.00% Impervious Runoff Depth>5.94"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=98 Runoff=5.27 cfs 0.430 af

SubcatchmentE16: Subarea 16 Runoff Area=1.620 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=98 Runoff=4.63 cfs 0.799 af

SubcatchmentE17: Subarea 17 Runoff Area=4.300 ac 100.00% Impervious Runoff Depth>5.91"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=98 Runoff=11.89 cfs 2.119 af

SubcatchmentE19: Subarea 19 Runoff Area=0.100 ac 100.00% Impervious Runoff Depth>5.94"
Tc=6.0 min CN=98 Runoff=0.92 cfs 0.050 af

SubcatchmentE2: Subarea 2 Runoff Area=5.430 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=470' Slope=0.0800 '/' Tc=58.3 min CN=98 Runoff=17.27 cfs 2.679 af

SubcatchmentE3: Subarea 3 Runoff Area=1.590 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=150' Slope=0.1300 '/' Tc=26.6 min CN=98 Runoff=8.00 cfs 0.786 af

SubcatchmentE4: Subarea 4 Runoff Area=0.370 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=110' Slope=0.0300 '/' Tc=37.4 min CN=98 Runoff=1.54 cfs 0.183 af

SubcatchmentE5: Subarea 5 Runoff Area=6.180 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=400' Slope=0.0900 '/' Tc=54.8 min CN=98 Runoff=20.44 cfs 3.050 af

SubcatchmentE6: Subarea 6 Runoff Area=2.780 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=98 Runoff=9.84 cfs 1.373 af

Pond 1K: Kettle 1 Peak Elev=963.76' Storage=546,484 cf Inflow=58.91 cfs 12.546 af
Outflow=0.00 cfs 0.000 af

Pond 2K: Kettle 2 Peak Elev=975.06' Storage=98,070 cf Inflow=29.78 cfs 6.577 af
Outflow=21.12 cfs 4.903 af

Pond 3K: Kettle 3 Peak Elev=976.48' Storage=27,576 cf Inflow=13.35 cfs 4.339 af
Outflow=12.98 cfs 3.804 af

Pond 4K: Kettle 4 Peak Elev=1,008.61' Storage=4,458 cf Inflow=1.54 cfs 0.183 af
Outflow=0.94 cfs 0.093 af

Pond 5K: Kettle 5 Peak Elev=984.88' Storage=39,878 cf Inflow=20.44 cfs 3.563 af
Outflow=9.58 cfs 3.552 af

Pond 6K: Kettle 6 Peak Elev=1,012.90' Storage=43,794 cf Inflow=9.84 cfs 1.373 af
Outflow=1.84 cfs 0.513 af

Pond 10K: Kettle 10 Peak Elev=964.60' Storage=96,776 cf Inflow=15.09 cfs 2.560 af
Outflow=1.17 cfs 0.344 af

Pond 11K: Kettle 11 Peak Elev=980.69' Storage=5,527 cf Inflow=3.17 cfs 0.361 af
Outflow=2.99 cfs 0.261 af

Pond 12K: Kettle 12 Peak Elev=964.60' Storage=157,609 cf Inflow=26.19 cfs 4.959 af
Outflow=14.40 cfs 1.350 af

Pond 13K: Kettle 13 Peak Elev=964.60' Storage=28,395 cf Inflow=26.87 cfs 4.176 af
Outflow=21.72 cfs 3.527 af

Pond 14K: Kettle 14 Peak Elev=964.60' Storage=122,656 cf Inflow=32.78 cfs 6.486 af
Outflow=25.73 cfs 3.677 af

Pond 15K: Kettle 15 Peak Elev=972.67' Storage=11,032 cf Inflow=5.27 cfs 0.430 af
Outflow=2.58 cfs 0.205 af

Pond 16K: Kettle 16 Peak Elev=1,007.52' Storage=21,329 cf Inflow=15.22 cfs 2.648 af
Outflow=15.07 cfs 2.286 af

Pond 17K: Kettle 17 Peak Elev=1,012.43' Storage=22,354 cf Inflow=11.89 cfs 2.119 af
Outflow=11.00 cfs 1.849 af

Total Runoff Area = 53.410 ac Runoff Volume = 26.348 af Average Runoff Depth = 5.92"
0.00% Pervious = 0.000 ac 100.00% Impervious = 53.410 ac

Summary for Subcatchment E1: Subarea 1

Runoff = 52.90 cfs @ 12.69 hrs, Volume= 7.642 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	11.950	98	woods
*	2.570	98	1/2 acre lots
*	0.960	98	cropland
	15.480	98	Weighted Average
	15.480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Summary for Subcatchment E10: Subarea 10

Runoff = 8.19 cfs @ 12.45 hrs, Volume= 0.949 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.470	98	woods
*	0.450	98	1/4 acre lots
	1.920	98	Weighted Average
	1.920		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E11: Subarea 11

Runoff = 3.17 cfs @ 12.46 hrs, Volume= 0.361 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.730	98	woods
	0.730		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.6	100	0.0300	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E12: Subarea 12

Runoff = 11.05 cfs @ 12.57 hrs, Volume= 1.433 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.450	98	woods
*	0.270	98	grass
*	0.110	98	impervious
*	1.070	98	1/4 acre lots
	2.900	98	Weighted Average
	2.900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5	255	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E13: Subarea 13

Runoff = 4.35 cfs @ 12.44 hrs, Volume= 0.499 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.760	98	woods
*	0.250	98	1/4 acre lots
	1.010	98	Weighted Average
	1.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E14: Subarea 14

Runoff = 17.38 cfs @ 13.39 hrs, Volume= 3.995 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.650	98	woods
*	2.600	98	grass
*	0.830	98	impervious
*	0.050	98	1/4 acre lots
	8.130	98	Weighted Average
	8.130		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
98.0	300	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.0	170	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
104.8	1,110	Total			

Summary for Subcatchment E15: Subarea 15

Runoff = 5.27 cfs @ 12.27 hrs, Volume= 0.430 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.480	98	woods
*	0.090	98	grass
*	0.010	98	impervious
*	0.290	98	1/4 acre lots
	0.870	98	Weighted Average
	0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E16: Subarea 16

Runoff = 4.63 cfs @ 12.90 hrs, Volume= 0.799 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.620	98	woods
	1.620		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.3	270	0.0400	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E17: Subarea 17

Runoff = 11.89 cfs @ 12.88 hrs, Volume= 2.119 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.300	98	woods
	4.300		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0	250	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E19: Subarea 19

Runoff = 0.92 cfs @ 12.13 hrs, Volume= 0.050 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.060	98	grass
*	0.040	98	impervious
	0.100	98	Weighted Average
	0.100		100.00% Impervious Area

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

Summary for Subcatchment E2: Subarea 2

Runoff = 17.27 cfs @ 12.76 hrs, Volume= 2.679 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.960	98	woods
*	0.380	98	grass
*	0.090	98	impervious
	5.430	98	Weighted Average
	5.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.3	300	0.0800	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.0	170	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
58.3	470	Total			

Summary for Subcatchment E3: Subarea 3

Runoff = 8.00 cfs @ 12.36 hrs, Volume= 0.786 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.280	98	woods
*	0.190	98	grass
*	0.120	98	impervious
	1.590	98	Weighted Average
	1.590		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.6	150	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E4: Subarea 4

Runoff = 1.54 cfs @ 12.51 hrs, Volume= 0.183 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.350	98	woods
*	0.020	98	grass
	0.370	98	Weighted Average
	0.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.4	110	0.0300	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment E5: Subarea 5

Runoff = 20.44 cfs @ 12.73 hrs, Volume= 3.050 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	6.100	98	woods
*	0.080	98	grass
	6.180	98	Weighted Average
	6.180		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.7	300	0.0900	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.1	100	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
54.8	400	Total			

Summary for Subcatchment E6: Subarea 6

Runoff = 9.84 cfs @ 12.60 hrs, Volume= 1.373 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	2.780	98	woods
	2.780		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.1	200	0.0500	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 1K: Kettle 1

Inflow Area = 31.830 ac,100.00% Impervious, Inflow Depth > 4.73" for 100 yr event
Inflow = 58.91 cfs @ 12.86 hrs, Volume= 12.546 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 963.76' @ 24.00 hrs Surf.Area= 57,324 sf Storage= 546,484 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	1,029,702 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
965.00	64,568	61,395	621,685	65,838
970.00	99,920	408,017	1,029,702	101,550

Summary for Pond 2K: Kettle 2

Inflow Area = 16.350 ac,100.00% Impervious, Inflow Depth > 4.83" for 100 yr event
Inflow = 29.78 cfs @ 12.76 hrs, Volume= 6.577 af
Outflow = 21.12 cfs @ 13.27 hrs, Volume= 4.903 af, Atten= 29%, Lag= 30.4 min
Primary = 21.12 cfs @ 13.27 hrs, Volume= 4.903 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 975.06' @ 13.27 hrs Surf.Area= 22,785 sf Storage= 98,070 cf

Plug-Flow detention time= 145.0 min calculated for 4.903 af (75% of inflow)
Center-of-Mass det. time= 73.1 min (919.5 - 846.4)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,085 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	26,015	24,287	121,085	26,297

Device	Routing	Invert	Outlet Devices
#1	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=21.12 cfs @ 13.27 hrs HW=975.06' TW=957.50' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 21.12 cfs @ 3.11 fps)

Summary for Pond 3K: Kettle 3

Inflow Area = 10.550 ac,100.00% Impervious, Inflow Depth > 4.93" for 100 yr event
Inflow = 13.35 cfs @ 12.41 hrs, Volume= 4.339 af
Outflow = 12.98 cfs @ 12.50 hrs, Volume= 3.804 af, Atten= 3%, Lag= 5.0 min
Primary = 12.98 cfs @ 12.50 hrs, Volume= 3.804 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 976.48' @ 12.50 hrs Surf.Area= 10,483 sf Storage= 27,576 cf

Plug-Flow detention time= 94.7 min calculated for 3.804 af (88% of inflow)
Center-of-Mass det. time= 47.2 min (886.3 - 839.1)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	46,349 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,020	2,906	2,906	4,029
974.00	5,770	4,869	7,775	5,796
975.00	7,510	6,621	14,396	7,560
976.00	9,385	8,430	22,826	9,463
977.00	11,750	10,545	33,371	11,855
978.00	14,245	12,977	46,349	14,383

Device	Routing	Invert	Outlet Devices
#1	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=12.98 cfs @ 12.50 hrs HW=976.48' TW=972.76' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 12.98 cfs @ 1.81 fps)

Summary for Pond 4K: Kettle 4

Inflow Area = 0.370 ac,100.00% Impervious, Inflow Depth > 5.93" for 100 yr event
Inflow = 1.54 cfs @ 12.51 hrs, Volume= 0.183 af
Outflow = 0.94 cfs @ 12.82 hrs, Volume= 0.093 af, Atten= 39%, Lag= 18.7 min
Primary = 0.94 cfs @ 12.82 hrs, Volume= 0.093 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 1,008.61' @ 12.82 hrs Surf.Area= 5,418 sf Storage= 4,458 cf

Plug-Flow detention time= 203.6 min calculated for 0.093 af (51% of inflow)
Center-of-Mass det. time= 107.9 min (878.2 - 770.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,007.00'	6,875 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,007.00	750	0	0	750
1,008.00	3,220	1,841	1,841	3,224
1,009.00	7,100	5,034	6,875	7,113

Device	Routing	Invert	Outlet Devices
#1	Primary	1,008.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.94 cfs @ 12.82 hrs HW=1,008.61' TW=974.47' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.94 cfs @ 0.84 fps)

Summary for Pond 5K: Kettle 5

Inflow Area = 8.960 ac,100.00% Impervious, Inflow Depth > 4.77" for 100 yr event
Inflow = 20.44 cfs @ 12.73 hrs, Volume= 3.563 af
Outflow = 9.58 cfs @ 13.44 hrs, Volume= 3.552 af, Atten= 53%, Lag= 42.9 min
Primary = 9.58 cfs @ 13.44 hrs, Volume= 3.552 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 984.88' @ 13.44 hrs Surf.Area= 31,529 sf Storage= 39,878 cf

Plug-Flow detention time= 45.9 min calculated for 3.552 af (100% of inflow)
Center-of-Mass det. time= 44.1 min (856.5 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	982.50'	80,797 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
982.50	50	0	0	50
983.00	9,605	1,725	1,725	9,605
984.00	21,410	15,118	16,843	21,418
985.00	33,125	27,055	43,898	33,148
986.00	40,805	36,898	80,797	40,858

Device	Routing	Invert	Outlet Devices
#1	Primary	982.57'	**15.0" Round Culvert** L= 48.4' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 982.57' / 980.88' S= 0.0349 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Primary	985.10'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.58 cfs @ 13.44 hrs HW=984.88' TW=976.42' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.58 cfs @ 7.80 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 6K: Kettle 6

Inflow Area = 2.780 ac,100.00% Impervious, Inflow Depth > 5.93" for 100 yr event
Inflow = 9.84 cfs @ 12.60 hrs, Volume= 1.373 af
Outflow = 1.84 cfs @ 13.83 hrs, Volume= 0.513 af, Atten= 81%, Lag= 73.3 min
Primary = 1.84 cfs @ 13.83 hrs, Volume= 0.513 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 1,012.90' @ 13.83 hrs Surf.Area= 38,837 sf Storage= 43,794 cf

Plug-Flow detention time= 315.4 min calculated for 0.513 af (37% of inflow)
Center-of-Mass det. time= 190.8 min (971.4 - 780.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	47,595 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	9,905	0	0	9,905
1,012.00	23,150	16,066	16,066	23,158
1,013.00	40,730	31,529	47,595	40,749

