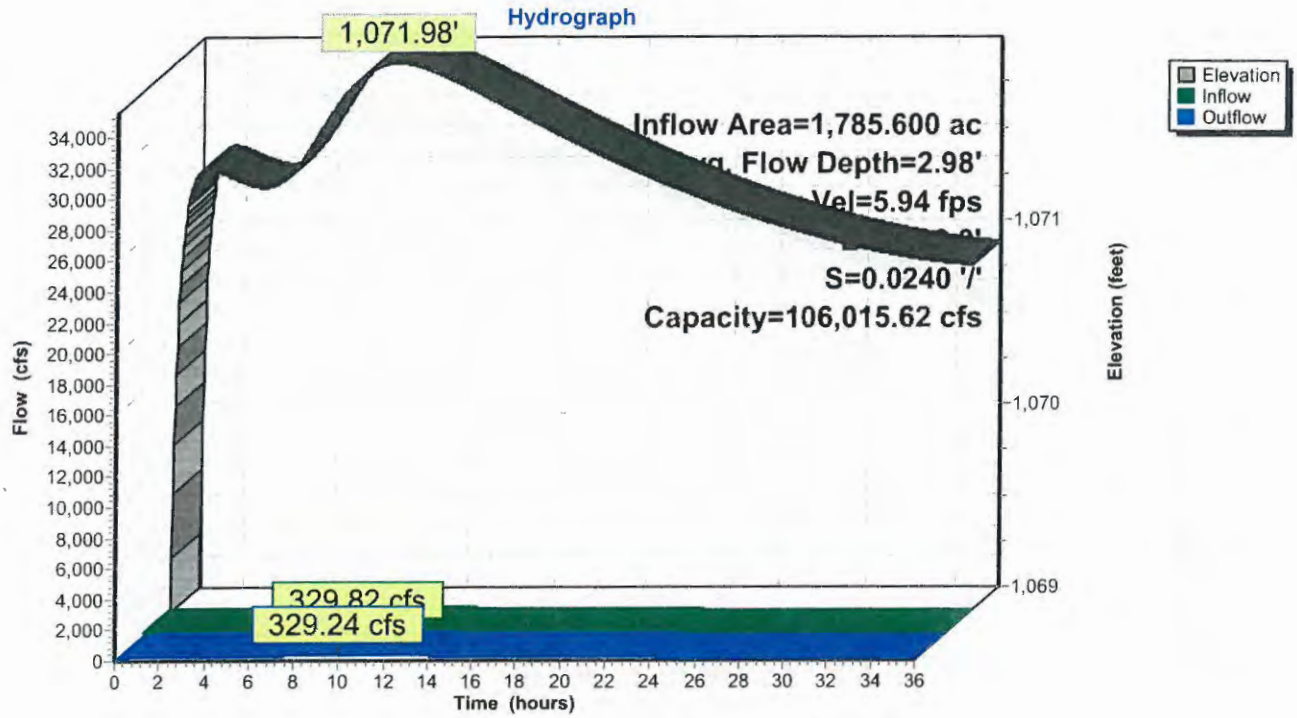
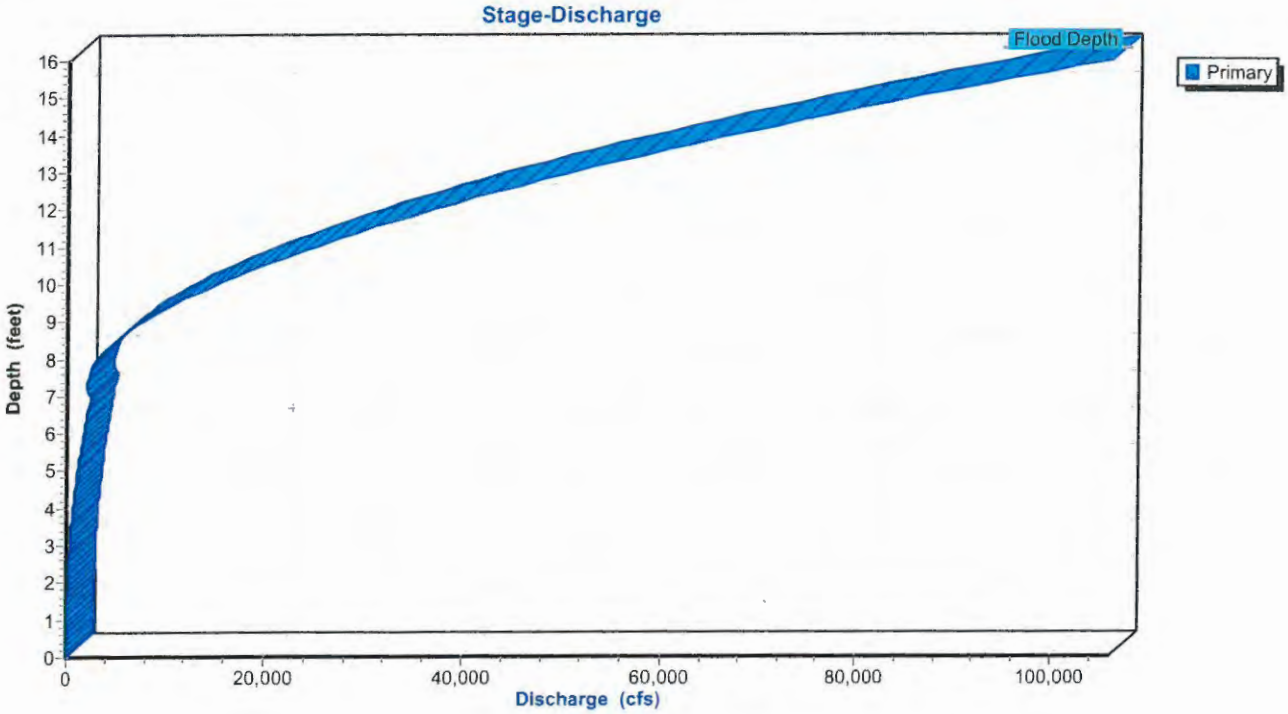
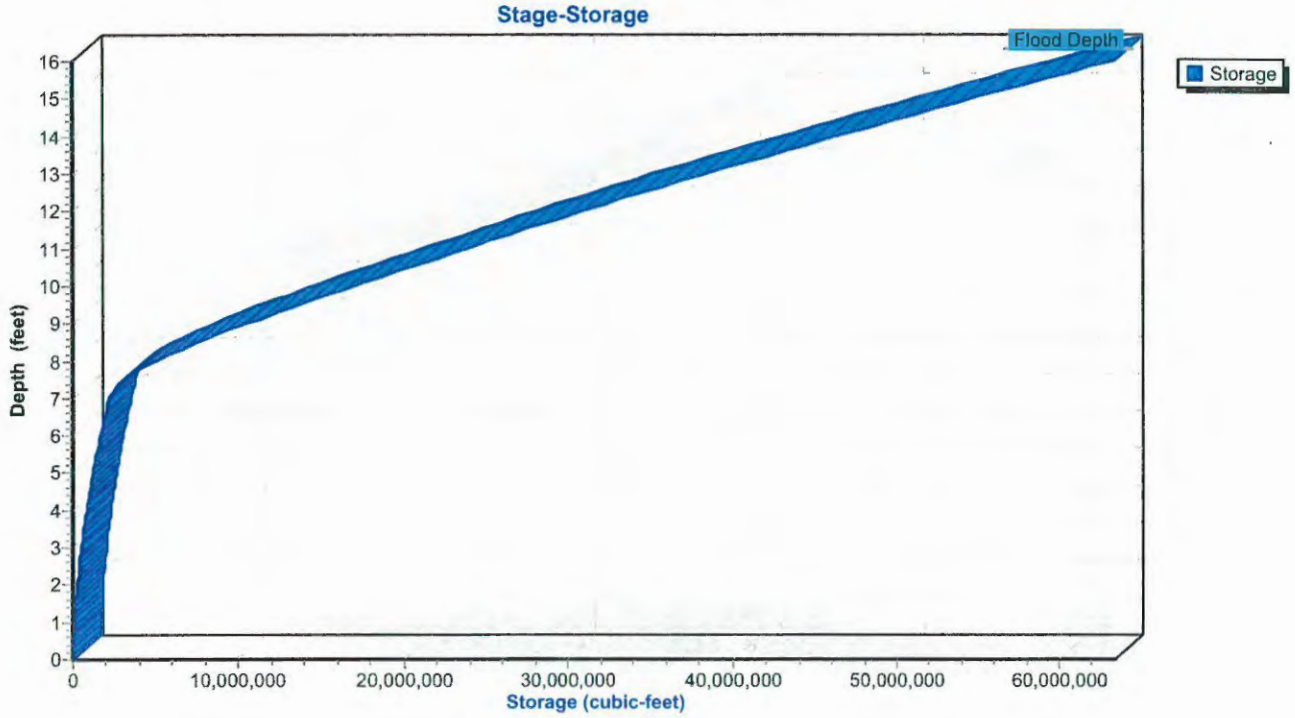
Reach 5R: Channel 5



Reach 5R: Channel 5



Reach 5R: Channel 5



Summary for Reach 7R: Channel 7

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.49" for 6-HR 0.22 PMF event
Inflow = 961.99 cfs @ 4.70 hrs, Volume= 832.666 af
Outflow = 911.86 cfs @ 5.20 hrs, Volume= 824.147 af, Atten= 5%, Lag= 29.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.12 fps, Min. Travel Time= 31.5 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 43.9 min

Peak Storage= 1,725,358 cf @ 5.20 hrs
Average Depth at Peak Storage= 7.99'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

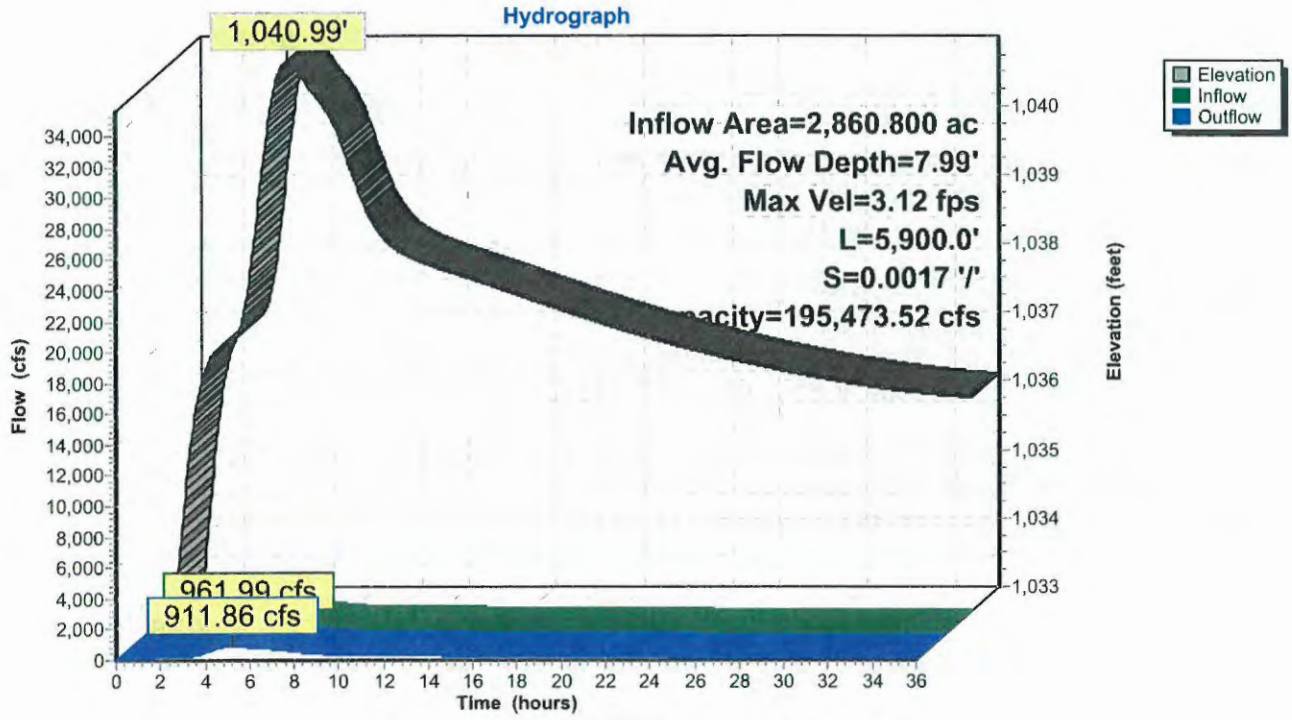
Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'

‡

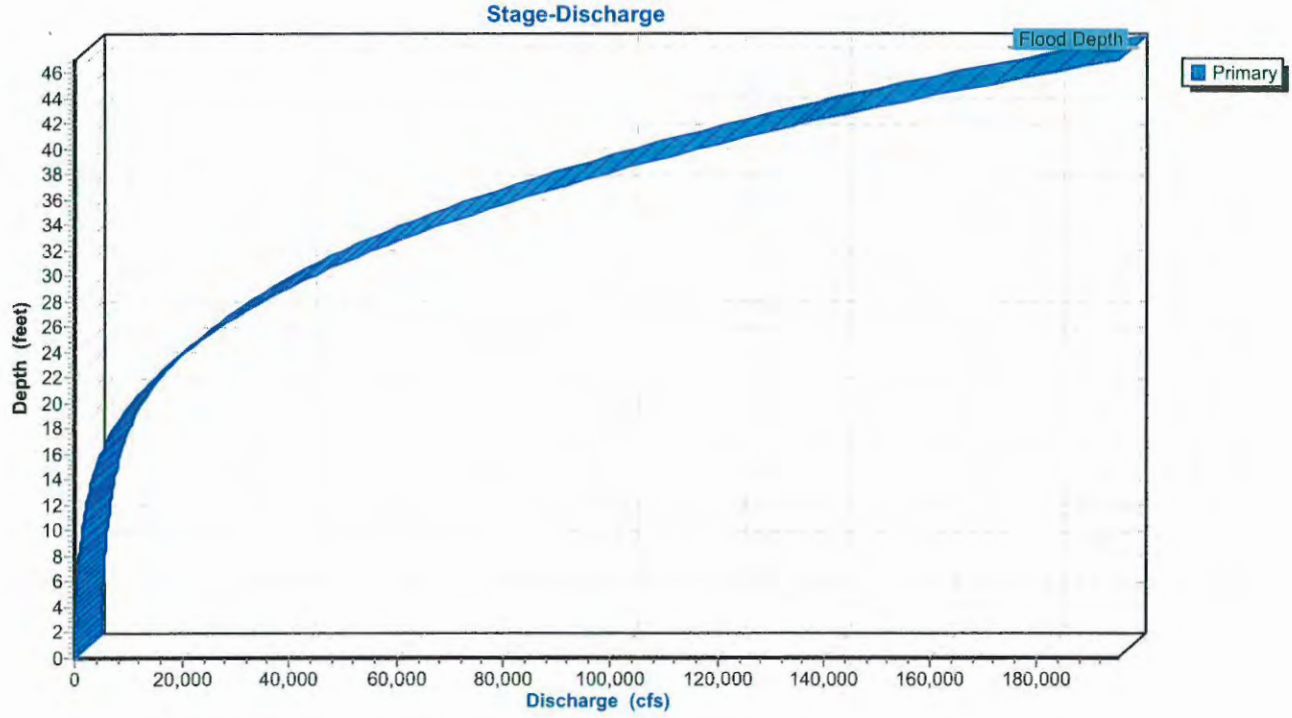
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00	5.00	0.060	
1,005.00	1,080.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
12.00	600.0	93.7	3,540,000	2,349.60
19.00	2,140.0	354.1	12,626,000	8,862.05
32.00	9,417.2	774.5	55,561,326	55,339.93
42.00	18,098.3	972.7	106,780,167	135,620.34
47.00	23,027.5	1,013.5	135,862,250	195,473.52

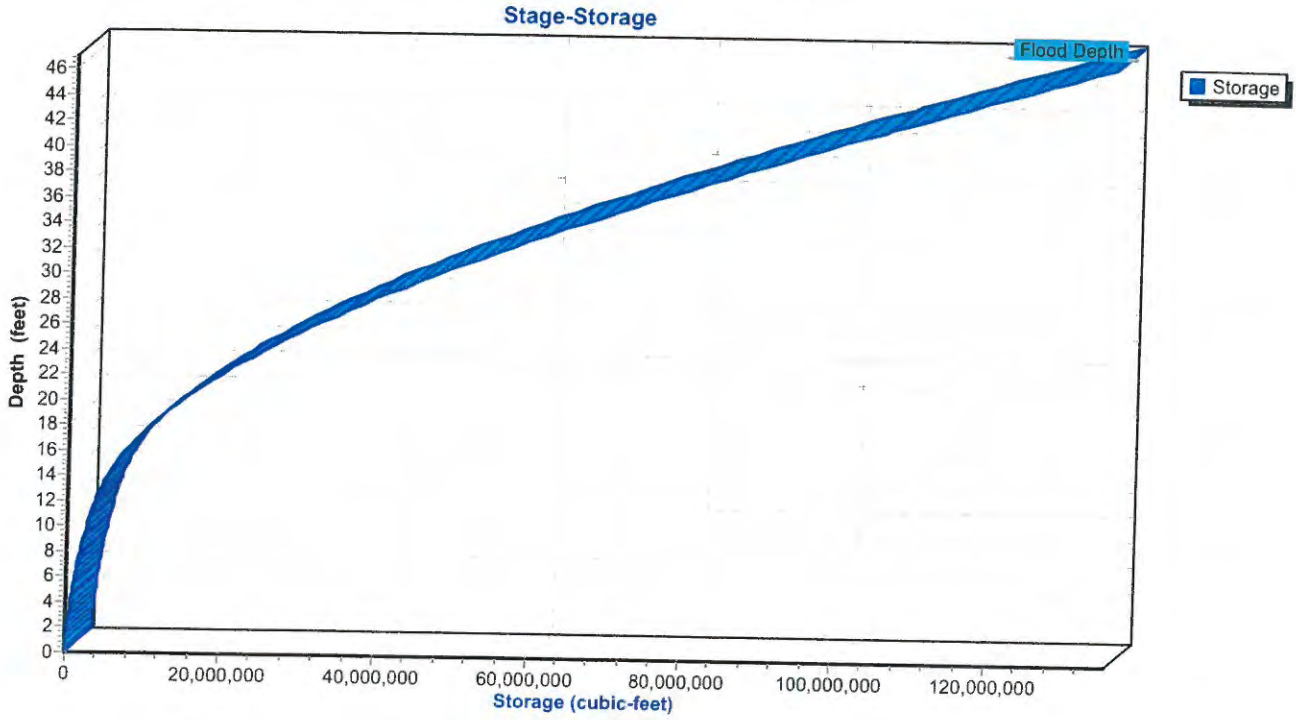
Reach 7R: Channel 7



Reach 7R: Channel 7



Reach 7R: Channel 7



Summary for Reach 10Ra: Channel 10 (Reach West of Genoa Rd)

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 1.76" for 6-HR 0.22 PMF event
Inflow = 139.93 cfs @ 11.37 hrs, Volume= 287.571 af
Outflow = 139.92 cfs @ 11.44 hrs, Volume= 286.818 af, Atten= 0%, Lag= 4.2 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.63 fps, Min. Travel Time= 5.7 min
Avg. Velocity = 2.44 fps, Avg. Travel Time= 6.2 min

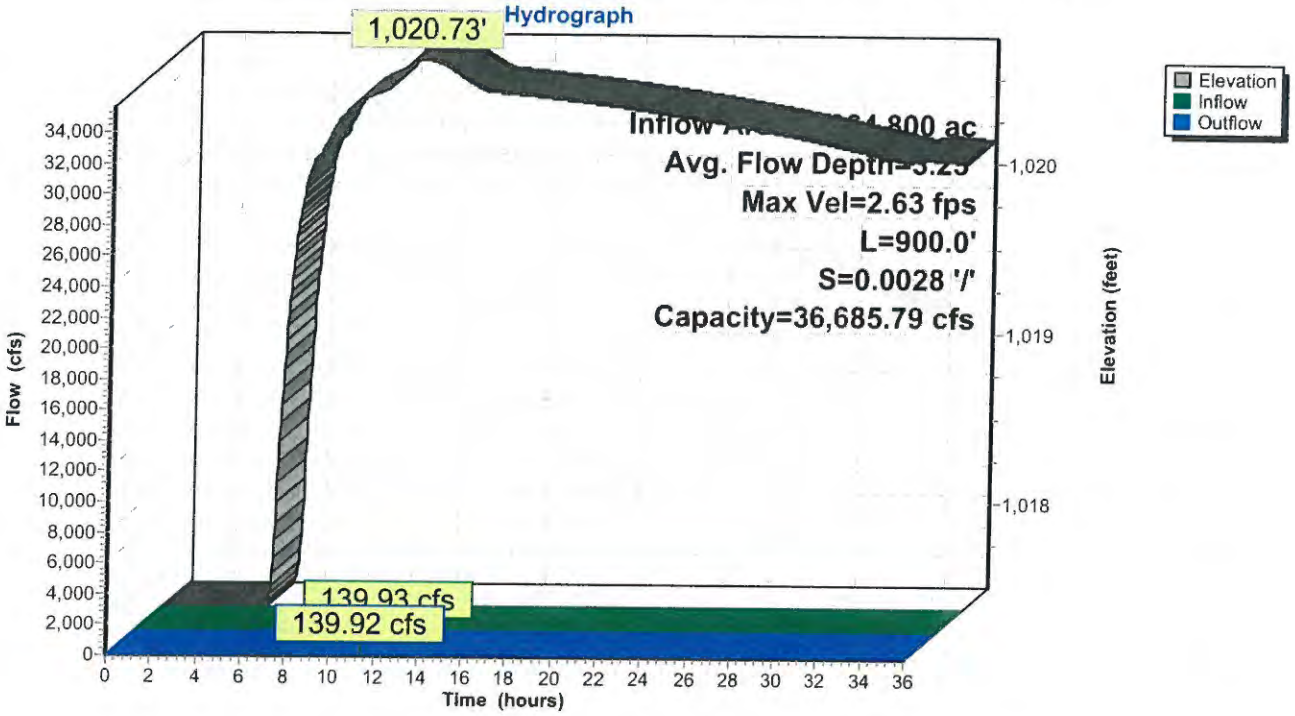
Peak Storage= 47,818 cf @ 11.44 hrs
Average Depth at Peak Storage= 3.23'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 36,685.79 cfs
Bank-Full Depth= 15.00', Capacity at Bank-Full= 36,685.79 cfs

Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

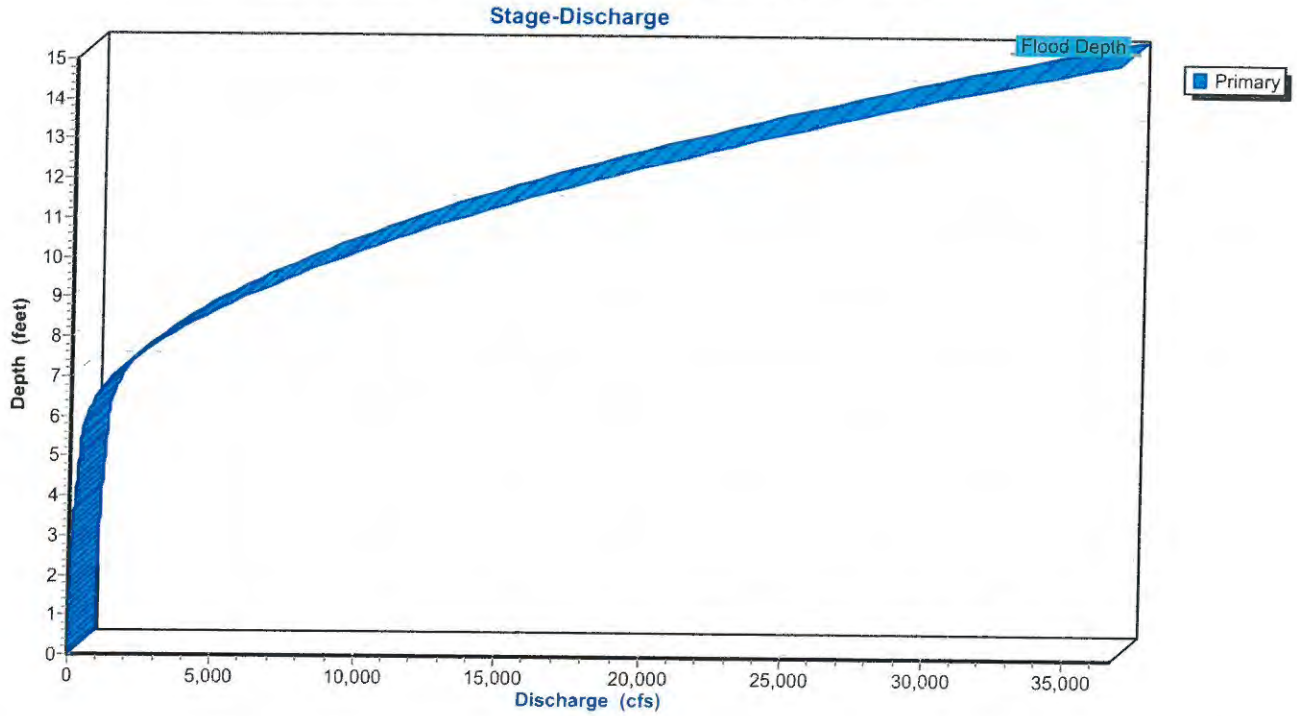
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
5.00	100.0	32.4	90,000	328.73
7.00	760.0	632.4	684,000	1,430.41
10.00	2,876.9	783.7	2,589,188	9,317.36
15.00	7,330.0	1,002.7	6,597,000	36,685.79

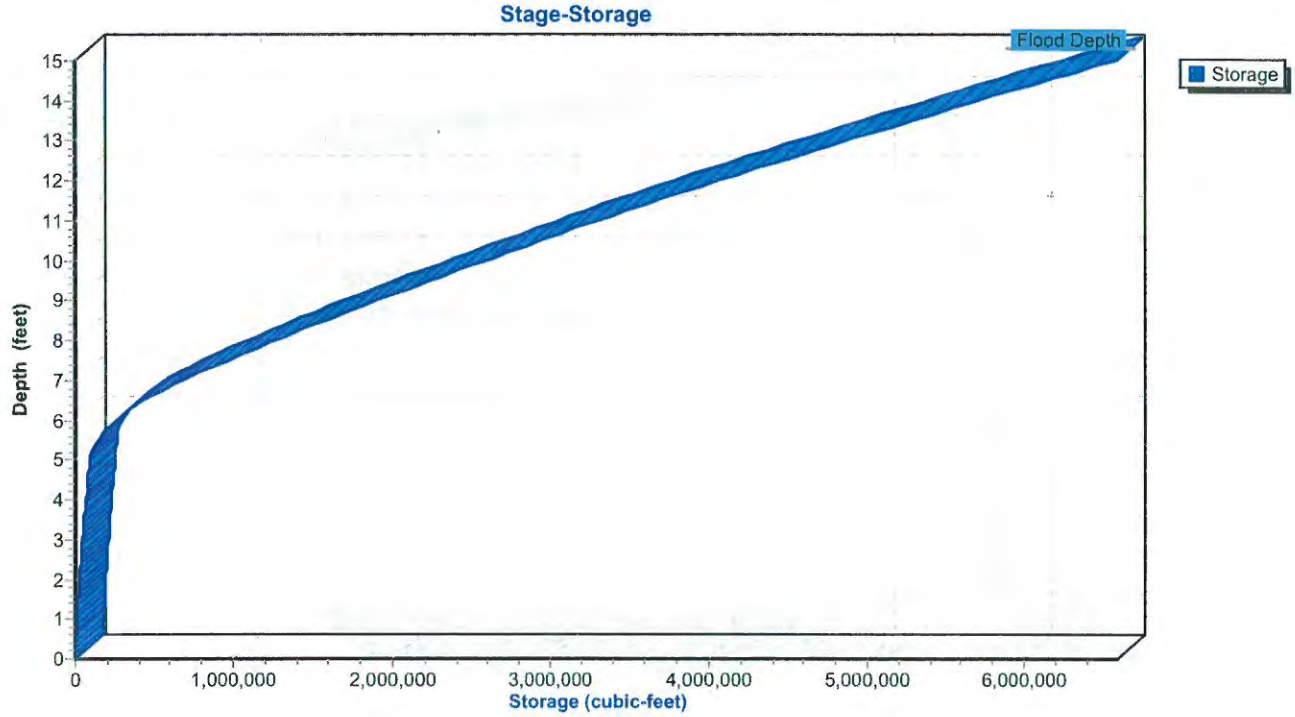
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.65" for 6-HR 0.22 PMF event
Inflow = 2,560.49 cfs @ 5.15 hrs, Volume= 1,614.903 af
Outflow = 2,165.84 cfs @ 6.35 hrs, Volume= 1,583.296 af, Atten= 15%, Lag= 71.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.12 fps, Min. Travel Time= 69.2 min
Avg. Velocity = 1.50 fps, Avg. Travel Time= 97.5 min

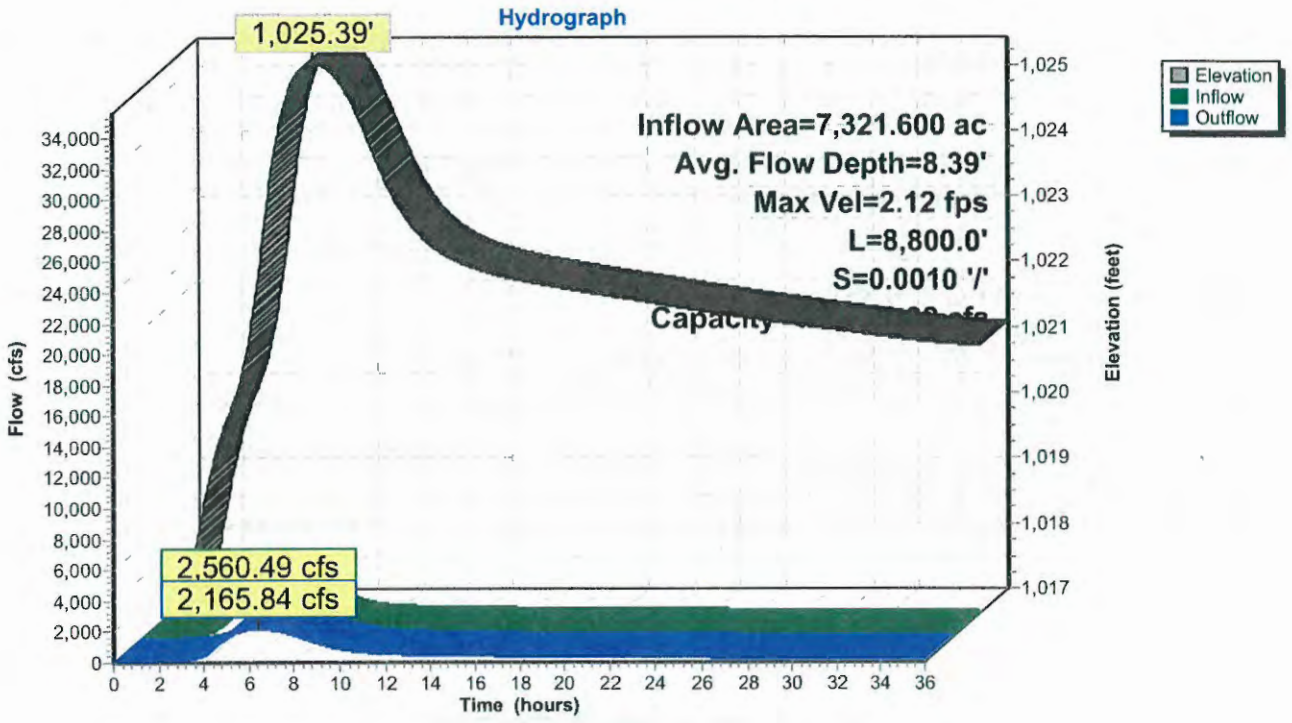
Peak Storage= 9,004,311 cf @ 6.35 hrs
Average Depth at Peak Storage= 8.39'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'

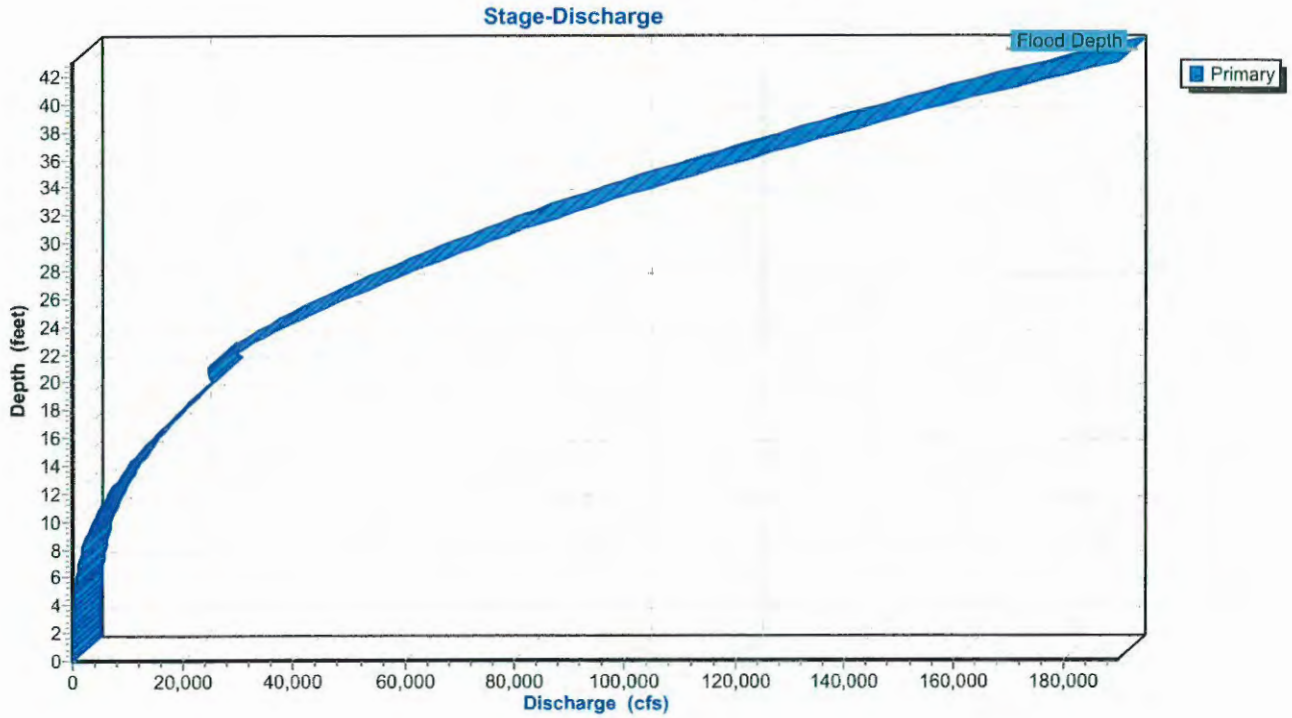
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00	22.00	0.060	
1,010.00	1,060.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	14.0	0	0.00
3.00	78.8	39.2	693,000	116.39
5.00	273.4	157.2	2,406,067	396.99
6.00	435.5	169.2	3,832,400	733.92
9.00	1,230.5	363.4	10,828,400	2,703.81
20.00	6,230.3	549.8	54,826,847	25,737.78
21.00	6,906.8	808.7	60,779,788	24,784.16
43.00	26,881.5	1,028.2	236,557,200	189,892.92

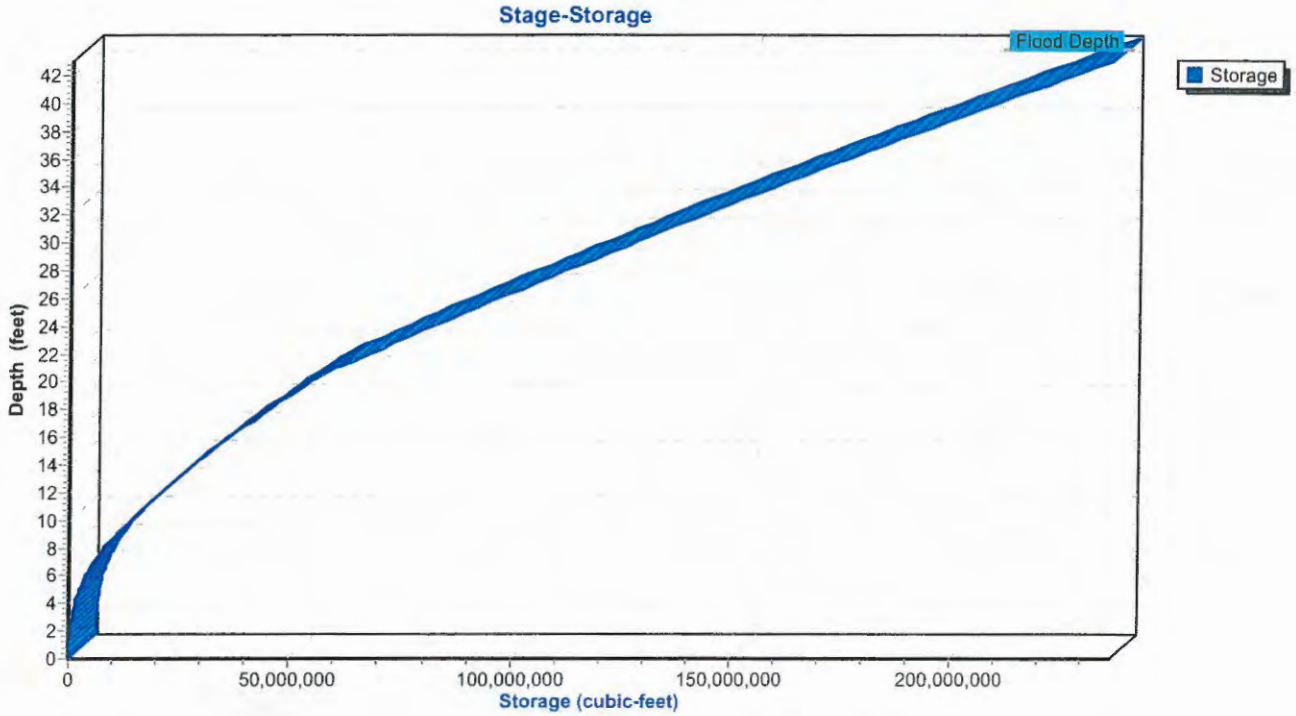
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



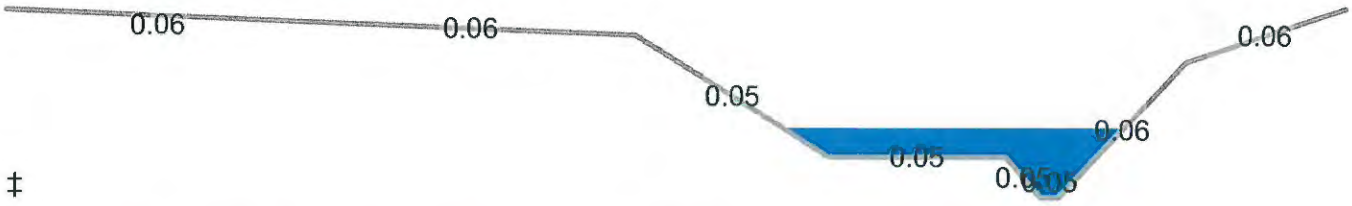
Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.67" for 6-HR 0.22 PMF event
Inflow = 2,901.22 cfs @ 6.02 hrs, Volume= 1,951.590 af
Outflow = 2,819.07 cfs @ 6.52 hrs, Volume= 1,929.374 af, Atten= 3%, Lag= 30.2 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 48.8 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 84.5 min

Peak Storage= 8,259,073 cf @ 6.52 hrs
Average Depth at Peak Storage= 10.31'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

Custom cross-section, Length= 7,500.0' Slope= 0.0010 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,006.00', Outlet Invert= 998.50'

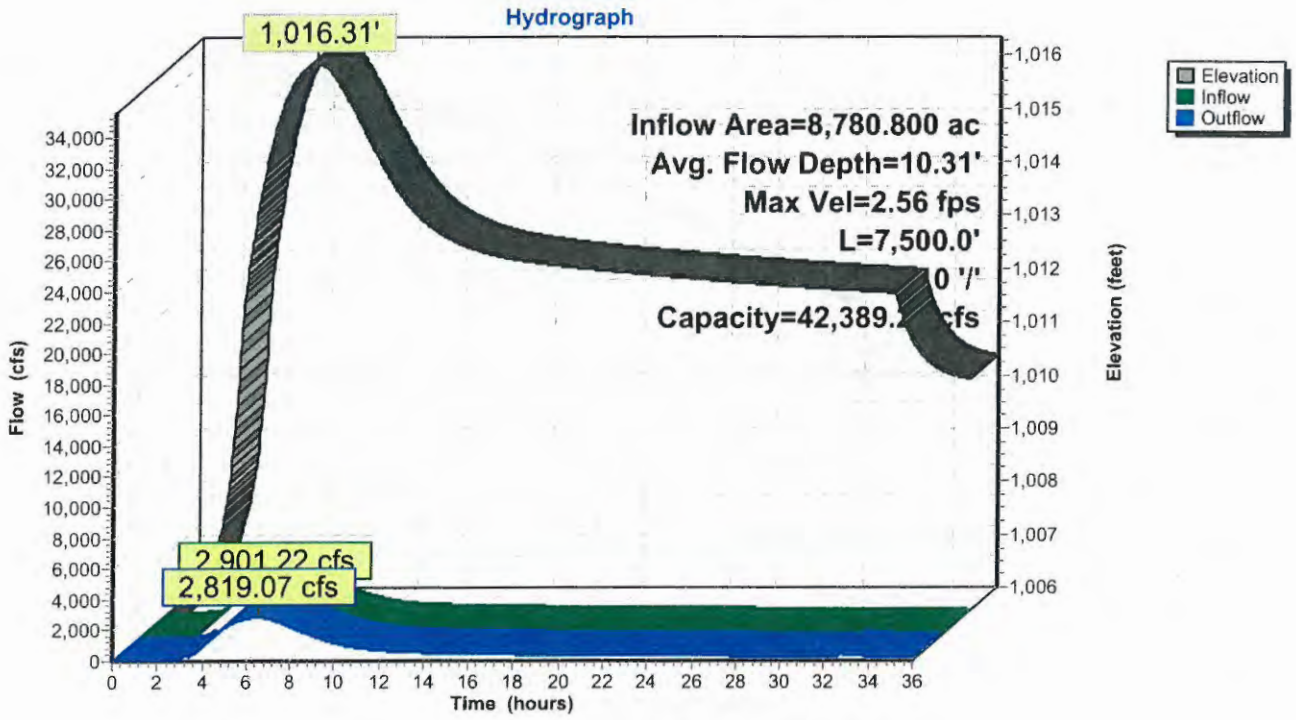


‡

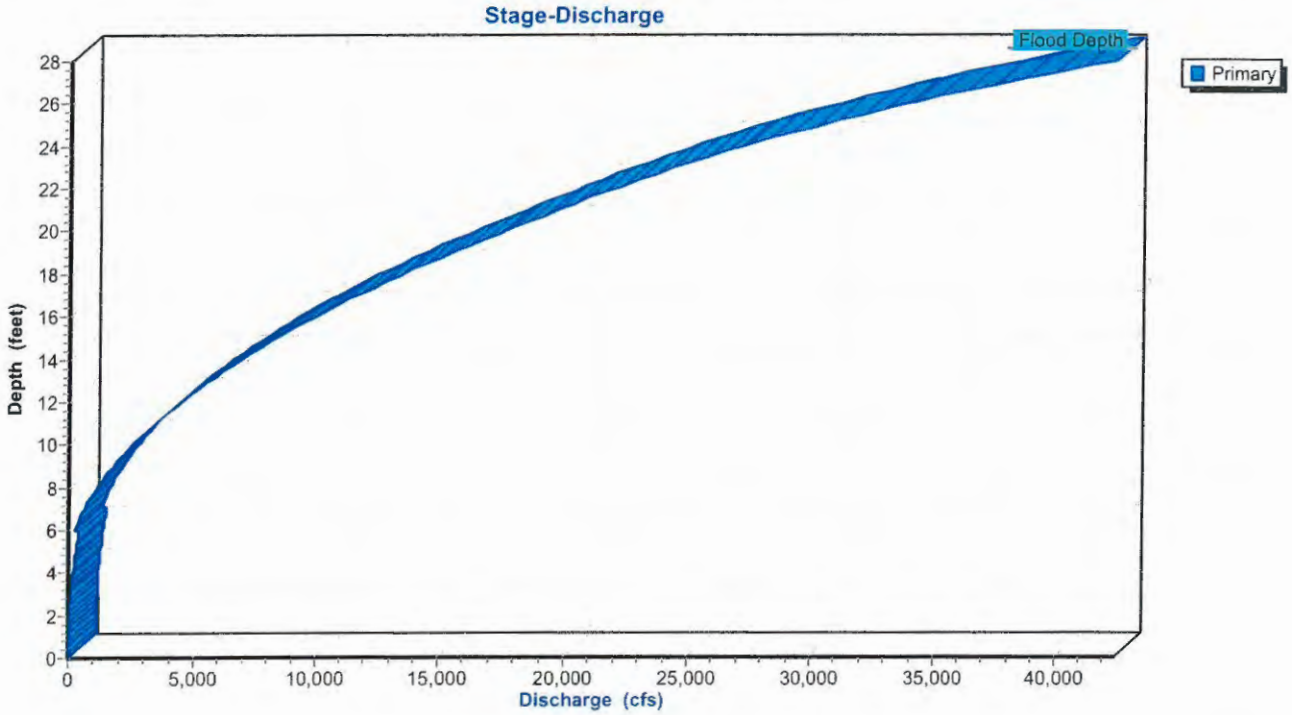
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	12.0	0	0.00
6.00	217.5	182.0	1,631,250	246.41
20.00	3,868.8	345.2	29,015,833	17,663.27
24.00	5,401.0	429.5	40,507,500	27,141.14
26.00	6,498.5	677.1	48,738,750	33,993.67
28.00	8,071.0	904.6	60,532,500	42,389.29

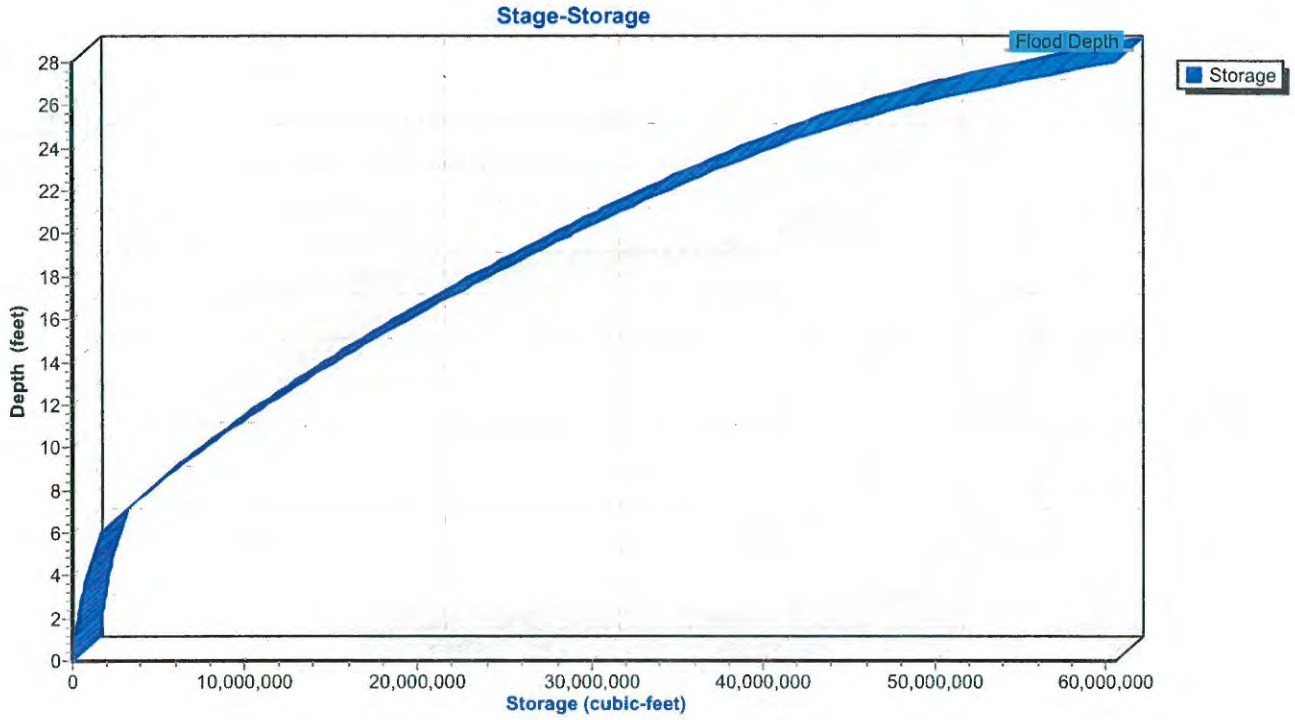
Reach 16R: Channel 16



Reach 16R: Channel 16



Reach 16R: Channel 16



Summary for Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.69" for 6-HR 0.22 PMF event
Inflow = 2,858.31 cfs @ 7.26 hrs, Volume= 2,118.464 af
Outflow = 2,858.31 cfs @ 7.27 hrs, Volume= 2,118.344 af, Atten= 0%, Lag= 0.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.53 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 8.59 fps, Avg. Travel Time= 0.9 min

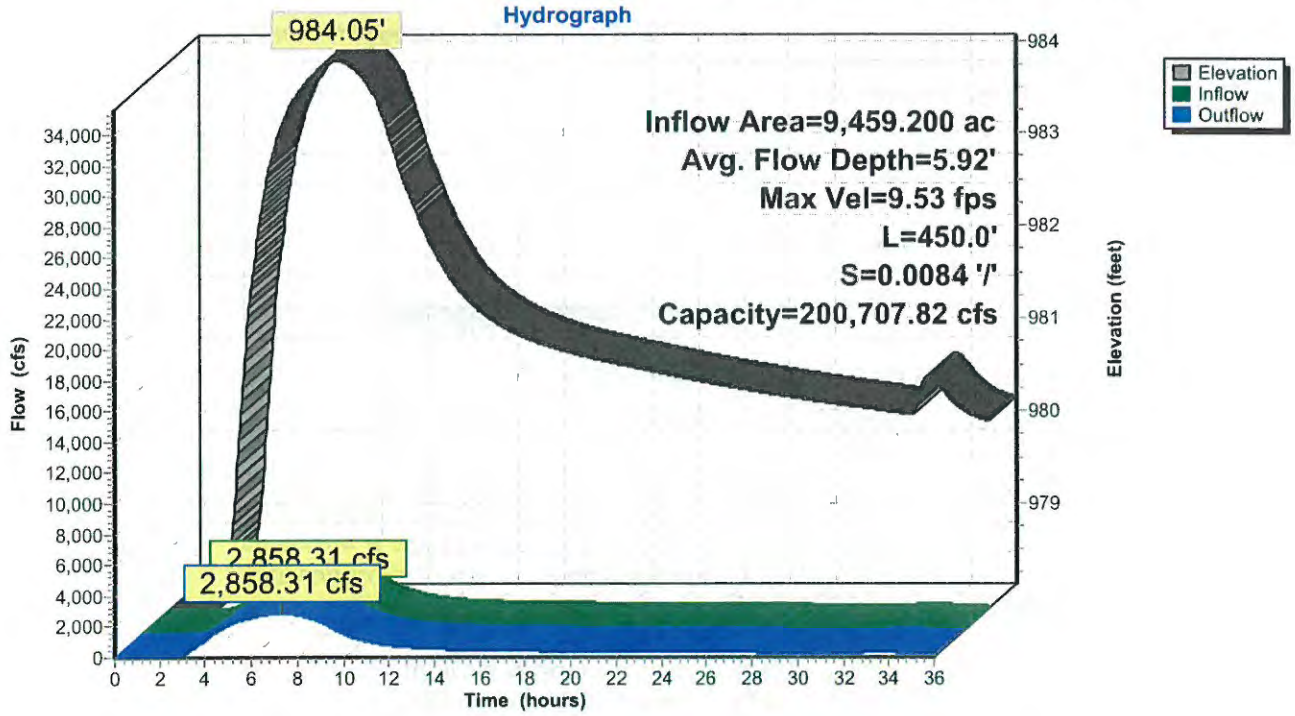
Peak Storage= 134,964 cf @ 7.27 hrs
Average Depth at Peak Storage= 5.92'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

Custom cross-section, Length= 450.0' Slope= 0.0084 '/' (1006 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 978.13', Outlet Invert= 974.35'

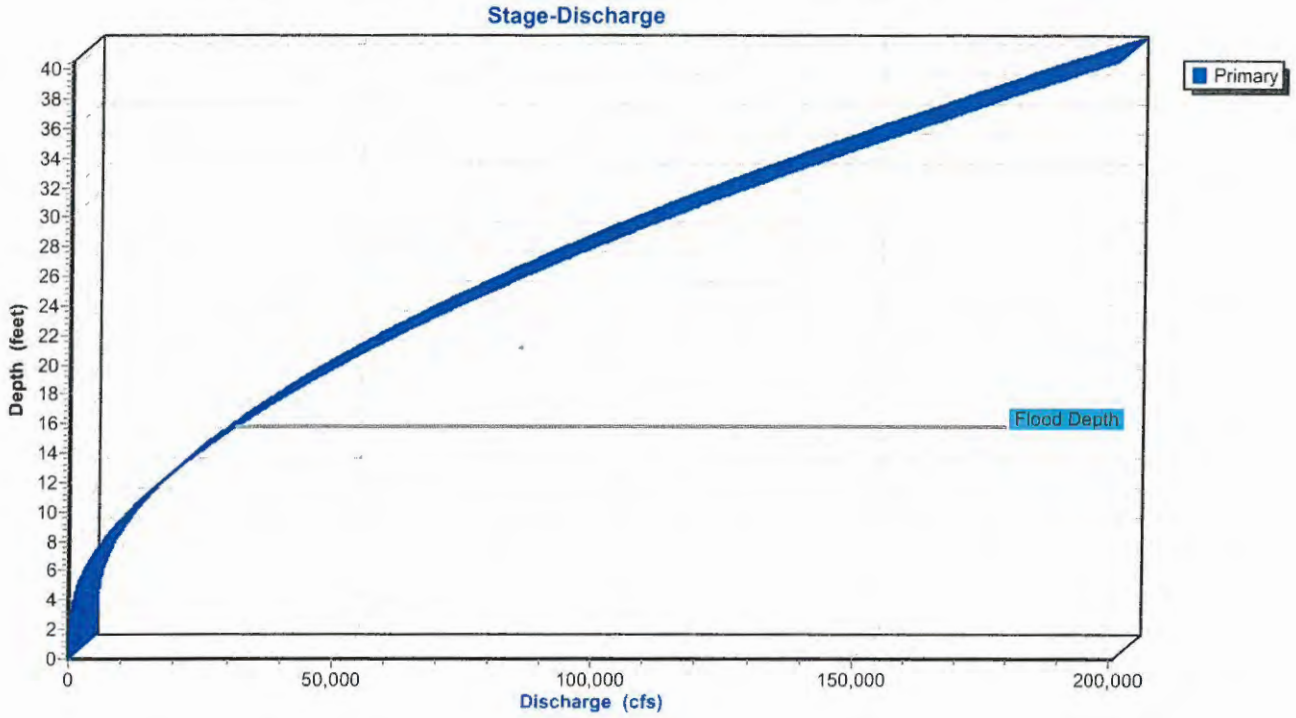
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, flow below branches
173.00	974.00	38.00	0.030	Short grass
175.00	972.00	40.00	0.030	Short grass
176.00	971.50	40.50	0.025	Stream, clean & straight
187.00	971.50	40.50	0.025	Stream, clean & straight
188.00	972.00	40.00	0.025	Stream, clean & straight
194.00	974.00	38.00	0.030	Short grass
206.00	976.00	36.00	0.100	Heavy timber, flow below branches
225.50	978.00	34.00	0.100	Heavy timber, flow below branches
229.50	980.00	32.00	0.100	Heavy timber, flow below branches
248.00	990.00	22.00	0.100	Heavy timber, flow below branches
265.00	1,000.00	12.00	0.100	Heavy timber, flow below branches
289.00	1,012.00	0.00	0.100	Heavy timber, flow below branches

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	11.0	0	0.00
0.50	6.0	13.2	2,700	19.29
2.50	40.0	22.4	18,000	347.53
4.50	146.0	86.6	65,701	1,300.01
6.50	382.5	153.2	172,125	3,703.14
8.50	712.5	180.8	320,625	7,536.06
18.50	2,645.4	216.7	1,190,411	44,005.23
28.50	4,866.4	251.4	2,189,893	103,800.74
36.50	6,855.0	281.2	3,084,750	166,501.22
40.50	7,955.0	310.6	3,579,750	200,707.82

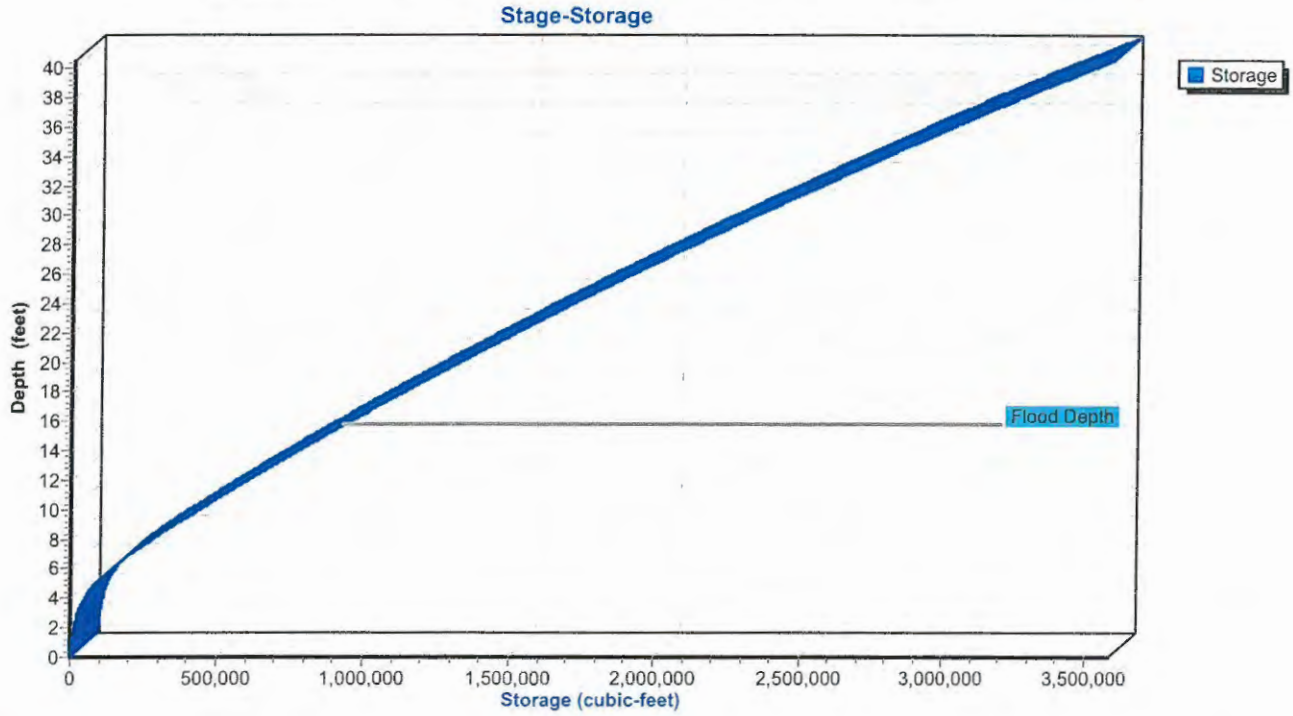
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

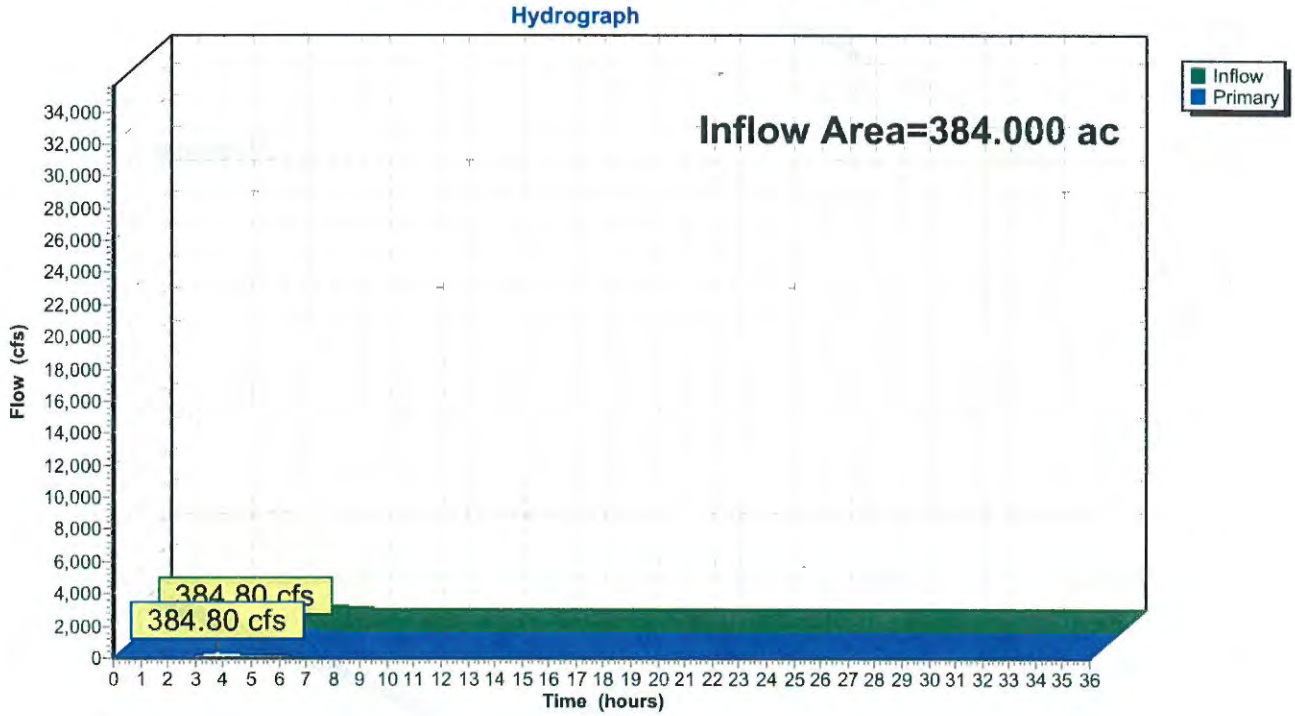


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.05" for 6-HR 0.22 PMF event
Inflow = 384.80 cfs @ 3.75 hrs, Volume= 97.498 af
Primary = 384.80 cfs @ 3.76 hrs, Volume= 97.498 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 1C: CONF 1 Combined O'Springs and Eric



Summary for Pond 1P: Sippo Creek Reservoir - Existing Conditions

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.70" for 6-HR 0.22 PMF event
Inflow = 3,142.96 cfs @ 6.34 hrs, Volume= 2,130.560 af
Outflow = 3,133.13 cfs @ 6.50 hrs, Volume= 2,119.541 af, Atten= 0%, Lag= 9.5 min
Primary = 2,180.31 cfs @ 6.50 hrs, Volume= 1,837.758 af
Secondary = 952.82 cfs @ 6.50 hrs, Volume= 281.783 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 7.050 ac Storage= 60.962 af
Peak Elev= 1,007.21' @ 6.50 hrs Surf.Area= 19.320 ac Storage= 127.145 af (66.182 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 91.431 af (30.469 af above start)

Plug-Flow detention time= 77.0 min calculated for 2,058.579 af (97% of inflow)
Center-of-Mass det. time= 14.7 min (731.1 - 716.4)

Volume	Invert	Avail.Storage	Storage Description
#1	985.00'	1,292.544 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
985.00	0.500	500.0	0.000	0.000	0.500
990.00	3.000	1,000.0	7.875	7.875	1.873
998.00	4.870	2,500.0	31.179	39.054	11.469
1,000.00	6.204	3,251.0	11.047	50.101	19.360
1,002.00	7.243	5,147.0	13.434	63.535	48.449
1,004.00	9.610	10,274.0	16.797	80.332	192.887
1,006.00	16.124	11,202.9	25.455	105.787	229.335
1,008.00	21.577	15,736.9	37.569	143.356	452.477
1,010.00	29.674	20,301.4	51.036	194.392	752.988
1,012.00	39.539	22,845.5	68.977	263.369	953.524
1,014.00	68.669	34,370.5	106.876	370.246	2,158.174
1,025.00	100.000	50,000.0	922.298	1,292.544	4,567.204

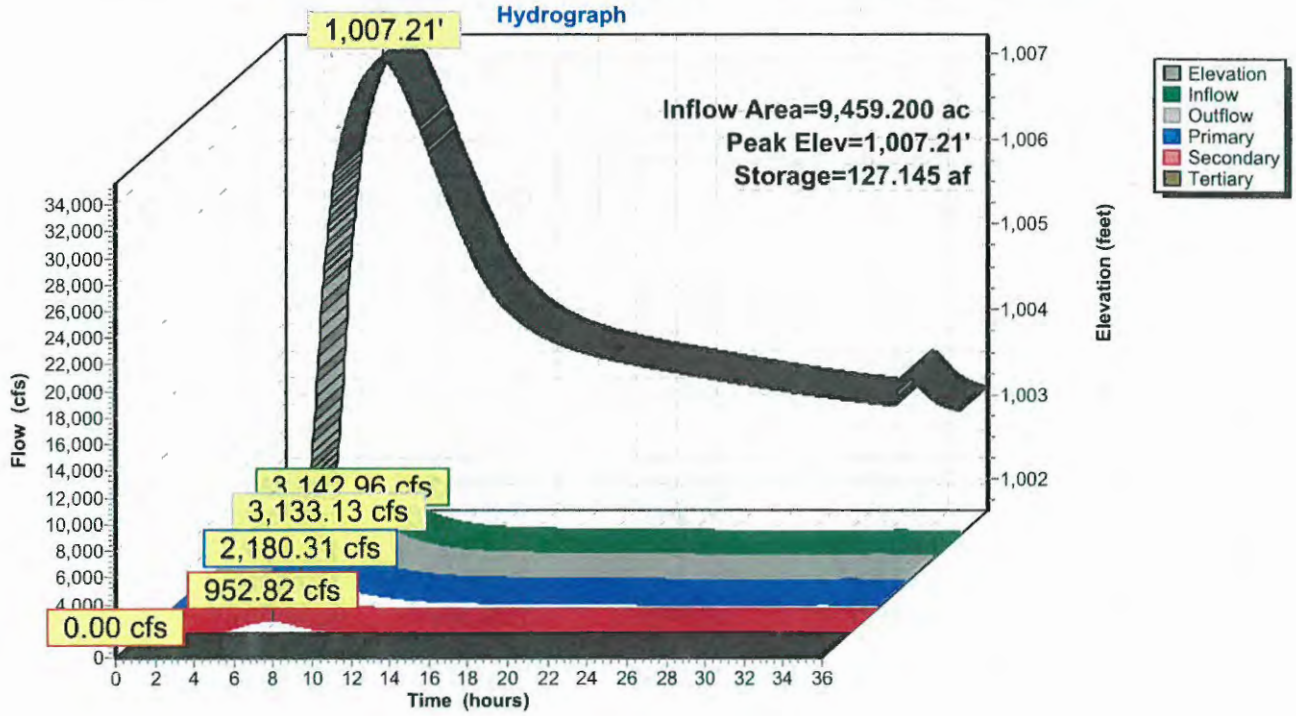
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,005.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.60 20.00 Width (feet) 17.00 23.00 77.00 77.00
#3	Secondary	1,004.20'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.80 3.80 5.80 15.80 Width (feet) 10.00 22.00 45.00 130.00 180.00 205.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,180.31 cfs @ 6.50 hrs HW=1,007.21' TW=1,000.26' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,180.31 cfs @ 7.83 fps)

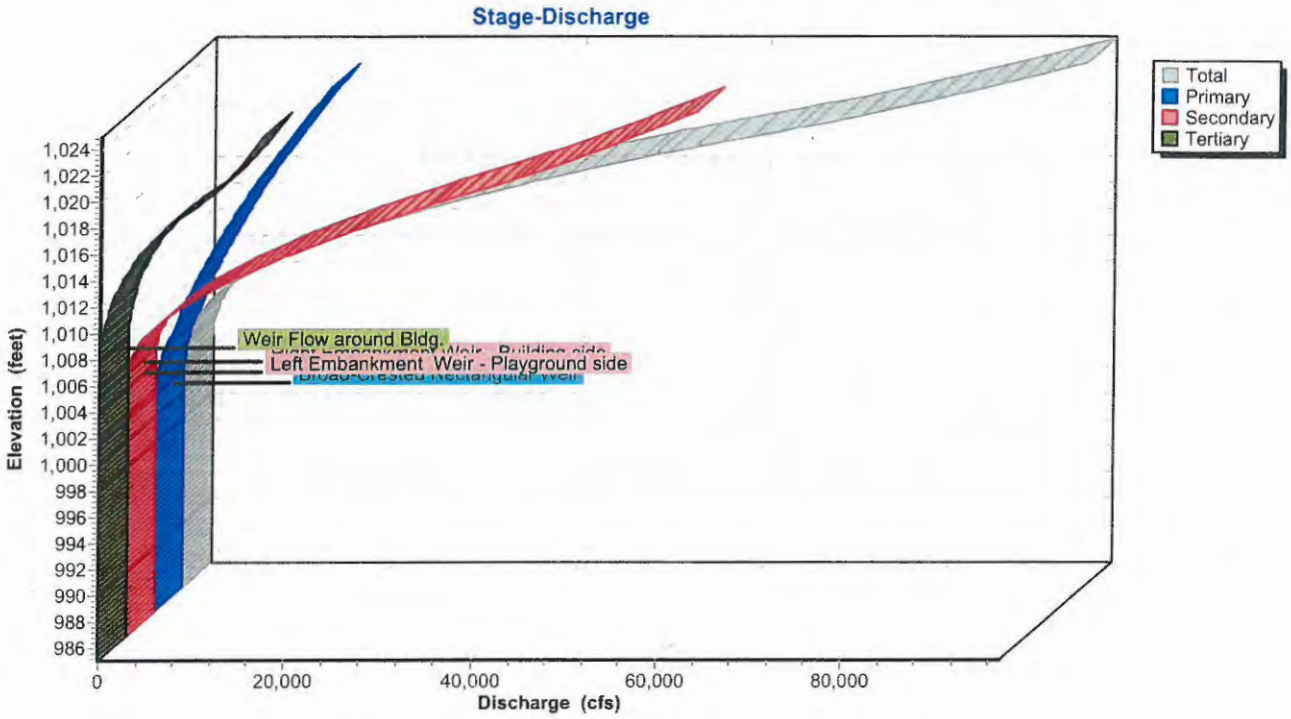
Secondary OutFlow Max=952.82 cfs @ 6.50 hrs HW=1,007.21' TW=1,000.26' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 381.62 cfs @ 3.95 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 571.20 cfs @ 4.46 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

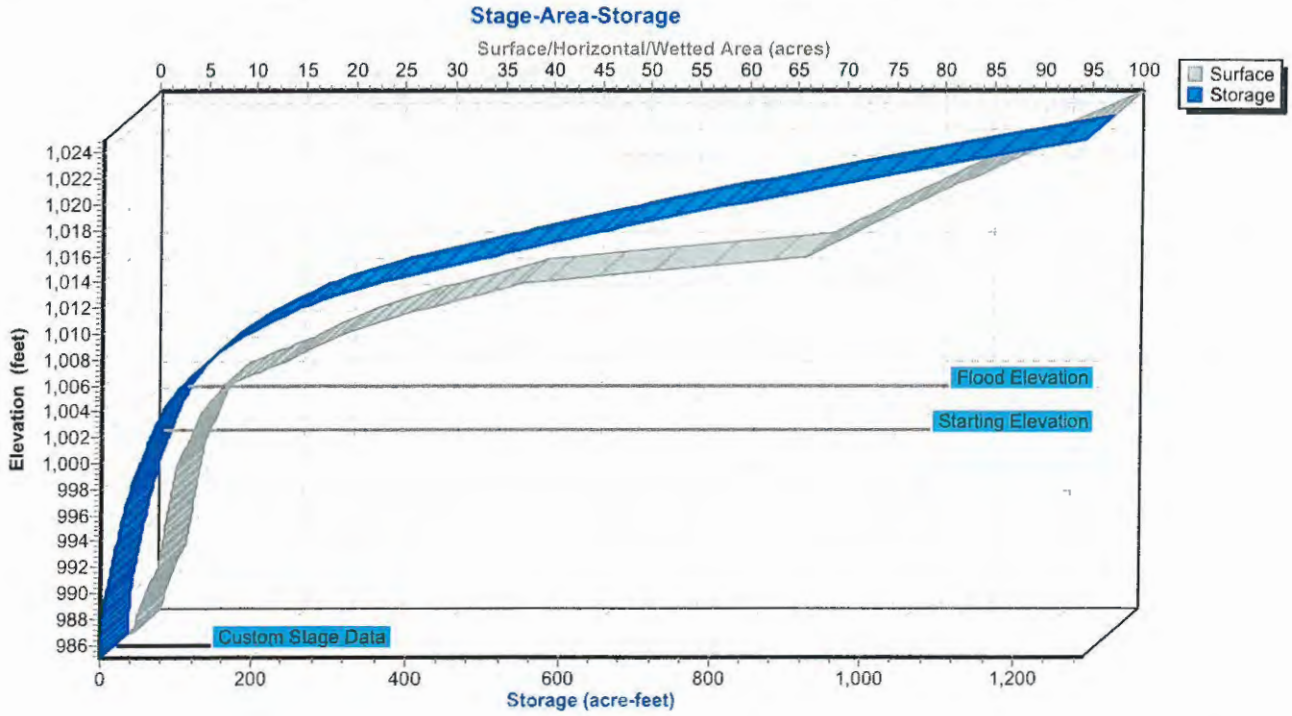
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

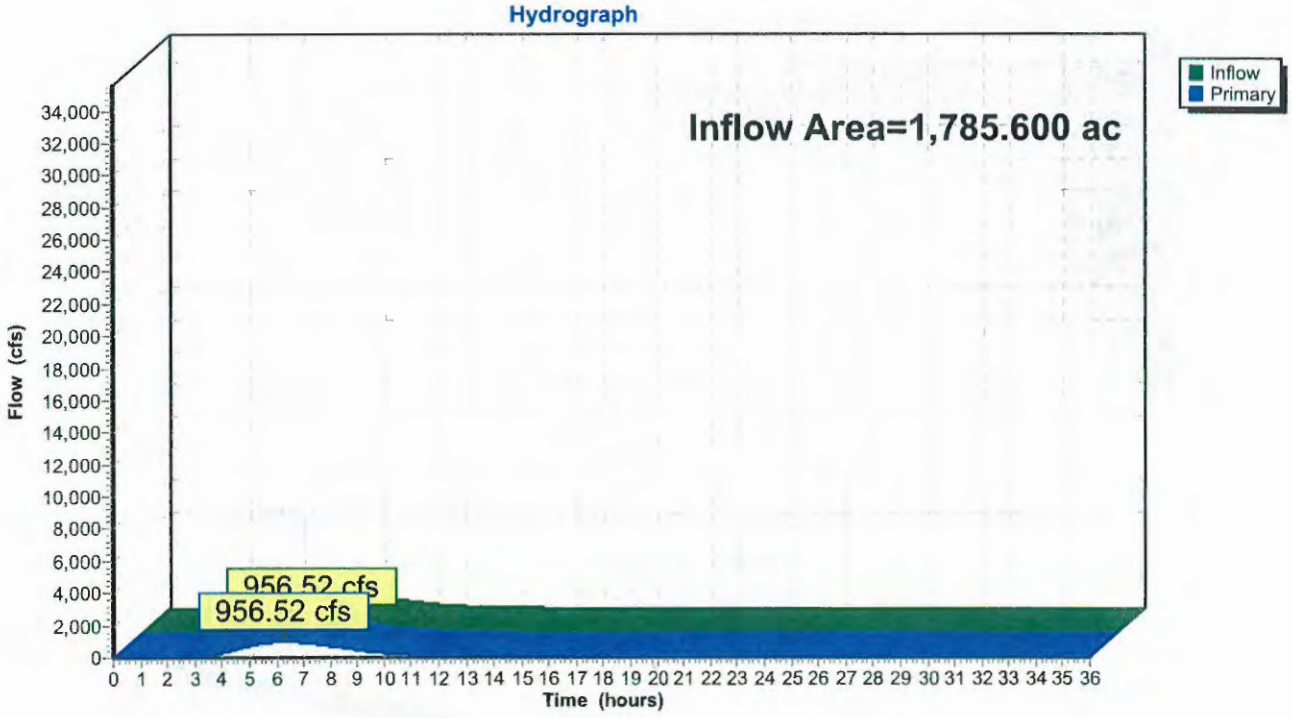


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 2.71" for 6-HR 0.22 PMF event
Inflow = 956.52 cfs @ 6.28 hrs, Volume= 402.572 af
Primary = 956.52 cfs @ 6.29 hrs, Volume= 402.572 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 2C: CONF 2 Combined Cable and O'Springs



Summary for Pond 3P: Lake Cable

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 2.71" for 6-HR 0.22 PMF event
Inflow = 956.52 cfs @ 6.29 hrs, Volume= 402.571 af
Outflow = 329.82 cfs @ 9.64 hrs, Volume= 619.758 af, Atten= 66%, Lag= 200.9 min
Primary = 329.82 cfs @ 9.64 hrs, Volume= 619.758 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,097.40' Surf.Area= 220.000 ac Storage= 1,914.000 af
Peak Elev= 1,098.03' @ 9.64 hrs Surf.Area= 242.759 ac Storage= 2,059.507 af (145.507 af above start)
Flood Elev= 1,099.50' Surf.Area= 296.000 ac Storage= 2,455.800 af (541.800 af above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 478.9 min (944.7 - 465.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.00'	4,144.025 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