Device	Routing	Invert	Outlet Devices
#1	Primary	1,012.70'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.84 cfs @ 13.83 hrs HW=1,012.90' TW=984.81' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.84 cfs @ 1.13 fps)

Summary for Pond 10K: Kettle 10

Inflow Area = 21.480 ac,100.00% Impervious, Inflow Depth > 1.43" for 100 yr event
Inflow = 15.09 cfs @ 14.41 hrs, Volume= 2.560 af
Outflow = 1.17 cfs @ 22.26 hrs, Volume= 0.344 af, Atten= 92%, Lag= 471.0 min
Primary = 1.17 cfs @ 22.26 hrs, Volume= 0.344 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 964.60' @ 22.26 hrs Surf.Area= 20,551 sf Storage= 96,776 cf

Plug-Flow detention time= 680.6 min calculated for 0.344 af (13% of inflow)
Center-of-Mass det. time= 431.7 min (1,323.4 - 891.7)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.16 cfs @ 22.26 hrs HW=964.60' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.16 cfs @ 0.78 fps)

Summary for Pond 11K: Kettle 11

Inflow Area = 0.730 ac,100.00% Impervious, Inflow Depth > 5.93" for 100 yr event
Inflow = 3.17 cfs @ 12.46 hrs, Volume= 0.361 af
Outflow = 2.99 cfs @ 12.56 hrs, Volume= 0.261 af, Atten= 6%, Lag= 6.1 min
Primary = 2.99 cfs @ 12.56 hrs, Volume= 0.261 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 980.69' @ 12.56 hrs Surf.Area= 7,149 sf Storage= 5,527 cf

Plug-Flow detention time= 135.9 min calculated for 0.261 af (72% of inflow)
Center-of-Mass det. time= 68.1 min (835.9 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	979.00'	8,105 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.00	805	0	0	805
980.00	3,445	1,972	1,972	3,450
981.00	9,295	6,133	8,105	9,306

Device	Routing	Invert	Outlet Devices
#1	Primary	980.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.99 cfs @ 12.56 hrs HW=980.69' TW=959.29' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.99 cfs @ 1.07 fps)

Summary for Pond 12K: Kettle 12

Inflow Area = 18.830 ac,100.00% Impervious, Inflow Depth > 3.16" for 100 yr event
Inflow = 26.19 cfs @ 13.14 hrs, Volume= 4.959 af
Outflow = 14.40 cfs @ 14.41 hrs, Volume= 1.350 af, Atten= 45%, Lag= 76.5 min
Primary = 14.40 cfs @ 14.41 hrs, Volume= 1.350 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 964.60' @ 22.19 hrs Surf.Area= 32,918 sf Storage= 157,609 cf

Plug-Flow detention time= 284.8 min calculated for 1.350 af (27% of inflow)
Center-of-Mass det. time= 133.4 min (988.8 - 855.4)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.40 cfs @ 14.41 hrs HW=963.51' TW=963.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 14.40 cfs @ 1.88 fps)

Summary for Pond 13K: Kettle 13

Inflow Area = 15.930 ac,100.00% Impervious, Inflow Depth > 3.15" for 100 yr event
Inflow = 26.87 cfs @ 13.15 hrs, Volume= 4.176 af
Outflow = 21.72 cfs @ 13.16 hrs, Volume= 3.527 af, Atten= 19%, Lag= 0.6 min
Primary = 21.72 cfs @ 13.16 hrs, Volume= 3.527 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 964.60' @ 22.12 hrs Surf.Area= 9,218 sf Storage= 28,395 cf

Plug-Flow detention time= 61.3 min calculated for 3.527 af (84% of inflow)
Center-of-Mass det. time= 5.4 min (887.8 - 882.4)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=21.61 cfs @ 13.16 hrs HW=961.83' TW=961.39' (Dynamic Tailwater)
1=Culvert (Outlet Controls 21.61 cfs @ 3.69 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14K: Kettle 14

Inflow Area = 14.920 ac,100.00% Impervious, Inflow Depth > 5.22" for 100 yr event
Inflow = 32.78 cfs @ 13.18 hrs, Volume= 6.486 af
Outflow = 25.73 cfs @ 13.16 hrs, Volume= 3.677 af, Atten= 22%, Lag= 0.0 min
Primary = 25.73 cfs @ 13.16 hrs, Volume= 3.677 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 964.60' @ 22.23 hrs Surf.Area= 23,085 sf Storage= 122,656 cf

Plug-Flow detention time= 141.6 min calculated for 3.677 af (57% of inflow)
Center-of-Mass det. time= 52.2 min (897.9 - 845.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,779 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
963.00	19,708	18,629	88,463	19,972
965.00	23,972	43,610	132,073	24,363
967.00	28,808	52,706	184,779	29,334

Device	Routing	Invert	Outlet Devices
#1	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=25.64 cfs @ 13.16 hrs HW=962.17' TW=961.83' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 25.64 cfs @ 1.96 fps)

Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac,100.00% Impervious, Inflow Depth > 5.94" for 100 yr event
Inflow = 5.27 cfs @ 12.27 hrs, Volume= 0.430 af
Outflow = 2.58 cfs @ 12.50 hrs, Volume= 0.205 af, Atten= 51%, Lag= 14.0 min
Primary = 2.58 cfs @ 12.50 hrs, Volume= 0.205 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 972.67' @ 12.50 hrs Surf.Area= 7,857 sf Storage= 11,032 cf

Plug-Flow detention time= 211.5 min calculated for 0.205 af (48% of inflow)
Center-of-Mass det. time= 112.1 min (865.6 - 753.5)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.58 cfs @ 12.50 hrs HW=972.67' TW=959.44' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.58 cfs @ 1.02 fps)

Summary for Pond 16K: Kettle 16

Inflow Area = 5.920 ac,100.00% Impervious, Inflow Depth > 5.37" for 100 yr event
Inflow = 15.22 cfs @ 13.06 hrs, Volume= 2.648 af
Outflow = 15.07 cfs @ 13.14 hrs, Volume= 2.286 af, Atten= 1%, Lag= 4.8 min
Primary = 15.07 cfs @ 13.14 hrs, Volume= 2.286 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 1,007.52' @ 13.14 hrs Surf.Area= 12,000 sf Storage= 21,329 cf

Plug-Flow detention time= 80.6 min calculated for 2.286 af (86% of inflow)
Center-of-Mass det. time= 33.6 min (873.6 - 840.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=15.07 cfs @ 13.14 hrs HW=1,007.52' TW=962.14' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 15.07 cfs @ 1.92 fps)

Summary for Pond 17K: Kettle 17

Inflow Area = 4.300 ac,100.00% Impervious, Inflow Depth > 5.91" for 100 yr event
Inflow = 11.89 cfs @ 12.88 hrs, Volume= 2.119 af
Outflow = 11.00 cfs @ 13.13 hrs, Volume= 1.849 af, Atten= 7%, Lag= 15.2 min
Primary = 11.00 cfs @ 13.13 hrs, Volume= 1.849 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.0010 hrs
Peak Elev= 1,012.43' @ 13.13 hrs Surf.Area= 29,188 sf Storage= 22,354 cf

Plug-Flow detention time= 103.7 min calculated for 1.849 af (87% of inflow)
Center-of-Mass det. time= 57.6 min (858.4 - 800.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

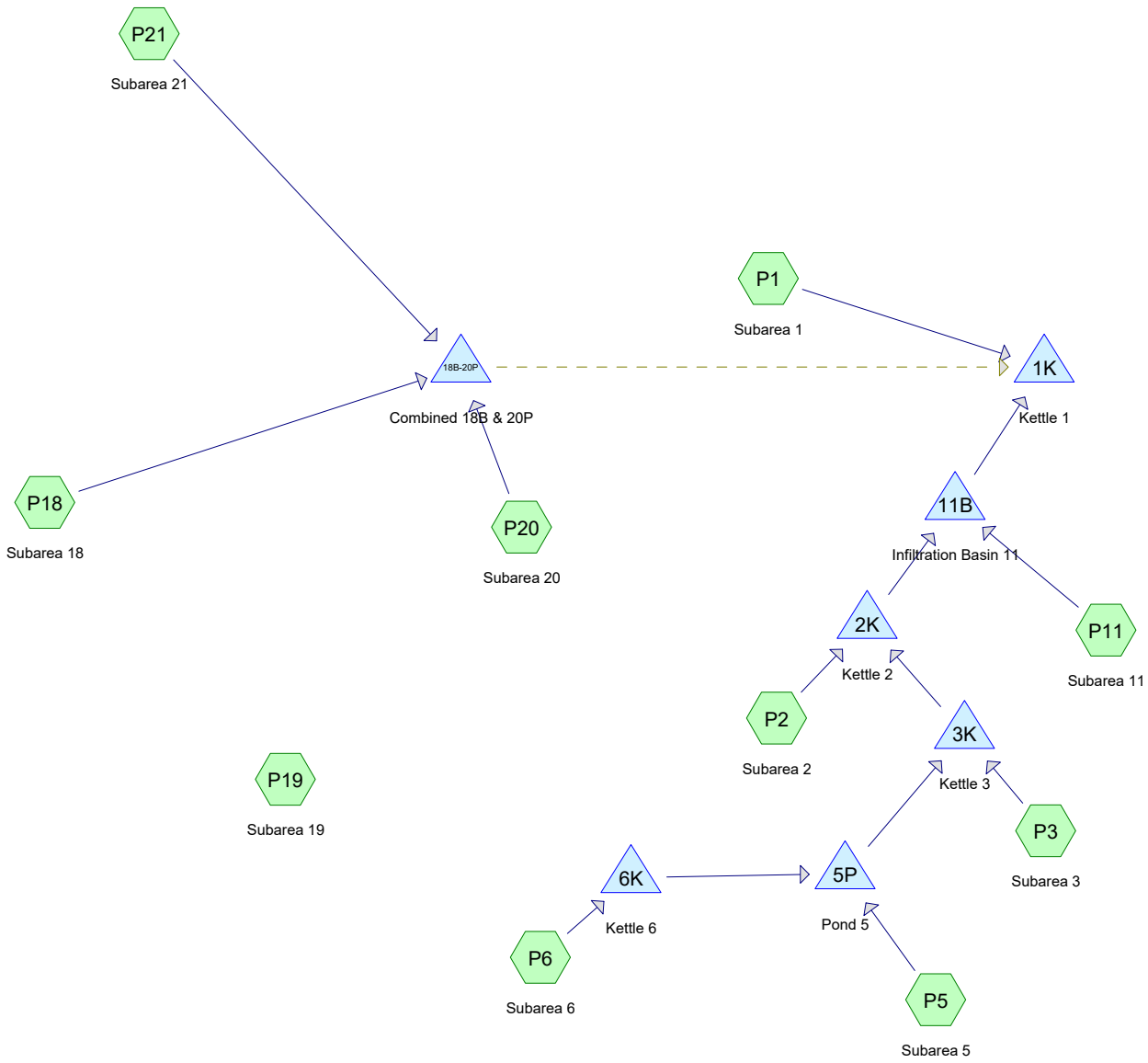
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.00 cfs @ 13.13 hrs HW=1,012.43' TW=1,007.52' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.00 cfs @ 1.70 fps)

Proposed
Frozen Conditions

HydroCAD Modeling



Subcat Reach Pond Link

Routing Diagram for Proposed_FROZEN_Combined-18B-20P
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	98	1/2 acre lots (P1)
4.290	98	Area C from LCL High School Report (P18)
0.950	98	cropland (P1, P20)
0.880	69	cropland (P21)
8.830	98	grass (P1, P11, P18, P19, P2, P20, P3, P5)
0.530	61	grass (P21)
6.050	98	impervious (P1, P11, P18, P19, P2, P20, P21, P3, P5)
0.390	98	water (P20, P5)
21.260	98	woods (P1, P11, P18, P2, P20, P3, P5, P6)
45.750	**97**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentP1: Subarea 1 Runoff Area=11.900 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=98 Runoff=40.66 cfs 5.875 af

SubcatchmentP11: Subarea 11 Runoff Area=3.600 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=220' Tc=39.8 min CN=98 Runoff=14.48 cfs 1.779 af

SubcatchmentP18: Subarea 18 Runoff Area=5.850 ac 100.00% Impervious Runoff Depth>5.93"
Tc=42.8 min CN=98 Runoff=22.48 cfs 2.890 af

SubcatchmentP19: Subarea 19 Runoff Area=0.100 ac 100.00% Impervious Runoff Depth>5.94"
Tc=6.0 min CN=98 Runoff=0.92 cfs 0.050 af

SubcatchmentP2: Subarea 2 Runoff Area=2.030 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=240' Tc=42.4 min CN=98 Runoff=7.83 cfs 1.003 af

SubcatchmentP20: Subarea 20 Runoff Area=8.720 ac 100.00% Impervious Runoff Depth>5.91"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=98 Runoff=21.41 cfs 4.293 af

SubcatchmentP21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>3.23"
Flow Length=920' Tc=26.7 min CN=73 Runoff=5.53 cfs 0.479 af

SubcatchmentP3: Subarea 3 Runoff Area=0.870 ac 100.00% Impervious Runoff Depth>5.94"
Flow Length=140' Tc=23.0 min CN=98 Runoff=4.73 cfs 0.430 af

SubcatchmentP5: Subarea 5 Runoff Area=8.120 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=400' Slope=0.1000 '/' Tc=52.6 min CN=98 Runoff=27.56 cfs 4.009 af

SubcatchmentP6: Subarea 6 Runoff Area=2.780 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=200' Slope=0.0500 '/' Tc=49.1 min CN=98 Runoff=9.84 cfs 1.373 af