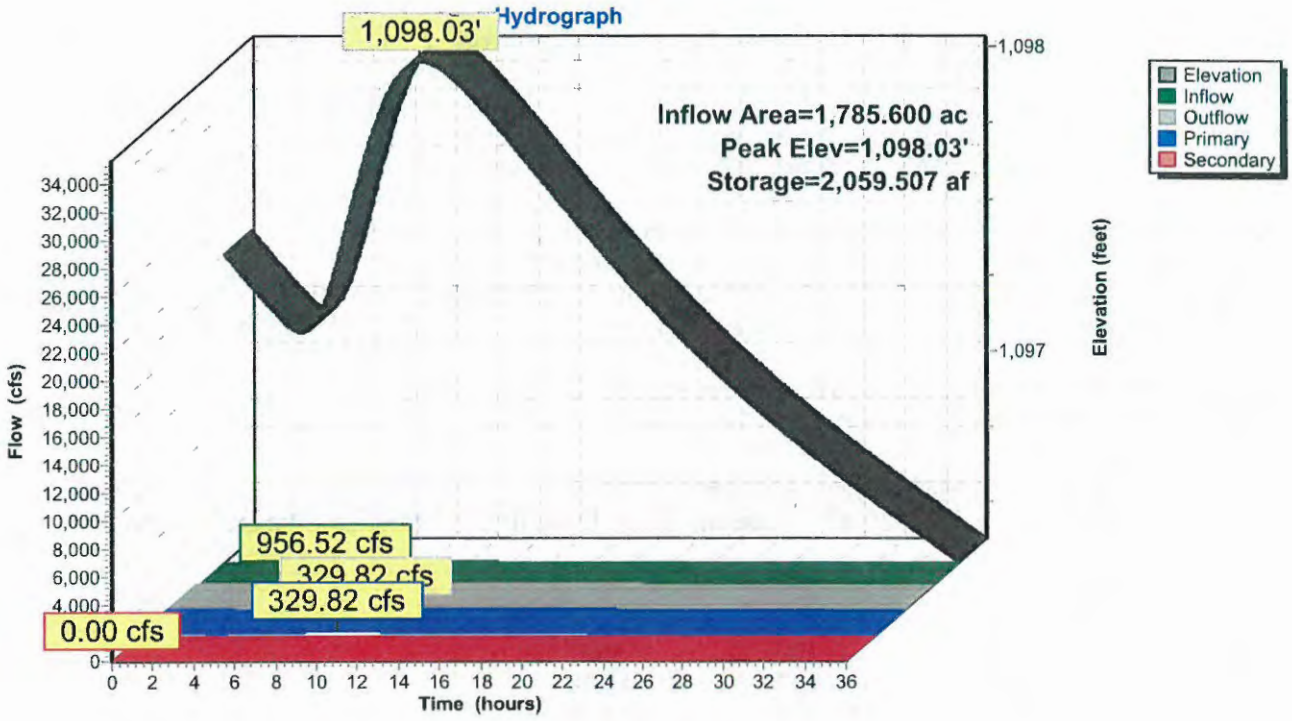
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

Device	Routing	Invert	Outlet Devices
#1	Primary	1,088.00'	**36.0" Round Culvert-RCP** L= 450.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 1,088.00' / 1,076.00' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished
#2	Primary	1,096.40'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.10 6.00 Width (feet) 30.00 30.00 30.00
#3	Secondary	1,099.50'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 3.00 Width (feet) 1,000.00 1,000.00

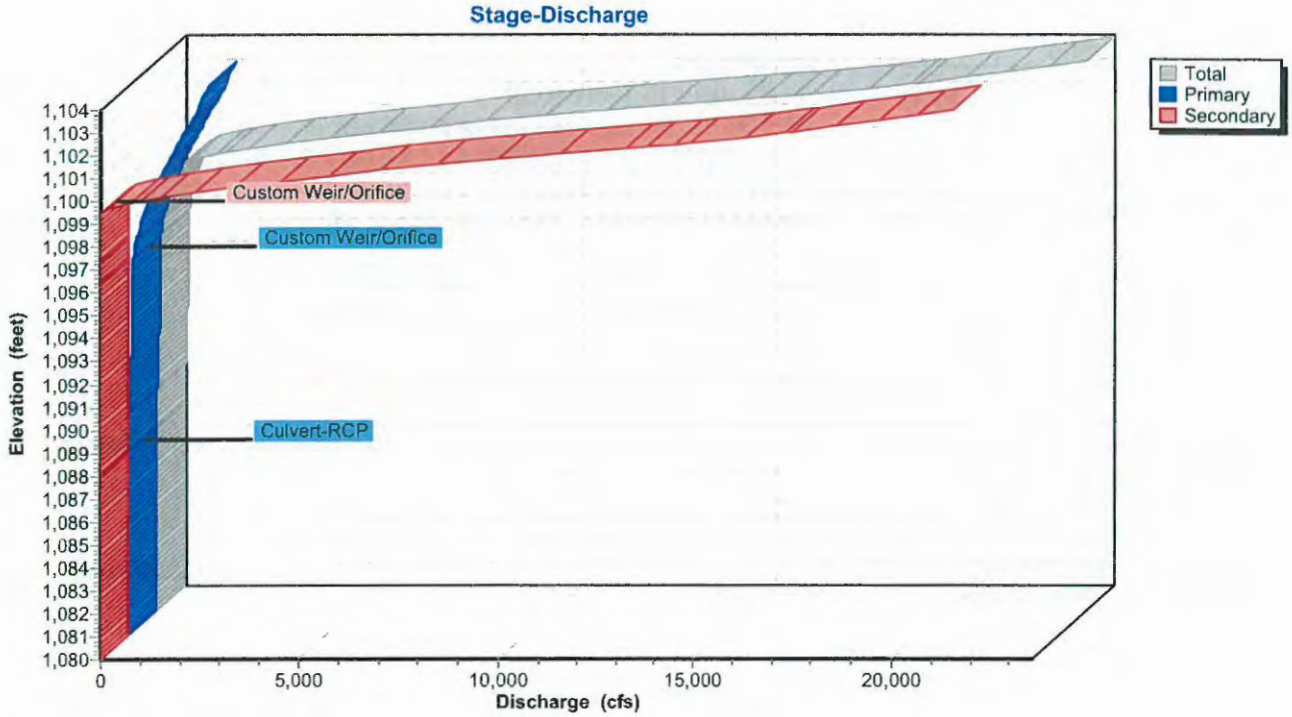
Primary OutFlow Max=329.82 cfs @ 9.64 hrs HW=1,098.03' TW=1,071.98' (Dynamic Tailwater)
↑—**1=Culvert-RCP** (Barrel Controls 125.57 cfs @ 17.76 fps)
└—**2=Custom Weir/Orifice** (Weir Controls 204.25 cfs @ 4.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,097.40' TW=1,069.00' (Dynamic Tailwater)
↑—**3=Custom Weir/Orifice** (Controls 0.00 cfs)

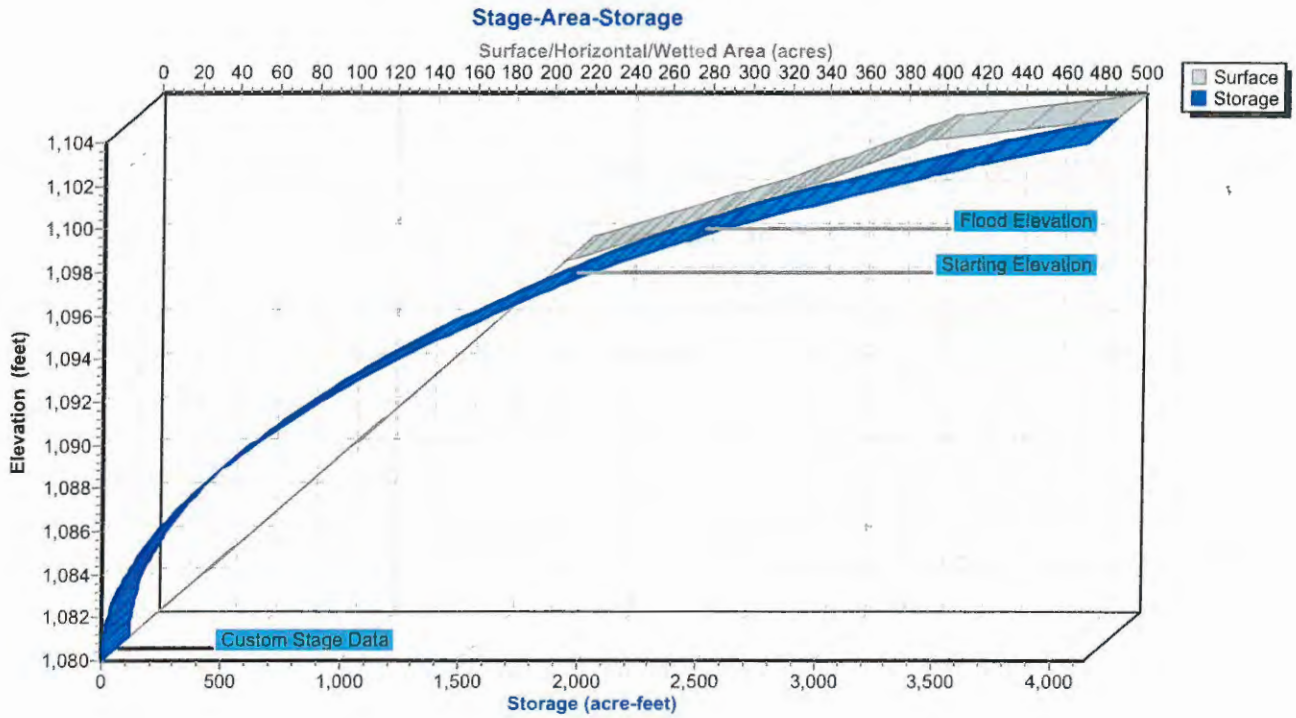
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

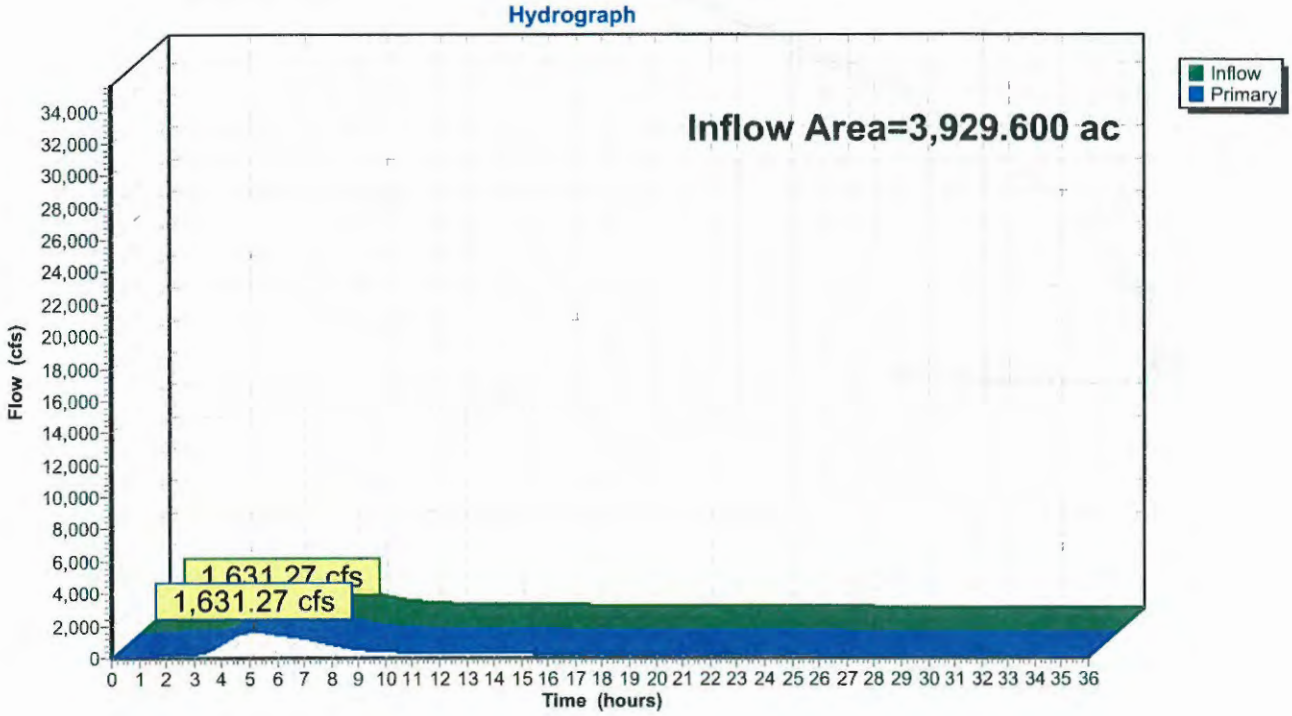


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 3.20" for 6-HR 0.22 PMF event
Inflow = 1,631.27 cfs @ 5.16 hrs, Volume= 1,049.077 af
Primary = 1,631.27 cfs @ 5.17 hrs, Volume= 1,049.077 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 4C: Confluence 4



Summary for Pond 4P: Lake O'Springs

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.05" for 6-HR 0.22 PMF event
Inflow = 384.80 cfs @ 3.76 hrs, Volume= 97.498 af
Outflow = 155.73 cfs @ 6.56 hrs, Volume= 97.015 af, Atten= 60%, Lag= 167.7 min
Primary = 155.73 cfs @ 6.56 hrs, Volume= 97.015 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,106.00' Surf.Area= 27.000 ac Storage= 24.300 af
Peak Elev= 1,107.80' @ 6.56 hrs Surf.Area= 28.998 ac Storage= 74.635 af (50.335 af above start)
Flood Elev= 1,108.70' Surf.Area= 30.000 ac Storage= 101.250 af (76.950 af above start)

Plug-Flow detention time= 436.0 min calculated for 72.695 af (75% of inflow)
Center-of-Mass det. time= 272.2 min (593.7 - 321.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,104.20'	268.550 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

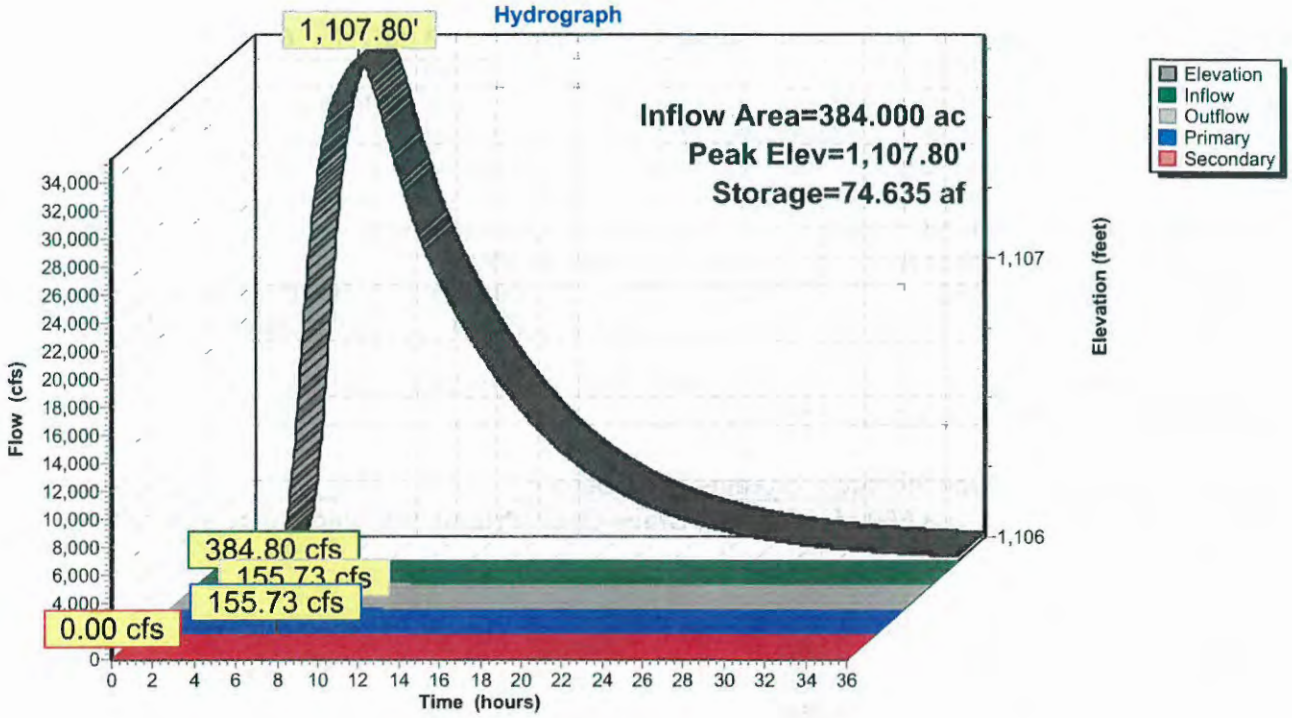
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.00'	**Lake Eric Special & User-Defined Outlet** Head (feet) 0.00 1.00 2.00 2.70 3.00 4.00 Disch. (cfs) 0.000 60.000 180.000 300.000 1,240.000 3,930.000
#2	Secondary	1,108.70'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 1.30 Width (feet) 150.00 150.00

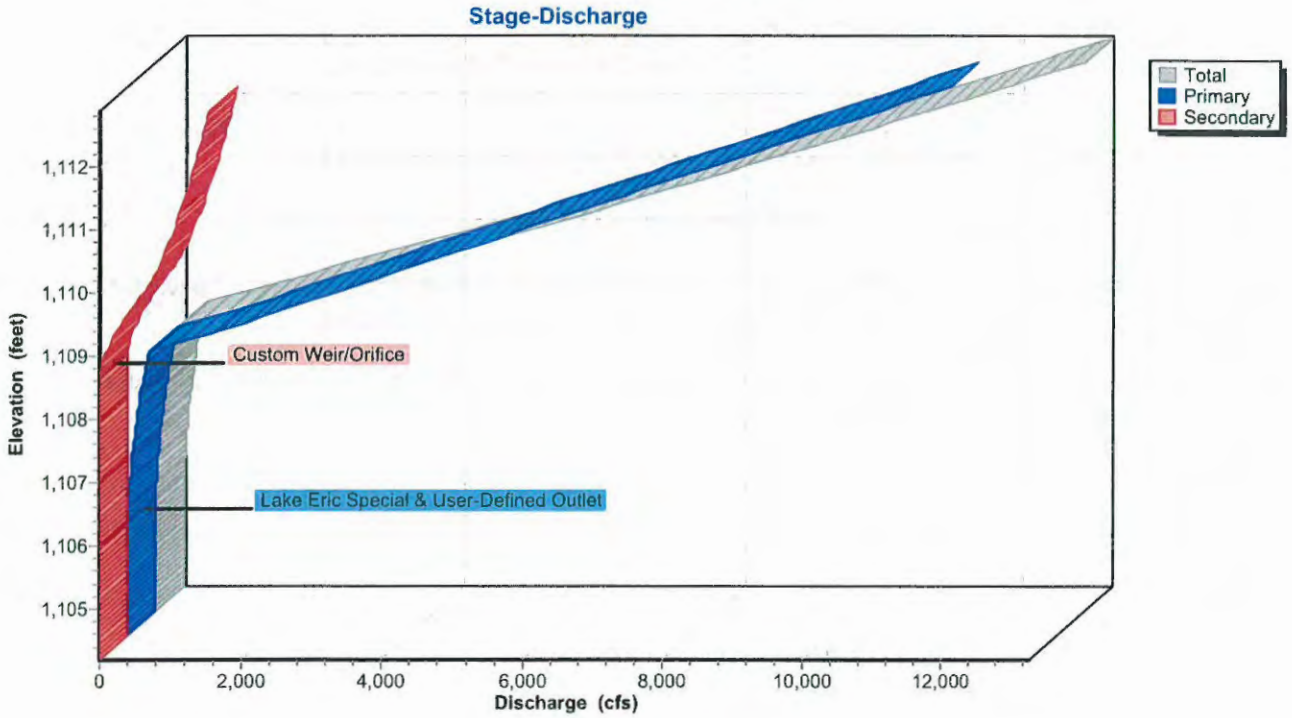
Primary OutFlow Max=155.73 cfs @ 6.56 hrs HW=1,107.80' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet** (Custom Controls 155.73 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,106.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Controls 0.00 cfs)

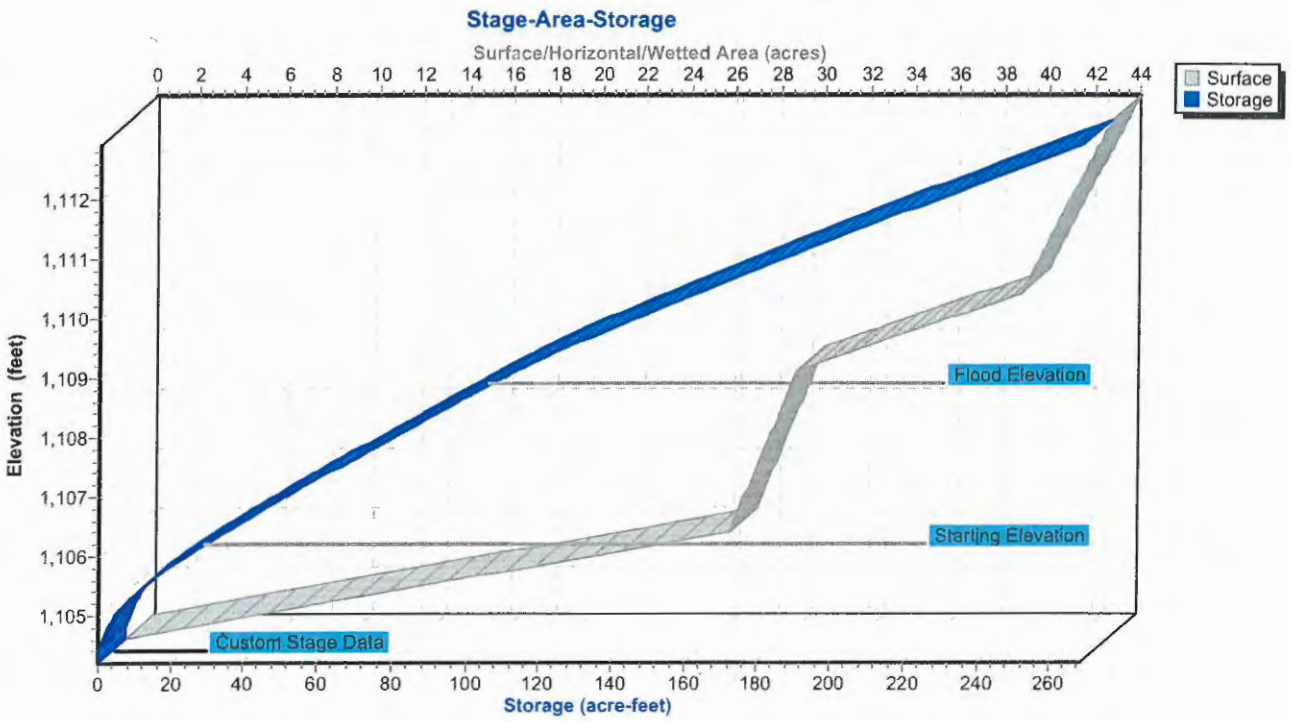
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

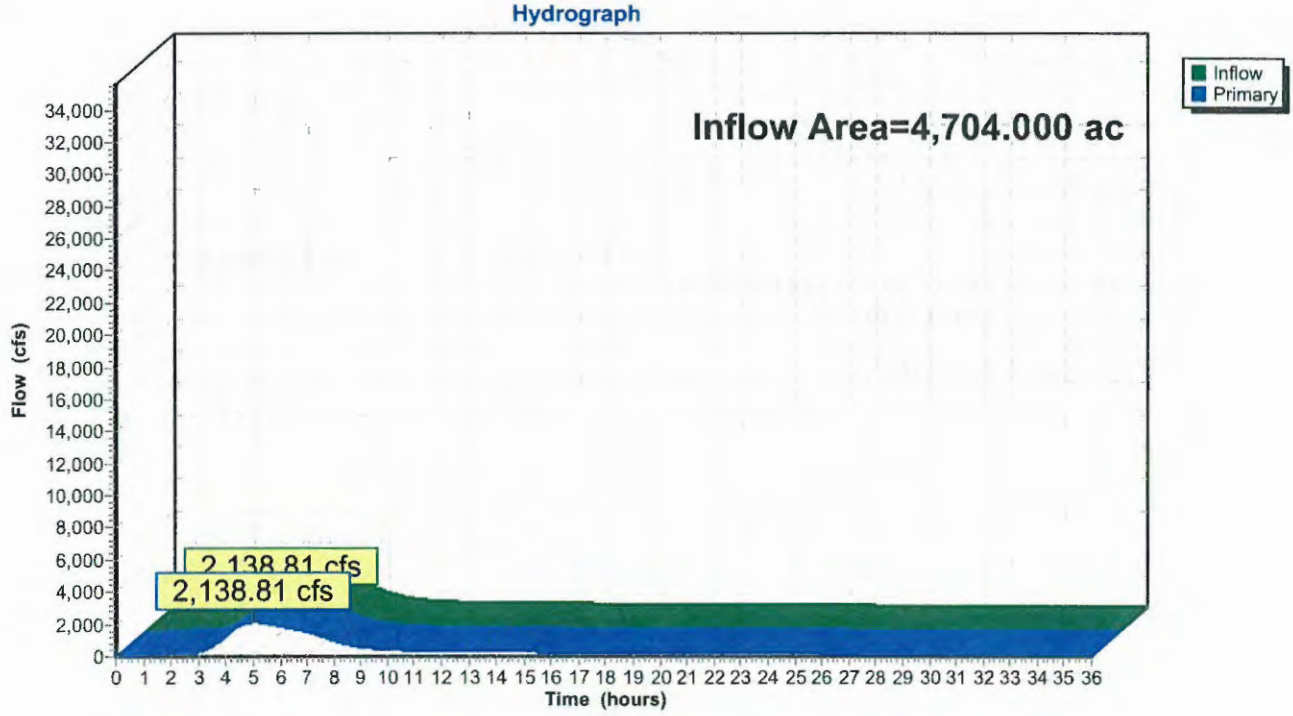


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 3.06" for 6-HR 0.22 PMF event
Inflow = 2,138.81 cfs @ 5.02 hrs, Volume= 1,200.658 af
Primary = 2,138.81 cfs @ 5.03 hrs, Volume= 1,200.658 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 5C: Confluence 5



Summary for Pond 5P: Lake Eric (Slagle)

Inflow Area = 115.200 ac, 0.00% Impervious, Inflow Depth = 2.98" for 6-HR 0.22 PMF event
Inflow = 157.03 cfs @ 3.37 hrs, Volume= 28.647 af
Outflow = 66.39 cfs @ 4.76 hrs, Volume= 28.538 af, Atten= 58%, Lag= 83.1 min
Primary = 66.39 cfs @ 4.76 hrs, Volume= 28.538 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,116.50' Surf.Area= 3.700 ac Storage= 13.690 af
Peak Elev= 1,119.91' @ 4.76 hrs Surf.Area= 4.186 ac Storage= 27.112 af (13.422 af above start)
Flood Elev= 1,120.00' Surf.Area= 4.200 ac Storage= 27.490 af (13.800 af above start)

Plug-Flow detention time= 393.3 min calculated for 14.848 af (52% of inflow)
Center-of-Mass det. time= 192.0 min (443.6 - 251.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,109.10'	88.990 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

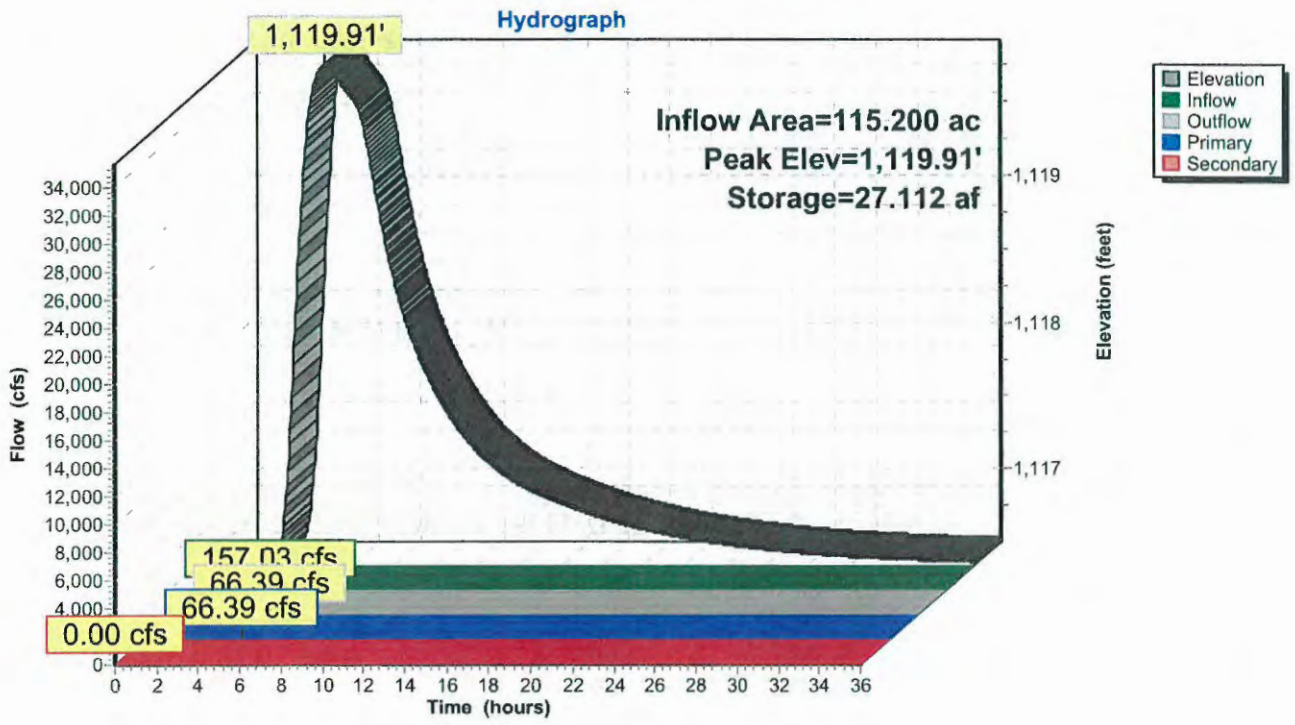
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

Device	Routing	Invert	Outlet Devices
#1	Primary	1,116.50'	**Special & User-Defined** Head (feet) 0.00 0.50 1.50 2.50 3.50 4.50 5.00 Disch. (cfs) 0.000 3.000 17.000 40.000 69.000 600.000 1,130.000
#2	Secondary	1,120.00'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 10.00 Width (feet) 150.00 150.00

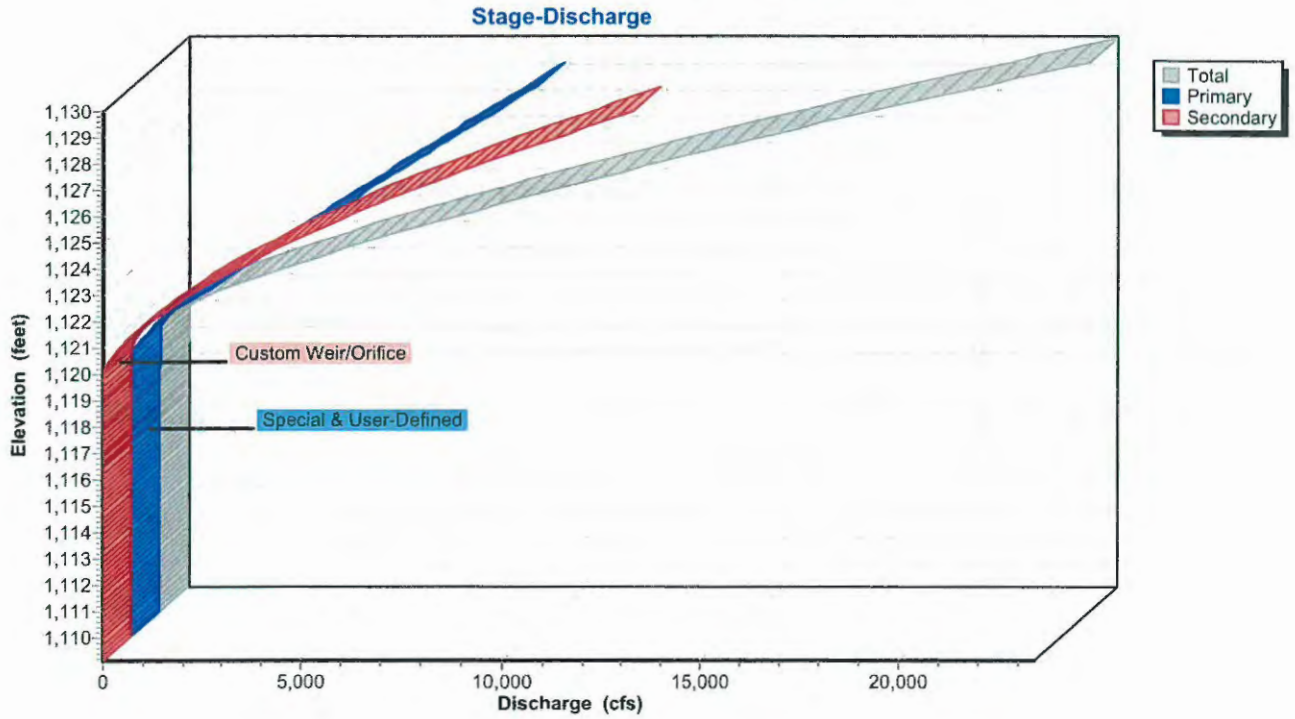
Primary OutFlow Max=66.39 cfs @ 4.76 hrs HW=1,119.91' TW=0.00' (Dynamic Tailwater)
↑—**1=Special & User-Defined** (Custom Controls 66.39 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,116.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Controls 0.00 cfs)

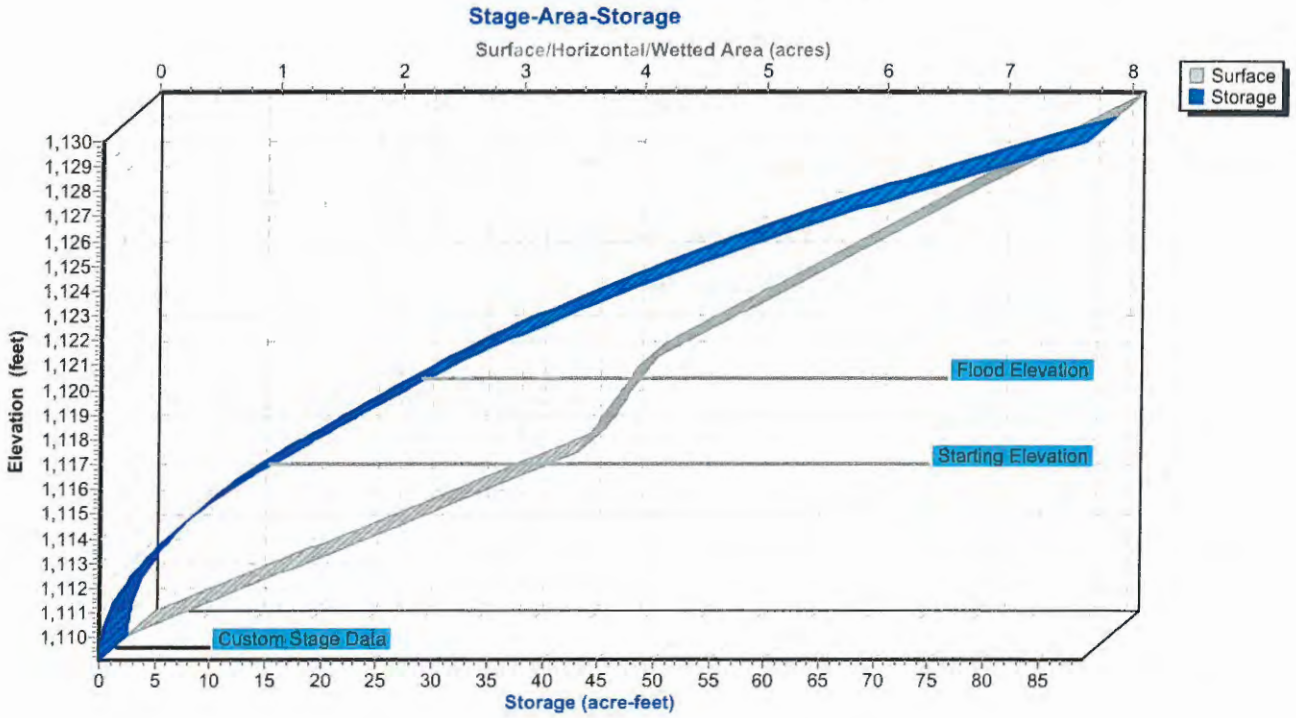
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

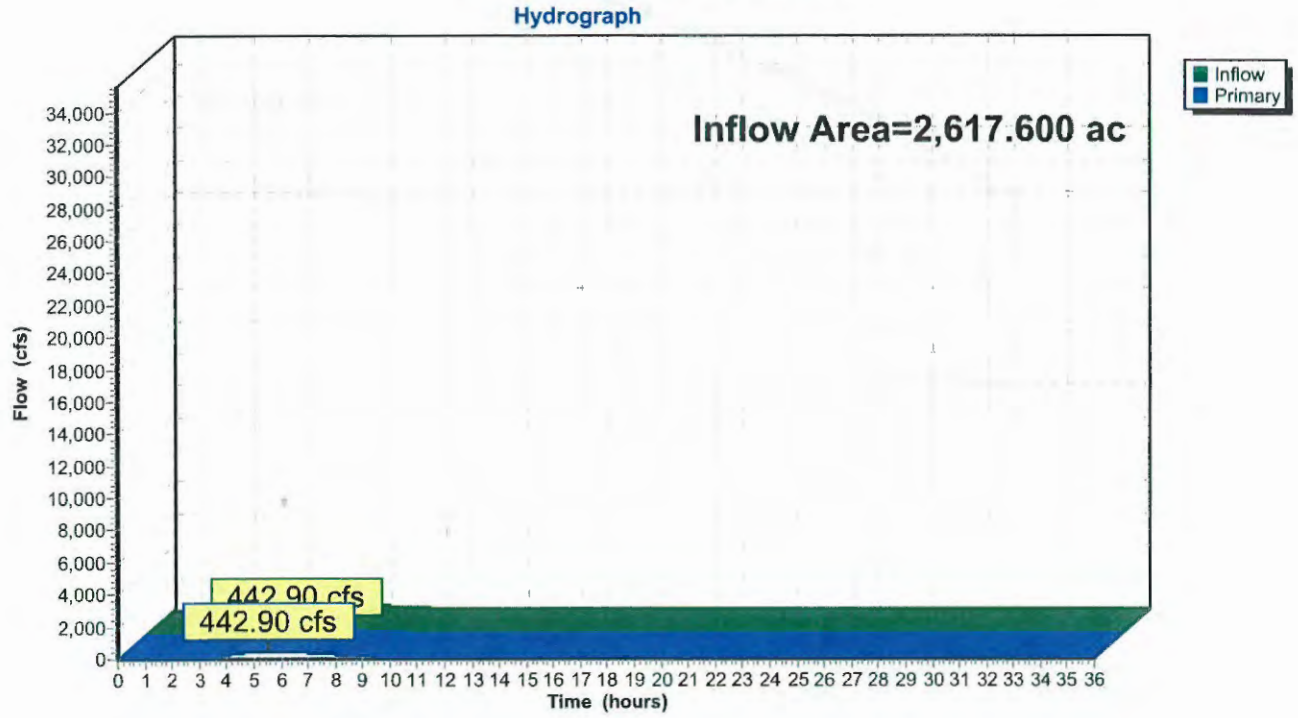


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 1.90" for 6-HR 0.22 PMF event
Inflow = 442.90 cfs @ 5.54 hrs, Volume= 414.603 af
Primary = 442.90 cfs @ 5.55 hrs, Volume= 414.603 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 6C: Confluence 6

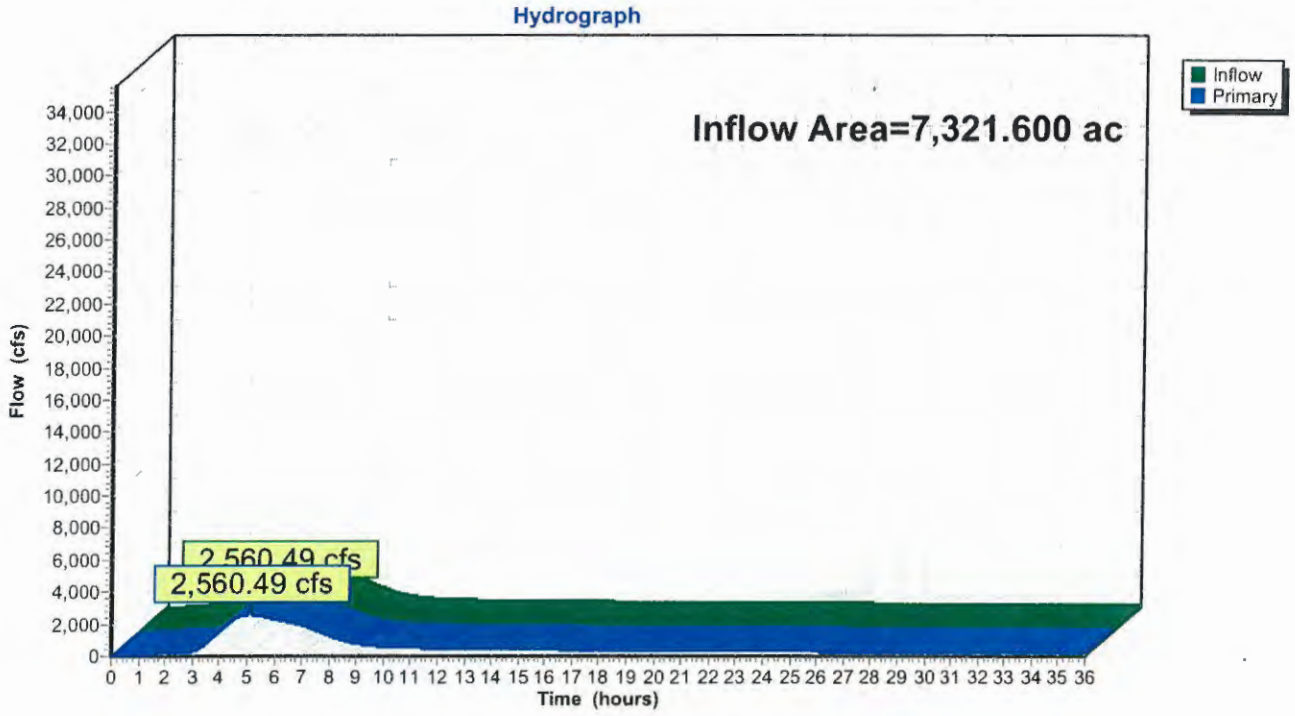


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.65" for 6-HR 0.22 PMF event
Inflow = 2,560.49 cfs @ 5.14 hrs, Volume= 1,615.082 af
Primary = 2,560.49 cfs @ 5.15 hrs, Volume= 1,615.082 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

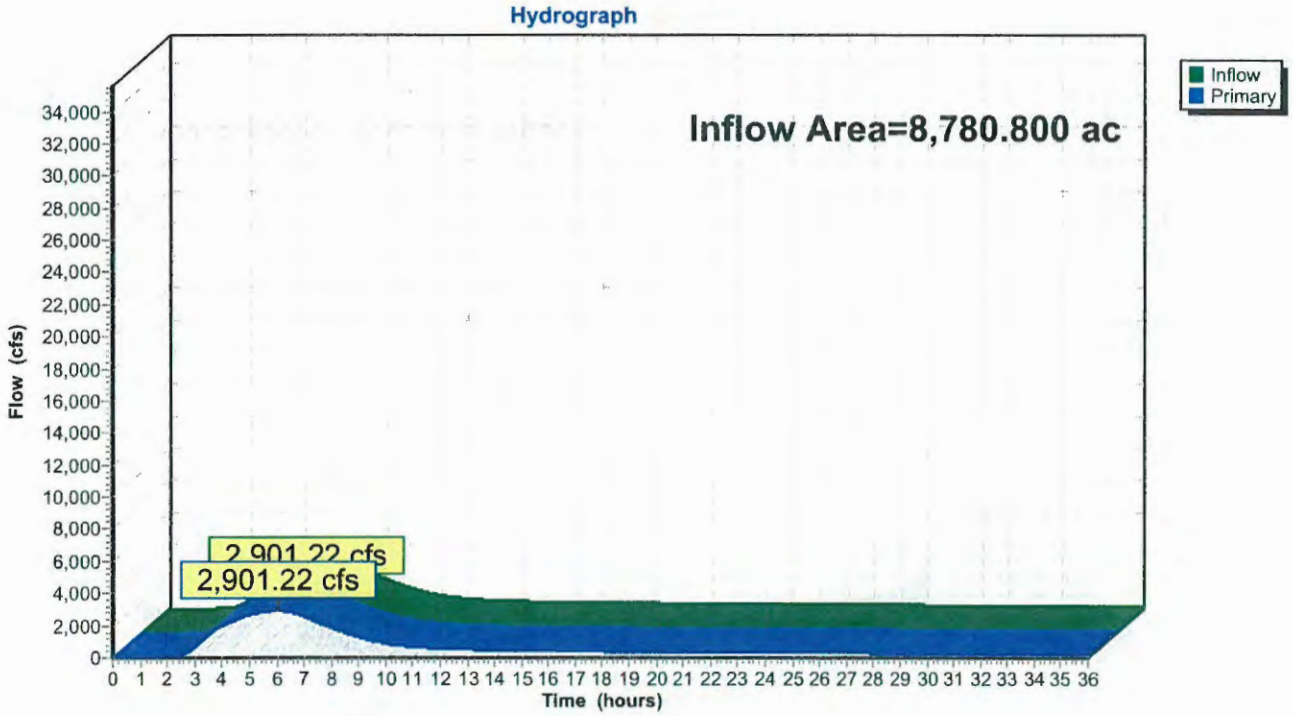


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.67" for 6-HR 0.22 PMF event
Inflow = 2,901.22 cfs @ 6.01 hrs, Volume= 1,951.773 af
Primary = 2,901.22 cfs @ 6.02 hrs, Volume= 1,951.773 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 8C: Confluence 8



Summary for Pond 8P: Storage Area Genoa Rd

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 2.51" for 6-HR 0.22 PMF event
Inflow = 1,284.87 cfs @ 6.18 hrs, Volume= 411.232 af
Outflow = 139.93 cfs @ 11.37 hrs, Volume= 287.650 af, Atten= 89%, Lag= 311.1 min
Primary = 126.65 cfs @ 10.97 hrs, Volume= 284.673 af
Secondary = 13.40 cfs @ 11.38 hrs, Volume= 2.977 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,025.10' @ 11.38 hrs Surf.Area= 134.392 ac Storage= 322.771 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 812.9 min calculated for 287.650 af (70% of inflow)
Center-of-Mass det. time= 736.9 min (1,205.4 - 468.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,018.00'	1,873.781 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

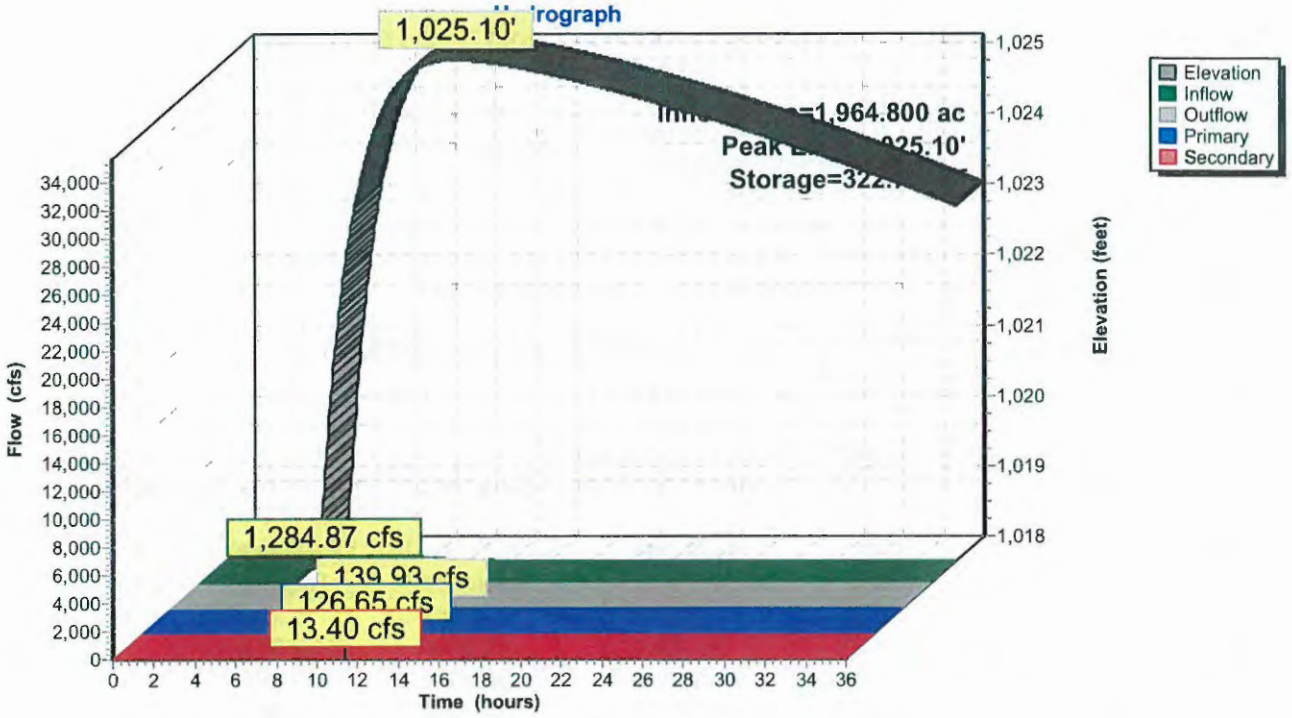
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	176.087	39,123.0	262.448	461.929	2,642.179
1,032.00	300.000	45,000.0	1,411.853	1,873.781	3,545.375

Device	Routing	Invert	Outlet Devices
#1	Primary	1,018.00'	**48.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,018.00' / 1,017.00' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Secondary	1,025.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 5.00 Width (feet) 125.00 192.00 308.00 415.00

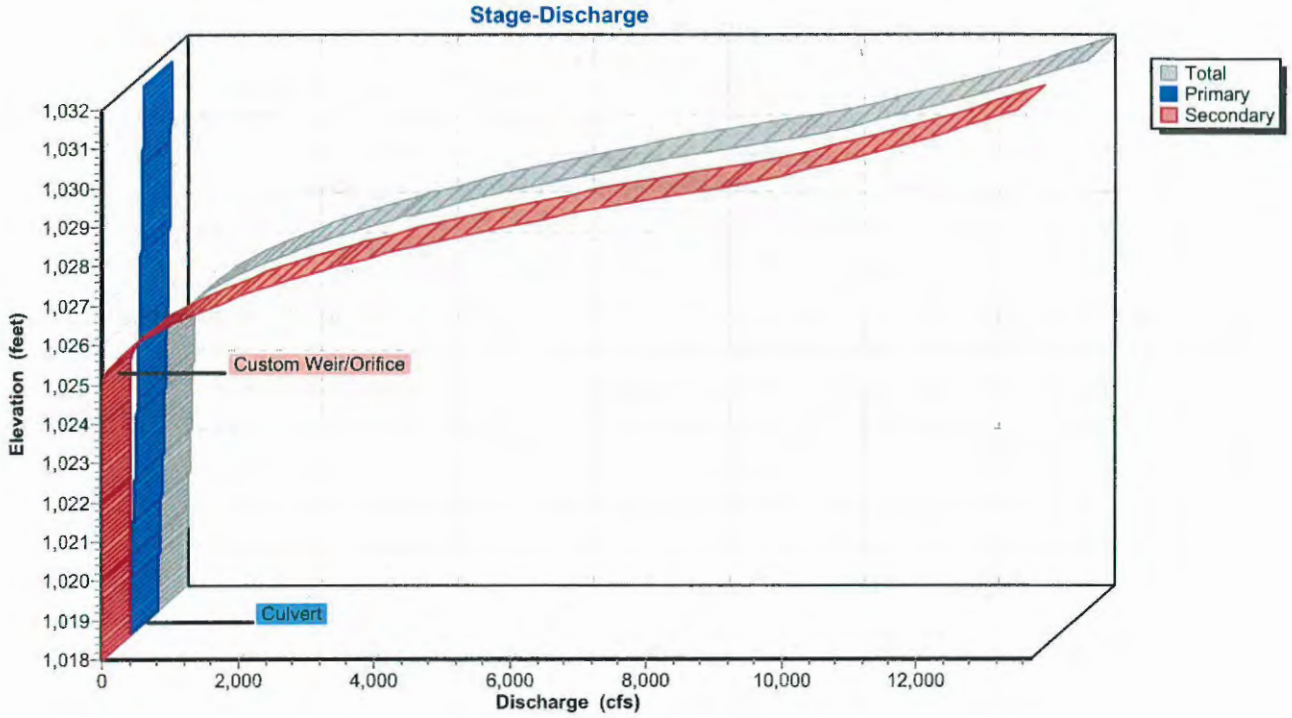
Primary OutFlow Max=126.64 cfs @ 10.97 hrs HW=1,025.10' TW=1,020.72' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 126.64 cfs @ 10.08 fps)

Secondary OutFlow Max=13.40 cfs @ 11.38 hrs HW=1,025.10' TW=1,020.73' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 13.40 cfs @ 1.03 fps)

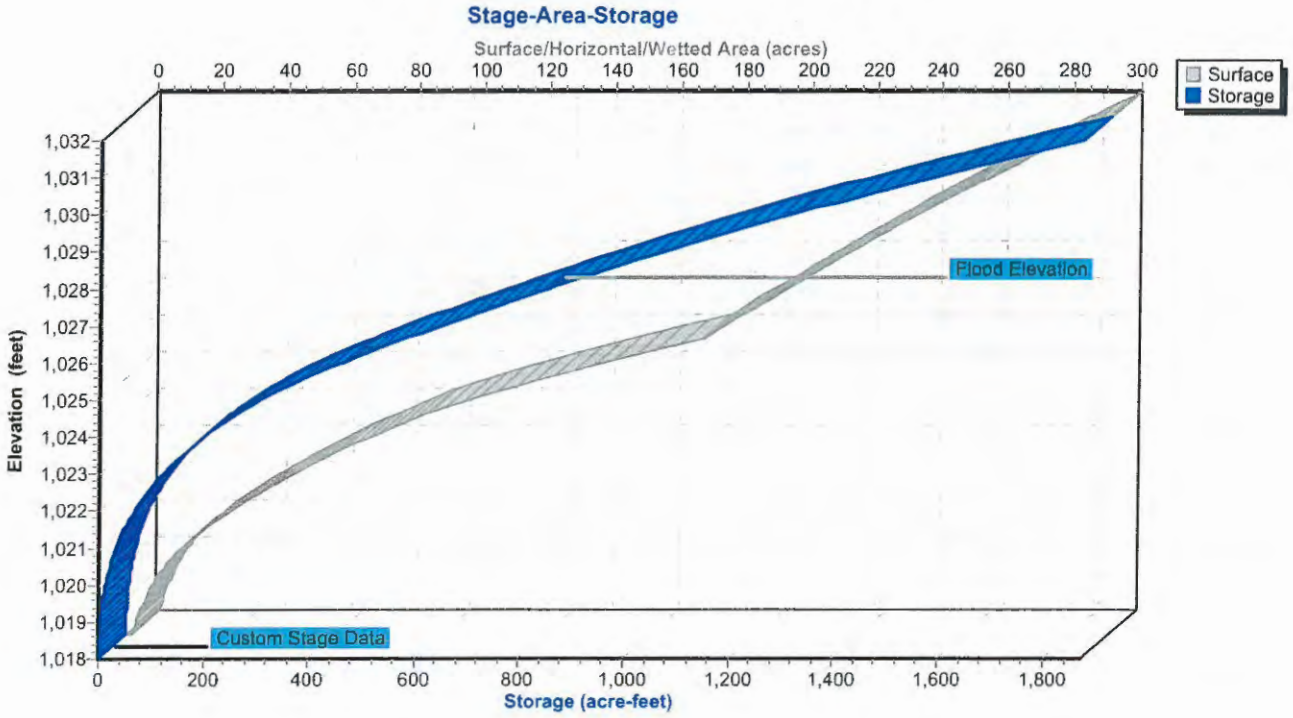
Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Summary for Pond 9P: Sippo Lake

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth = 3.08" for 6-HR 0.22 PMF event
Inflow = 1,638.90 cfs @ 5.03 hrs, Volume= 504.064 af
Outflow = 1,284.87 cfs @ 6.18 hrs, Volume= 411.233 af, Atten= 22%, Lag= 69.3 min
Primary = 1,284.87 cfs @ 6.18 hrs, Volume= 411.233 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= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,027.00' Surf.Area= 88.000 ac Storage= 220.000 af
Peak Elev= 1,029.08' @ 6.18 hrs Surf.Area= 104.293 ac Storage= 420.172 af (200.172 af above start)
Flood Elev= 1,029.30' Surf.Area= 106.000 ac Storage= 443.100 af (223.100 af above start)

Plug-Flow detention time= 316.6 min calculated for 191.180 af (38% of inflow)
Center-of-Mass det. time= 114.0 min (468.5 - 354.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,022.00'	1,220.300 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,022.00	0.000	0.000	0.000
1,027.00	88.000	220.000	220.000
1,029.30	106.000	223.100	443.100
1,036.00	126.000	777.200	1,220.300

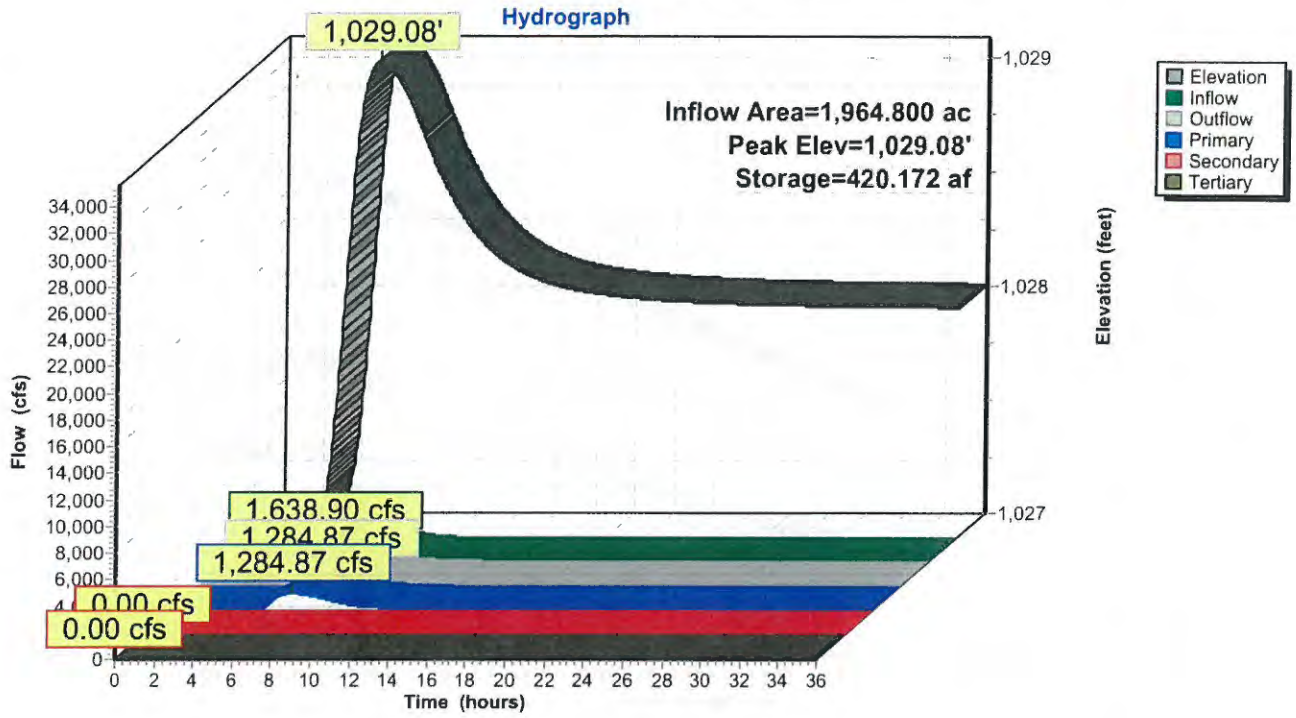
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Secondary	1,029.30'	**30.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Tertiary	1,030.00'	**650.0' long x 50.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1,284.87 cfs @ 6.18 hrs HW=1,029.08' TW=1,022.69' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 889.32 cfs @ 2.74 fps)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 395.55 cfs @ 2.06 fps)

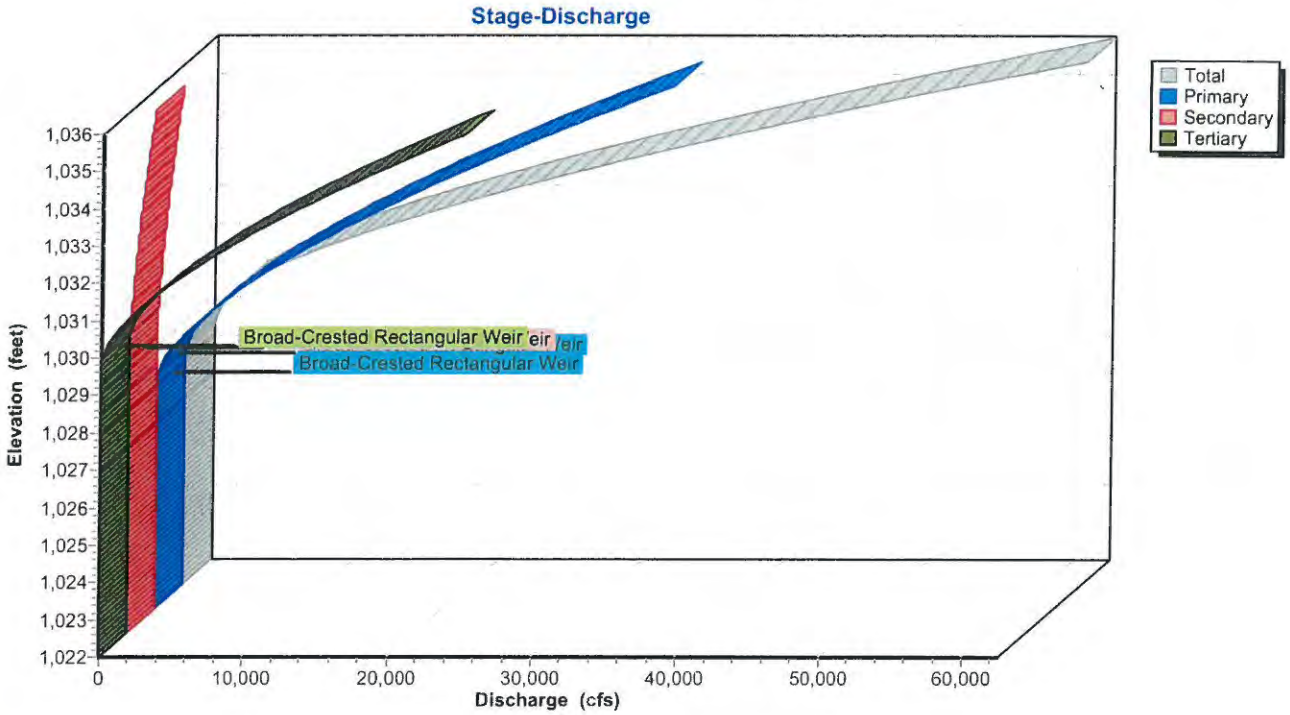
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

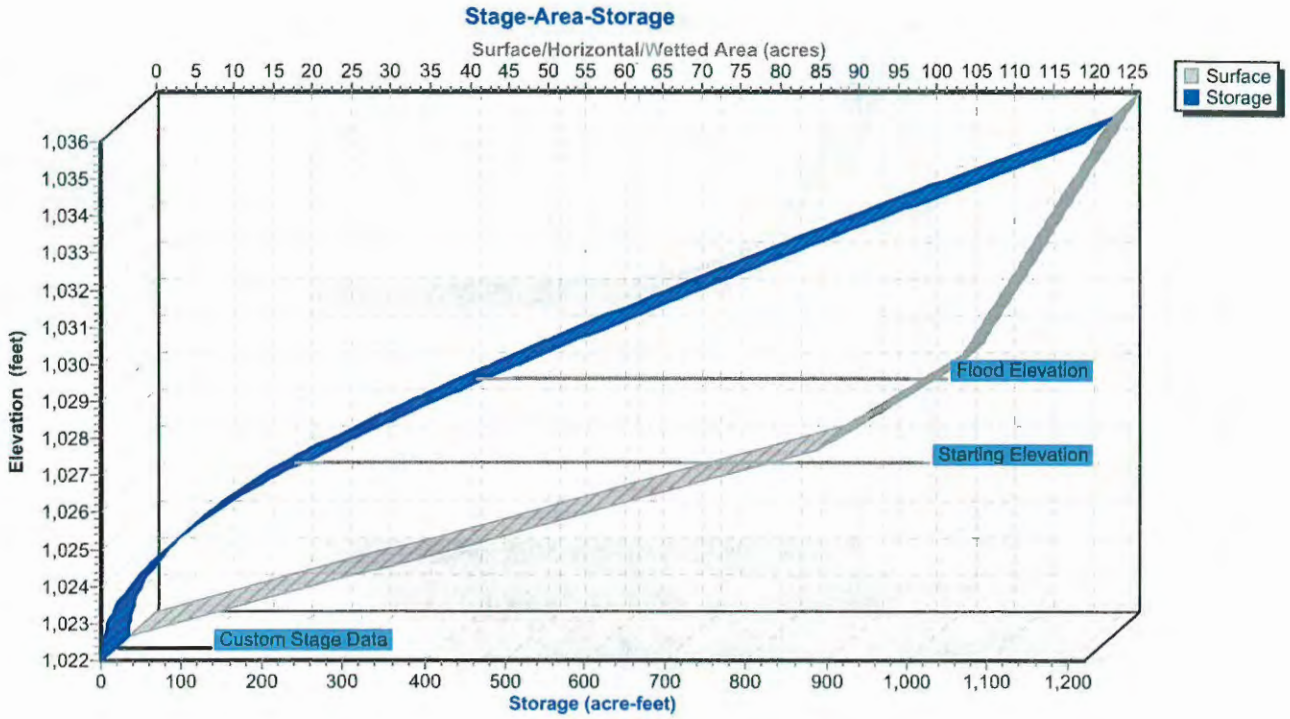
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

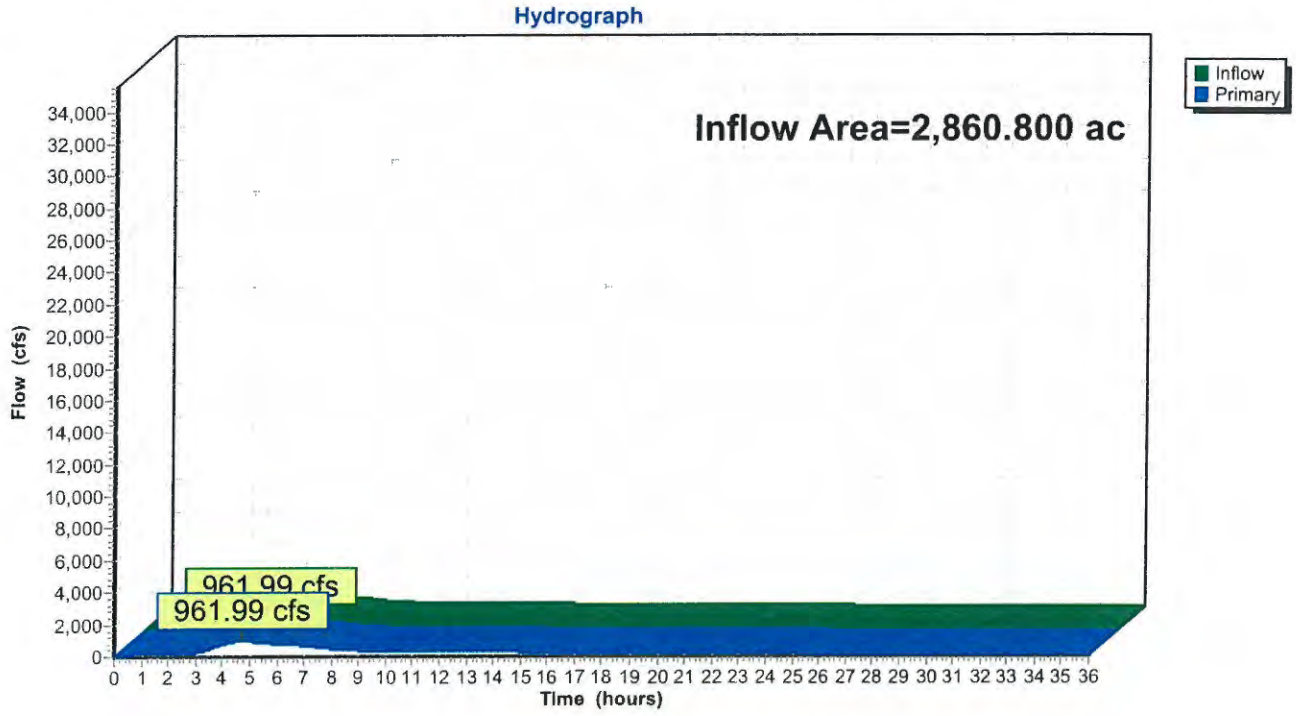


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.49" for 6-HR 0.22 PMF event
Inflow = 961.99 cfs @ 4.69 hrs, Volume= 832.766 af
Primary = 961.99 cfs @ 4.70 hrs, Volume= 832.766 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed



Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.69" for 6-HR 0.22 PMF event
Inflow = 3,133.13 cfs @ 6.50 hrs, Volume= 2,119.347 af
Outflow = 2,858.31 cfs @ 7.26 hrs, Volume= 2,118.658 af, Atten= 9%, Lag= 45.3 min
Primary = 2,858.31 cfs @ 7.26 hrs, Volume= 2,118.658 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,001.65' @ 7.26 hrs Surf.Area= 10.050 ac Storage= 122.580 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 15.9 min calculated for 2,118.069 af (100% of inflow)
Center-of-Mass det. time= 15.4 min (746.4 - 731.0)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

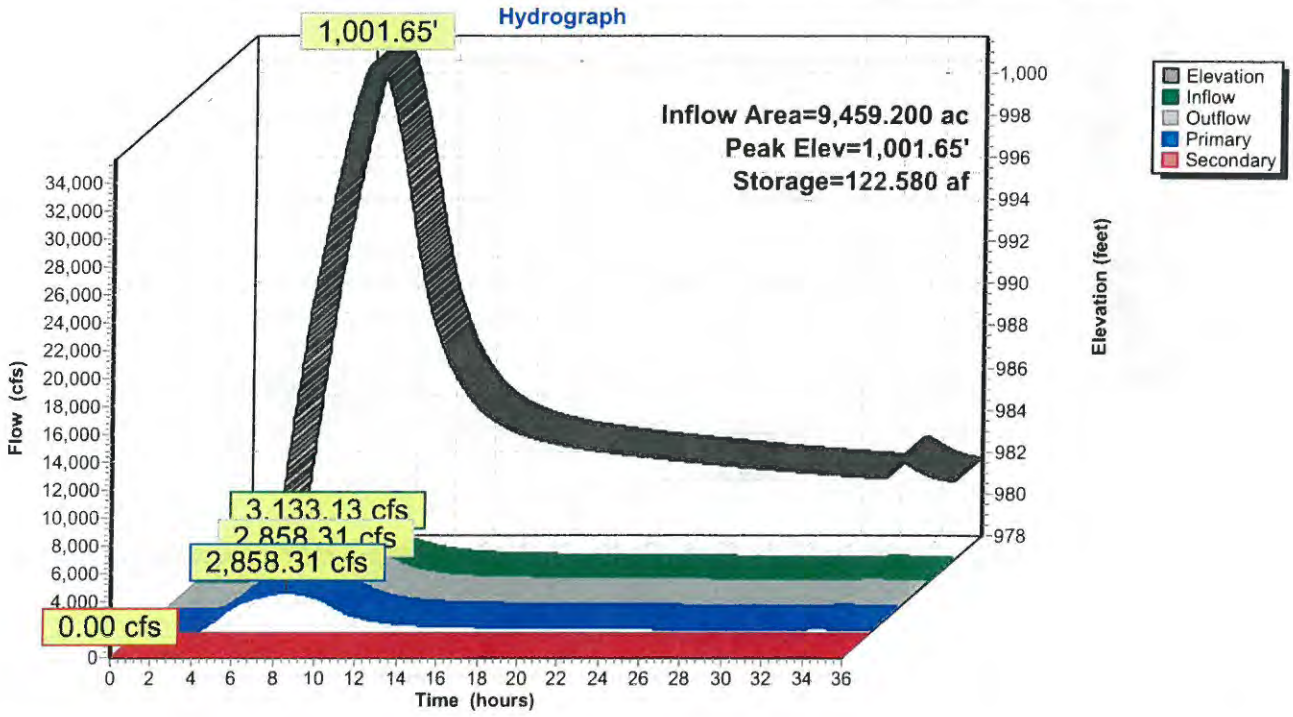
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

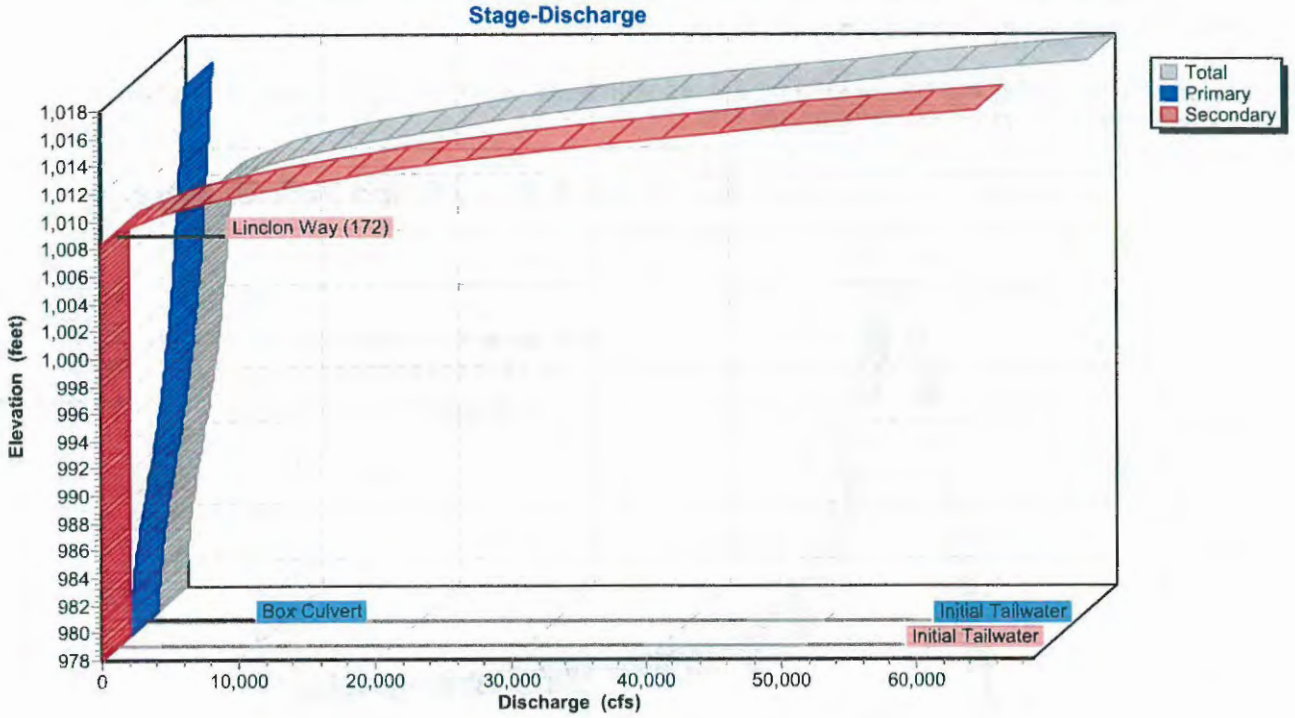
Primary OutFlow Max=2,858.30 cfs @ 7.26 hrs HW=1,001.65' TW=984.05' (Dynamic Tailwater)
└**1=Box Culvert** (Inlet Controls 2,858.30 cfs @ 25.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└**2=Linclon Way (172)** (Controls 0.00 cfs)