Pond 1K: Kettle 1 Peak Elev=965.88' Storage=678,078 cf Inflow=48.67 cfs 15.567 af
Outflow=0.00 cfs 0.000 af

Pond 2K: Kettle 2 Peak Elev=974.61' Storage=88,278 cf Inflow=16.91 cfs 5.067 af
Outflow=11.69 cfs 3.369 af

Pond 3K: Kettle 3 Peak Elev=976.43' Storage=26,218 cf Inflow=12.43 cfs 4.575 af
Outflow=12.05 cfs 4.065 af

Pond 5P: Pond 5 Peak Elev=983.72' Storage=71,767 cf Inflow=27.56 cfs 4.521 af
Outflow=11.59 cfs 4.146 af

Pond 6K: Kettle 6 Peak Elev=1,012.90' Storage=43,811 cf Inflow=9.84 cfs 1.373 af
Outflow=1.85 cfs 0.513 af

Pond 11B: Infiltration Basin 11 Peak Elev=969.36' Storage=36,029 cf Inflow=14.48 cfs 5.146 af
Outflow=12.73 cfs 4.842 af

Pond 18B-20P: Combined 18B & 20P Peak Elev=994.54' Storage=167,958 cf Inflow=39.97 cfs 7.662 af
Secondary=0.00 cfs 0.000 af Tertiary=23.11 cfs 4.853 af Outflow=23.11 cfs 4.853 af

Total Runoff Area = 45.750 ac Runoff Volume = 22.180 af Average Runoff Depth = 5.82"
3.08% Pervious = 1.410 ac 96.92% Impervious = 44.340 ac

Summary for Subcatchment P1: Subarea 1

Runoff = 40.66 cfs @ 12.68 hrs, Volume= 5.875 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	8.010	98	woods
*	2.570	98	1/2 acre lots
*	0.700	98	cropland
*	0.540	98	grass
*	0.080	98	impervious
	11.900	98	Weighted Average
	11.900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Summary for Subcatchment P11: Subarea 11

Runoff = 14.48 cfs @ 12.52 hrs, Volume= 1.779 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.000	98	woods
*	1.120	98	grass
*	1.000	98	impervious
*	0.040	98	impervious
*	0.440	98	grass
	3.600	98	Weighted Average
	3.600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0300	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
17.9	80	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
16.2	105	0.2200	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
39.8	220	Total			

Summary for Subcatchment P18: Subarea 18

Runoff = 22.48 cfs @ 12.56 hrs, Volume= 2.890 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.290	98	Area C from LCL High School Report
*	0.380	98	woods
*	0.760	98	grass
*	0.420	98	impervious
	5.850	98	Weighted Average
	5.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Summary for Subcatchment P19: Subarea 19

Runoff = 0.92 cfs @ 12.13 hrs, Volume= 0.050 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.060	98	grass
*	0.040	98	impervious
	0.100	98	Weighted Average
	0.100		100.00% Impervious Area

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

Summary for Subcatchment P2: Subarea 2

Runoff = 7.83 cfs @ 12.57 hrs, Volume= 1.003 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.330	98	woods
*	0.570	98	grass
*	0.130	98	impervious
	2.030	98	Weighted Average
	2.030		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0600	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
15.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
21.6	140	0.1900	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
42.4	240	Total			

Summary for Subcatchment P20: Subarea 20

Runoff = 21.41 cfs @ 13.09 hrs, Volume= 4.293 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.380	98	woods
*	4.110	98	grass
*	0.150	98	water
*	2.830	98	impervious
*	0.250	98	cropland
	8.720	98	Weighted Average
	8.720		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.6	270	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	335		5.00		**Direct Entry,**
86.0	905	Total			

Summary for Subcatchment P21: Subarea 21

Runoff = 5.53 cfs @ 12.37 hrs, Volume= 0.479 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Summary for Subcatchment P3: Subarea 3

Runoff = 4.73 cfs @ 12.32 hrs, Volume= 0.430 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.560	98	woods
*	0.260	98	grass
*	0.050	98	impervious
	0.870	98	Weighted Average
	0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	10	0.0500	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
21.3	130	0.1700	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
23.0	140	Total			

Summary for Subcatchment P5: Subarea 5

Runoff = 27.56 cfs @ 12.68 hrs, Volume= 4.009 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	5.820	98	woods
*	0.970	98	grass
*	0.240	98	water
*	1.090	98	impervious
	8.120	98	Weighted Average
	8.120		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.5	300	0.1000	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.1	100	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
52.6	400	Total			

Summary for Subcatchment P6: Subarea 6

Runoff = 9.84 cfs @ 12.61 hrs, Volume= 1.373 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	2.780	98	woods
	2.780		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.1	200	0.0500	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 1K: Kettle 1

Inflow Area = 29.300 ac,100.00% Impervious, Inflow Depth > 6.38" for 100 yr event
Inflow = 48.67 cfs @ 12.78 hrs, Volume= 15.567 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 965.88' @ 24.00 hrs Surf.Area= 67,238 sf Storage= 678,078 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	999,288 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
970.00	89,147	438,997	999,288	90,886

Summary for Pond 2K: Kettle 2

Inflow Area = 13.800 ac,100.00% Impervious, Inflow Depth > 4.41" for 100 yr event
Inflow = 16.91 cfs @ 12.81 hrs, Volume= 5.067 af
Outflow = 11.69 cfs @ 14.32 hrs, Volume= 3.369 af, Atten= 31%, Lag= 90.6 min
Primary = 11.69 cfs @ 14.32 hrs, Volume= 3.369 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 974.61' @ 14.32 hrs Surf.Area= 21,313 sf Storage= 88,278 cf

Plug-Flow detention time= 193.7 min calculated for 3.367 af (66% of inflow)
Center-of-Mass det. time= 97.4 min (979.2 - 881.8)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,021 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	25,886	24,224	121,021	26,170

Device	Routing	Invert	Outlet Devices
#1	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.69 cfs @ 14.32 hrs HW=974.61' TW=969.36' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.69 cfs @ 2.56 fps)

Summary for Pond 3K: Kettle 3

Inflow Area = 11.770 ac,100.00% Impervious, Inflow Depth > 4.66" for 100 yr event
Inflow = 12.43 cfs @ 12.35 hrs, Volume= 4.575 af
Outflow = 12.05 cfs @ 13.36 hrs, Volume= 4.065 af, Atten= 3%, Lag= 60.8 min
Primary = 12.05 cfs @ 13.36 hrs, Volume= 4.065 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 976.43' @ 13.51 hrs Surf.Area= 9,842 sf Storage= 26,218 cf

Plug-Flow detention time= 79.9 min calculated for 4.064 af (89% of inflow)
Center-of-Mass det. time= 29.8 min (908.3 - 878.5)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	44,405 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,000	2,897	2,897	4,009
974.00	5,650	4,801	7,698	5,677
975.00	7,210	6,414	14,113	7,262
976.00	8,940	8,060	22,172	9,021
977.00	11,100	10,001	32,173	11,210
978.00	13,400	12,232	44,405	13,543

Device	Routing	Invert	Outlet Devices
#1	Primary	972.50'	**6.0" Round Culvert** L= 60.4' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 972.50' / 971.58' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf
#2	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=12.04 cfs @ 13.36 hrs HW=976.43' TW=973.92' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.12 cfs @ 5.73 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 10.92 cfs @ 1.69 fps)

Summary for Pond 5P: Pond 5

Inflow Area = 10.900 ac,100.00% Impervious, Inflow Depth > 4.98" for 100 yr event
Inflow = 27.56 cfs @ 12.68 hrs, Volume= 4.521 af
Outflow = 11.59 cfs @ 13.44 hrs, Volume= 4.146 af, Atten= 58%, Lag= 45.5 min
Primary = 11.59 cfs @ 13.44 hrs, Volume= 4.146 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 983.72' @ 13.44 hrs Surf.Area= 22,871 sf Storage= 71,767 cf

Plug-Flow detention time= 124.1 min calculated for 4.146 af (92% of inflow)
Center-of-Mass det. time= 86.2 min (891.1 - 805.0)

Volume	Invert	Avail.Storage	Storage Description
#1	979.25'	170,803 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.25	10,255	0	0	10,255
979.75	11,199	5,362	5,362	11,217
981.00	14,748	16,166	21,528	14,801
982.00	17,250	15,983	37,511	17,343
983.00	20,202	18,707	56,217	20,335
984.00	23,940	22,045	78,262	24,109
985.00	28,560	26,216	104,478	28,765
986.00	33,500	30,997	135,475	33,744
987.00	37,188	35,328	170,803	37,492

Device	Routing	Invert	Outlet Devices
#1	Primary	979.25'	**15.0" Round Culvert** L= 130.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 979.25' / 975.50' S= 0.0288 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	979.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	981.25'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	985.90'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.59 cfs @ 13.44 hrs HW=983.72' TW=976.43' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 11.59 cfs @ 9.44 fps)
  - **2=Orifice/Grate** (Passes < 1.94 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 53.52 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6K: Kettle 6

Inflow Area = 2.780 ac,100.00% Impervious, Inflow Depth > 5.93" for 100 yr event
Inflow = 9.84 cfs @ 12.61 hrs, Volume= 1.373 af
Outflow = 1.85 cfs @ 13.83 hrs, Volume= 0.513 af, Atten= 81%, Lag= 73.1 min
Primary = 1.85 cfs @ 13.83 hrs, Volume= 0.513 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 1,012.90' @ 13.83 hrs Surf.Area= 38,846 sf Storage= 43,811 cf

Plug-Flow detention time= 315.2 min calculated for 0.512 af (37% of inflow)
Center-of-Mass det. time= 190.9 min (971.5 - 780.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	47,595 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	9,905	0	0	9,905
1,012.00	23,150	16,066	16,066	23,158
1,013.00	40,730	31,529	47,595	40,749

Device	Routing	Invert	Outlet Devices
#1	Primary	1,012.70'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.85 cfs @ 13.83 hrs HW=1,012.90' TW=983.60' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.85 cfs @ 1.13 fps)

Summary for Pond 11B: Infiltration Basin 11

Inflow Area = 17.400 ac,100.00% Impervious, Inflow Depth > 3.55" for 100 yr event
Inflow = 14.48 cfs @ 12.52 hrs, Volume= 5.146 af
Outflow = 12.73 cfs @ 14.29 hrs, Volume= 4.842 af, Atten= 12%, Lag= 106.1 min
Primary = 12.73 cfs @ 14.29 hrs, Volume= 4.842 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 969.36' @ 14.29 hrs Surf.Area= 10,950 sf Storage= 36,029 cf

Plug-Flow detention time= 89.4 min calculated for 4.840 af (94% of inflow)
Center-of-Mass det. time= 61.2 min (968.7 - 907.6)

Volume	Invert	Avail.Storage	Storage Description
#1	964.00'	43,487 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
964.00	3,560	0	0	3,560
965.00	4,560	4,050	4,050	4,585
966.00	5,660	5,100	9,150	5,714
967.00	6,895	6,267	15,417	6,980
968.00	8,290	7,582	22,999	8,409
969.00	10,205	9,231	32,230	10,354
970.00	12,343	11,257	43,487	12,525

Device	Routing	Invert	Outlet Devices
#1	Primary	966.00'	**10.0" Round Culvert** L= 65.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 966.00' / 962.00' S= 0.0615 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#2	Primary	969.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=12.73 cfs @ 14.29 hrs HW=969.36' TW=960.38' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.50 cfs @ 8.26 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 8.22 cfs @ 1.53 fps)

Summary for Pond 18B-20P: Combined 18B & 20P

Inflow Area = 16.350 ac, 91.38% Impervious, Inflow Depth > 5.62" for 100 yr event
Inflow = 39.97 cfs @ 12.65 hrs, Volume= 7.662 af
Outflow = 23.11 cfs @ 13.52 hrs, Volume= 4.853 af, Atten= 42%, Lag= 52.1 min
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 23.11 cfs @ 13.52 hrs, Volume= 4.853 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 994.54' @ 13.52 hrs Surf.Area= 22,489 sf Storage= 167,958 cf

Plug-Flow detention time= 203.1 min calculated for 4.853 af (63% of inflow)
Center-of-Mass det. time= 120.3 min (919.5 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	83,684 cf	**Existing Infilltration Basin 18B (Conic)** Listed below (Recalc)
#2	989.00'	108,558 cf	**Pond 20 (Conic)** Listed below (Recalc) -Impervious
		192,242 cf	Total Available Storage