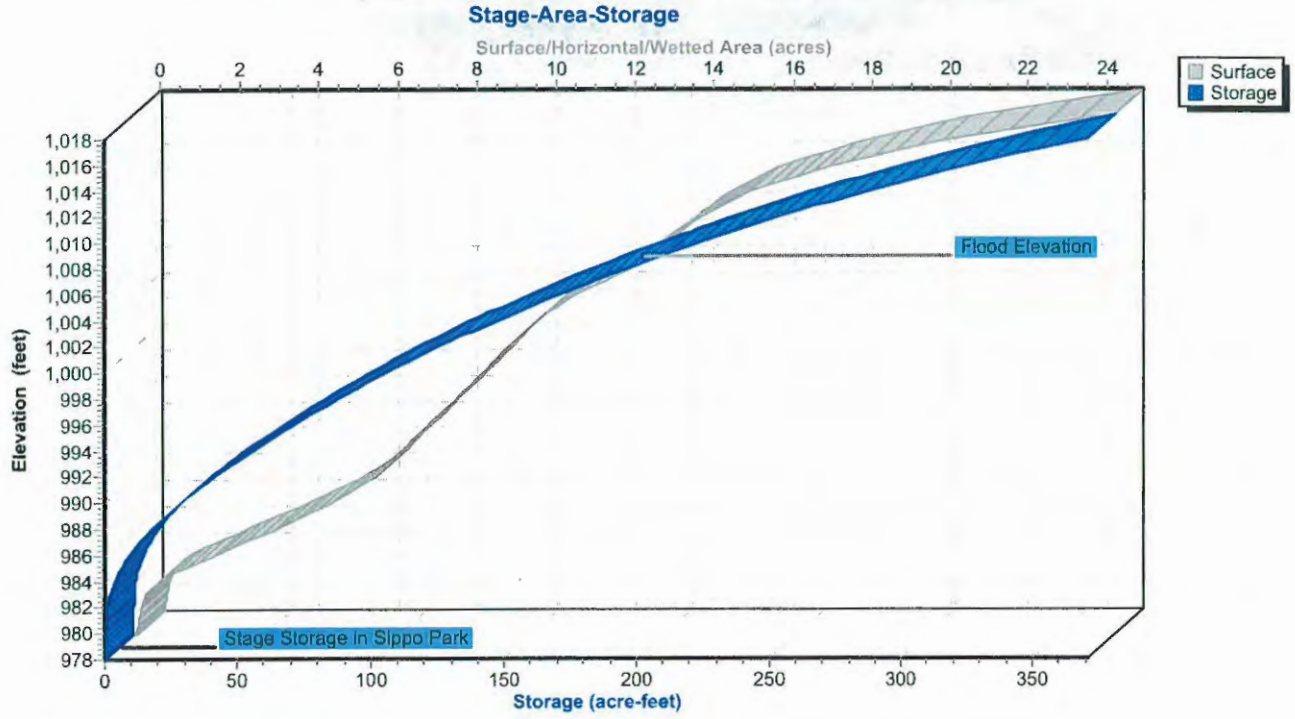
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

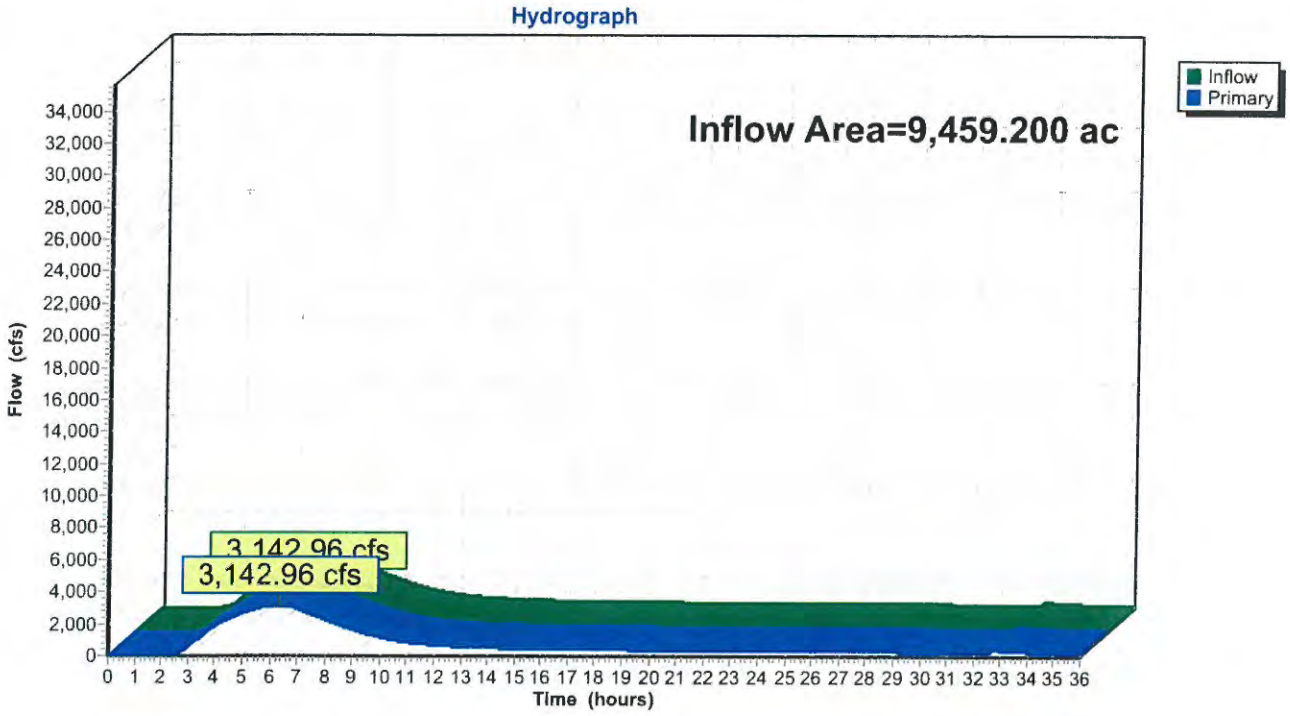


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.70" for 6-HR 0.22 PMF event
Inflow = 3,142.96 cfs @ 6.33 hrs, Volume= 2,130.749 af
Primary = 3,142.96 cfs @ 6.34 hrs, Volume= 2,130.749 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 19C: Confluence 19



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment HYD 1: Lake Eric Drainage Runoff Area=115.200 ac 0.00% Impervious Runoff Depth=3.21"
Tc=44.0 min CN=74 Runoff=169.36 cfs 30.817 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=3.31"
Tc=65.0 min CN=75 Runoff=365.35 cfs 74.091 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=2.83"
Tc=226.0 min CN=70 Runoff=867.83 cfs 330.429 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=2.64"
Tc=128.0 min CN=68 Runoff=840.70 cfs 236.893 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=2.55"
Tc=129.0 min CN=67 Runoff=580.20 cfs 164.735 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=3.21"
Tc=110.0 min CN=74 Runoff=757.48 cfs 193.463 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=3.31"
Tc=72.0 min CN=75 Runoff=964.57 cfs 202.868 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=3.81"
Tc=78.0 min CN=80 Runoff=1,003.20 cfs 215.298 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=2.74"
Tc=155.0 min CN=69 Runoff=782.36 cfs 243.686 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=3.31"
Tc=156.0 min CN=75 Runoff=1,764.34 cfs 541.569 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=2.55"
Tc=151.0 min CN=67 Runoff=449.45 cfs 138.867 af

Reach 5R: Channel 5 Avg. Flow Depth=3.06' Max Vel=6.02 fps Inflow=348.23 cfs 643.528 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=347.61 cfs 638.264 af

Reach 7R: Channel 7 Avg. Flow Depth=8.23' Max Vel=3.17 fps Inflow=1,031.75 cfs 874.956 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=977.56 cfs 866.365 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=3.78' Max Vel=2.85 fps Inflow=189.22 cfs 312.717 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=189.19 cfs 311.957 af

Reach 15R: Channel 15 Avg. Flow Depth=8.60' Max Vel=2.15 fps Inflow=2,776.27 cfs 1,724.965 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=2,344.57 cfs 1,692.905 af

Reach 16R: Channel 16 Avg. Flow Depth=10.56' Max Vel=2.63 fps Inflow=3,134.58 cfs 2,088.864 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=3,048.98 cfs 2,065.707 af

Reach 18R: Sippo Creek Avg. Flow Depth=6.04' Max Vel=9.57 fps Inflow=3,025.00 cfs 2,267.722 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=3,024.99 cfs 2,267.600 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=416.46 cfs 104.797 af
Primary=416.46 cfs 104.797 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,007.39' Storage=130.704 af Inflow=3,395.92 cfs 2,280.604 af
3.59 cfs 1,921.684 af Secondary=1,128.13 cfs 347.250 af Tertiary=0.00 cfs 0.000 af Outflow=3,378.21 cfs 2,268.934 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=1,036.02 cfs 434.729 af
Primary=1,036.02 cfs 434.729 af

Pond 3P: Lake Cable Peak Elev=1,098.12' Storage=2,082.700 af Inflow=1,036.02 cfs 434.728 af
Primary=348.23 cfs 643.628 af Secondary=0.00 cfs 0.000 af Outflow=348.23 cfs 643.628 af

Pond 4C: Confluence 4 Inflow=1,758.53 cfs 1,109.949 af
Primary=1,758.53 cfs 1,109.949 af

Pond 4P: Lake O'Springs Peak Elev=1,107.91' Storage=77.895 af Inflow=416.46 cfs 104.797 af
Primary=169.19 cfs 104.301 af Secondary=0.00 cfs 0.000 af Outflow=169.19 cfs 104.301 af

Pond 5C: Confluence 5 Inflow=2,312.99 cfs 1,274.583 af
Primary=2,312.99 cfs 1,274.583 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.03' Storage=27.621 af Inflow=169.36 cfs 30.817 af
Primary=85.48 cfs 30.643 af Secondary=2.30 cfs 0.064 af Outflow=87.78 cfs 30.706 af

Pond 6C: Confluence 6 Inflow=484.81 cfs 450.744 af
Primary=484.81 cfs 450.744 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=2,776.27 cfs 1,725.146 af
Primary=2,776.27 cfs 1,725.146 af

Pond 8C: Confluence 8 Inflow=3,134.58 cfs 2,089.051 af
Primary=3,134.58 cfs 2,089.051 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,025.29' Storage=349.007 af Inflow=1,409.61 cfs 448.734 af
Primary=126.92 cfs 289.234 af Secondary=68.00 cfs 23.563 af Outflow=189.22 cfs 312.797 af

Pond 9P: Sippo Lake Peak Elev=1,029.14' Storage=425.900 af Inflow=1,764.34 cfs 541.569 af
mary=1,409.61 cfs 448.734 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,409.61 cfs 448.734 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Inflow=1,031.75 cfs 875.056 af
Primary=1,031.75 cfs 875.056 af

Pond 16P: Lincoln Way Box Peak Elev=1,003.81' Storage=145.267 af Inflow=3,378.21 cfs 2,268.724 af
Primary=3,025.00 cfs 2,267.934 af Secondary=0.00 cfs 0.000 af Outflow=3,025.00 cfs 2,267.934 af

Pond 19C: Confluence 19 Inflow=3,395.92 cfs 2,280.804 af
Primary=3,395.92 cfs 2,280.804 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 2,372.716 af Average Runoff Depth = 3.01"
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

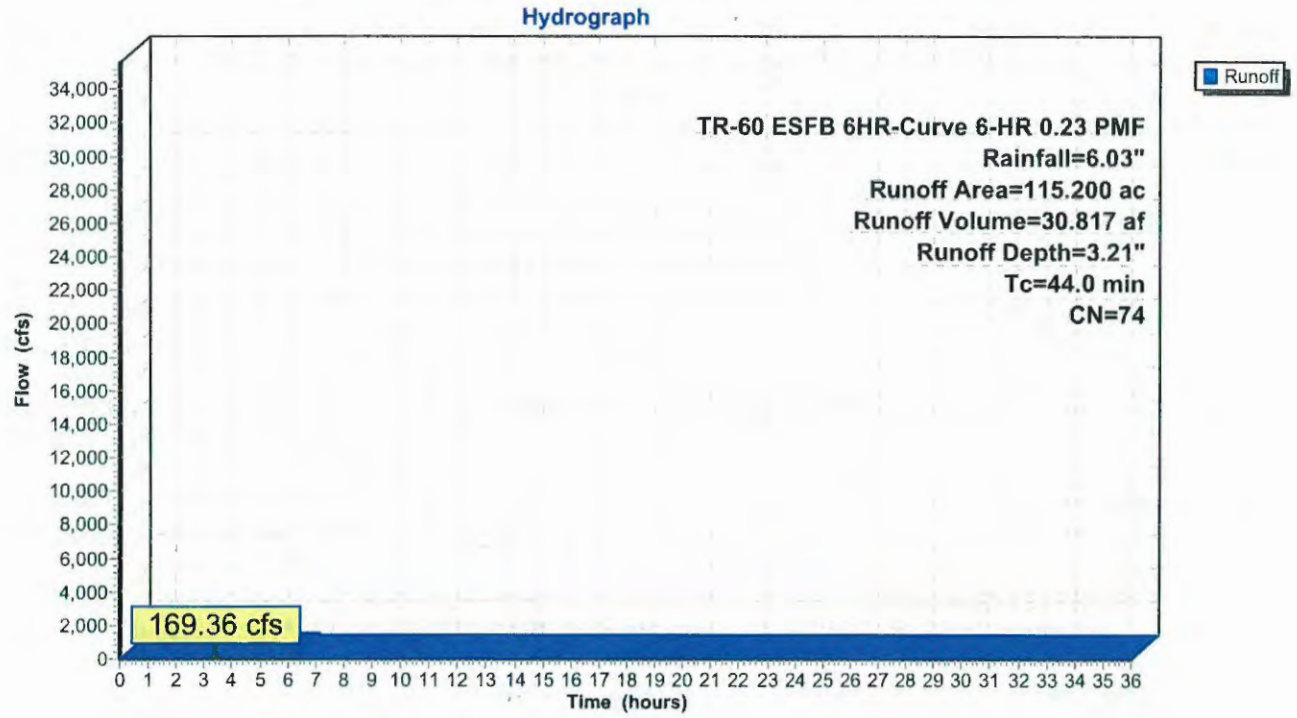
Runoff = 169.36 cfs @ 3.37 hrs, Volume= 30.817 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
115.200	74	>75% Grass cover, Good, HSG C
115.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0					**Direct Entry, HEC-1 Lag Time = 0.44 hr**

Subcatchment HYD 1: Lake Eric Drainage Area



Summary for Subcatchment HYD 2: Lake O'Springs Watershed

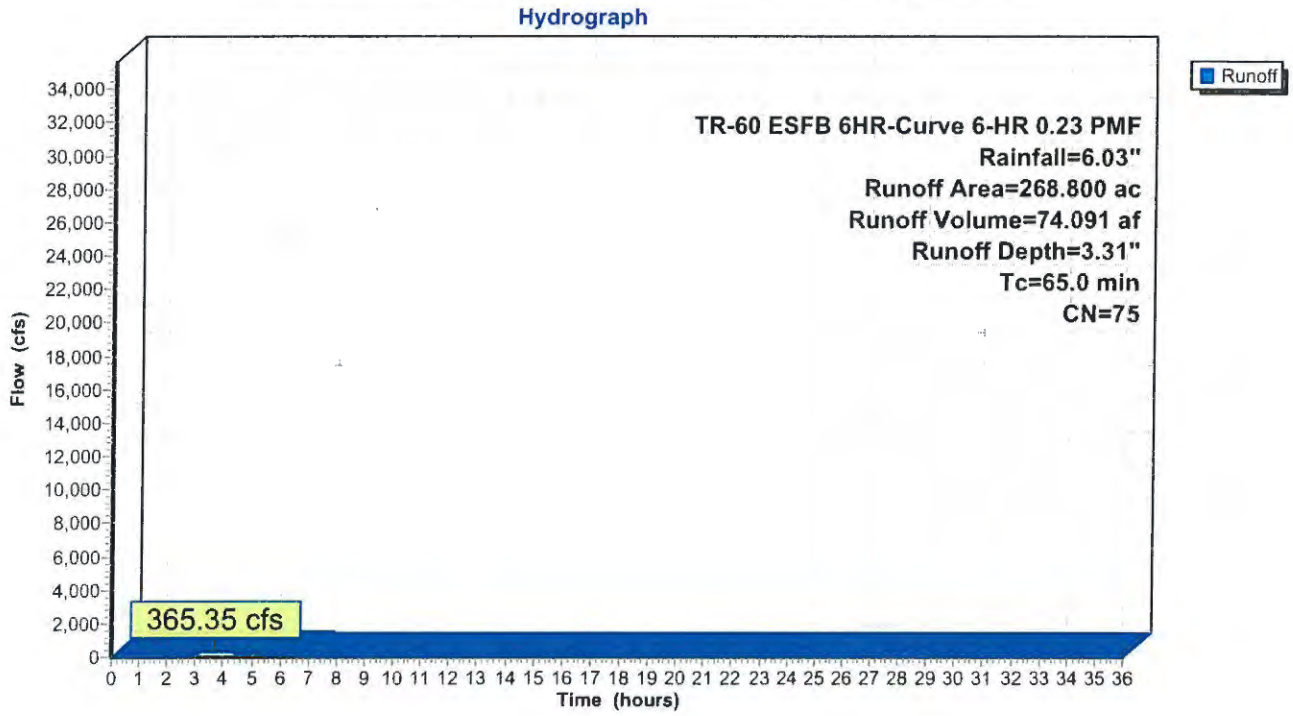
Runoff = 365.35 cfs @ 3.68 hrs, Volume= 74.091 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
268.800	75	1/4 acre lots, 38% imp, HSG B
166.656		62.00% Pervious Area
102.144		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0					**Direct Entry, HEC-1 Lag Time = 0.65 hours**

Subcatchment HYD 2: Lake O'Springs Watershed



Summary for Subcatchment HYD 3: Lake Cable Watershed

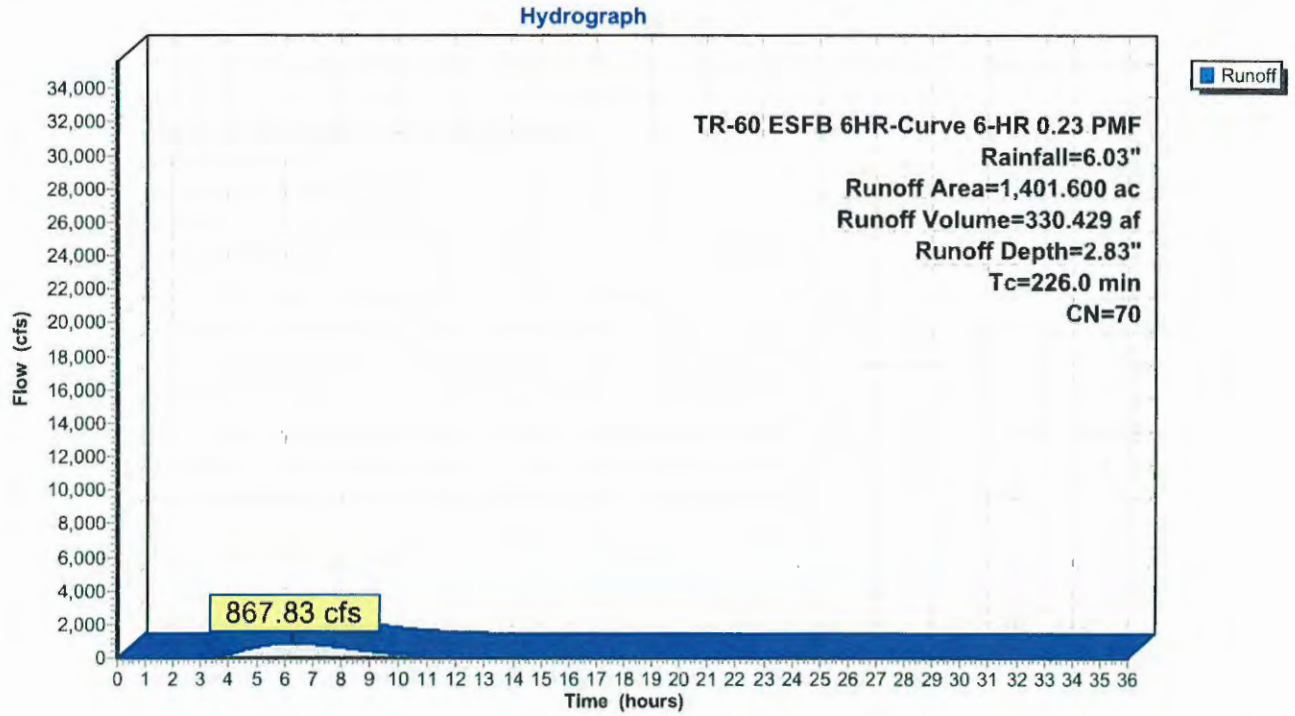
Runoff = 867.83 cfs @ 6.28 hrs, Volume= 330.429 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
1,401.600	70	1/2 acre lots, 25% imp, HSG B
1,051.200		75.00% Pervious Area
350.400		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
226.0					**Direct Entry, HEC-1 Lag time 2.26hr**

Subcatchment HYD 3: Lake Cable Watershed



Summary for Subcatchment HYD 4: Hyd 4 Watershed

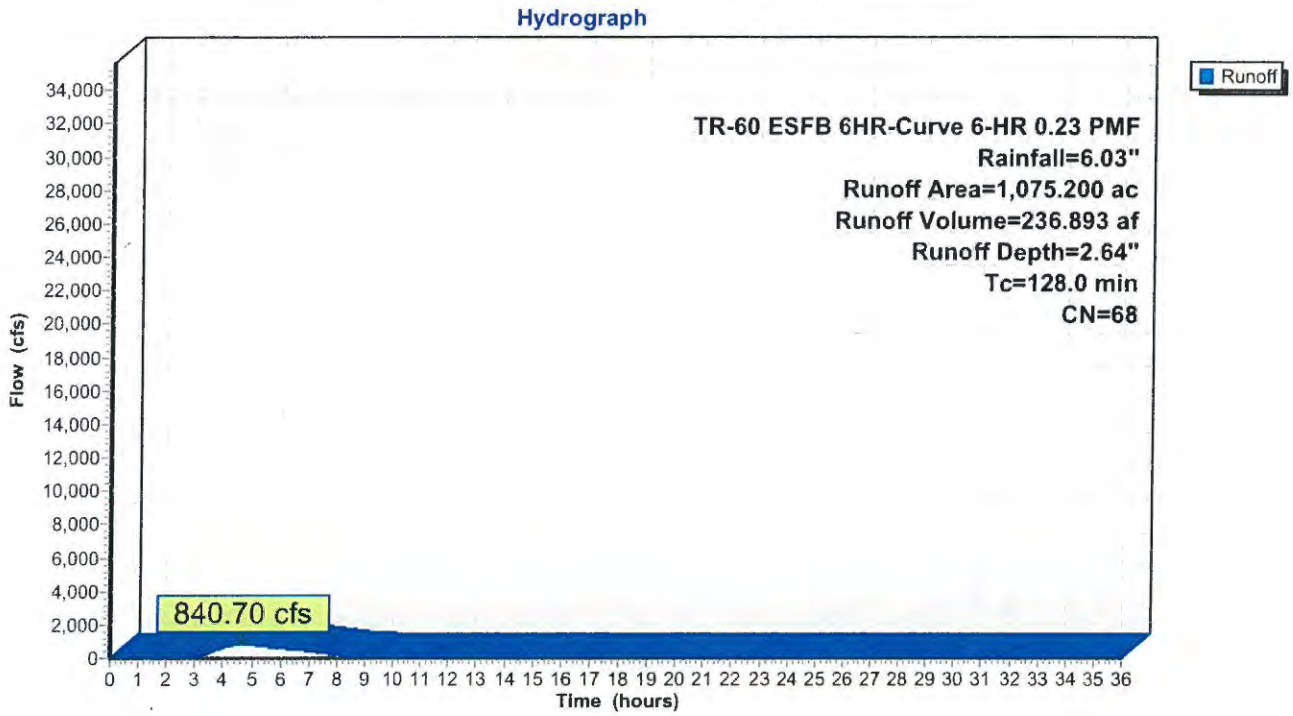
Runoff = 840.70 cfs @ 4.69 hrs, Volume= 236.893 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
1,075.200	68	1 acre lots, 20% imp, HSG B
860.160		80.00% Pervious Area
215.040		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
128.0					**Direct Entry, HEC-1 Lag Time = 1.28 hr**

Subcatchment HYD 4: Hyd 4 Watershed



Summary for Subcatchment HYD11: HYD11 Watershed

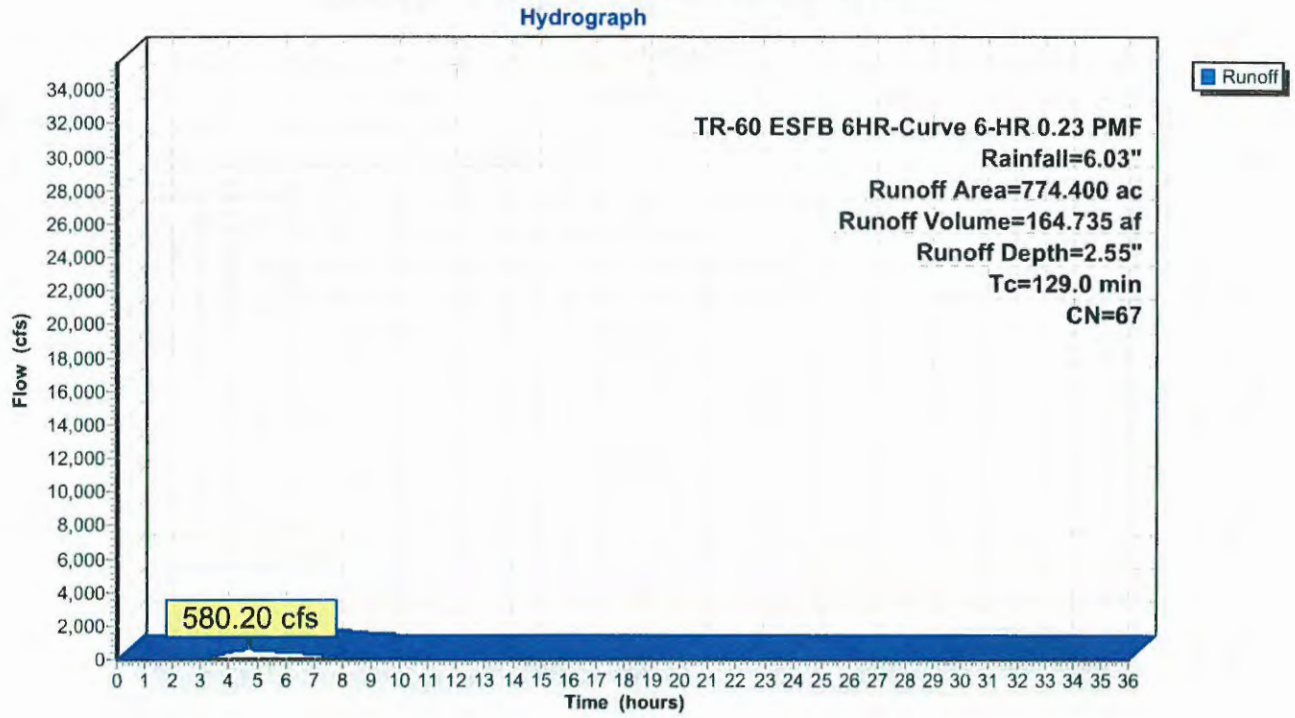
Runoff = 580.20 cfs @ 4.73 hrs, Volume= 164.735 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

	Area (ac)	CN	Description
*	774.400	67	
	774.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
129.0					**Direct Entry, HEC-1 Lag Time = 1.29 hr**

Subcatchment HYD11: HYD11 Watershed



Summary for Subcatchment HYD12: HYD12 Watershed

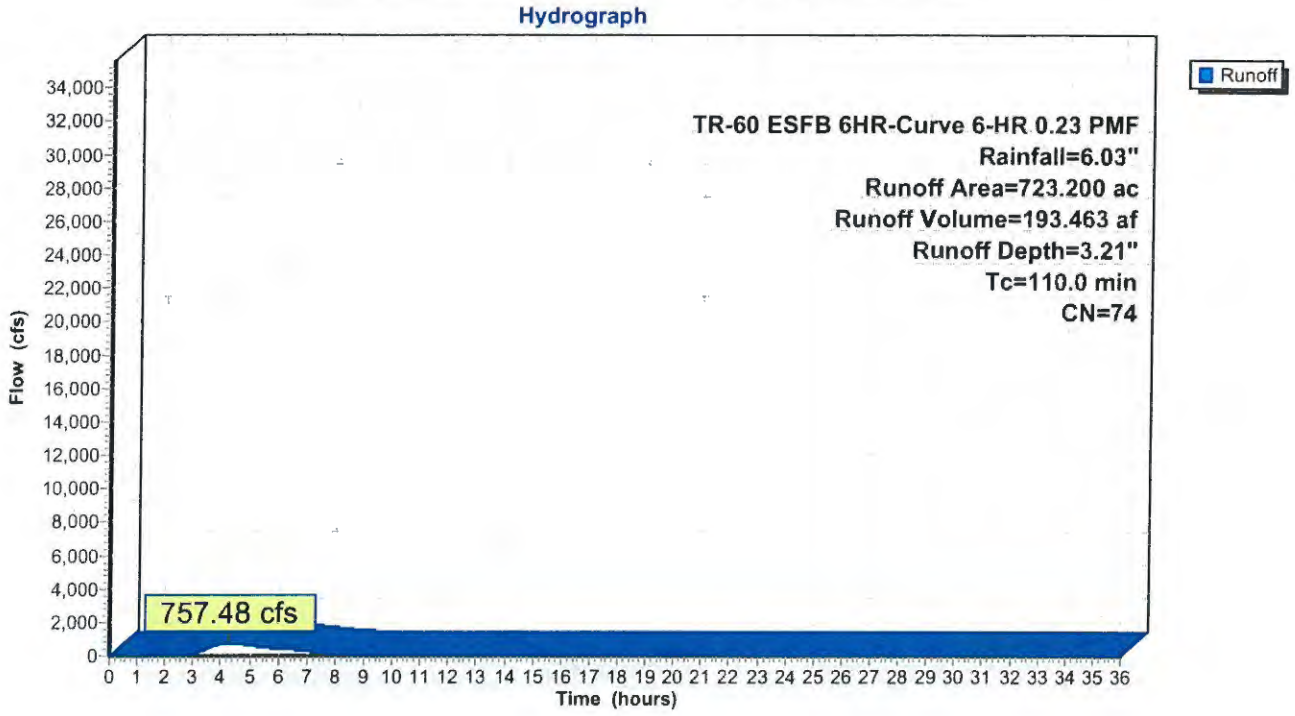
Runoff = 757.48 cfs @ 4.28 hrs, Volume= 193.463 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
723.200	74	>75% Grass cover, Good, HSG C
723.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
110.0					**Direct Entry, HEC-1 Lag Time = 1.10 hr**

Subcatchment HYD12: HYD12 Watershed



Summary for Subcatchment HYD13: HYD13 Watershed

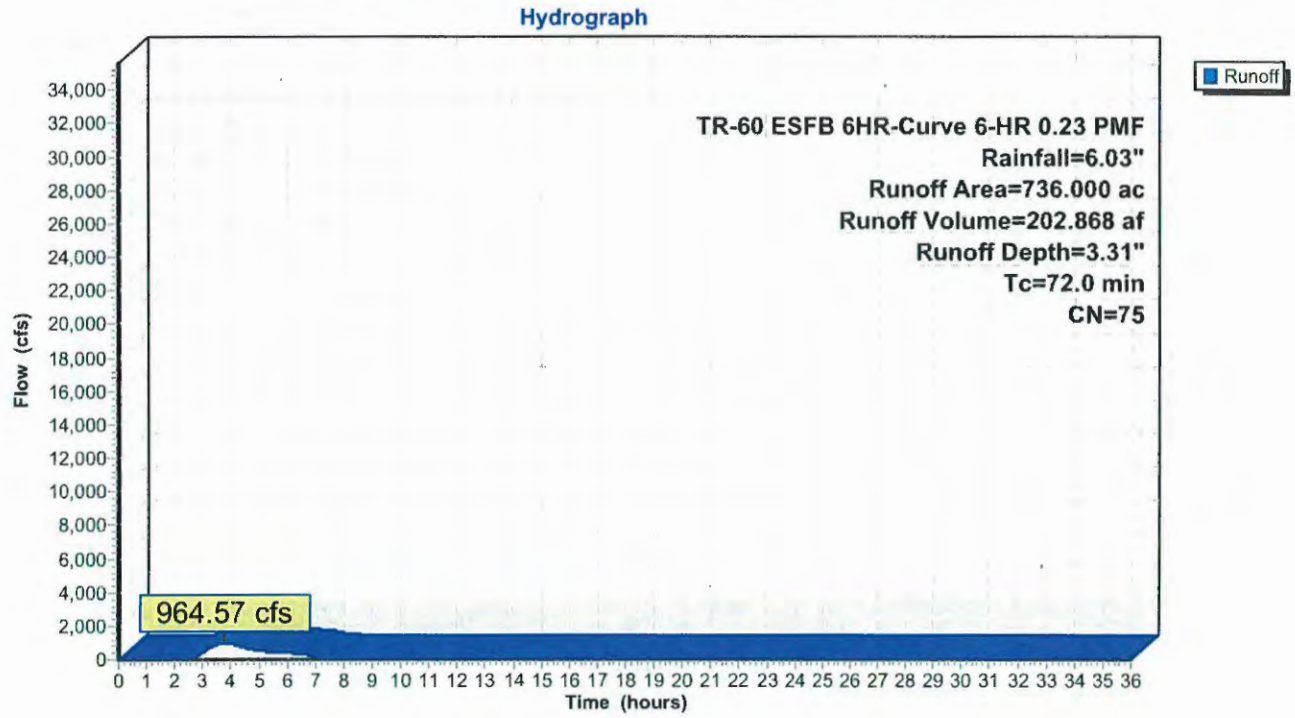
Runoff = 964.57 cfs @ 3.76 hrs, Volume= 202.868 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
736.000	75	1/4 acre lots, 38% imp, HSG B
456.320		62.00% Pervious Area
279.680		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0					**Direct Entry, HEC-1 Lag Time = 0.72 hr**

Subcatchment HYD13: HYD13 Watershed



Summary for Subcatchment HYD14: HYD14 Watershed

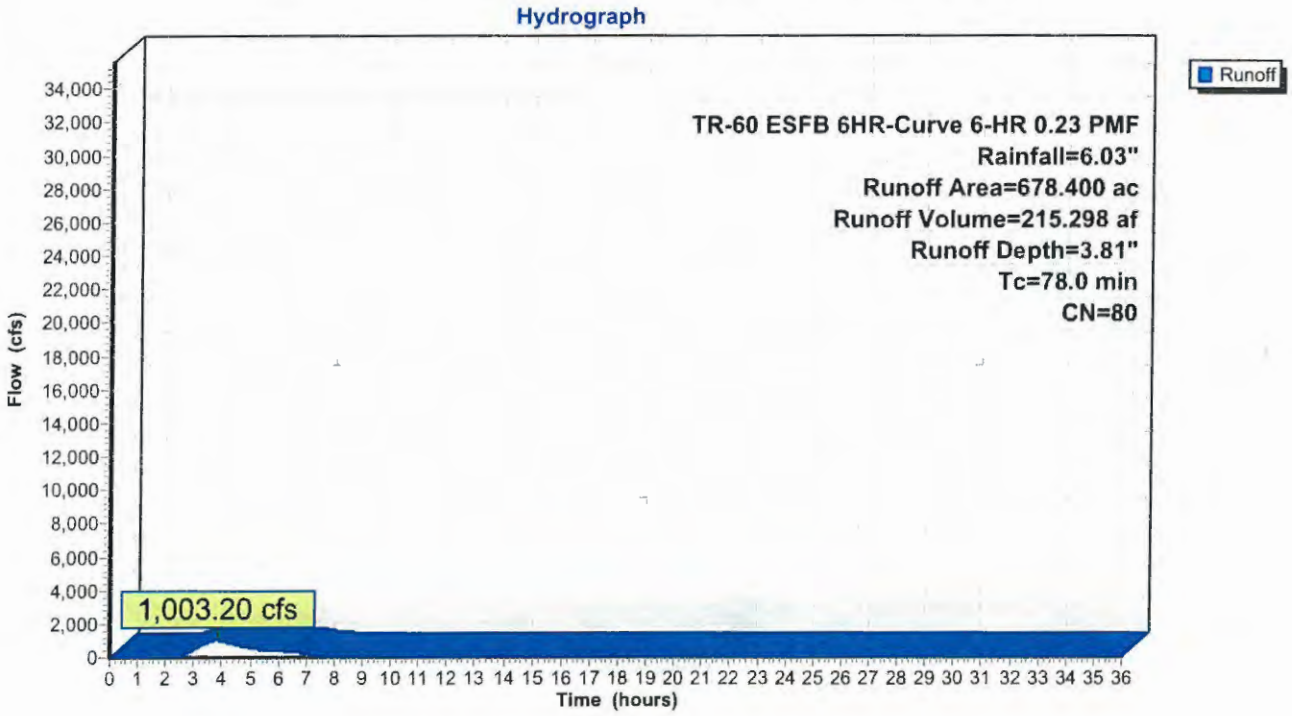
Runoff = 1,003.20 cfs @ 3.81 hrs, Volume= 215.298 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
678.400	80	1/2 acre lots, 25% imp, HSG C
508.800		75.00% Pervious Area
169.600		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
78.0					**Direct Entry, HEC-1 Lag Time = 0.78 hr**

Subcatchment HYD14: HYD14 Watershed



Summary for Subcatchment HYD6: HYD6 Watershed

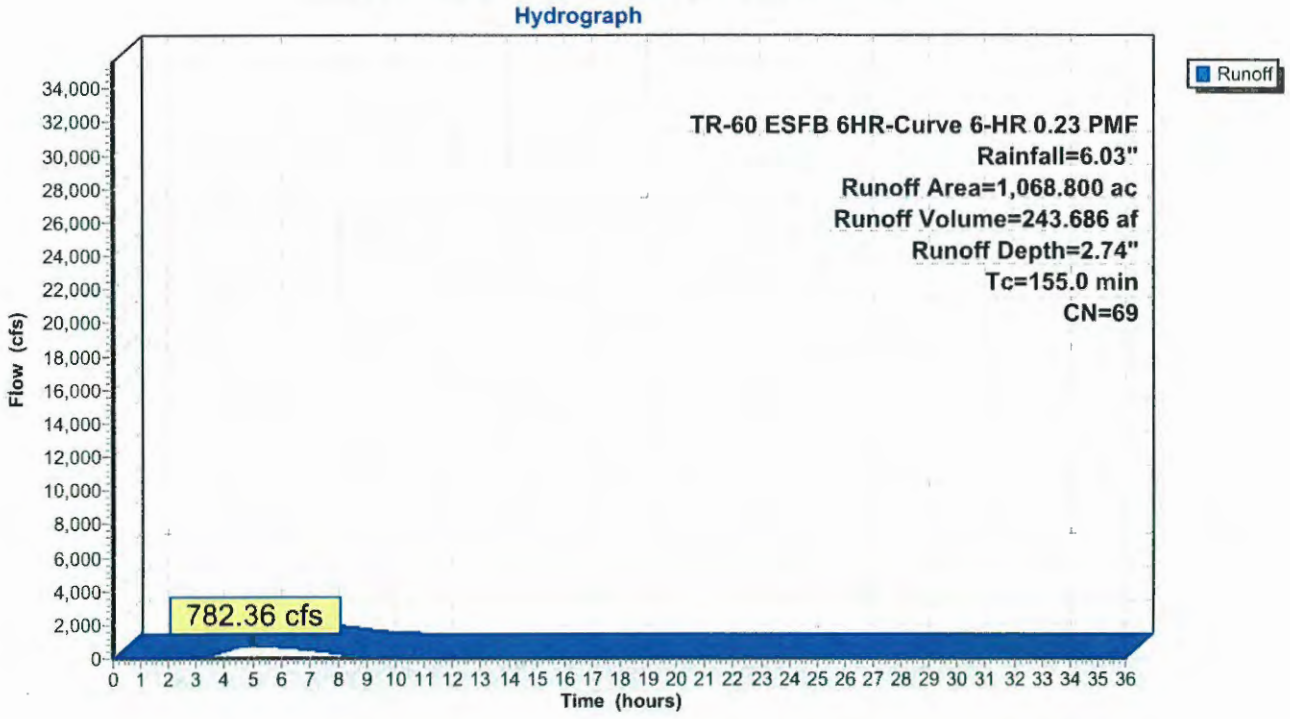
Runoff = 782.36 cfs @ 5.00 hrs, Volume= 243.686 af, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
1,068.800	69	Pasture/grassland/range, Fair, HSG B
1,068.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
155.0					**Direct Entry, HEC-1 Lag Time = 1.55 hr**