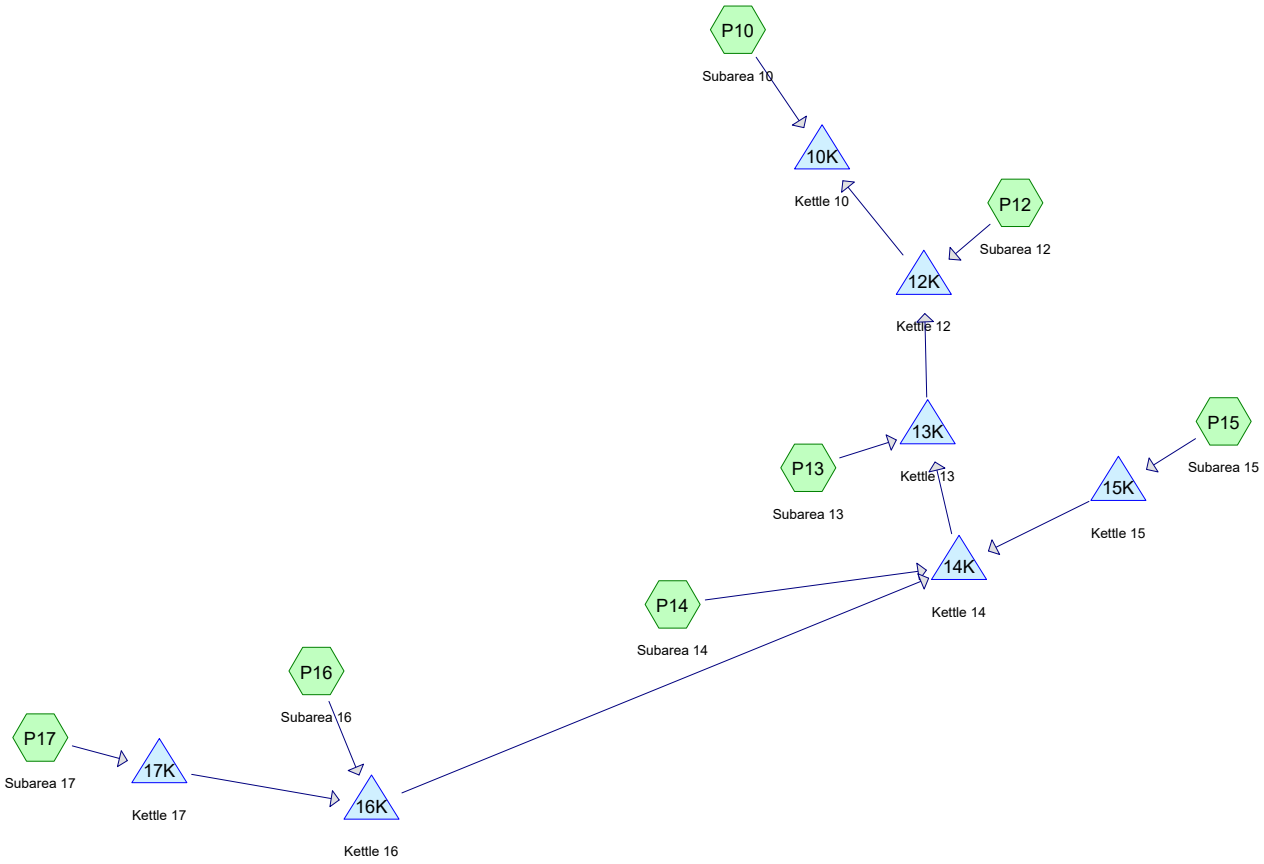
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	6,352	0	0	6,352
990.00	10,364	8,277	8,277	10,377
991.00	15,582	12,885	21,161	15,610
992.00	18,483	17,012	38,173	18,548
993.00	21,527	19,986	58,159	21,633
994.00	24,654	23,073	81,232	24,806
995.00	30,089	27,326	108,558	30,272

Device	Routing	Invert	Outlet Devices
#1	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Tertiary	994.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Tertiary	989.00'	**6.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 989.00' / 988.62' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=23.11 cfs @ 13.52 hrs HW=994.54' TW=957.81' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Weir Controls 20.97 cfs @ 1.95 fps)
└**3=Culvert** (Barrel Controls 2.15 cfs @ 10.94 fps)



Subcat Reach Pond Link

Routing Diagram for Proposed_FROZEN_Kettle10
Prepared by HP Inc., Printed 8/26/2020
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.110	98	1/4 acre lots (P10, P12, P13, P14, P15)
3.060	98	grass (P10, P12, P14, P15)
1.020	98	impervious (P12, P14, P15)
14.050	98	woods (P10, P12, P13, P14, P15, P16, P17)
20.240	**98**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentP10: Subarea 10 Runoff Area=1.740 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=98 Runoff=7.42 cfs 0.860 af

SubcatchmentP12: Subarea 12 Runoff Area=2.570 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=98 Runoff=12.25 cfs 1.271 af

SubcatchmentP13: Subarea 13 Runoff Area=1.010 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=98 Runoff=4.35 cfs 0.499 af

SubcatchmentP14: Subarea 14 Runoff Area=8.130 ac 100.00% Impervious Runoff Depth>5.90"
Flow Length=1,110' Tc=104.8 min CN=98 Runoff=17.38 cfs 3.995 af

SubcatchmentP15: Subarea 15 Runoff Area=0.870 ac 100.00% Impervious Runoff Depth>5.94"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=98 Runoff=5.27 cfs 0.430 af

SubcatchmentP16: Subarea 16 Runoff Area=1.620 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=270' Slope=0.0400 '/' Tc=68.3 min CN=98 Runoff=4.63 cfs 0.799 af

SubcatchmentP17: Subarea 17 Runoff Area=4.300 ac 100.00% Impervious Runoff Depth>5.91"
Flow Length=250' Slope=0.0300 '/' Tc=72.0 min CN=98 Runoff=11.89 cfs 2.119 af

Pond 10K: Kettle 10 Peak Elev=964.50' Storage=94,782 cf Inflow=14.00 cfs 2.176 af
Outflow=0.00 cfs 0.000 af

Pond 12K: Kettle 12 Peak Elev=964.50' Storage=154,415 cf Inflow=24.73 cfs 4.861 af
Outflow=13.59 cfs 1.316 af

Pond 13K: Kettle 13 Peak Elev=964.50' Storage=27,491 cf Inflow=27.27 cfs 4.221 af
Outflow=22.43 cfs 3.590 af

Pond 14K: Kettle 14 Peak Elev=964.50' Storage=120,395 cf Inflow=32.78 cfs 6.486 af
Outflow=26.15 cfs 3.722 af

Pond 15K: Kettle 15 Peak Elev=972.67' Storage=11,032 cf Inflow=5.27 cfs 0.430 af
Outflow=2.58 cfs 0.205 af

Pond 16K: Kettle 16 Peak Elev=1,007.52' Storage=21,329 cf Inflow=15.22 cfs 2.648 af
Outflow=15.07 cfs 2.286 af

Pond 17K: Kettle 17 Peak Elev=1,012.43' Storage=22,354 cf Inflow=11.89 cfs 2.119 af
Outflow=11.00 cfs 1.849 af

Total Runoff Area = 20.240 ac Runoff Volume = 9.973 af Average Runoff Depth = 5.91"
0.00% Pervious = 0.000 ac 100.00% Impervious = 20.240 ac

Summary for Subcatchment P10: Subarea 10

Runoff = 7.42 cfs @ 12.45 hrs, Volume= 0.860 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.270	98	woods
*	0.450	98	1/4 acre lots
*	0.020	98	grass
	1.740	98	Weighted Average
	1.740		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P12: Subarea 12

Runoff = 12.25 cfs @ 12.38 hrs, Volume= 1.271 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.970	98	woods
*	0.350	98	grass
*	0.180	98	impervious
*	1.070	98	1/4 acre lots
	2.570	98	Weighted Average
	2.570		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1300	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
25.2	140	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
29.4	190	Total			

Summary for Subcatchment P13: Subarea 13

Runoff = 4.35 cfs @ 12.44 hrs, Volume= 0.499 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.760	98	woods
*	0.250	98	1/4 acre lots
	1.010	98	Weighted Average
	1.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P14: Subarea 14

Runoff = 17.38 cfs @ 13.39 hrs, Volume= 3.995 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.650	98	woods
*	2.600	98	grass
*	0.830	98	impervious
*	0.050	98	1/4 acre lots
	8.130	98	Weighted Average
	8.130		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
98.0	300	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
4.0	170	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
104.8	1,110	Total			

Summary for Subcatchment P15: Subarea 15

Runoff = 5.27 cfs @ 12.27 hrs, Volume= 0.430 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.480	98	woods
*	0.090	98	grass
*	0.010	98	impervious
*	0.290	98	1/4 acre lots
	0.870	98	Weighted Average
	0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P16: Subarea 16

Runoff = 4.63 cfs @ 12.90 hrs, Volume= 0.799 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.620	98	woods
	1.620		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.3	270	0.0400	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment P17: Subarea 17

Runoff = 11.89 cfs @ 12.88 hrs, Volume= 2.119 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.300	98	woods
	4.300		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0	250	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 10K: Kettle 10

Inflow Area = 20.240 ac,100.00% Impervious, Inflow Depth > 1.29" for 100 yr event
Inflow = 14.00 cfs @ 14.53 hrs, Volume= 2.176 af
Outflow = 0.00 cfs @ 23.97 hrs, Volume= 0.000 af, Atten= 100%, Lag= 566.6 min
Primary = 0.00 cfs @ 23.97 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 964.50' @ 24.00 hrs Surf.Area= 20,298 sf Storage= 94,782 cf

Plug-Flow detention time= 1,321.9 min calculated for 0.000 af (0% of inflow)
Center-of-Mass det. time= 582.4 min (1,438.6 - 856.2)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 23.97 hrs HW=964.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.06 fps)

Summary for Pond 12K: Kettle 12

Inflow Area = 18.500 ac,100.00% Impervious, Inflow Depth > 3.15" for 100 yr event
Inflow = 24.73 cfs @ 13.16 hrs, Volume= 4.861 af
Outflow = 13.59 cfs @ 14.53 hrs, Volume= 1.316 af, Atten= 45%, Lag= 82.3 min
Primary = 13.59 cfs @ 14.53 hrs, Volume= 1.316 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 964.50' @ 24.00 hrs Surf.Area= 32,459 sf Storage= 154,415 cf

Plug-Flow detention time= 212.7 min calculated for 1.316 af (27% of inflow)
Center-of-Mass det. time= 68.9 min (913.3 - 844.4)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=13.59 cfs @ 14.53 hrs HW=963.49' TW=962.35' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 13.59 cfs @ 1.84 fps)

Summary for Pond 13K: Kettle 13

Inflow Area = 15.930 ac,100.00% Impervious, Inflow Depth > 3.18" for 100 yr event
Inflow = 27.27 cfs @ 13.16 hrs, Volume= 4.221 af
Outflow = 22.43 cfs @ 13.17 hrs, Volume= 3.590 af, Atten= 18%, Lag= 0.5 min
Primary = 22.43 cfs @ 13.17 hrs, Volume= 3.590 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 964.50' @ 24.00 hrs Surf.Area= 9,085 sf Storage= 27,491 cf

Plug-Flow detention time= 47.6 min calculated for 3.590 af (85% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=22.33 cfs @ 13.17 hrs HW=961.83' TW=961.36' (Dynamic Tailwater)
1=Culvert (Outlet Controls 22.33 cfs @ 3.80 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14K: Kettle 14

Inflow Area = 14.920 ac,100.00% Impervious, Inflow Depth > 5.22" for 100 yr event
Inflow = 32.78 cfs @ 13.18 hrs, Volume= 6.486 af
Outflow = 26.15 cfs @ 13.17 hrs, Volume= 3.722 af, Atten= 20%, Lag= 0.0 min
Primary = 26.15 cfs @ 13.17 hrs, Volume= 3.722 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 964.50' @ 24.00 hrs Surf.Area= 22,870 sf Storage= 120,395 cf

Plug-Flow detention time= 130.4 min calculated for 3.722 af (57% of inflow)
Center-of-Mass det. time= 41.9 min (887.6 - 845.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,779 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
963.00	19,708	18,629	88,463	19,972
965.00	23,972	43,610	132,073	24,363
967.00	28,808	52,706	184,779	29,334

Device	Routing	Invert	Outlet Devices
#1	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=26.07 cfs @ 13.17 hrs HW=962.18' TW=961.83' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 26.07 cfs @ 1.97 fps)

Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac,100.00% Impervious, Inflow Depth > 5.94" for 100 yr event
Inflow = 5.27 cfs @ 12.27 hrs, Volume= 0.430 af
Outflow = 2.58 cfs @ 12.50 hrs, Volume= 0.205 af, Atten= 51%, Lag= 14.0 min
Primary = 2.58 cfs @ 12.50 hrs, Volume= 0.205 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 972.67' @ 12.50 hrs Surf.Area= 7,857 sf Storage= 11,032 cf

Plug-Flow detention time= 211.5 min calculated for 0.205 af (48% of inflow)
Center-of-Mass det. time= 112.1 min (865.6 - 753.5)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.58 cfs @ 12.50 hrs HW=972.67' TW=959.44' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.58 cfs @ 1.02 fps)

Summary for Pond 16K: Kettle 16

Inflow Area = 5.920 ac,100.00% Impervious, Inflow Depth > 5.37" for 100 yr event
Inflow = 15.22 cfs @ 13.06 hrs, Volume= 2.648 af
Outflow = 15.07 cfs @ 13.14 hrs, Volume= 2.286 af, Atten= 1%, Lag= 4.8 min
Primary = 15.07 cfs @ 13.14 hrs, Volume= 2.286 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 1,007.52' @ 13.14 hrs Surf.Area= 12,000 sf Storage= 21,329 cf

Plug-Flow detention time= 80.6 min calculated for 2.286 af (86% of inflow)
Center-of-Mass det. time= 33.6 min (873.6 - 840.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=15.07 cfs @ 13.14 hrs HW=1,007.52' TW=962.14' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 15.07 cfs @ 1.92 fps)

Summary for Pond 17K: Kettle 17

Inflow Area = 4.300 ac,100.00% Impervious, Inflow Depth > 5.91" for 100 yr event
Inflow = 11.89 cfs @ 12.88 hrs, Volume= 2.119 af
Outflow = 11.00 cfs @ 13.13 hrs, Volume= 1.849 af, Atten= 7%, Lag= 15.2 min
Primary = 11.00 cfs @ 13.13 hrs, Volume= 1.849 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 1,012.43' @ 13.13 hrs Surf.Area= 29,188 sf Storage= 22,354 cf

Plug-Flow detention time= 103.7 min calculated for 1.849 af (87% of inflow)
Center-of-Mass det. time= 57.6 min (858.4 - 800.8)

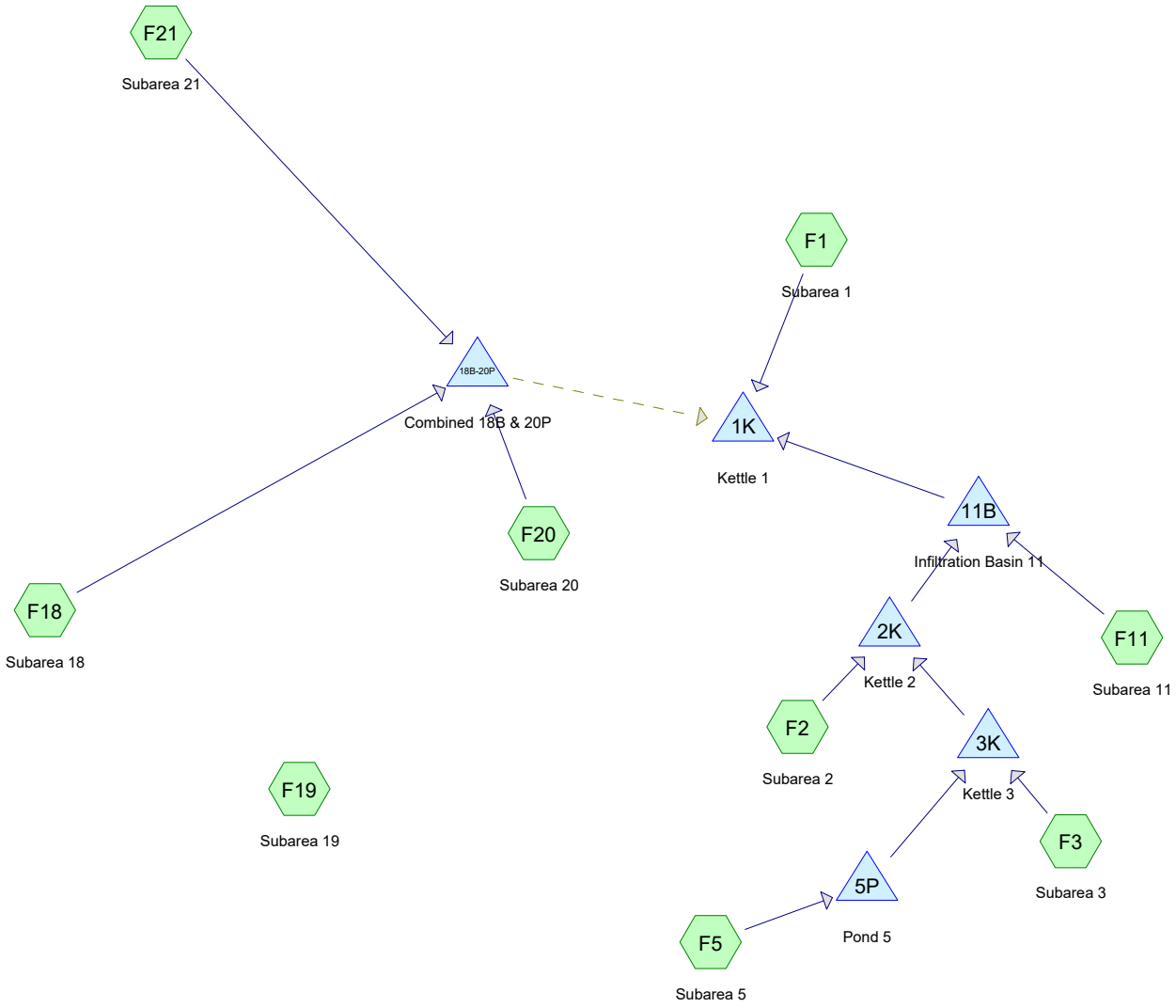
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.00 cfs @ 13.13 hrs HW=1,012.43' TW=1,007.52' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.00 cfs @ 1.70 fps)

Future
Frozen Conditions
HydroCAD Modeling



Subcat Reach Pond Link

Routing Diagram for Future_FROZEN_Combined-18B-20P
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.570	98	1/2 acre lots (F1)
4.290	98	Area C from LCL High School Report (F18)
0.950	98	cropland (F1, F20)
0.880	69	cropland (F21)
12.420	98	grass (F1, F11, F18, F19, F2, F20, F3, F5)
0.530	61	grass (F21)
12.090	98	impervious (F1, F11, F18, F19, F2, F20, F21, F3, F5)
0.390	98	water (F20, F5)
14.140	98	woods (F1, F11, F18, F2, F20, F3, F5)
48.260	**97**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentF1: Subarea 1 Runoff Area=11.900 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=530' Slope=0.1100 '/' Tc=51.9 min CN=98 Runoff=40.66 cfs 5.875 af

SubcatchmentF11: Subarea 11 Runoff Area=3.600 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=220' Tc=39.8 min CN=98 Runoff=14.48 cfs 1.779 af

SubcatchmentF18: Subarea 18 Runoff Area=5.860 ac 100.00% Impervious Runoff Depth>5.93"
Tc=42.8 min CN=98 Runoff=22.52 cfs 2.895 af

SubcatchmentF19: Subarea 19 Runoff Area=0.100 ac 100.00% Impervious Runoff Depth>5.94"
Tc=6.0 min CN=98 Runoff=0.92 cfs 0.050 af

SubcatchmentF2: Subarea 2 Runoff Area=2.030 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=240' Tc=42.4 min CN=98 Runoff=7.83 cfs 1.003 af

SubcatchmentF20: Subarea 20 Runoff Area=8.720 ac 100.00% Impervious Runoff Depth>5.91"
Flow Length=905' Slope=0.0300 '/' Tc=86.0 min CN=98 Runoff=21.41 cfs 4.293 af

SubcatchmentF21: Subarea 21 Runoff Area=1.780 ac 20.79% Impervious Runoff Depth>3.23"
Flow Length=920' Tc=26.7 min CN=73 Runoff=5.53 cfs 0.479 af

SubcatchmentF3: Subarea 3 Runoff Area=0.870 ac 100.00% Impervious Runoff Depth>5.94"
Flow Length=140' Tc=23.0 min CN=98 Runoff=4.73 cfs 0.430 af

SubcatchmentF5: Subarea 5 Runoff Area=13.400 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=300' Slope=0.0500 '/' Tc=39.5 min CN=98 Runoff=54.19 cfs 6.621 af

Pond 1K: Kettle 1 Peak Elev=967.01' Storage=764,983 cf Inflow=55.18 cfs 17.563 af
Outflow=0.00 cfs 0.000 af

Pond 2K: Kettle 2 Peak Elev=974.80' Storage=92,355 cf Inflow=22.83 cfs 7.145 af
Outflow=15.50 cfs 5.445 af

Pond 3K: Kettle 3 Peak Elev=976.49' Storage=26,851 cf Inflow=15.16 cfs 6.653 af
Outflow=15.01 cfs 6.143 af

Pond 5P: Pond 5 Peak Elev=985.87' Storage=131,236 cf Inflow=54.19 cfs 6.621 af
Outflow=13.97 cfs 6.224 af

Pond 11B: Infiltration Basin 11 Peak Elev=969.49' Storage=37,431 cf Inflow=17.95 cfs 7.222 af
Outflow=17.91 cfs 6.833 af

Pond 18B-20P: Combined 18B & 20P Peak Elev=994.54' Storage=167,985 cf Inflow=40.00 cfs 7.667 af
Secondary=0.00 cfs 0.000 af Tertiary=23.15 cfs 4.858 af Outflow=23.15 cfs 4.858 af

Total Runoff Area = 48.260 ac Runoff Volume = 23.424 af Average Runoff Depth = 5.82"
2.92% Pervious = 1.410 ac 97.08% Impervious = 46.850 ac

Summary for Subcatchment F1: Subarea 1

Runoff = 40.66 cfs @ 12.68 hrs, Volume= 5.875 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	8.010	98	woods
*	2.570	98	1/2 acre lots
*	0.700	98	cropland
*	0.540	98	grass
*	0.080	98	impervious
	11.900	98	Weighted Average
	11.900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
49.6	300	0.1100	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
2.3	230	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
51.9	530	Total			

Summary for Subcatchment F11: Subarea 11

Runoff = 14.48 cfs @ 12.52 hrs, Volume= 1.779 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.000	98	woods
*	1.560	98	grass
*	1.040	98	impervious
	3.600	98	Weighted Average
	3.600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0300	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
17.9	80	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
16.2	105	0.2200	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
39.8	220	Total			

Summary for Subcatchment F18: Subarea 18

Runoff = 22.52 cfs @ 12.56 hrs, Volume= 2.895 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	4.290	98	Area C from LCL High School Report
*	0.270	98	woods
*	0.780	98	grass
*	0.520	98	impervious
	5.860	98	Weighted Average
	5.860		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry, LCL High School Report**

Summary for Subcatchment F19: Subarea 19

Runoff = 0.92 cfs @ 12.13 hrs, Volume= 0.050 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.040	98	grass
*	0.060	98	impervious
	0.100	98	Weighted Average
	0.100		100.00% Impervious Area

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

Summary for Subcatchment F2: Subarea 2

Runoff = 7.83 cfs @ 12.57 hrs, Volume= 1.003 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.330	98	woods
*	0.570	98	grass
*	0.130	98	impervious
	2.030	98	Weighted Average
	2.030		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0600	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
15.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
21.6	140	0.1900	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
42.4	240	Total			

Summary for Subcatchment F20: Subarea 20

Runoff = 21.41 cfs @ 13.09 hrs, Volume= 4.293 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.380	98	woods
*	4.110	98	grass
*	0.150	98	water
*	2.830	98	impervious
*	0.250	98	cropland
	8.720	98	Weighted Average
	8.720		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
83.3	300	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
1.6	270	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	335		5.00		**Direct Entry,**
86.0	905	Total			

Summary for Subcatchment F21: Subarea 21

Runoff = 5.53 cfs @ 12.37 hrs, Volume= 0.479 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.880	69	cropland
*	0.530	61	grass
*	0.370	98	impervious
	1.780	73	Weighted Average
	1.410		79.21% Pervious Area
	0.370		20.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	300	0.0300	0.21		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 2.70"
1.4	240	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	130	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	250		5.00		**Direct Entry, pipe**
26.7	920	Total			

Summary for Subcatchment F3: Subarea 3

Runoff = 4.73 cfs @ 12.32 hrs, Volume= 0.430 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.560	98	woods
*	0.260	98	grass
*	0.050	98	impervious
	0.870	98	Weighted Average
	0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	10	0.0500	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
21.3	130	0.1700	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
23.0	140	Total			

Summary for Subcatchment F5: Subarea 5

Runoff = 54.19 cfs @ 12.51 hrs, Volume= 6.621 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.590	98	woods
*	4.560	98	grass
*	0.240	98	water
*	7.010	98	impervious
	13.400	98	Weighted Average
	13.400		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.0	150	0.0500	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
0.5	150		5.00		**Direct Entry,**
39.5	300	Total			

Summary for Pond 1K: Kettle 1

Inflow Area = 31.800 ac,100.00% Impervious, Inflow Depth > 6.63" for 100 yr event
Inflow = 55.18 cfs @ 13.39 hrs, Volume= 17.563 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 967.01' @ 24.00 hrs Surf.Area= 77,888 sf Storage= 764,983 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	944.00'	1,029,702 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
944.00	3,750	0	0	3,750
945.00	6,195	4,922	4,922	6,208
946.00	8,685	7,405	12,327	8,716
947.00	10,780	9,714	22,040	10,840
948.00	13,055	11,899	33,940	13,148
949.00	15,305	14,165	48,105	15,437
950.00	17,415	16,349	64,453	17,595
951.00	19,655	18,524	82,977	19,886
952.00	21,865	20,750	103,727	22,155
953.00	24,185	23,015	126,743	24,536
954.00	26,545	25,356	152,098	26,963
955.00	28,985	27,756	179,854	29,473
956.00	31,540	30,254	210,108	32,101
957.00	34,135	32,829	242,937	34,775
958.00	36,900	35,509	278,445	37,619
959.00	39,930	38,405	316,851	40,728
960.00	43,170	41,539	358,390	44,047
961.00	46,620	44,884	403,274	47,578
962.00	50,260	48,429	451,703	51,301
963.00	54,345	52,289	503,992	55,465
964.00	58,275	56,299	560,290	59,484
965.00	64,568	61,395	621,685	65,838
970.00	99,920	408,017	1,029,702	101,550

Summary for Pond 2K: Kettle 2

Inflow Area = 16.300 ac,100.00% Impervious, Inflow Depth > 5.26" for 100 yr event
Inflow = 22.83 cfs @ 12.57 hrs, Volume= 7.145 af
Outflow = 15.50 cfs @ 13.74 hrs, Volume= 5.445 af, Atten= 32%, Lag= 70.1 min
Primary = 15.50 cfs @ 13.74 hrs, Volume= 5.445 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 974.80' @ 13.74 hrs Surf.Area= 21,934 sf Storage= 92,355 cf

Plug-Flow detention time= 144.6 min calculated for 5.442 af (76% of inflow)
Center-of-Mass det. time= 74.6 min (950.3 - 875.7)

Volume	Invert	Avail.Storage	Storage Description
#1	966.00'	121,085 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
966.00	285	0	0	285
967.00	3,190	1,476	1,476	3,193
968.00	5,410	4,251	5,728	5,425
969.00	7,210	6,288	12,016	7,247
970.00	9,215	8,192	20,208	9,277
971.00	11,370	10,274	30,482	11,462
972.00	13,630	12,483	42,965	13,756
973.00	16,420	15,003	57,968	16,580
974.00	19,360	17,870	75,838	19,558
975.00	22,600	20,959	96,797	22,838
976.00	26,015	24,287	121,085	26,297