Subcatchment HYD6: HYD6 Watershed



Summary for Subcatchment HYD8: Sippo Lake Watershed

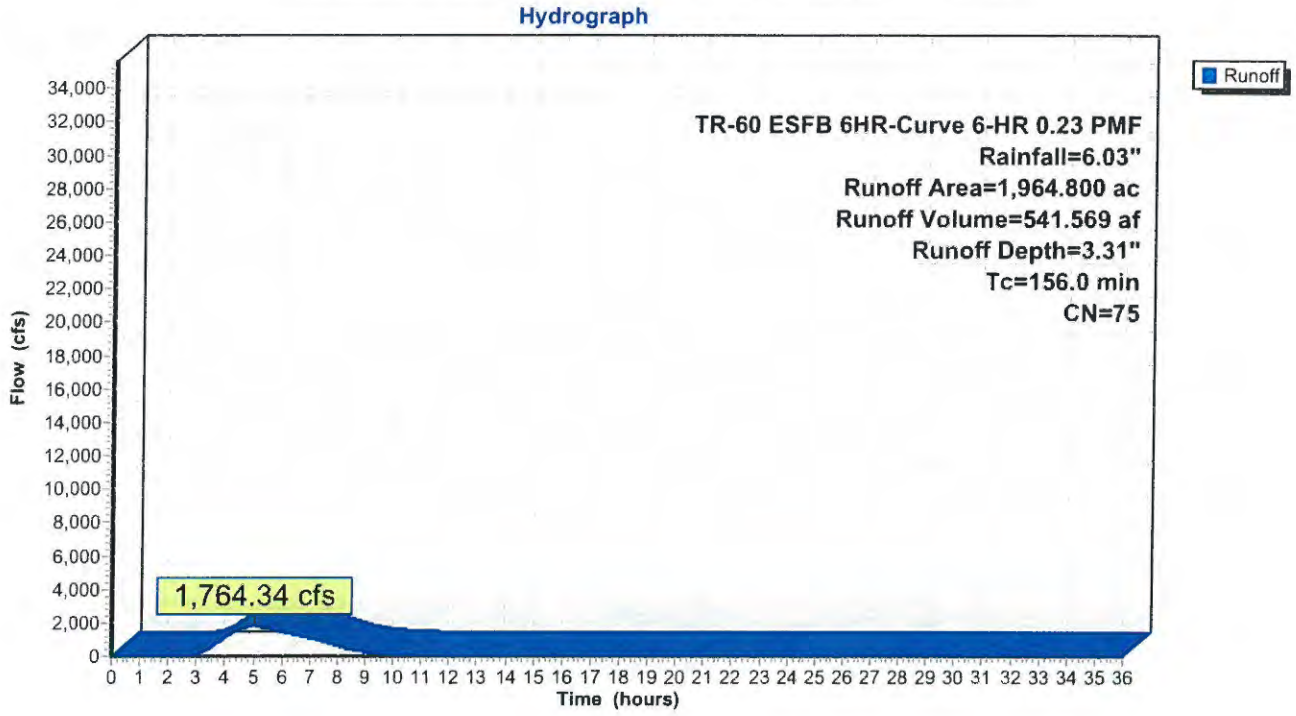
Runoff = 1,764.34 cfs @ 5.03 hrs, Volume= 541.569 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

Area (ac)	CN	Description
1,964.800	75	1/4 acre lots, 38% imp, HSG B
1,218.176		62.00% Pervious Area
746.624		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
156.0					**Direct Entry, HEC-1 Lag Time = 1.56hr**

Subcatchment HYD8: Sippo Lake Watershed



Summary for Subcatchment HYD9: HYD9 Watershed

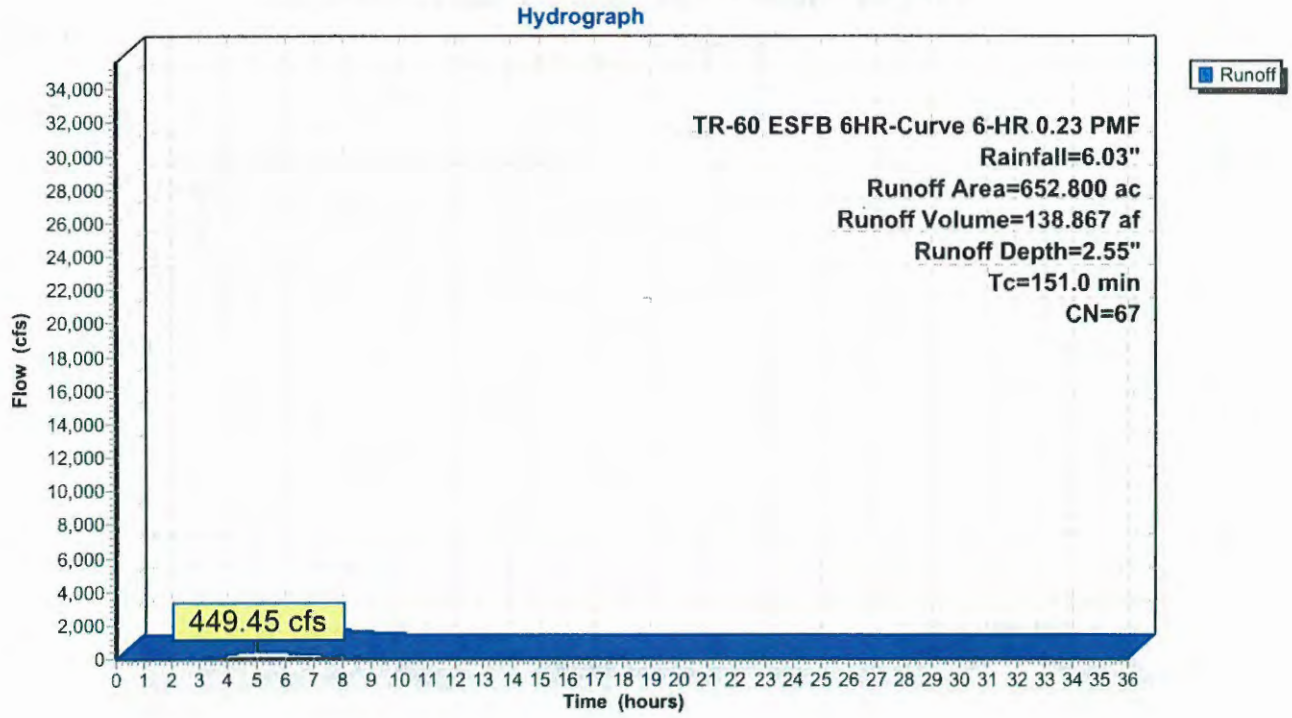
Runoff = 449.45 cfs @ 5.04 hrs, Volume= 138.867 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.23 PMF Rainfall=6.03"

	Area (ac)	CN	Description
*	652.800	67	
	652.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
151.0					**Direct Entry, HEC-1 Lag Time = 1.51hr**

Subcatchment HYD9: HYD9 Watershed



Summary for Reach 5R: Channel 5

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 4.32" for 6-HR 0.23 PMF event
Inflow = 348.23 cfs @ 9.67 hrs, Volume= 643.528 af
Outflow = 347.61 cfs @ 9.99 hrs, Volume= 638.264 af, Atten= 0%, Lag= 19.4 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.02 fps, Min. Travel Time= 24.4 min
Avg. Velocity = 5.24 fps, Avg. Travel Time= 28.0 min

Peak Storage= 508,114 cf @ 9.99 hrs
Average Depth at Peak Storage= 3.06'
Defined Flood Depth= 16.00', Capacity at Flood Depth= 106,015.62 cfs
Bank-Full Depth= 16.00', Capacity at Bank-Full= 106,015.62 cfs

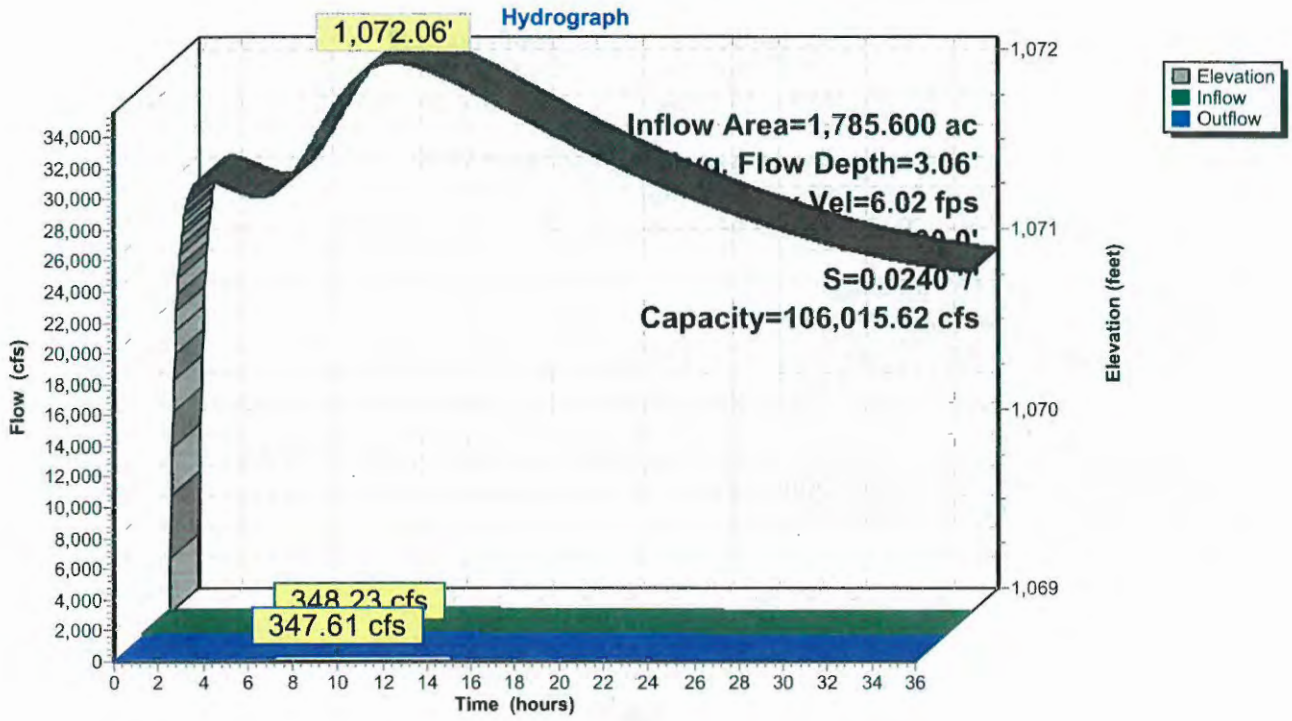
Custom cross-section, Length= 8,800.0' Slope= 0.0240 '/' (102 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,069.00', Outlet Invert= 857.80'

‡

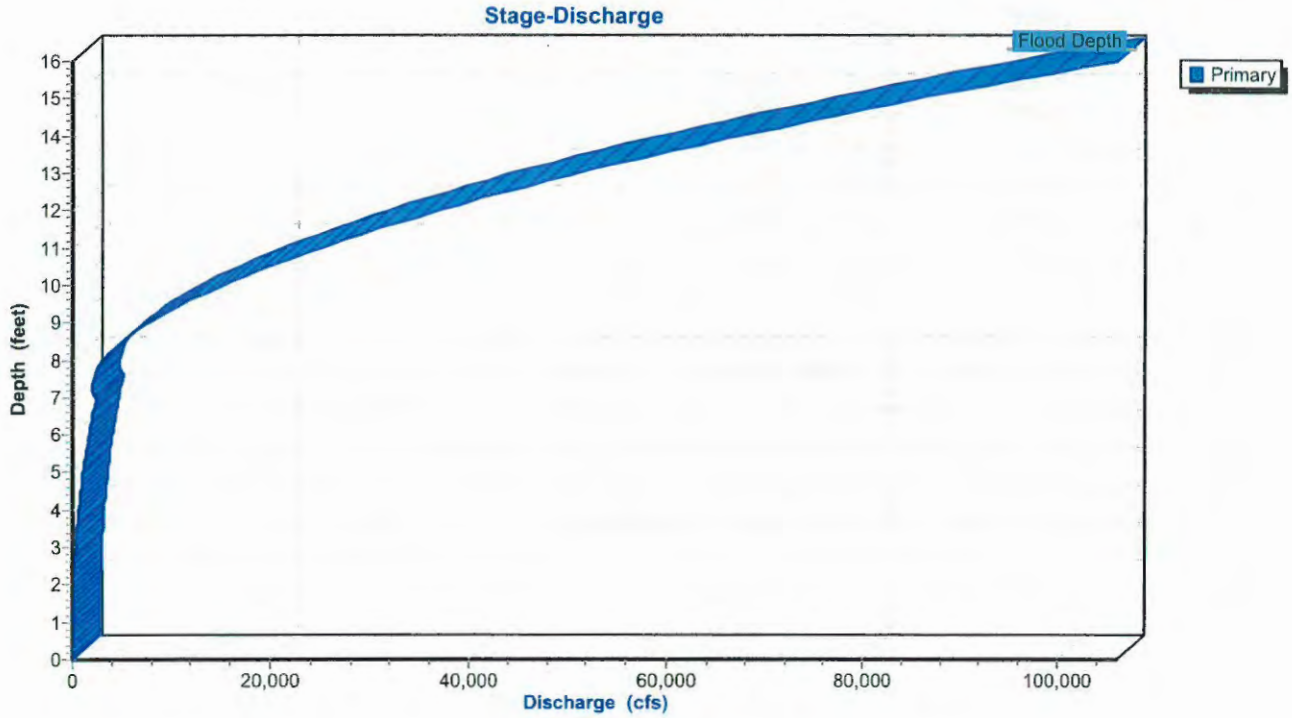
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	6.0	0	0.00
7.00	248.5	66.6	2,186,800	2,476.94
8.00	564.8	569.1	4,969,800	3,087.89
9.00	1,204.8	714.2	10,601,800	7,790.91
16.00	7,198.5	1,002.1	63,346,800	106,015.62

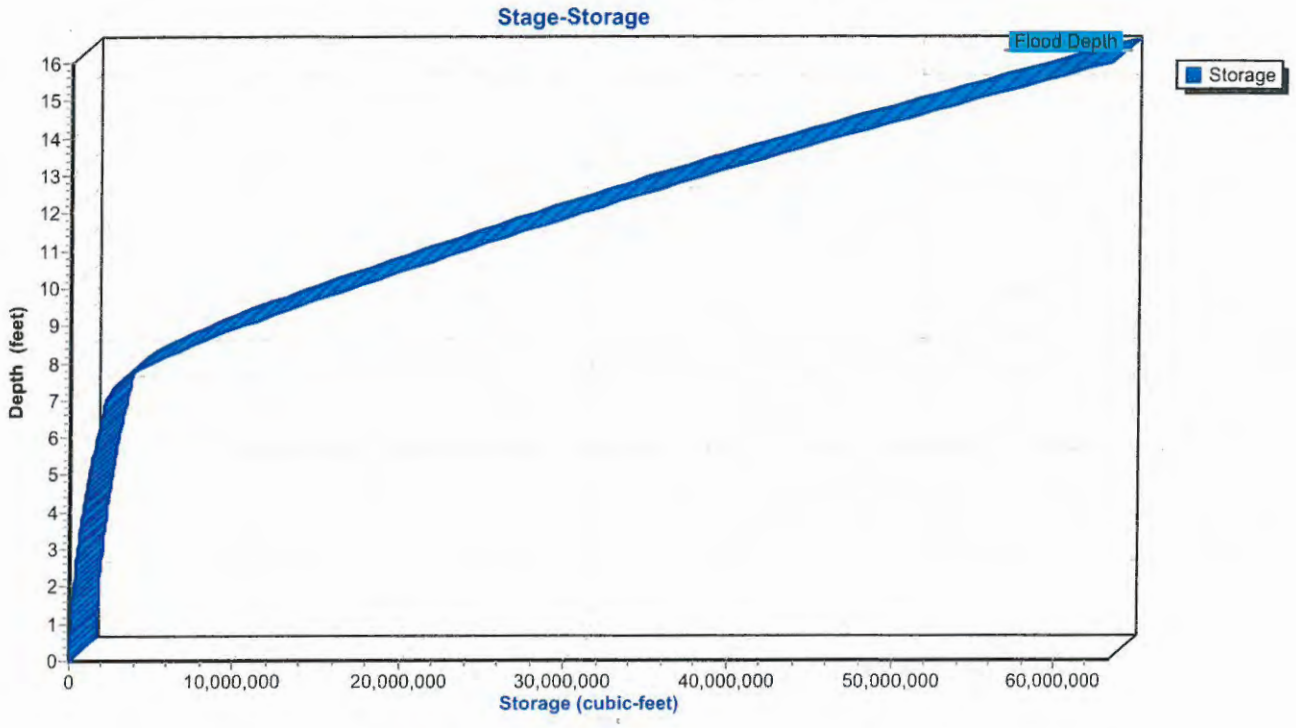
Reach 5R: Channel 5



Reach 5R: Channel 5



Reach 5R: Channel 5



Summary for Reach 7R: Channel 7

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.67" for 6-HR 0.23 PMF event
Inflow = 1,031.75 cfs @ 4.70 hrs, Volume= 874.956 af
Outflow = 977.56 cfs @ 5.18 hrs, Volume= 866.365 af, Atten= 5%, Lag= 28.5 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.17 fps, Min. Travel Time= 31.0 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 43.4 min

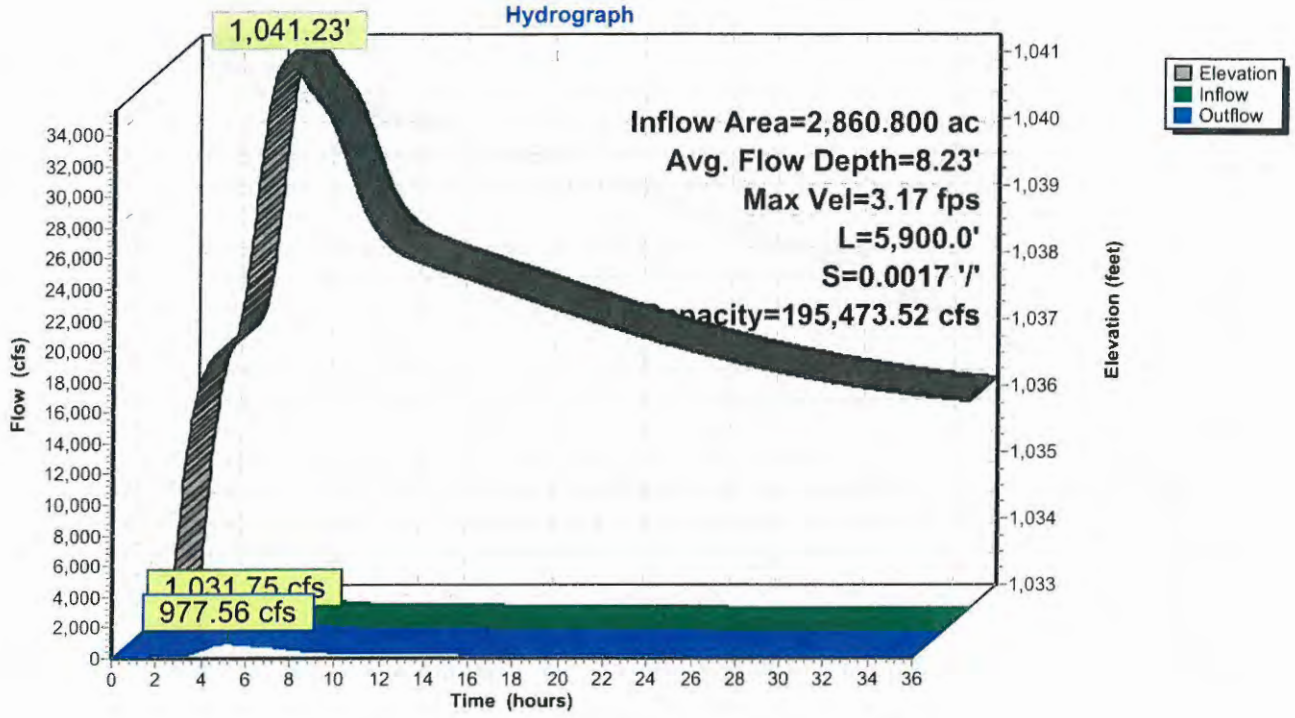
Peak Storage= 1,820,055 cf @ 5.18 hrs
Average Depth at Peak Storage= 8.23'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'

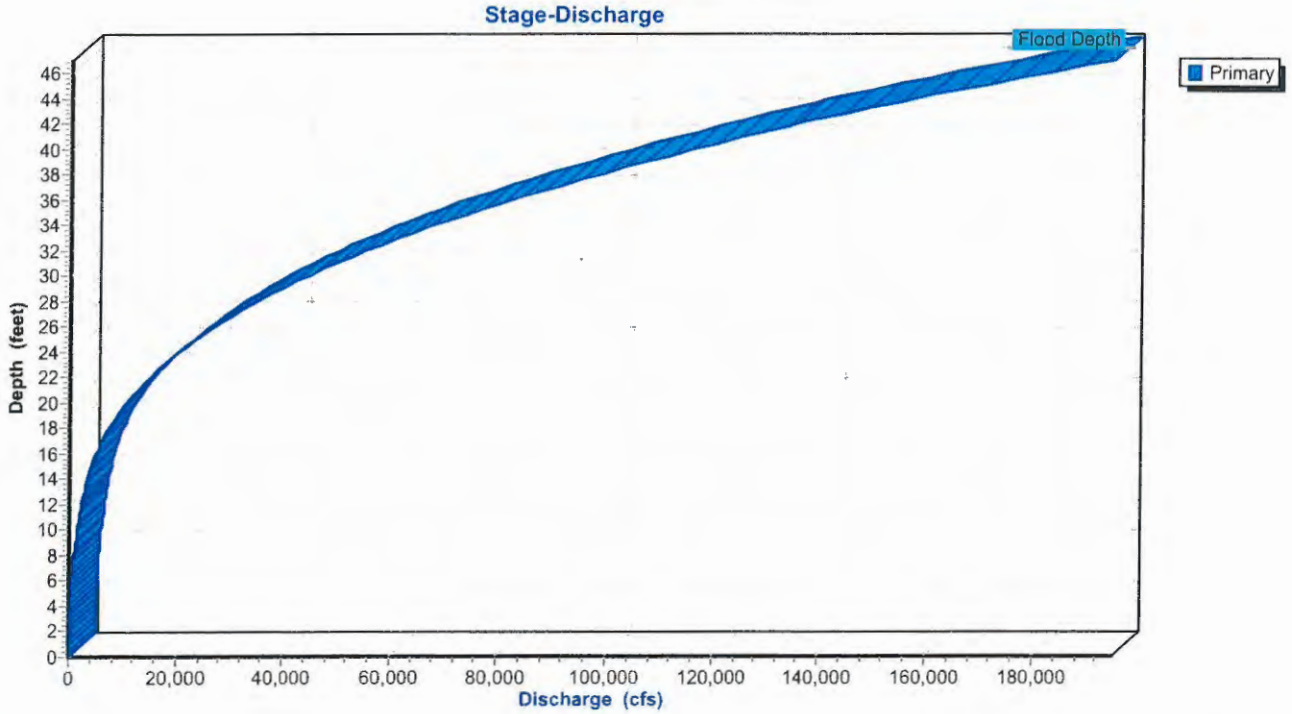
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00	5.00	0.060	
1,005.00	1,080.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
12.00	600.0	93.7	3,540,000	2,349.60
19.00	2,140.0	354.1	12,626,000	8,862.05
32.00	9,417.2	774.5	55,561,326	55,339.93
42.00	18,098.3	972.7	106,780,167	135,620.34
47.00	23,027.5	1,013.5	135,862,250	195,473.52

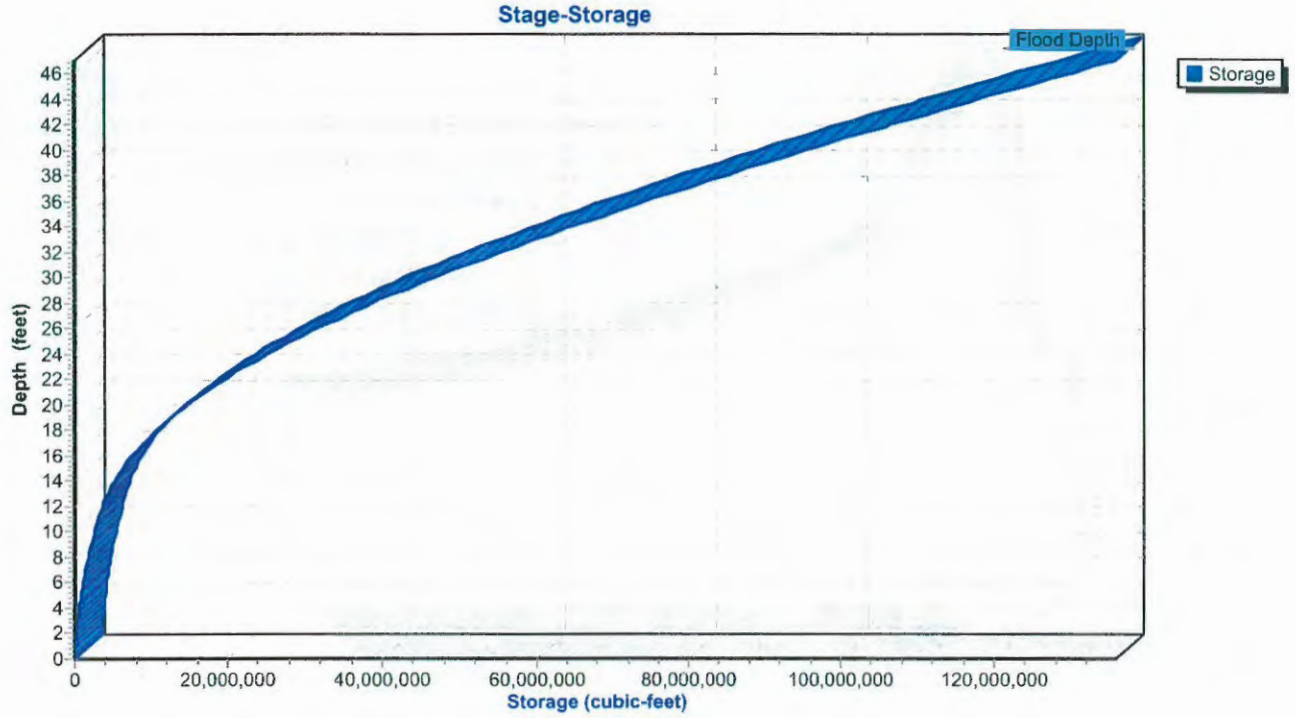
Reach 7R: Channel 7



Reach 7R: Channel 7



Reach 7R: Channel 7



Summary for Reach 10Ra: Channel 10 (Reach West of Genoa Rd)

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 1.91" for 6-HR 0.23 PMF event
Inflow = 189.22 cfs @ 10.81 hrs, Volume= 312.717 af
Outflow = 189.19 cfs @ 10.88 hrs, Volume= 311.957 af, Atten= 0%, Lag= 4.0 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.85 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 2.49 fps, Avg. Travel Time= 6.0 min

Peak Storage= 59,688 cf @ 10.88 hrs
Average Depth at Peak Storage= 3.78'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 36,685.79 cfs
Bank-Full Depth= 15.00', Capacity at Bank-Full= 36,685.79 cfs

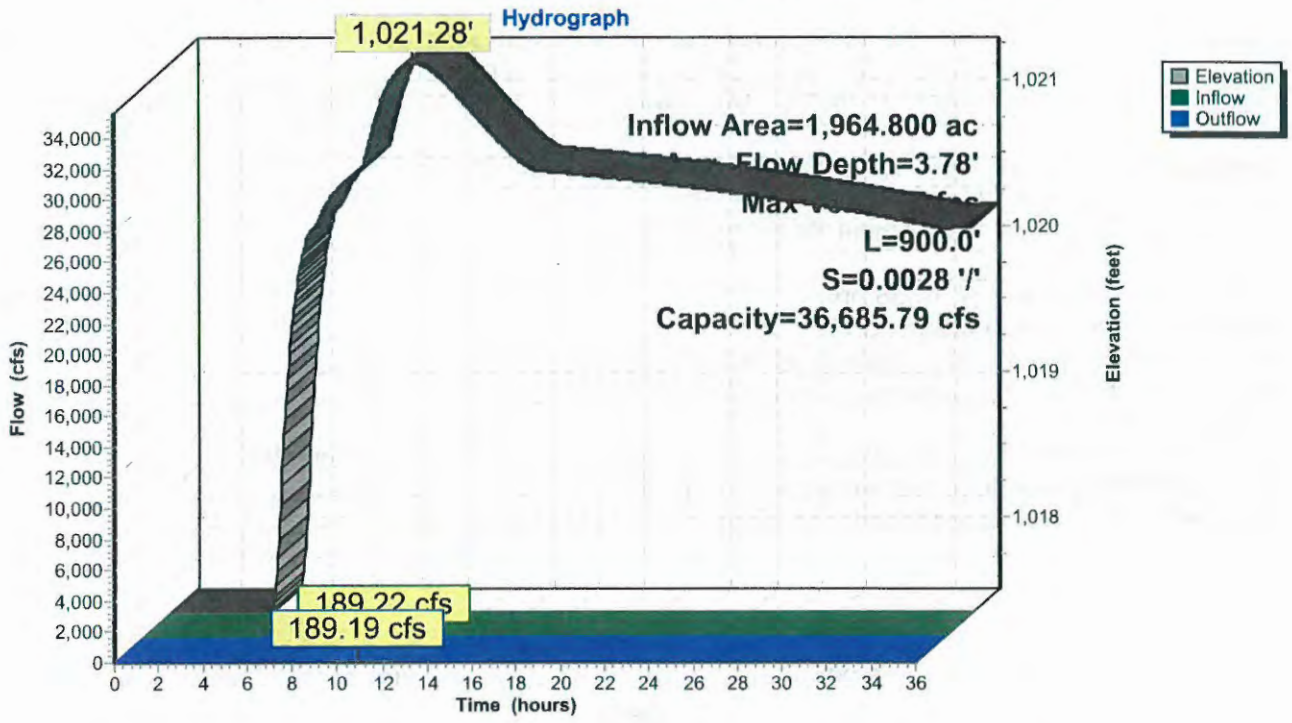
Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

‡

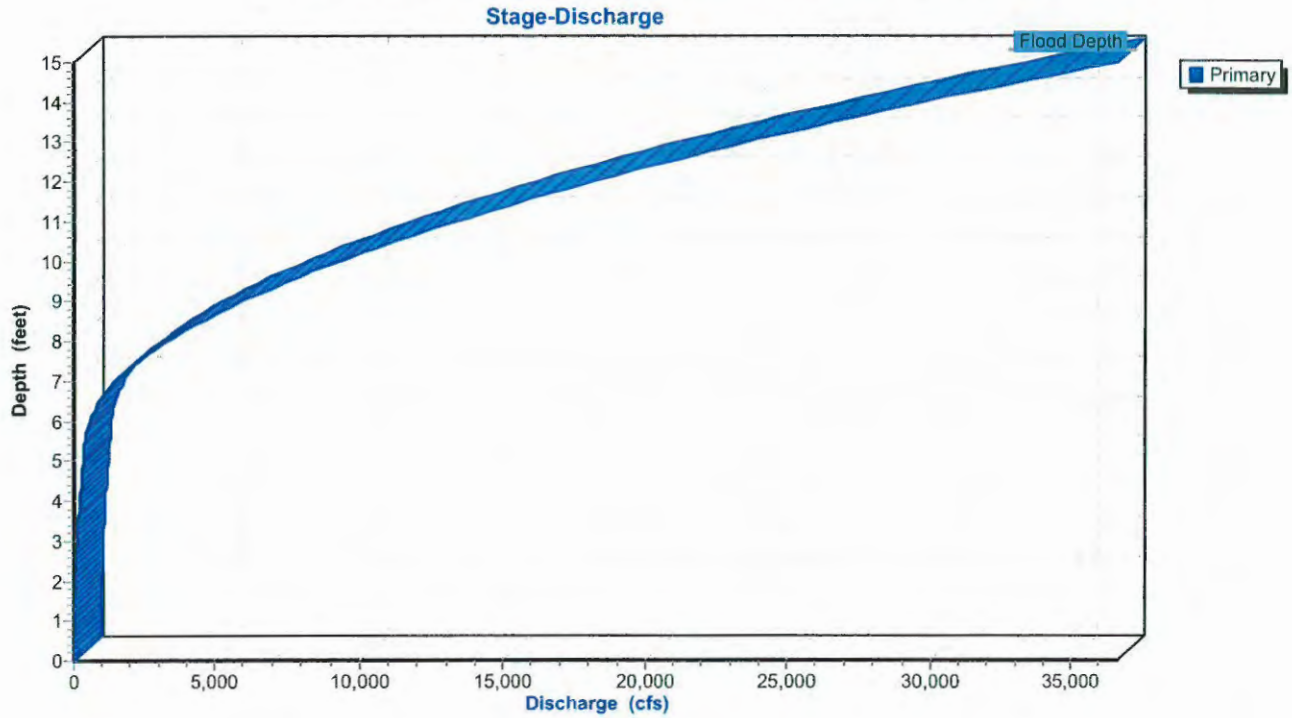
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
5.00	100.0	32.4	90,000	328.73
7.00	760.0	632.4	684,000	1,430.41
10.00	2,876.9	783.7	2,589,188	9,317.36
15.00	7,330.0	1,002.7	6,597,000	36,685.79

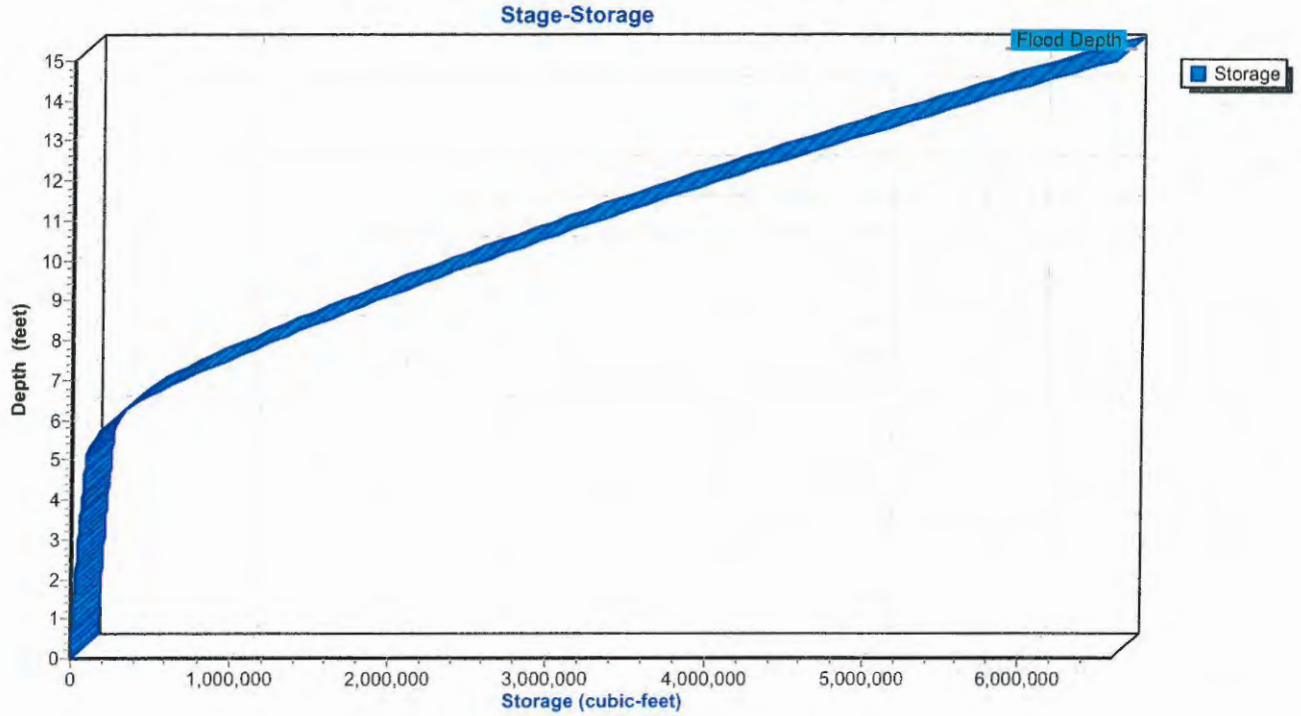
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.83" for 6-HR 0.23 PMF event
Inflow = 2,776.27 cfs @ 5.10 hrs, Volume= 1,724.965 af
Outflow = 2,344.57 cfs @ 6.28 hrs, Volume= 1,692.905 af, Atten= 16%, Lag= 70.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.15 fps, Min. Travel Time= 68.3 min
Avg. Velocity = 1.52 fps, Avg. Travel Time= 96.7 min