Device	Routing	Invert	Outlet Devices
#1	Primary	973.70'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=15.50 cfs @ 13.74 hrs HW=974.80' TW=969.48' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 15.50 cfs @ 2.82 fps)

Summary for Pond 3K: Kettle 3

Inflow Area = 14.270 ac,100.00% Impervious, Inflow Depth > 5.60" for 100 yr event
Inflow = 15.16 cfs @ 12.44 hrs, Volume= 6.653 af
Outflow = 15.01 cfs @ 12.52 hrs, Volume= 6.143 af, Atten= 1%, Lag= 5.3 min
Primary = 15.01 cfs @ 12.52 hrs, Volume= 6.143 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 976.49' @ 12.71 hrs Surf.Area= 9,980 sf Storage= 26,851 cf

Plug-Flow detention time= 58.5 min calculated for 6.143 af (92% of inflow)
Center-of-Mass det. time= 24.1 min (892.3 - 868.2)

Volume	Invert	Avail.Storage	Storage Description
#1	972.00'	44,405 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
972.00	1,920	0	0	1,920
973.00	4,000	2,897	2,897	4,009
974.00	5,650	4,801	7,698	5,677
975.00	7,210	6,414	14,113	7,262
976.00	8,940	8,060	22,172	9,021
977.00	11,100	10,001	32,173	11,210
978.00	13,400	12,232	44,405	13,543

Device	Routing	Invert	Outlet Devices
#1	Primary	972.50'	**6.0" Round Culvert** L= 60.4' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 972.50' / 971.58' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf
#2	Primary	976.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=15.00 cfs @ 12.52 hrs HW=976.49' TW=972.48' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.42 cfs @ 7.24 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 13.58 cfs @ 1.84 fps)

Summary for Pond 5P: Pond 5

Inflow Area = 13.400 ac,100.00% Impervious, Inflow Depth > 5.93" for 100 yr event
Inflow = 54.19 cfs @ 12.51 hrs, Volume= 6.621 af
Outflow = 13.97 cfs @ 13.30 hrs, Volume= 6.224 af, Atten= 74%, Lag= 47.4 min
Primary = 13.97 cfs @ 13.30 hrs, Volume= 6.224 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 985.87' @ 13.30 hrs Surf.Area= 32,847 sf Storage= 131,236 cf

Plug-Flow detention time= 132.7 min calculated for 6.224 af (94% of inflow)
Center-of-Mass det. time= 103.9 min (876.0 - 772.1)

Volume	Invert	Avail.Storage	Storage Description
#1	979.25'	170,803 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
979.25	10,255	0	0	10,255
979.75	11,199	5,362	5,362	11,217
981.00	14,748	16,166	21,528	14,801
982.00	17,250	15,983	37,511	17,343
983.00	20,202	18,707	56,217	20,335
984.00	23,940	22,045	78,262	24,109
985.00	28,560	26,216	104,478	28,765
986.00	33,500	30,997	135,475	33,744
987.00	37,188	35,328	170,803	37,492

Device	Routing	Invert	Outlet Devices
#1	Primary	979.25'	**15.0" Round Culvert** L= 130.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 979.25' / 975.50' S= 0.0288 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	979.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	981.25'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	985.90'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=13.97 cfs @ 13.30 hrs HW=985.87' TW=976.49' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 13.97 cfs @ 11.39 fps)
  - **2=Orifice/Grate** (Passes < 2.39 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 73.17 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 11B: Infiltration Basin 11

Inflow Area = 19.900 ac,100.00% Impervious, Inflow Depth > 4.36" for 100 yr event
Inflow = 17.95 cfs @ 13.49 hrs, Volume= 7.222 af
Outflow = 17.91 cfs @ 13.57 hrs, Volume= 6.833 af, Atten= 0%, Lag= 4.9 min
Primary = 17.91 cfs @ 13.57 hrs, Volume= 6.833 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 969.49' @ 13.57 hrs Surf.Area= 11,218 sf Storage= 37,431 cf

Plug-Flow detention time= 67.4 min calculated for 6.830 af (95% of inflow)
Center-of-Mass det. time= 42.8 min (949.2 - 906.4)

Volume	Invert	Avail.Storage	Storage Description
#1	964.00'	43,487 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
964.00	3,560	0	0	3,560
965.00	4,560	4,050	4,050	4,585
966.00	5,660	5,100	9,150	5,714
967.00	6,895	6,267	15,417	6,980
968.00	8,290	7,582	22,999	8,409
969.00	10,205	9,231	32,230	10,354
970.00	12,343	11,257	43,487	12,525

Device	Routing	Invert	Outlet Devices
#1	Primary	966.00'	**10.0" Round Culvert** L= 65.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 966.00' / 962.00' S= 0.0615 '/' Cc= 0.900 n= 0.011, Flow Area= 0.55 sf
#2	Primary	969.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=17.91 cfs @ 13.57 hrs HW=969.49' TW=958.64' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.60 cfs @ 8.44 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 13.30 cfs @ 1.83 fps)

Summary for Pond 18B-20P: Combined 18B & 20P

Inflow Area = 16.360 ac, 91.38% Impervious, Inflow Depth > 5.62" for 100 yr event
Inflow = 40.00 cfs @ 12.65 hrs, Volume= 7.667 af
Outflow = 23.15 cfs @ 13.51 hrs, Volume= 4.858 af, Atten= 42%, Lag= 52.1 min
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Tertiary = 23.15 cfs @ 13.51 hrs, Volume= 4.858 af

Routing by Sim-Route method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Peak Elev= 994.54' @ 13.51 hrs Surf.Area= 22,492 sf Storage= 167,985 cf

Plug-Flow detention time= 202.8 min calculated for 4.856 af (63% of inflow)
Center-of-Mass det. time= 120.2 min (919.4 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	989.00'	83,684 cf	**Existing Infilltration Basin 18B (Conic)** Listed below (Recalc)
#2	989.00'	108,558 cf	**Pond 20 (Conic)** Listed below (Recalc) -Impervious
		192,242 cf	Total Available Storage

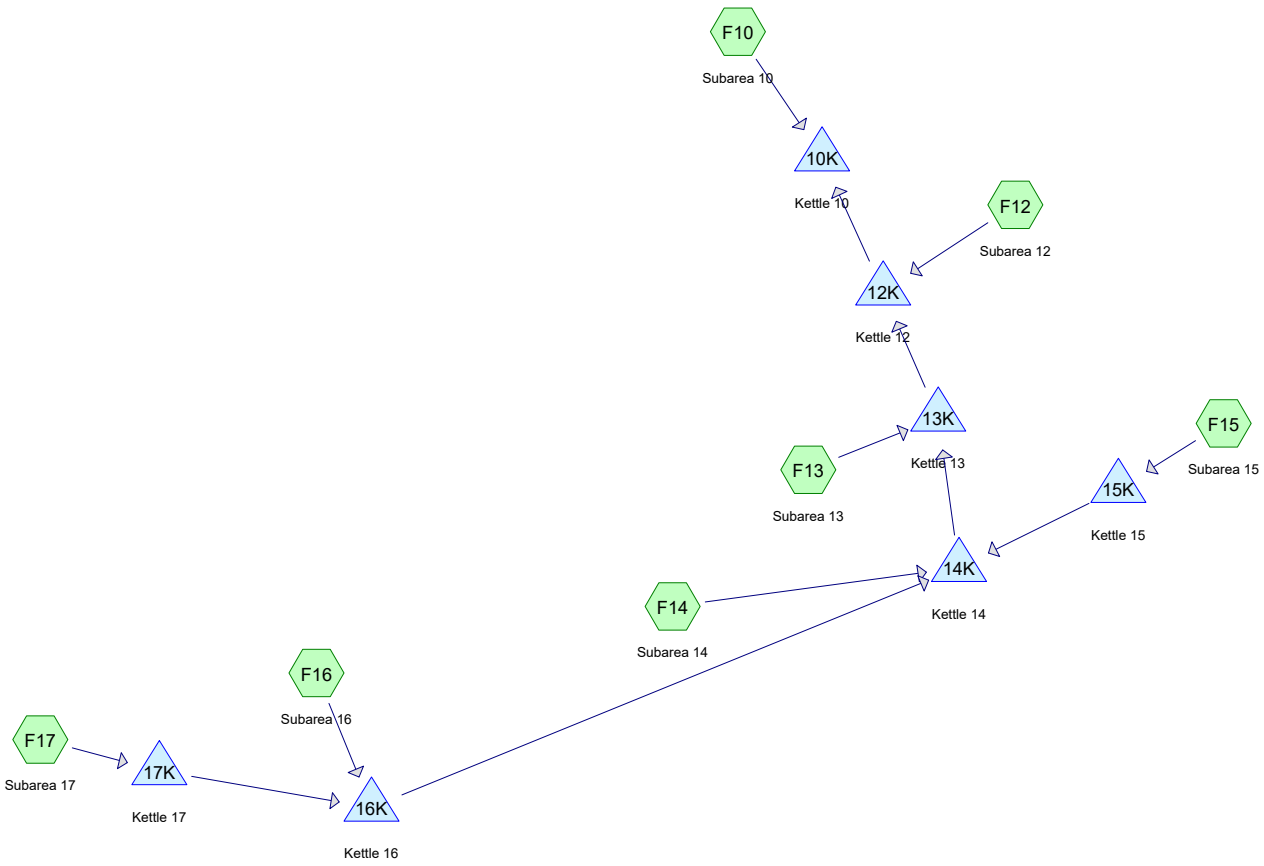
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	600	0	0	600
990.00	9,570	4,189	4,189	9,573
991.00	11,810	10,670	14,859	11,842
992.00	14,165	12,970	27,829	14,232
993.00	16,675	15,403	43,232	16,780
994.00	19,650	18,142	61,374	19,793
995.00	25,080	22,310	83,684	25,249

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
989.00	6,352	0	0	6,352
990.00	10,364	8,277	8,277	10,377
991.00	15,582	12,885	21,161	15,610
992.00	18,483	17,012	38,173	18,548
993.00	21,527	19,986	58,159	21,633
994.00	24,654	23,073	81,232	24,806
995.00	30,089	27,326	108,558	30,272

Device	Routing	Invert	Outlet Devices
#1	Secondary	994.80'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Tertiary	994.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Tertiary	989.00'	**6.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 989.00' / 988.62' S= 0.0152 '/' Cc= 0.900 n= 0.011, Flow Area= 0.20 sf

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=989.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=23.15 cfs @ 13.51 hrs HW=994.54' TW=958.35' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Weir Controls 21.00 cfs @ 1.95 fps)
└**3=Culvert** (Barrel Controls 2.15 cfs @ 10.94 fps)



Subcat Reach Pond Link

Routing Diagram for Future_FROZEN_Kettle10
Prepared by HP Inc., Printed 8/26/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.110	98	1/4 acre lots (F10, F12, F13, F14, F15)
3.330	98	grass (F10, F12, F14, F15, F16, F17)
1.170	98	impervious (F12, F14, F15, F16, F17)
11.120	98	woods (F10, F12, F13, F14, F15, F16, F17)
17.730	**98**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentF10: Subarea 10 Runoff Area=1.740 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=225' Slope=0.1400 '/' Tc=35.8 min CN=98 Runoff=7.42 cfs 0.860 af

SubcatchmentF12: Subarea 12 Runoff Area=2.570 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=190' Slope=0.1300 '/' Tc=29.4 min CN=98 Runoff=12.25 cfs 1.271 af

SubcatchmentF13: Subarea 13 Runoff Area=1.010 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=220' Slope=0.1400 '/' Tc=35.1 min CN=98 Runoff=4.35 cfs 0.499 af

SubcatchmentF14: Subarea 14 Runoff Area=7.000 ac 100.00% Impervious Runoff Depth>5.91"
Flow Length=895' Tc=76.0 min CN=98 Runoff=18.64 cfs 3.449 af

SubcatchmentF15: Subarea 15 Runoff Area=0.870 ac 100.00% Impervious Runoff Depth>5.94"
Flow Length=70' Slope=0.0700 '/' Tc=18.5 min CN=98 Runoff=5.27 cfs 0.430 af

SubcatchmentF16: Subarea 16 Runoff Area=1.060 ac 100.00% Impervious Runoff Depth>5.93"
Flow Length=205' Slope=0.0800 '/' Tc=41.5 min CN=98 Runoff=4.15 cfs 0.524 af

SubcatchmentF17: Subarea 17 Runoff Area=3.480 ac 100.00% Impervious Runoff Depth>5.92"
Flow Length=225' Slope=0.0600 '/' Tc=50.2 min CN=98 Runoff=12.15 cfs 1.718 af

Pond 10K: Kettle 10 Peak Elev=963.85' Storage=82,081 cf Inflow=7.49 cfs 1.884 af
Outflow=0.00 cfs 0.000 af

Pond 12K: Kettle 12 Peak Elev=963.85' Storage=134,195 cf Inflow=26.41 cfs 4.105 af
Outflow=7.07 cfs 1.024 af

Pond 13K: Kettle 13 Peak Elev=963.85' Storage=21,841 cf Inflow=28.18 cfs 3.336 af
Outflow=23.38 cfs 2.834 af

Pond 14K: Kettle 14 Peak Elev=963.85' Storage=105,926 cf Inflow=32.88 cfs 5.268 af
Outflow=26.62 cfs 2.837 af

Pond 15K: Kettle 15 Peak Elev=972.67' Storage=11,032 cf Inflow=5.27 cfs 0.430 af
Outflow=2.58 cfs 0.205 af

Pond 16K: Kettle 16 Peak Elev=1,007.49' Storage=20,871 cf Inflow=13.71 cfs 1.974 af
Outflow=13.31 cfs 1.614 af

Pond 17K: Kettle 17 Peak Elev=1,012.42' Storage=22,087 cf Inflow=12.15 cfs 1.718 af
Outflow=10.62 cfs 1.451 af

Total Runoff Area = 17.730 ac Runoff Volume = 8.751 af Average Runoff Depth = 5.92"
0.00% Pervious = 0.000 ac 100.00% Impervious = 17.730 ac

Summary for Subcatchment F10: Subarea 10

Runoff = 7.42 cfs @ 12.45 hrs, Volume= 0.860 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.270	98	woods
*	0.450	98	1/4 acre lots
*	0.020	98	grass
	1.740	98	Weighted Average
	1.740		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.8	225	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F12: Subarea 12

Runoff = 12.25 cfs @ 12.38 hrs, Volume= 1.271 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.970	98	woods
*	0.350	98	grass
*	0.180	98	impervious
*	1.070	98	1/4 acre lots
	2.570	98	Weighted Average
	2.570		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	50	0.1300	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.70"
25.2	140	0.1300	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
29.4	190	Total			

Summary for Subcatchment F13: Subarea 13

Runoff = 4.35 cfs @ 12.44 hrs, Volume= 0.499 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.760	98	woods
*	0.250	98	1/4 acre lots
	1.010	98	Weighted Average
	1.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	220	0.1400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F14: Subarea 14

Runoff = 18.64 cfs @ 12.92 hrs, Volume= 3.449 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	3.340	98	woods
*	2.720	98	grass
*	0.890	98	impervious
*	0.050	98	1/4 acre lots
	7.000	98	Weighted Average
	7.000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.2	255	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"
0.1	55	0.3800	9.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.7	585	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
76.0	895	Total			

Summary for Subcatchment F15: Subarea 15

Runoff = 5.27 cfs @ 12.27 hrs, Volume= 0.430 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	0.480	98	woods
*	0.090	98	grass
*	0.010	98	impervious
*	0.290	98	1/4 acre lots
	0.870	98	Weighted Average
	0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	70	0.0700	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F16: Subarea 16

Runoff = 4.15 cfs @ 12.54 hrs, Volume= 0.524 af, Depth> 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	1.020	98	woods
*	0.030	98	grass
*	0.010	98	impervious
	1.060	98	Weighted Average
	1.060		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.5	205	0.0800	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Subcatchment F17: Subarea 17

Runoff = 12.15 cfs @ 12.66 hrs, Volume= 1.718 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100 yr Rainfall=6.18"

	Area (ac)	CN	Description
*	3.280	98	woods
*	0.120	98	grass
*	0.080	98	impervious
	3.480	98	Weighted Average
	3.480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.2	225	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.70"

Summary for Pond 10K: Kettle 10

Inflow Area = 17.730 ac,100.00% Impervious, Inflow Depth > 1.28" for 100 yr event
Inflow = 7.49 cfs @ 14.52 hrs, Volume= 1.884 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 963.85' @ 24.00 hrs Surf.Area= 18,529 sf Storage= 82,081 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	105,225 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
953.00	170	0	0	170
954.00	700	405	405	705
955.00	1,590	1,115	1,520	1,602
956.00	3,290	2,389	3,909	3,311
957.00	4,855	4,047	7,956	4,892
958.00	6,405	5,612	13,568	6,465
959.00	8,045	7,209	20,778	8,132
960.00	9,695	8,857	29,635	9,815
961.00	11,530	10,599	40,234	11,686
962.00	13,595	12,548	52,783	13,789
963.00	15,870	14,718	67,500	16,104
964.00	19,025	17,424	84,924	19,294
965.00	21,605	20,301	105,225	21,923

Device	Routing	Invert	Outlet Devices
#1	Primary	964.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 12K: Kettle 12

Inflow Area = 15.990 ac,100.00% Impervious, Inflow Depth > 3.08" for 100 yr event
Inflow = 26.41 cfs @ 13.01 hrs, Volume= 4.105 af
Outflow = 7.07 cfs @ 14.53 hrs, Volume= 1.024 af, Atten= 73%, Lag= 91.0 min
Primary = 7.07 cfs @ 14.53 hrs, Volume= 1.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 963.85' @ 24.00 hrs Surf.Area= 29,630 sf Storage= 134,195 cf

Plug-Flow detention time= 242.6 min calculated for 1.024 af (25% of inflow)
Center-of-Mass det. time= 93.9 min (923.2 - 829.3)

Volume	Invert	Avail.Storage	Storage Description
#1	956.00'	246,697 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
956.00	495	0	0	495
957.00	6,410	2,895	2,895	6,413
958.00	11,490	8,827	11,723	11,504
959.00	15,695	13,538	25,261	15,729
960.00	18,580	17,117	42,378	18,651
961.00	21,310	19,929	62,307	21,426
962.00	23,950	22,617	84,925	24,120
963.00	26,775	25,349	110,274	27,000
964.00	30,155	28,448	138,722	30,433
965.00	34,835	32,467	171,189	35,156
966.00	37,955	36,384	207,573	38,349
967.00	40,304	39,124	246,697	40,800

Device	Routing	Invert	Outlet Devices
#1	Primary	963.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.07 cfs @ 14.53 hrs HW=963.33' TW=961.39' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 7.07 cfs @ 1.45 fps)

Summary for Pond 13K: Kettle 13

Inflow Area = 13.420 ac,100.00% Impervious, Inflow Depth > 2.98" for 100 yr event
Inflow = 28.18 cfs @ 13.00 hrs, Volume= 3.336 af
Outflow = 23.38 cfs @ 13.02 hrs, Volume= 2.834 af, Atten= 17%, Lag= 1.5 min
Primary = 23.38 cfs @ 13.02 hrs, Volume= 2.834 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 963.85' @ 24.00 hrs Surf.Area= 8,222 sf Storage= 21,841 cf

Plug-Flow detention time= 49.1 min calculated for 2.834 af (85% of inflow)
Center-of-Mass det. time= 0.2 min (858.9 - 858.7)

Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	55,187 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
959.40	50	0	0	50
960.00	2,560	594	594	2,561
961.00	4,110	3,305	3,898	4,124
962.00	5,850	4,954	8,853	5,882
963.00	7,130	6,479	15,332	7,193
964.00	8,425	7,768	23,101	8,525
965.00	9,765	9,087	32,187	9,907
966.00	11,570	10,655	42,842	11,749
967.00	13,137	12,345	55,187	13,365

Device	Routing	Invert	Outlet Devices
#1	Primary	959.48'	**24.0" Round Culvert X 2.00** L= 92.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 959.48' / 958.97' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Primary	966.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=23.29 cfs @ 13.02 hrs HW=961.75' TW=961.21' (Dynamic Tailwater)
1=Culvert (Outlet Controls 23.29 cfs @ 4.08 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14K: Kettle 14

Inflow Area = 12.410 ac,100.00% Impervious, Inflow Depth > 5.09" for 100 yr event
Inflow = 32.88 cfs @ 12.92 hrs, Volume= 5.268 af
Outflow = 26.62 cfs @ 13.01 hrs, Volume= 2.837 af, Atten= 19%, Lag= 5.3 min
Primary = 26.62 cfs @ 13.01 hrs, Volume= 2.837 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 963.85' @ 24.00 hrs Surf.Area= 21,466 sf Storage= 105,926 cf

Plug-Flow detention time= 142.0 min calculated for 2.837 af (54% of inflow)
Center-of-Mass det. time= 49.5 min (874.6 - 825.1)

Volume	Invert	Avail.Storage	Storage Description
#1	955.00'	184,779 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
955.00	3,070	0	0	3,070
956.00	5,250	4,112	4,112	5,262
957.00	7,260	6,228	10,339	7,291
958.00	9,090	8,158	18,497	9,149
959.00	10,725	9,896	28,394	10,821
960.00	12,545	11,623	40,017	12,681
961.00	14,795	13,655	53,671	14,969
962.00	17,570	16,163	69,834	17,780
963.00	19,708	18,629	88,463	19,972
965.00	23,972	43,610	132,073	24,363
967.00	28,808	52,706	184,779	29,334

Device	Routing	Invert	Outlet Devices
#1	Primary	961.30'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=26.56 cfs @ 13.01 hrs HW=962.14' TW=961.70' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 26.56 cfs @ 2.11 fps)

Summary for Pond 15K: Kettle 15

Inflow Area = 0.870 ac,100.00% Impervious, Inflow Depth > 5.94" for 100 yr event
Inflow = 5.27 cfs @ 12.27 hrs, Volume= 0.430 af
Outflow = 2.58 cfs @ 12.50 hrs, Volume= 0.205 af, Atten= 51%, Lag= 14.0 min
Primary = 2.58 cfs @ 12.50 hrs, Volume= 0.205 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 972.67' @ 12.50 hrs Surf.Area= 7,857 sf Storage= 11,032 cf

Plug-Flow detention time= 211.5 min calculated for 0.205 af (48% of inflow)
Center-of-Mass det. time= 112.1 min (865.6 - 753.5)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	13,842 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	1,620	0	0	1,620
971.00	3,050	2,298	2,298	3,060
972.00	5,595	4,259	6,556	5,615
973.00	9,120	7,286	13,842	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	972.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.58 cfs @ 12.50 hrs HW=972.67' TW=959.79' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.58 cfs @ 1.02 fps)

Summary for Pond 16K: Kettle 16

Inflow Area = 4.540 ac,100.00% Impervious, Inflow Depth > 5.22" for 100 yr event
Inflow = 13.71 cfs @ 12.77 hrs, Volume= 1.974 af
Outflow = 13.31 cfs @ 12.87 hrs, Volume= 1.614 af, Atten= 3%, Lag= 6.0 min
Primary = 13.31 cfs @ 12.87 hrs, Volume= 1.614 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 1,007.49' @ 12.87 hrs Surf.Area= 11,896 sf Storage= 20,871 cf

Plug-Flow detention time= 94.4 min calculated for 1.614 af (82% of inflow)
Center-of-Mass det. time= 38.7 min (864.6 - 825.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,005.00'	41,902 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,005.00	4,400	0	0	4,400
1,006.00	8,010	6,116	6,116	8,021
1,007.00	10,625	9,287	15,402	10,658
1,008.00	13,320	11,947	27,349	13,380
1,009.00	15,820	14,552	41,902	15,917

Device	Routing	Invert	Outlet Devices
#1	Primary	1,007.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=13.31 cfs @ 12.87 hrs HW=1,007.49' TW=961.92' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 13.31 cfs @ 1.83 fps)

Summary for Pond 17K: Kettle 17

Inflow Area = 3.480 ac,100.00% Impervious, Inflow Depth > 5.92" for 100 yr event
Inflow = 12.15 cfs @ 12.66 hrs, Volume= 1.718 af
Outflow = 10.62 cfs @ 12.85 hrs, Volume= 1.451 af, Atten= 13%, Lag= 11.5 min
Primary = 10.62 cfs @ 12.85 hrs, Volume= 1.451 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
Peak Elev= 1,012.42' @ 12.85 hrs Surf.Area= 29,044 sf Storage= 22,087 cf

Plug-Flow detention time= 115.0 min calculated for 1.450 af (84% of inflow)
Center-of-Mass det. time= 63.2 min (844.7 - 781.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	41,610 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,011.00	2,770	0	0	2,770
1,012.00	22,770	11,161	11,161	22,773
1,013.00	38,840	30,450	41,610	38,855

Device	Routing	Invert	Outlet Devices
#1	Primary	1,012.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=10.62 cfs @ 12.85 hrs HW=1,012.42' TW=1,007.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 10.62 cfs @ 1.67 fps)

APPENDIX 6

WinSLAMM Modeling

Proposed Conditions

WinSLAMM Modeling

WinSLAMM – Proposed Conditions

WinSLAMM v 10 Data File: [D:\Jobs\2020\2020-010_LCL - TRIO\Project_Information\Calcs\SLAMM\Proposed.mdb] - [Land Use Model]

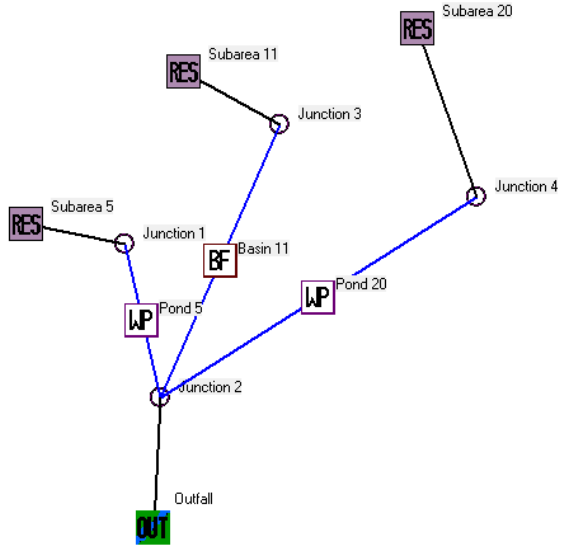
File Current File Data Pollutants Tools Run Utilities Help

RES INS COM IND OU FRE GS CB WP BF PP HD OD FS SF UF IR

Control Practice:

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Residential	Subarea 5	8.120
2	Residential	Subarea 11	3.600
3	Residential	Subarea 20	8.720

CP #	Control Practice Type	Control Practice Name or Location
1	Wet Detention Pond	Pond 5
2	Wet Detention Pond	Pond 20
3	**Biofilter**	**Basin 11**