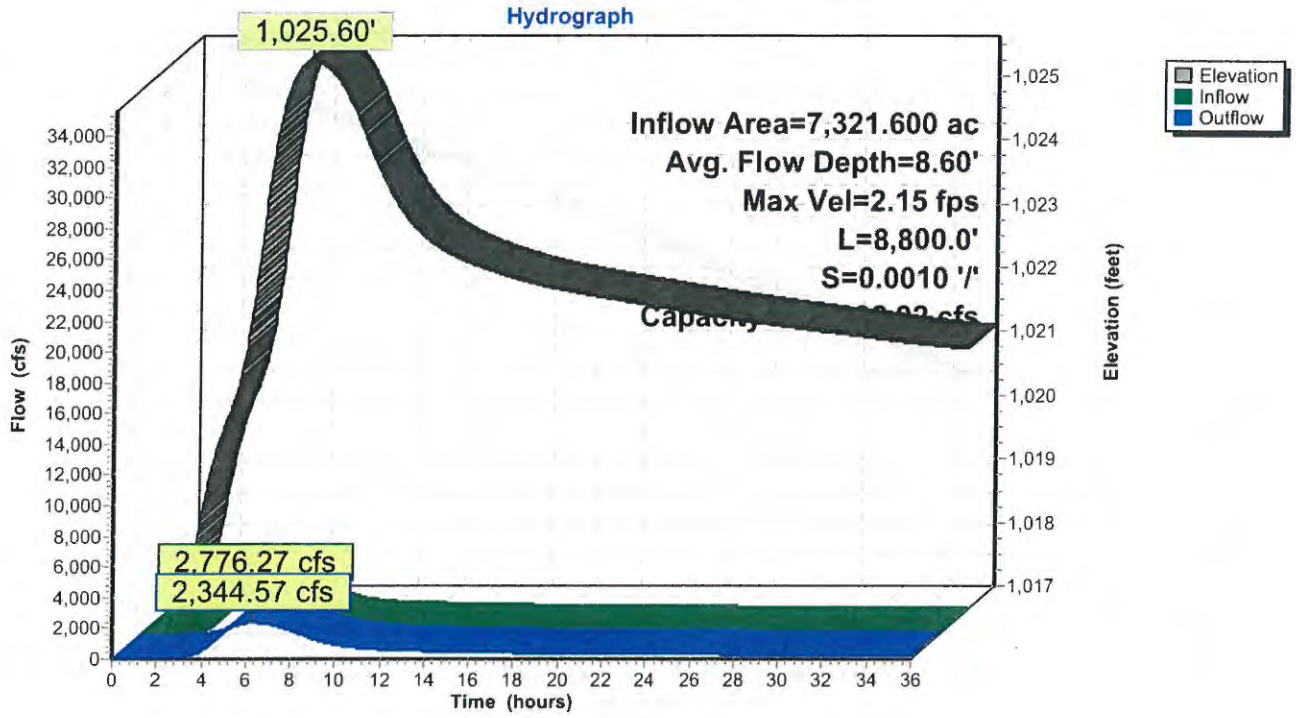
Peak Storage= 9,608,952 cf @ 6.28 hrs
Average Depth at Peak Storage= 8.60'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'

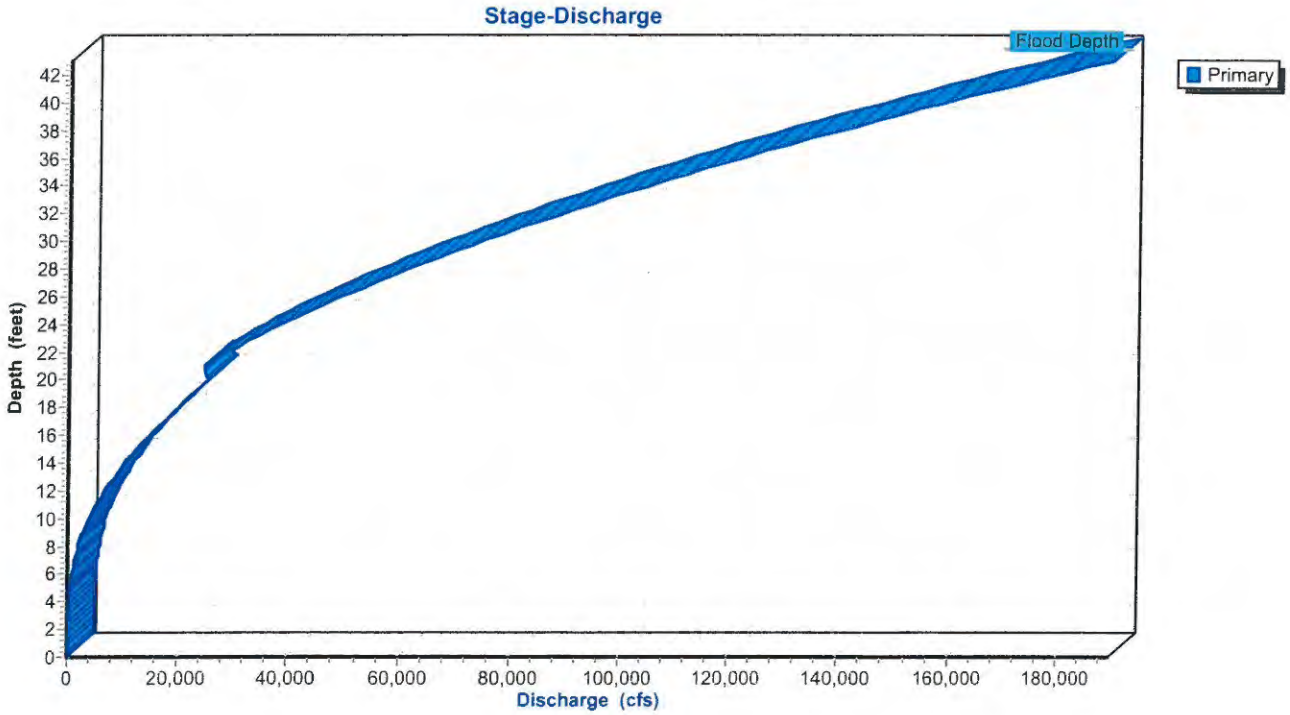
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00	22.00	0.060	
1,010.00	1,060.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	14.0	0	0.00
3.00	78.8	39.2	693,000	116.39
5.00	273.4	157.2	2,406,067	396.99
6.00	435.5	169.2	3,832,400	733.92
9.00	1,230.5	363.4	10,828,400	2,703.81
20.00	6,230.3	549.8	54,826,847	25,737.78
21.00	6,906.8	808.7	60,779,788	24,784.16
43.00	26,881.5	1,028.2	236,557,200	189,892.92

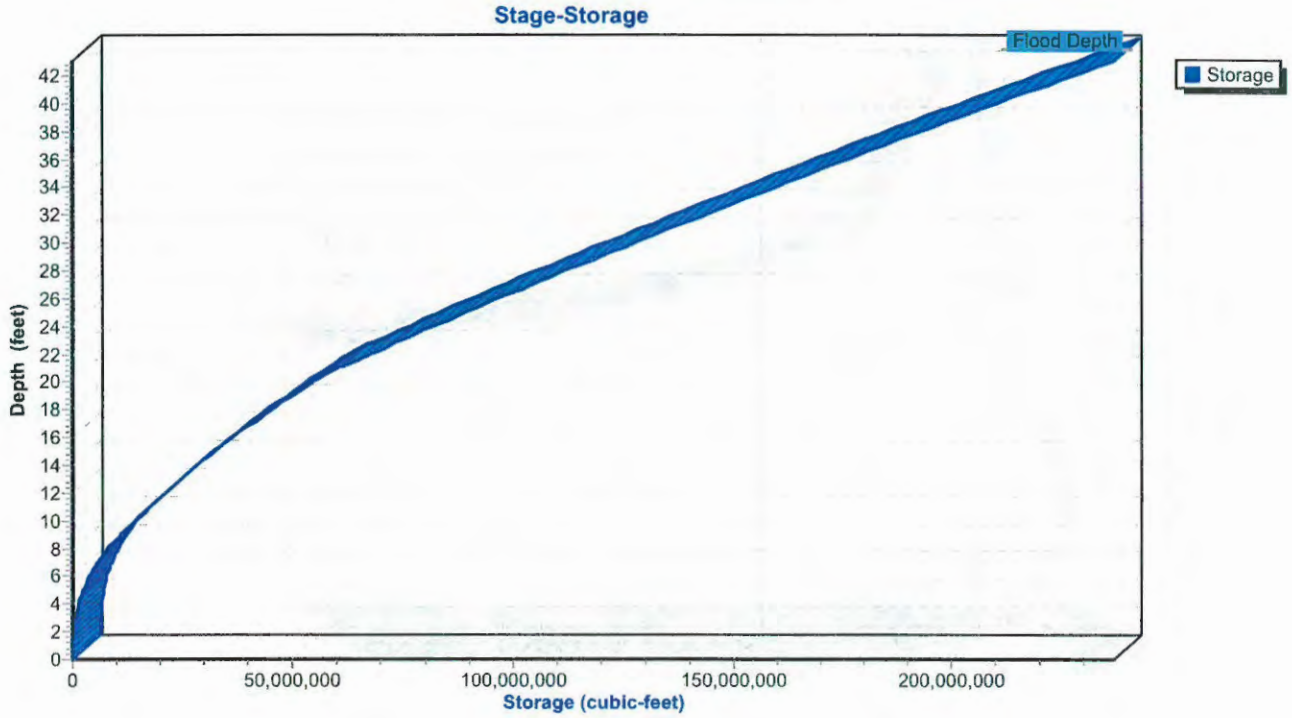
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.85" for 6-HR 0.23 PMF event
Inflow = 3,134.58 cfs @ 6.00 hrs, Volume= 2,088.864 af
Outflow = 3,048.98 cfs @ 6.48 hrs, Volume= 2,065.707 af, Atten= 3%, Lag= 28.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.63 fps, Min. Travel Time= 47.6 min
Avg. Velocity = 1.49 fps, Avg. Travel Time= 84.1 min

Peak Storage= 8,699,509 cf @ 6.48 hrs
Average Depth at Peak Storage= 10.56'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

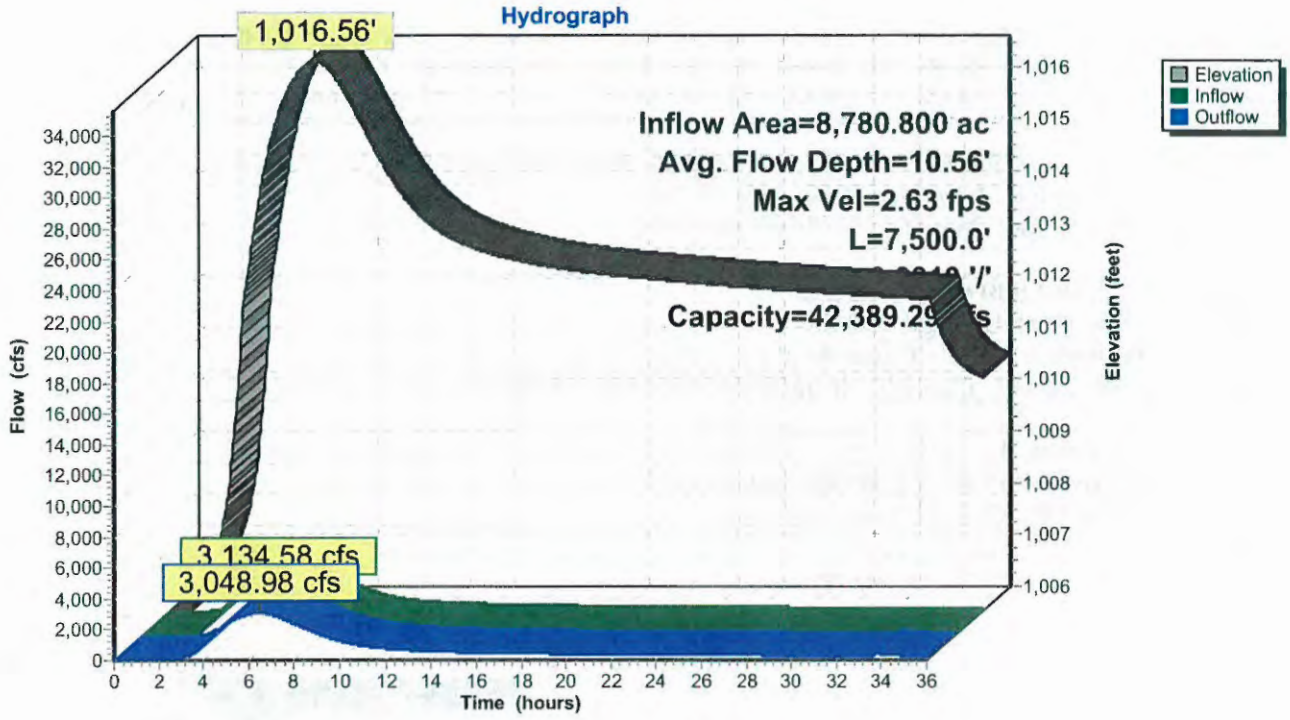
Custom cross-section, Length= 7,500.0' Slope= 0.0010 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,006.00', Outlet Invert= 998.50'

‡

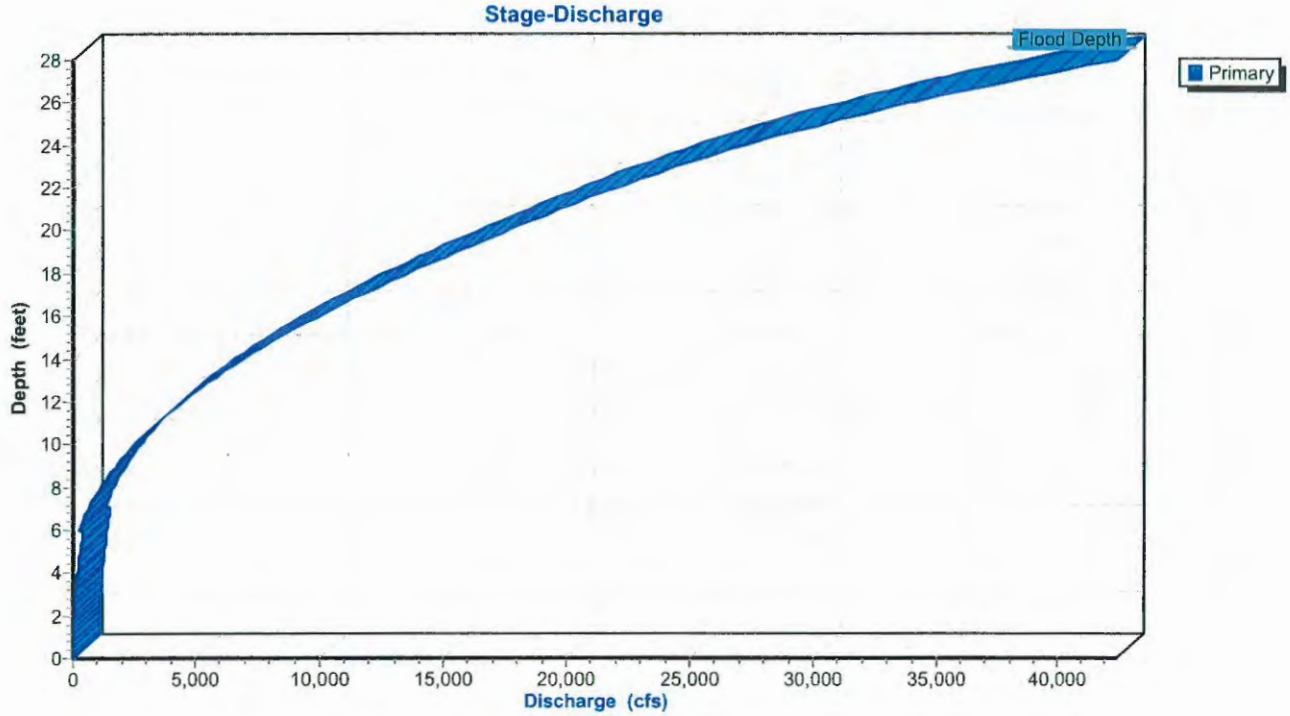
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	12.0	0	0.00
6.00	217.5	182.0	1,631,250	246.41
20.00	3,868.8	345.2	29,015,833	17,663.27
24.00	5,401.0	429.5	40,507,500	27,141.14
26.00	6,498.5	677.1	48,738,750	33,993.67
28.00	8,071.0	904.6	60,532,500	42,389.29

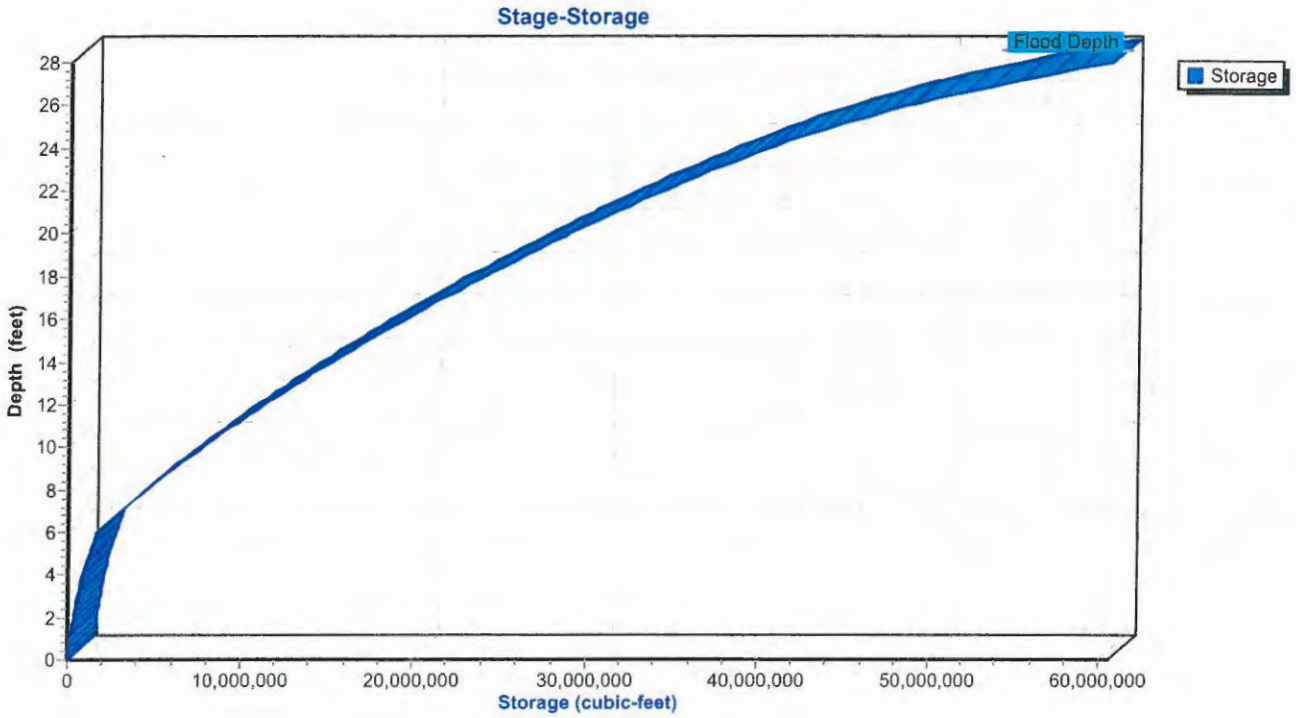
Reach 16R: Channel 16



Reach 16R: Channel 16



Reach 16R: Channel 16



Summary for Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.88" for 6-HR 0.23 PMF event
Inflow = 3,025.00 cfs @ 7.28 hrs, Volume= 2,267.722 af
Outflow = 3,024.99 cfs @ 7.30 hrs, Volume= 2,267.600 af, Atten= 0%, Lag= 0.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.57 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 8.64 fps, Avg. Travel Time= 0.9 min

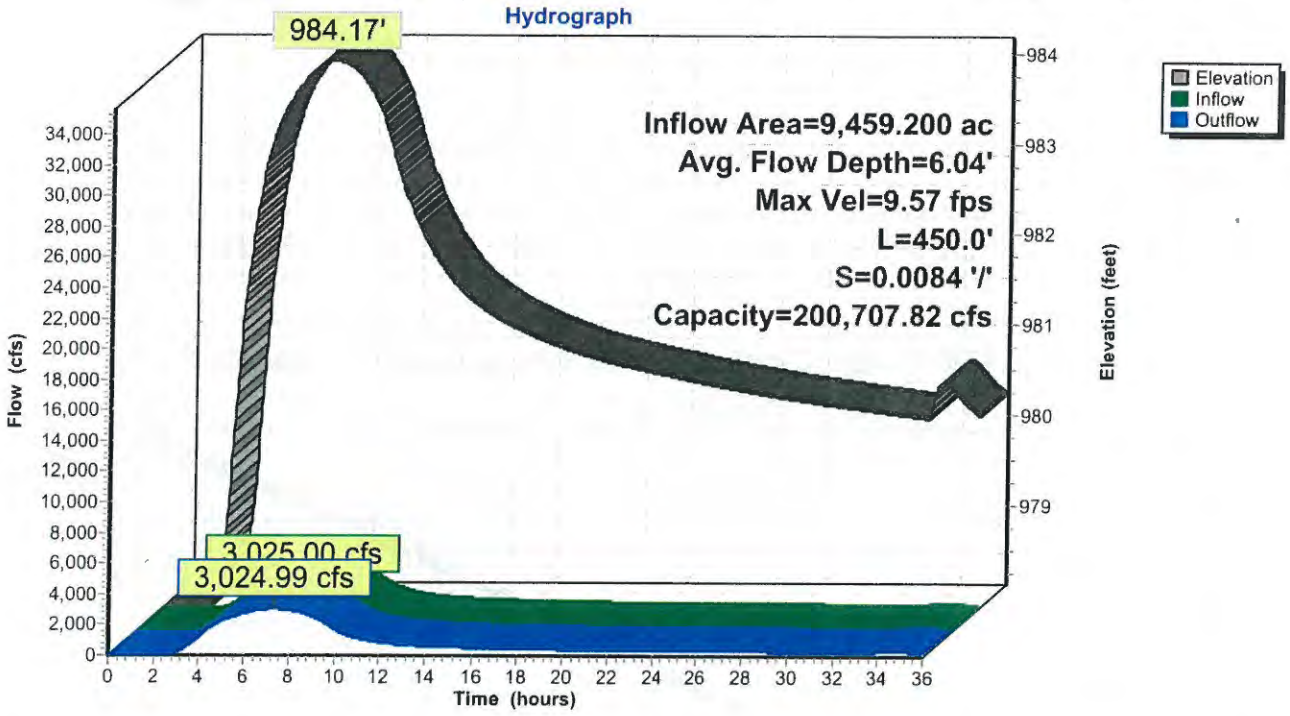
Peak Storage= 142,312 cf @ 7.30 hrs
Average Depth at Peak Storage= 6.04'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

Custom cross-section, Length= 450.0' Slope= 0.0084 '/' (1006 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 978.13', Outlet Invert= 974.35'

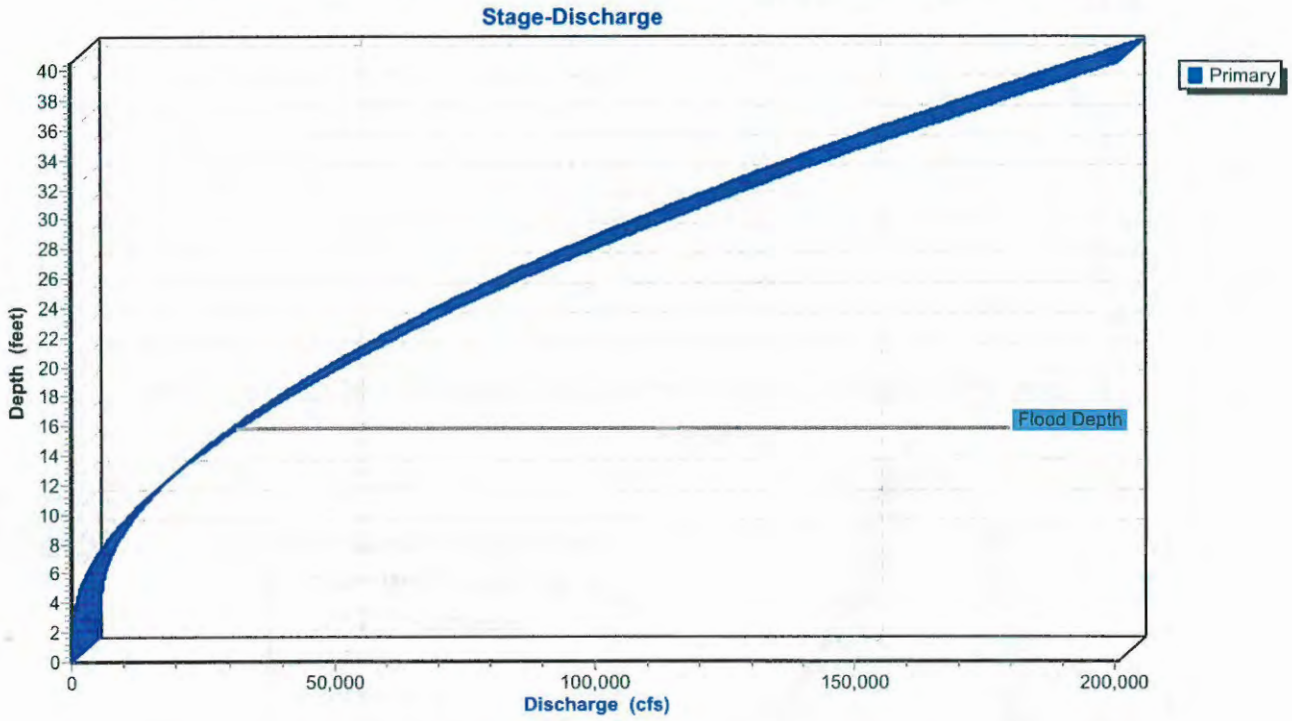
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, flow below branches
173.00	974.00	38.00	0.030	Short grass
175.00	972.00	40.00	0.030	Short grass
176.00	971.50	40.50	0.025	Stream, clean & straight
187.00	971.50	40.50	0.025	Stream, clean & straight
188.00	972.00	40.00	0.025	Stream, clean & straight
194.00	974.00	38.00	0.030	Short grass
206.00	976.00	36.00	0.100	Heavy timber, flow below branches
225.50	978.00	34.00	0.100	Heavy timber, flow below branches
229.50	980.00	32.00	0.100	Heavy timber, flow below branches
248.00	990.00	22.00	0.100	Heavy timber, flow below branches
265.00	1,000.00	12.00	0.100	Heavy timber, flow below branches
289.00	1,012.00	0.00	0.100	Heavy timber, flow below branches

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	11.0	0	0.00
0.50	6.0	13.2	2,700	19.29
2.50	40.0	22.4	18,000	347.53
4.50	146.0	86.6	65,701	1,300.01
6.50	382.5	153.2	172,125	3,703.14
8.50	712.5	180.8	320,625	7,536.06
18.50	2,645.4	216.7	1,190,411	44,005.23
28.50	4,866.4	251.4	2,189,893	103,800.74
36.50	6,855.0	281.2	3,084,750	166,501.22
40.50	7,955.0	310.6	3,579,750	200,707.82

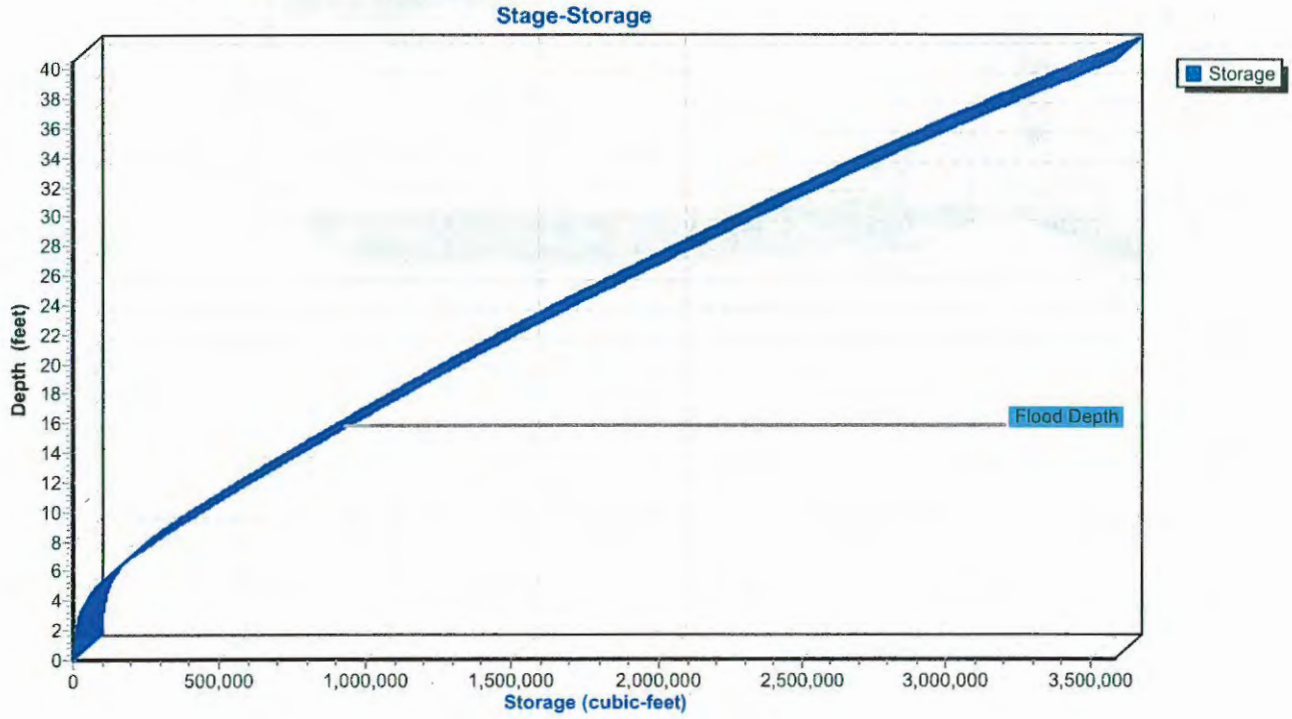
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

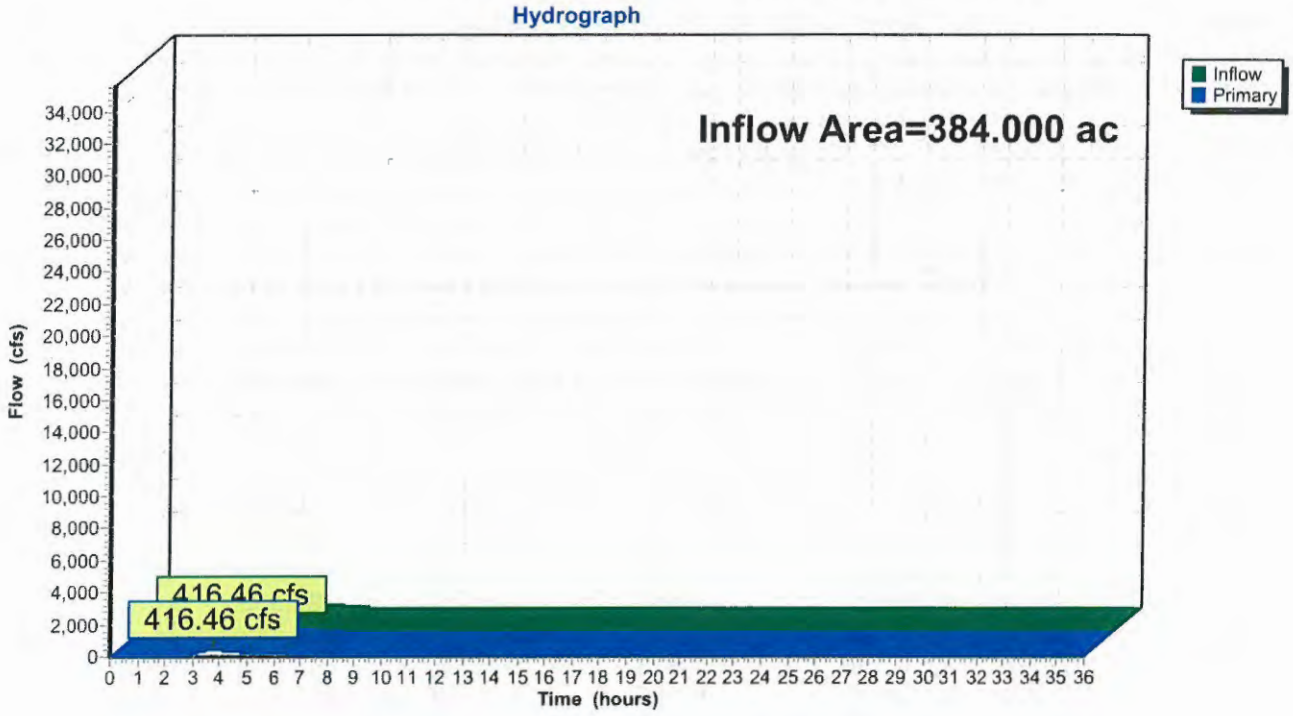


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.27" for 6-HR 0.23 PMF event
Inflow = 416.46 cfs @ 3.75 hrs, Volume= 104.797 af
Primary = 416.46 cfs @ 3.76 hrs, Volume= 104.797 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 1C: CONF 1 Combined O'Springs and Eric



Summary for Pond 1P: Sippo Creek Reservoir - Existing Conditions

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.89" for 6-HR 0.23 PMF event
Inflow = 3,395.92 cfs @ 6.34 hrs, Volume= 2,280.604 af
Outflow = 3,378.21 cfs @ 6.35 hrs, Volume= 2,268.934 af, Atten= 1%, Lag= 0.8 min
Primary = 2,273.59 cfs @ 6.33 hrs, Volume= 1,921.684 af
Secondary = 1,128.13 cfs @ 6.72 hrs, Volume= 347.250 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 7.050 ac Storage= 60.962 af
Peak Elev= 1,007.39' @ 6.72 hrs Surf.Area= 19.826 ac Storage= 130.704 af (69.742 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 91.431 af (30.469 af above start)

Plug-Flow detention time= 73.2 min calculated for 2,207.972 af (97% of inflow)
Center-of-Mass det. time= 14.2 min (722.2 - 707.9)

Volume	Invert	Avail.Storage	Storage Description
#1	985.00'	1,292.544 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
985.00	0.500	500.0	0.000	0.000	0.500
990.00	3.000	1,000.0	7.875	7.875	1.873
998.00	4.870	2,500.0	31.179	39.054	11.469
1,000.00	6.204	3,251.0	11.047	50.101	19.360
1,002.00	7.243	5,147.0	13.434	63.535	48.449
1,004.00	9.610	10,274.0	16.797	80.332	192.887
1,006.00	16.124	11,202.9	25.455	105.787	229.335
1,008.00	21.577	15,736.9	37.569	143.356	452.477
1,010.00	29.674	20,301.4	51.036	194.392	752.988
1,012.00	39.539	22,845.5	68.977	263.369	953.524
1,014.00	68.669	34,370.5	106.876	370.246	2,158.174
1,025.00	100.000	50,000.0	922.298	1,292.544	4,567.204

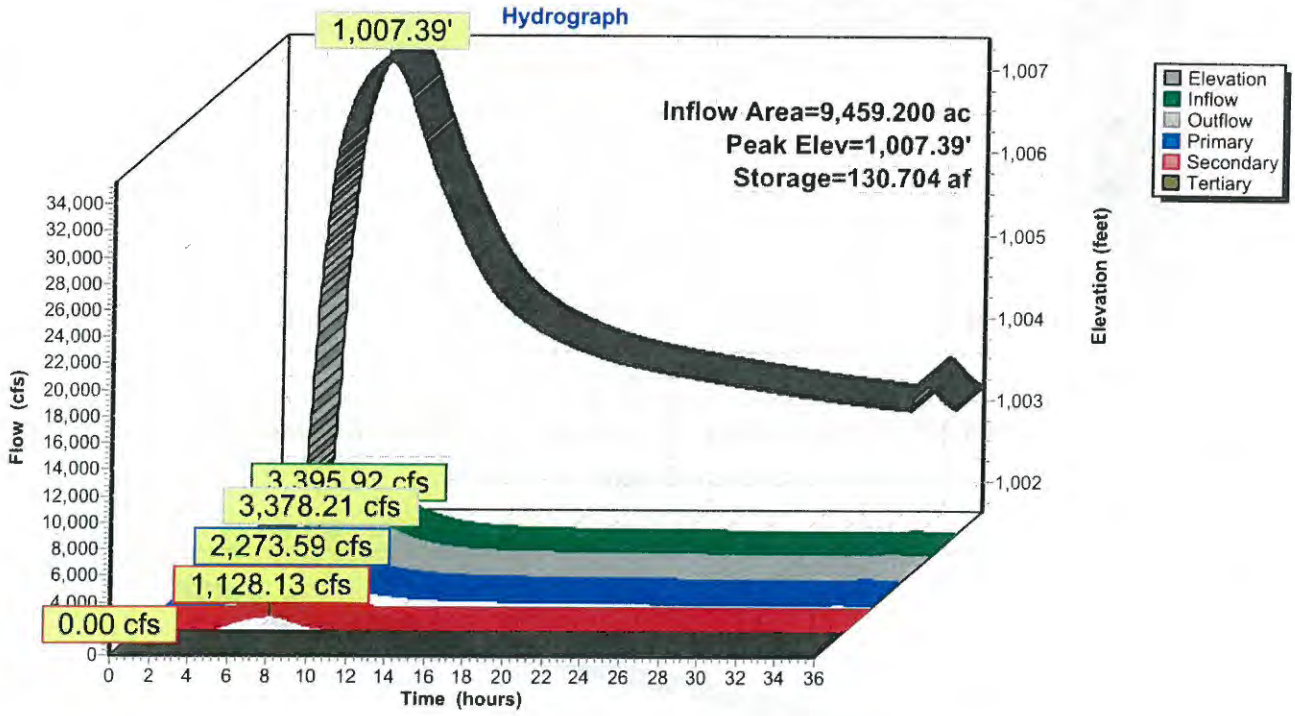
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,005.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.60 20.00 Width (feet) 17.00 23.00 77.00 77.00
#3	Secondary	1,004.20'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.80 3.80 5.80 15.80 Width (feet) 10.00 22.00 45.00 130.00 180.00 205.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,272.81 cfs @ 6.33 hrs HW=1,007.36' TW=1,001.70' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,272.81 cfs @ 7.94 fps)

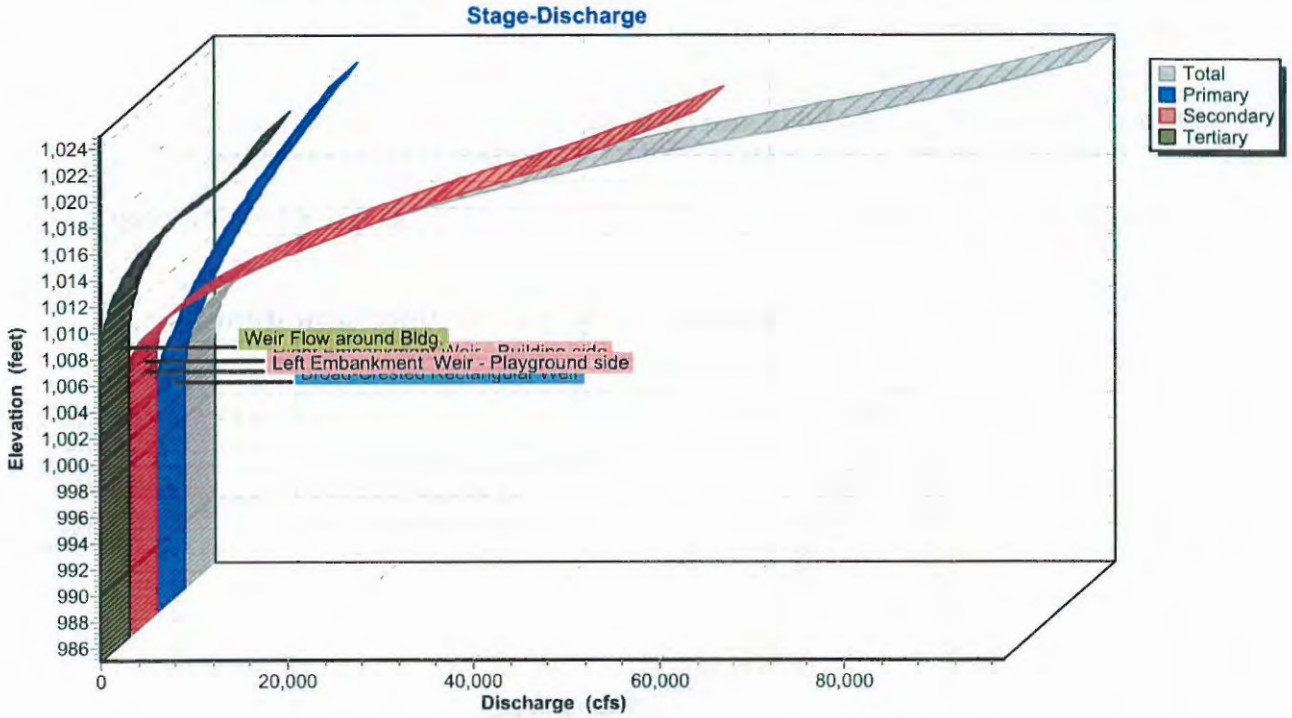
Secondary OutFlow Max=1,128.13 cfs @ 6.72 hrs HW=1,007.39' TW=1,003.05' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 459.79 cfs @ 4.15 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 668.33 cfs @ 4.57 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