SLAMM for Windows Version 10.4.1

Data file name: D:\Jobs\2020\2020-010_LCL - Paradise Trails - TRIO\Project_Information\Calcs\SLAMM\Proposed.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Start of Winter Season: 12/06 End of Winter Season: 03/28
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 08-26-2020 Time of run: 13:20:57
Total Area Modeled (acres): 20.440
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	563024	-	105.8	3718	-
Outfall Total with Controls:	456510	18.92%	24.06	685.7	81.56%
Annualized Total After Outfall Controls:	462851			695.2	

Data file name: D:\Jobs\2020\2020-010_LCL - Paradise Trails - TRIO\Project_Information\Calcs\SLAMM\Proposed.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Date: 08-26-2020 Time: 13:21:09
Site information:

LU# 1 - Residential: Subarea 5 Total area (ac): 8.120
  1 - Roofs 1: 0.100 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  25 - Driveways 1: 0.070 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  31 - Sidewalks 1: 0.230 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  37 - Streets 1: 0.690 ac. Smooth Street Length = 0.407 curb-mi Street Width (assuming two curb-mi per street mile) = 27.97297 ft
    Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  51 - Small Landscaped Areas 1: 0.970 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  57 - Undeveloped Areas 1: 5.820 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  70 - Water Body Areas: 0.240 ac. Source Area PSD File:
LU# 2 - Residential: Subarea 11 Total area (ac): 3.600
  1 - Roofs 1: 0.490 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

```
     13 - Paved Parking 1:  0.200 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     37 - Streets 1:  0.350 ac.    Smooth    Street Length = 0.206 curb-mi    Street Width (assuming two curb-
mi per street mile) = 28.03398 ft
           Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     51 - Small Landscaped Areas 1:  1.560 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     57 - Undeveloped Areas 1:  1.000 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
LU# 3 - Residential:  Subarea 20     Total area (ac):  8.720
     1 - Roofs 1:  1.440 ac.    Pitched    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     13 - Paved Parking 1:  0.430 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.090 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     37 - Streets 1:  0.870 ac.    Smooth    Street Length = 0.513 curb-mi    Street Width (assuming two curb-
mi per street mile) = 27.98246 ft
           Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     51 - Small Landscaped Areas 1:  4.110 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     57 - Undeveloped Areas 1:  1.380 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     58 - Undeveloped Areas 2:  0.250 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.150 ac.    Source Area PSD File:

      Control Practice 1:  Wet Detention Pond CP# 1 (DS) - Pond 5
         Particle Size Distribution file name:  Not needed - calculated by program
         Initial stage elevation (ft):   5
         Peak to Average Flow Ratio:   3.8
         Maximum flow allowed into pond (cfs):  No maximum value entered
         Outlet Characteristics:
              Outlet type:  Orifice 1
                    1.  Orifice diameter (ft):   0.5
                    2.  Number of orifices:   1
                    3.  Invert elevation above datum (ft):   5
              Outlet type:  Broad Crested Weir
                    1.  Weir crest length (ft):   15
                    2.  Weir crest width (ft):   10
                    3.  Height from datum to bottom of weir opening:   11.65
              Outlet type:  Vertical Stand Pipe
                    1.  Stand pipe diameter (ft):   3
```

2. Stand pipe height above datum (ft): 7

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.1100	0.00	0.00
2	1.00	0.1300	0.00	0.00
3	2.00	0.1500	0.00	0.00
4	3.00	0.1700	0.00	0.00
5	4.00	0.1900	0.00	0.00
6	5.00	0.2400	0.00	0.00
7	5.50	0.2600	0.00	0.00
8	6.75	0.3400	0.00	0.00
9	7.75	0.4000	0.00	0.00
10	8.75	0.4600	0.00	0.00
11	9.75	0.5500	0.00	0.00
12	10.75	0.6600	0.00	0.00
13	11.75	0.7700	0.00	0.00
14	12.75	0.8500	0.00	0.00

Control Practice 2: Wet Detention Pond CP# 2 (DS) - Pond 20

Particle Size Distribution file name: Not needed - calculated by program

Initial stage elevation (ft): 5

Peak to Average Flow Ratio: 3.8

Maximum flow allowed into pond (cfs): No maximum value entered

Outlet Characteristics:

Outlet type: Orifice 1

1. Orifice diameter (ft): 1.25
2. Number of orifices: 1
3. Invert elevation above datum (ft): 7

Outlet type: Orifice 2

1. Orifice diameter (ft): 0.5
2. Number of orifices: 1
3. Invert elevation above datum (ft): 5

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 20
2. Weir crest width (ft): 10
3. Height from datum to bottom of weir opening: 10

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0300	0.00	0.00
2	1.00	0.0400	0.00	0.00
3	2.00	0.0500	0.00	0.00
4	3.00	0.0700	0.00	0.00
5	4.00	0.0800	0.00	0.00
6	5.00	0.1500	0.00	0.00
7	6.00	0.2400	0.00	0.00
8	7.00	0.3600	0.00	0.00
9	8.00	0.4200	0.00	0.00
10	9.00	0.4900	0.00	0.00
11	10.00	0.5700	0.00	0.00
12	11.00	0.6900	0.00	0.00

Control Practice 3: Biofilter CP# 1 (DS) - Basin 11

1. Top area (square feet) = 12343
2. Bottom aea (square feet) = 3560
3. Depth (ft): 6
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 3.6
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 0
12. Engineered soil depth (ft) = 0
13. Engineered soil porosity = 0
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

```
Outlet type:  Broad Crested Weir
        1.  Weir crest length (ft):   15
        2.  Weir crest width (ft):   10
        3.  Height of datum to bottom of weir opening:   5
Outlet type:  Surface Discharge Pipe
        1.  Surface discharge pipe outlet diameter (ft):   0.83
        2.  Pipe invert elevation above datum (ft):   2
        3.  Number of surface pipe outlets:   1
```

Future Conditions

WinSLAMM Modeling

WinSLAMM – Future Conditions

WinSLAMM v 10 Data File: [D:\Jobs\2020\2020-010_LCL - Paradise Trails - TRIO\Project_Information\Calcs\SLAMM\Future.mdb] - [Land Use Model]

File Current File Data Pollutants Tools Run Utilities Help

RES INS COM IND OU FRE GS CB WP BF PP HD OD FS SF UF IR

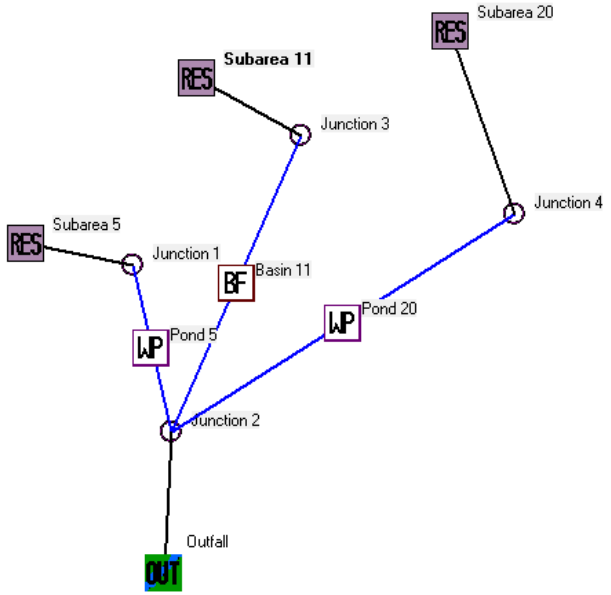
Land Use:

Subarea 11

Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Streets	0.350			
37	Streets 1	0.350	Entered	--	--
38	Streets 2				
39	Streets 3				
40	Streets 4				
41	Streets 5				
42	Streets 6				
43	Streets 7				
44	Streets 8				
	Landscaped Areas	2.560			
45	Large Landscaped Areas 1				
46	Large Landscaped Areas 2				
47	Large Landscaped Areas 3				
48	Large Landscaped Areas 4				
49	Large Landscaped Areas 5				
50	Large Landscaped Areas 6				
51	Small Landscaped Areas 1	1.560	Entered	--	--
52	Small Landscaped Areas 2				
53	Small Landscaped Areas 3				
54	Small Landscaped Areas 4				
55	Small Landscaped Areas 5				
56	Small Landscaped Areas 6				
57	Undeveloped Areas 1	1.000	Entered	--	--
58	Undeveloped Areas 2				
59	Undeveloped Areas 3				

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Residential	Subarea 5	13.400
2	**Residential**	**Subarea 11**	**3.600**
3	Residential	Subarea 20	8.720

CP #	Control Practice Type	Control Practice Name or Location
1	Wet Detention Pond	Pond 5
2	Wet Detention Pond	Pond 20
3	Biofilter	Basin 11



SLAMM for Windows Version 10.4.1

Data file name: D:\Jobs\2020\2020-010_LCL - Paradise Trails - TRIO\Project_Information\Calcs\SLAMM\Future.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Start of Winter Season: 12/06 End of Winter Season: 03/28
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 08-26-2020 Time of run: 13:27:23
Total Area Modeled (acres): 25.720
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	1.091E+06	-	109.0	7422	-
Outfall Total with Controls:	984648	9.75%	30.25	1859	74.95%
Annualized Total After Outfall Controls:	998323			1885	

Data file name: D:\Jobs\2020\2020-010_LCL - Paradise Trails - TRIO\Project_Information\Calcs\SLAMM\Future.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Date: 08-26-2020 Time: 13:27:31
Site information:

LU# 1 - Residential: Subarea 5 Total area (ac): 13.400
  1 - Roofs 1: 2.730 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  13 - Paved Parking 1: 0.280 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  31 - Sidewalks 1: 1.190 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  37 - Streets 1: 2.810 ac. Smooth Street Length = 1.656 curb-mi Street Width (assuming two curb-mi per street mile) = 27.99819 ft
    Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  51 - Small Landscaped Areas 1: 4.560 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  57 - Undeveloped Areas 1: 1.590 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  70 - Water Body Areas: 0.240 ac. Source Area PSD File:
LU# 2 - Residential: Subarea 11 Total area (ac): 3.600
  1 - Roofs 1: 0.490 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  13 - Paved Parking 1: 0.200 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

```
     37 - Streets 1:  0.350 ac.    Smooth    Street Length = 0.206 curb-mi    Street Width (assuming two curb-
mi per street mile) = 28.03398 ft
           Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     51 - Small Landscaped Areas 1:  1.560 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     57 - Undeveloped Areas 1:  1.000 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
LU# 3 - Residential:  Subarea 20     Total area (ac):  8.720
     1 - Roofs 1:  1.440 ac.    Pitched    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     13 - Paved Parking 1:  0.430 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.090 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     37 - Streets 1:  0.870 ac.    Smooth    Street Length = 0.513 curb-mi    Street Width (assuming two curb-
mi per street mile) = 27.98246 ft
           Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     51 - Small Landscaped Areas 1:  4.110 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     57 - Undeveloped Areas 1:  1.380 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     58 - Undeveloped Areas 2:  0.250 ac.    Normal Silty    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.150 ac.    Source Area PSD File:

      Control Practice 1:  Wet Detention Pond CP# 1 (DS) - Pond 5
         Particle Size Distribution file name:  Not needed - calculated by program
         Initial stage elevation (ft):   5
         Peak to Average Flow Ratio:   3.8
         Maximum flow allowed into pond (cfs):  No maximum value entered
         Outlet Characteristics:
              Outlet type:  Orifice 1
                     1.  Orifice diameter (ft):   0.5
                     2.  Number of orifices:   1
                     3.  Invert elevation above datum (ft):   5
              Outlet type:  Broad Crested Weir
                     1.  Weir crest length (ft):   15
                     2.  Weir crest width (ft):   10
                     3.  Height from datum to bottom of weir opening:   10.65
              Outlet type:  Vertical Stand Pipe
                     1.  Stand pipe diameter (ft):   3
                     2.  Stand pipe height above datum (ft):   7
```

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.1100	0.00	0.00
2	1.00	0.1300	0.00	0.00
3	2.00	0.1500	0.00	0.00
4	3.00	0.1700	0.00	0.00
5	4.00	0.1900	0.00	0.00
6	5.00	0.2400	0.00	0.00
7	5.50	0.2600	0.00	0.00
8	6.75	0.3400	0.00	0.00
9	7.75	0.4000	0.00	0.00
10	8.75	0.4600	0.00	0.00
11	9.75	0.5500	0.00	0.00
12	10.75	0.6600	0.00	0.00
13	11.75	0.7700	0.00	0.00
14	12.75	0.8500	0.00	0.00

Control Practice 2: Wet Detention Pond CP# 2 (DS) - Pond 20
Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 5
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:
Outlet type: Orifice 1
1. Orifice diameter (ft): 0.5
2. Number of orifices: 1
3. Invert elevation above datum (ft): 5
Outlet type: Orifice 2
1. Orifice diameter (ft): 1.25
2. Number of orifices: 1
3. Invert elevation above datum (ft): 7
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 10
3. Height from datum to bottom of weir opening: 10
Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0300	0.00	0.00
2	1.00	0.0400	0.00	0.00
3	2.00	0.0500	0.00	0.00
4	3.00	0.0700	0.00	0.00
5	4.00	0.0800	0.00	0.00
6	5.00	0.1500	0.00	0.00
7	6.00	0.2400	0.00	0.00
8	7.00	0.3600	0.00	0.00
9	8.00	0.4200	0.00	0.00
10	9.00	0.4900	0.00	0.00
11	10.00	0.5700	0.00	0.00
12	10.25	0.6900	0.00	0.00

Control Practice 3: Biofilter CP# 1 (DS) - Basin 11

1. Top area (square feet) = 12343
2. Bottom aea (square feet) = 3560
3. Depth (ft): 6
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 3.6
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 0
12. Engineered soil depth (ft) = 0
13. Engineered soil porosity = 0
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 15
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 5

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.83
2. Pipe invert elevation above datum (ft): 2
3. Number of surface pipe outlets: 1