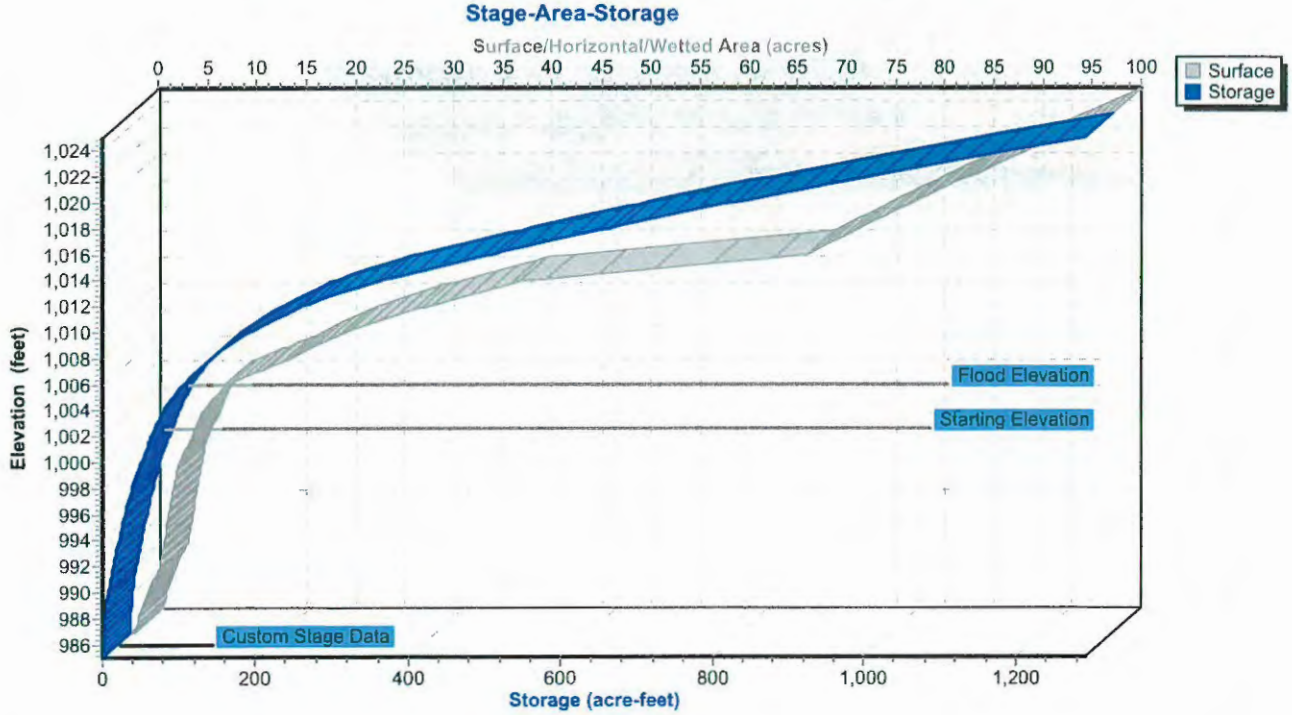
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

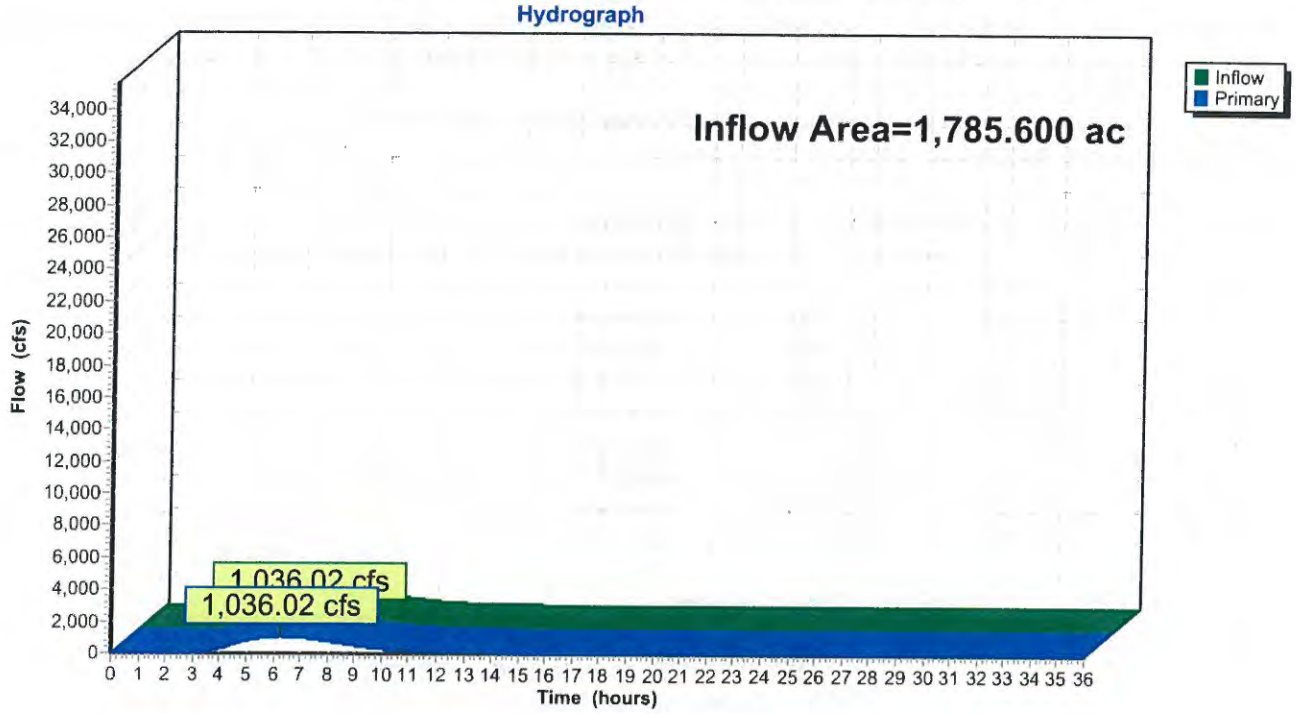


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 2.92" for 6-HR 0.23 PMF event
Inflow = 1,036.02 cfs @ 6.28 hrs, Volume= 434.729 af
Primary = 1,036.02 cfs @ 6.29 hrs, Volume= 434.729 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 2C: CONF 2 Combined Cable and O'Springs



Summary for Pond 3P: Lake Cable

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 2.92" for 6-HR 0.23 PMF event
Inflow = 1,036.02 cfs @ 6.29 hrs, Volume= 434.728 af
Outflow = 348.23 cfs @ 9.67 hrs, Volume= 643.628 af, Atten= 66%, Lag= 202.7 min
Primary = 348.23 cfs @ 9.67 hrs, Volume= 643.628 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,097.40' Surf.Area= 220.000 ac Storage= 1,914.000 af
Peak Elev= 1,098.12' @ 9.67 hrs Surf.Area= 246.192 ac Storage= 2,082.700 af (168.700 af above start)
Flood Elev= 1,099.50' Surf.Area= 296.000 ac Storage= 2,455.800 af (541.800 af above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 482.2 min (945.1 - 462.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.00'	4,144.025 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

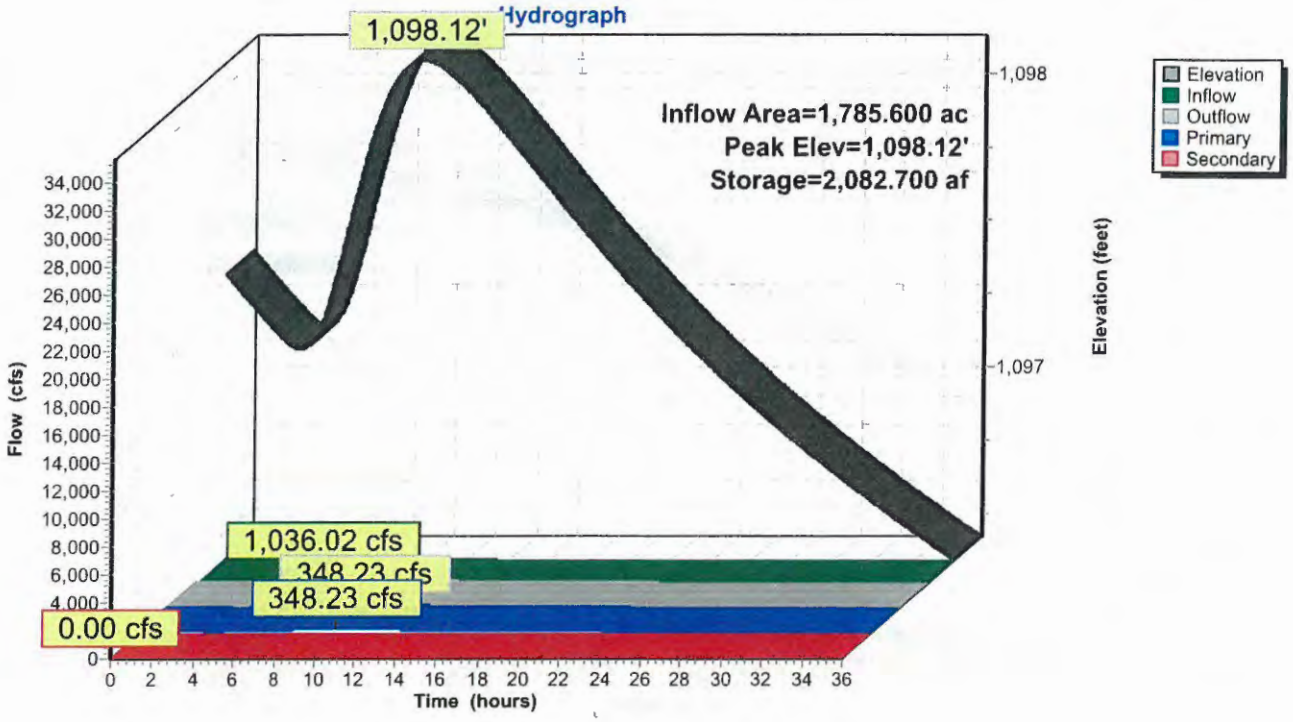
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

Device	Routing	Invert	Outlet Devices
#1	Primary	1,088.00'	**36.0" Round Culvert-RCP** L= 450.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 1,088.00' / 1,076.00' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished
#2	Primary	1,096.40'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.10 6.00 Width (feet) 30.00 30.00 30.00
#3	Secondary	1,099.50'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 3.00 Width (feet) 1,000.00 1,000.00

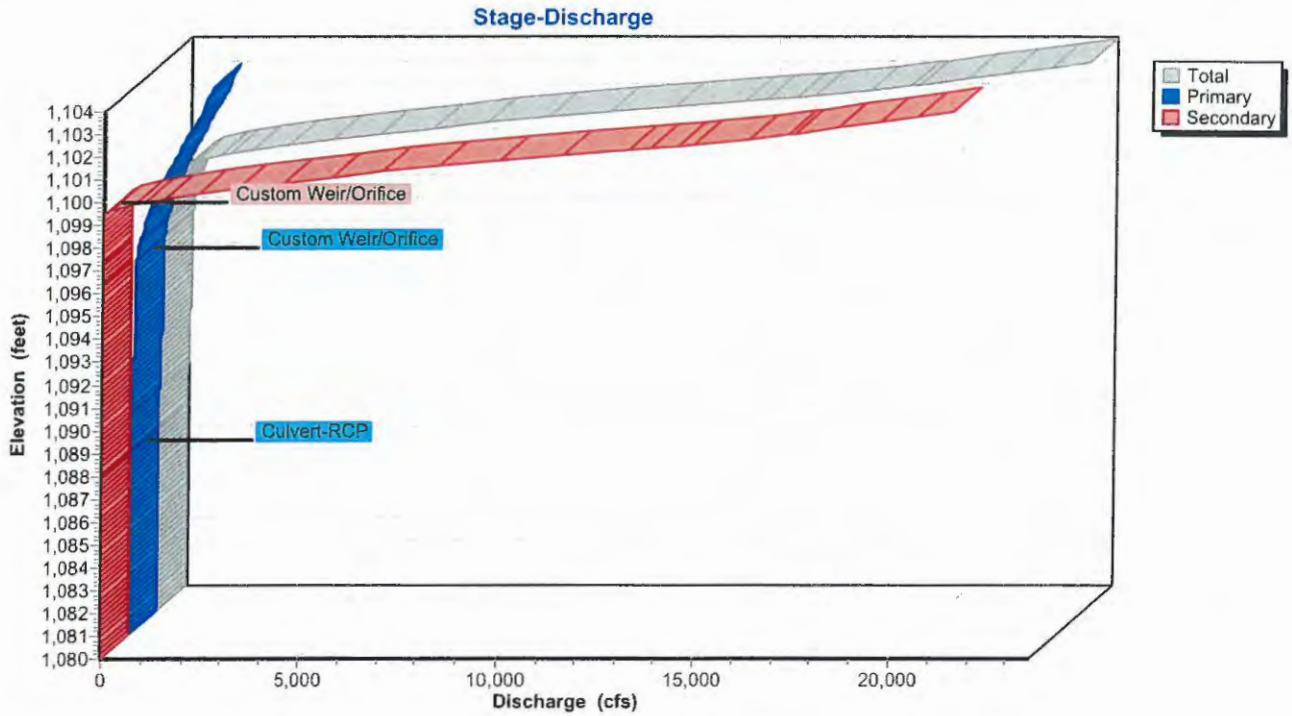
Primary OutFlow Max=348.23 cfs @ 9.67 hrs HW=1,098.12' TW=1,072.05' (Dynamic Tailwater)
↑—**1=Culvert-RCP** (Barrel Controls 125.88 cfs @ 17.81 fps)
└—**2=Custom Weir/Orifice** (Weir Controls 222.35 cfs @ 4.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,097.40' TW=1,069.00' (Dynamic Tailwater)
↑—**3=Custom Weir/Orifice** (Controls 0.00 cfs)

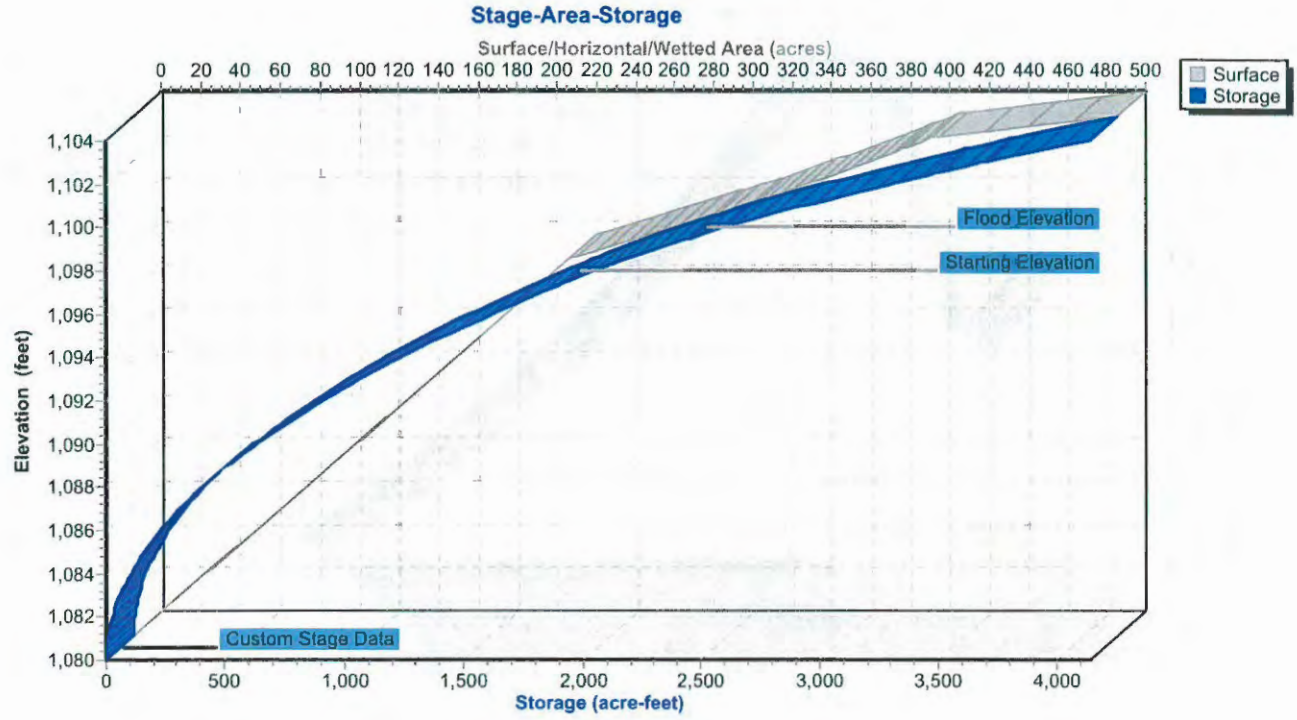
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

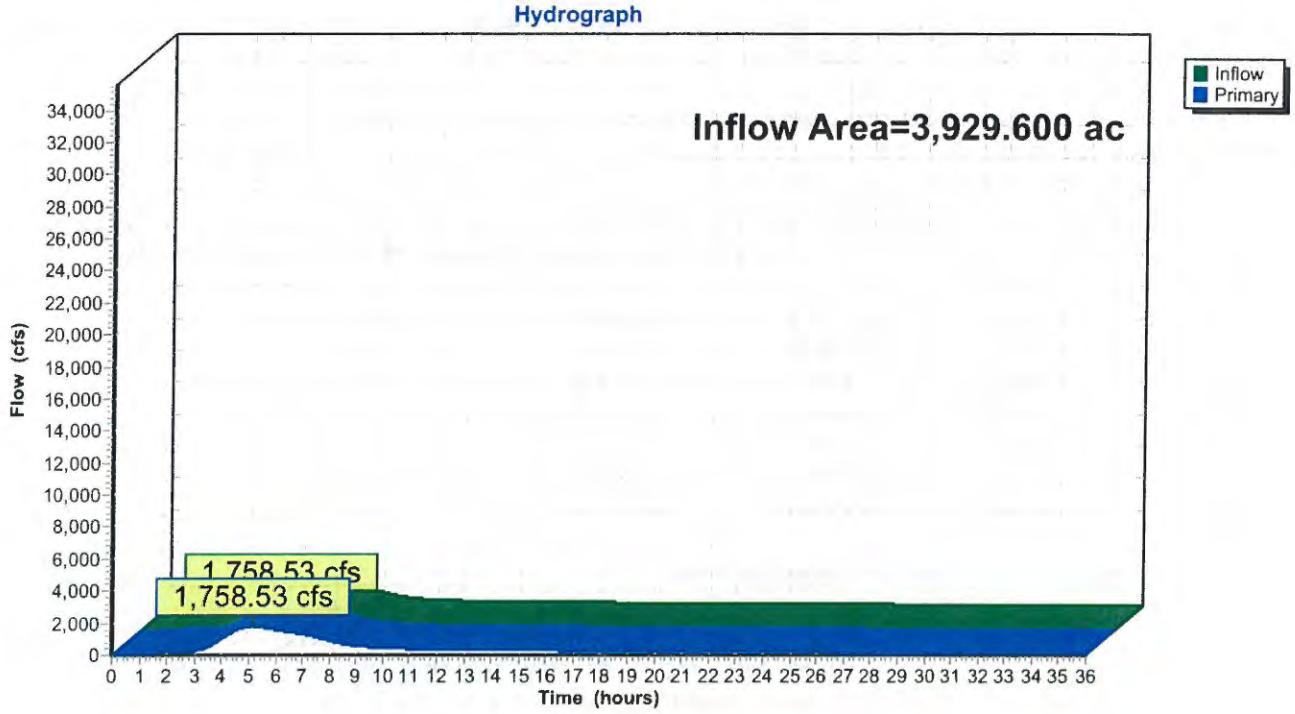


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 3.39" for 6-HR 0.23 PMF event
Inflow = 1,758.53 cfs @ 5.16 hrs, Volume= 1,109.949 af
Primary = 1,758.53 cfs @ 5.17 hrs, Volume= 1,109.949 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 4C: Confluence 4



Summary for Pond 4P: Lake O'Springs

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.27" for 6-HR 0.23 PMF event
Inflow = 416.46 cfs @ 3.76 hrs, Volume= 104.797 af
Outflow = 169.19 cfs @ 6.52 hrs, Volume= 104.301 af, Atten= 59%, Lag= 165.8 min
Primary = 169.19 cfs @ 6.52 hrs, Volume= 104.301 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,106.00' Surf.Area= 27.000 ac Storage= 24.300 af
Peak Elev= 1,107.91' @ 6.52 hrs Surf.Area= 29.122 ac Storage= 77.895 af (53.595 af above start)
Flood Elev= 1,108.70' Surf.Area= 30.000 ac Storage= 101.250 af (76.950 af above start)

Plug-Flow detention time= 418.4 min calculated for 80.001 af (76% of inflow)
Center-of-Mass det. time= 267.2 min (585.7 - 318.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,104.20'	268.550 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

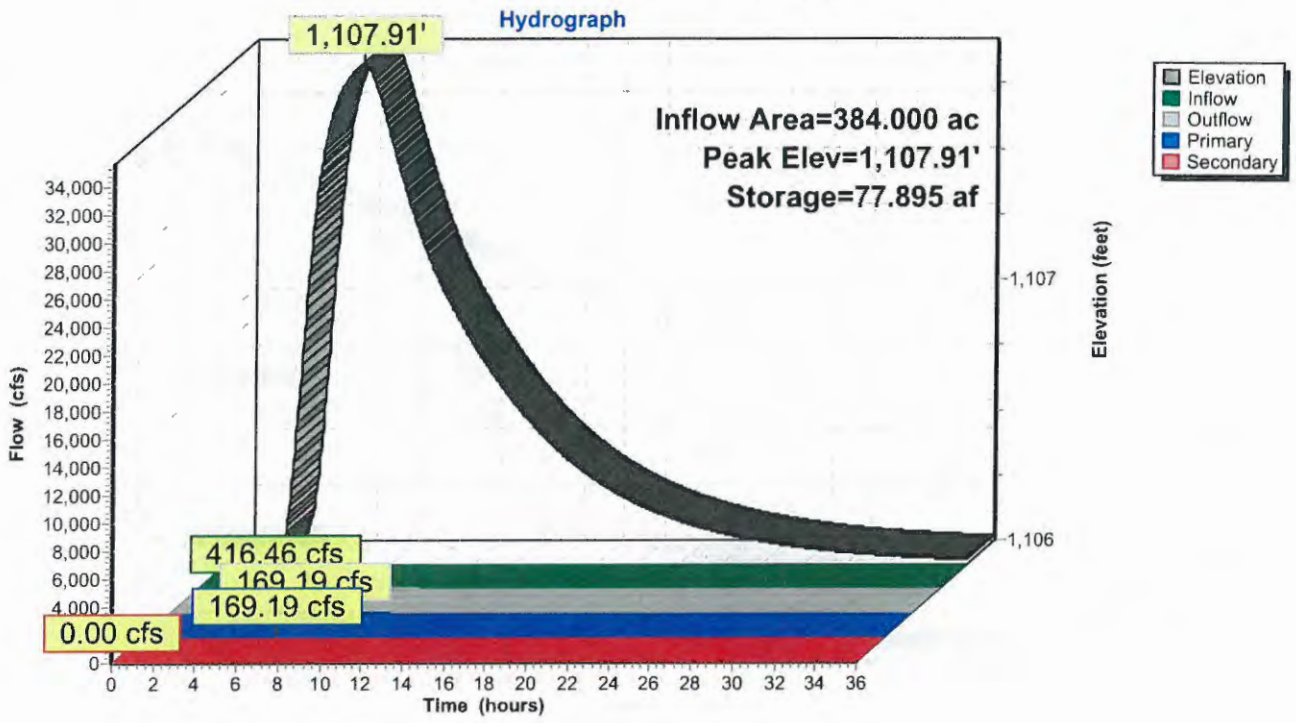
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.00'	**Lake Eric Special & User-Defined Outlet** Head (feet) 0.00 1.00 2.00 2.70 3.00 4.00 Disch. (cfs) 0.000 60.000 180.000 300.000 1,240.000 3,930.000
#2	Secondary	1,108.70'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 1.30 Width (feet) 150.00 150.00

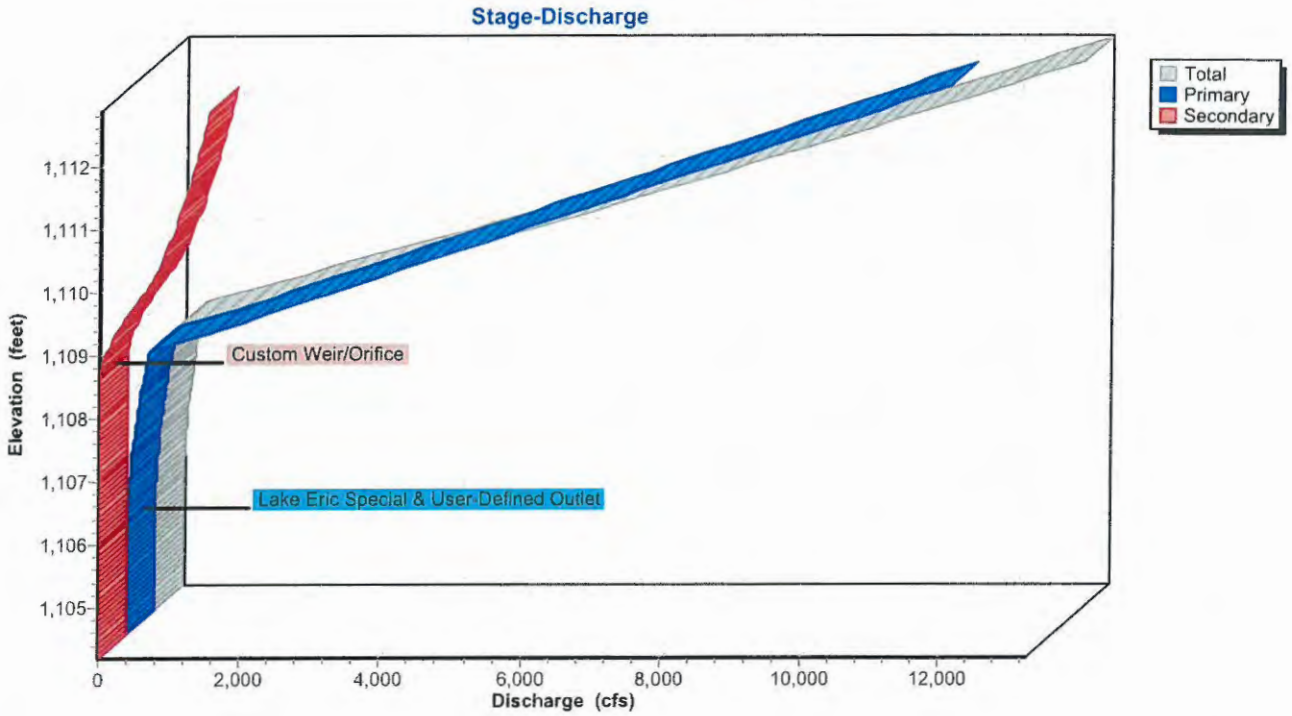
Primary OutFlow Max=169.19 cfs @ 6.52 hrs HW=1,107.91' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet**(Custom Controls 169.19 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,106.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Controls 0.00 cfs)

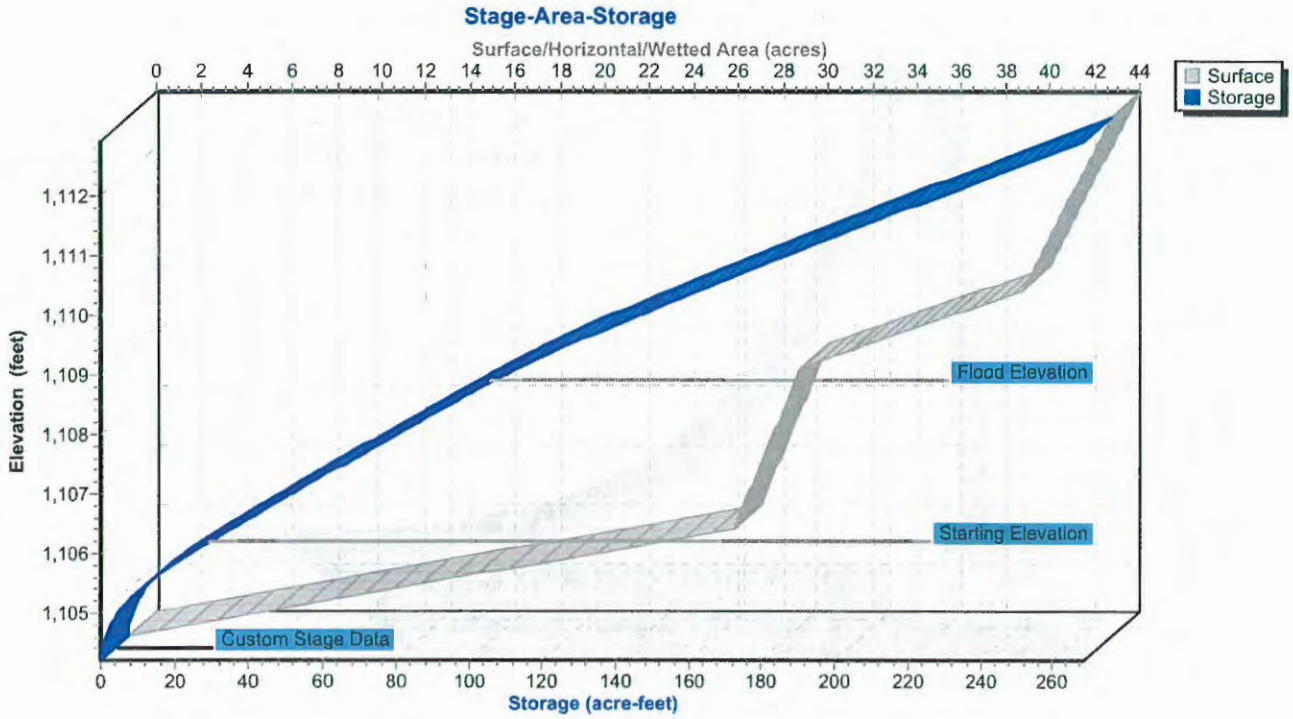
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

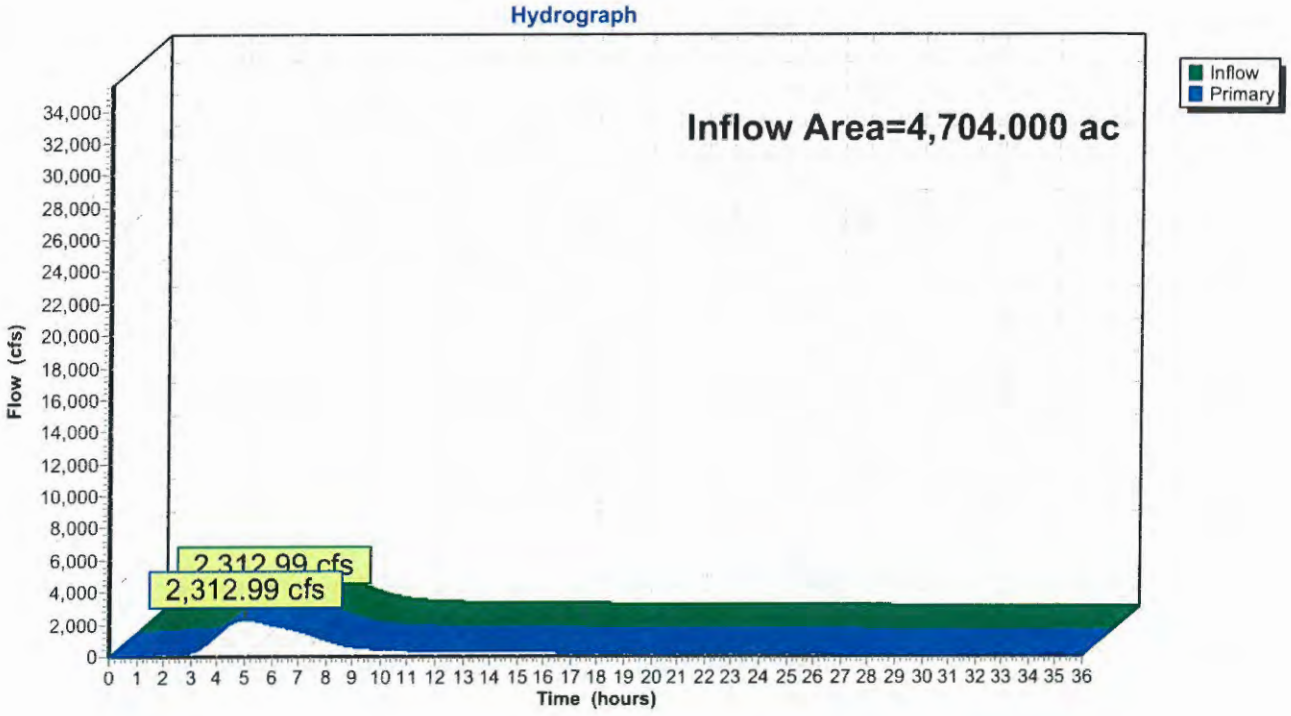


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 3.25" for 6-HR 0.23 PMF event
Inflow = 2,312.99 cfs @ 5.01 hrs, Volume= 1,274.583 af
Primary = 2,312.99 cfs @ 5.02 hrs, Volume= 1,274.583 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 5C: Confluence 5



Summary for Pond 5P: Lake Eric (Slagle)

Inflow Area = 115.200 ac, 0.00% Impervious, Inflow Depth = 3.21" for 6-HR 0.23 PMF event
Inflow = 169.36 cfs @ 3.37 hrs, Volume= 30.817 af
Outflow = 87.78 cfs @ 4.33 hrs, Volume= 30.706 af, Atten= 48%, Lag= 57.5 min
Primary = 85.48 cfs @ 4.33 hrs, Volume= 30.643 af
Secondary = 2.30 cfs @ 4.33 hrs, Volume= 0.064 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,116.50' Surf.Area= 3.700 ac Storage= 13.690 af
Peak Elev= 1,120.03' @ 4.33 hrs Surf.Area= 4.212 ac Storage= 27.621 af (13.931 af above start)
Flood Elev= 1,120.00' Surf.Area= 4.200 ac Storage= 27.490 af (13.800 af above start)

Plug-Flow detention time= 366.4 min calculated for 17.016 af (55% of inflow)
Center-of-Mass det. time= 184.7 min (435.5 - 250.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,109.10'	88.990 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

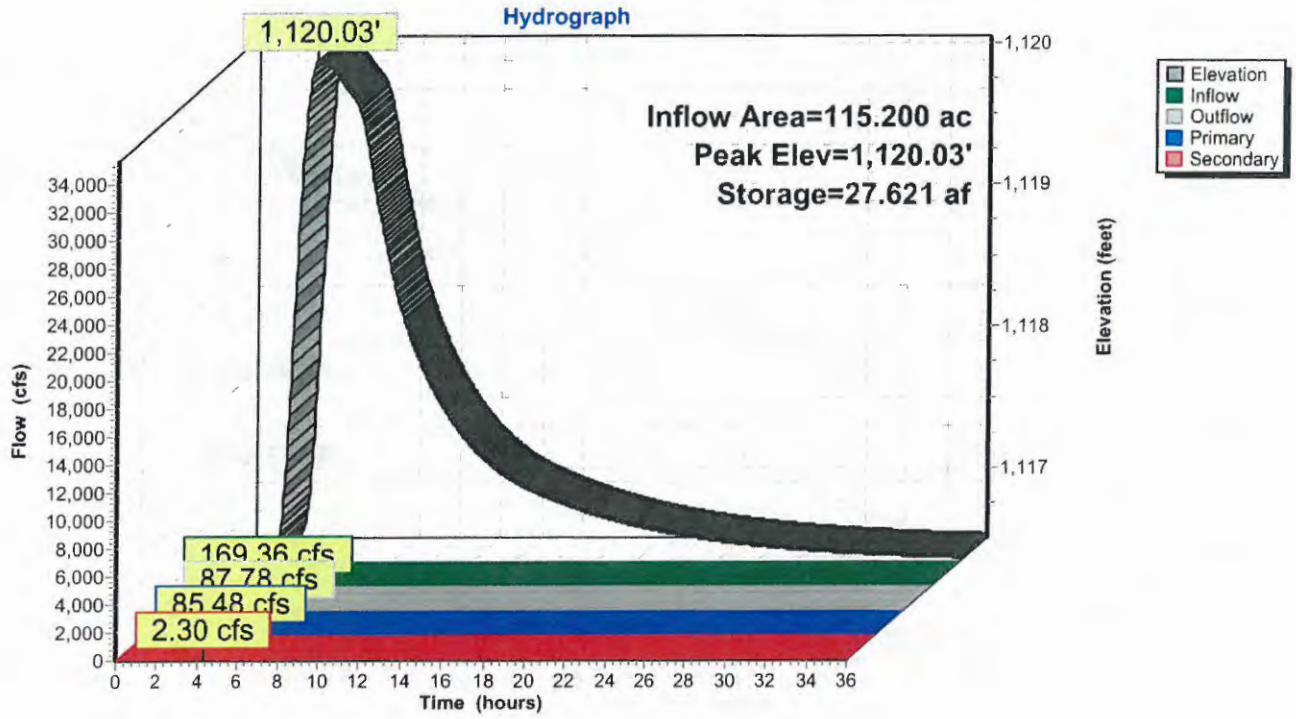
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

Device	Routing	Invert	Outlet Devices
#1	Primary	1,116.50'	**Special & User-Defined** Head (feet) 0.00 0.50 1.50 2.50 3.50 4.50 5.00 Disch. (cfs) 0.000 3.000 17.000 40.000 69.000 600.000 1,130.000
#2	Secondary	1,120.00'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 10.00 Width (feet) 150.00 150.00

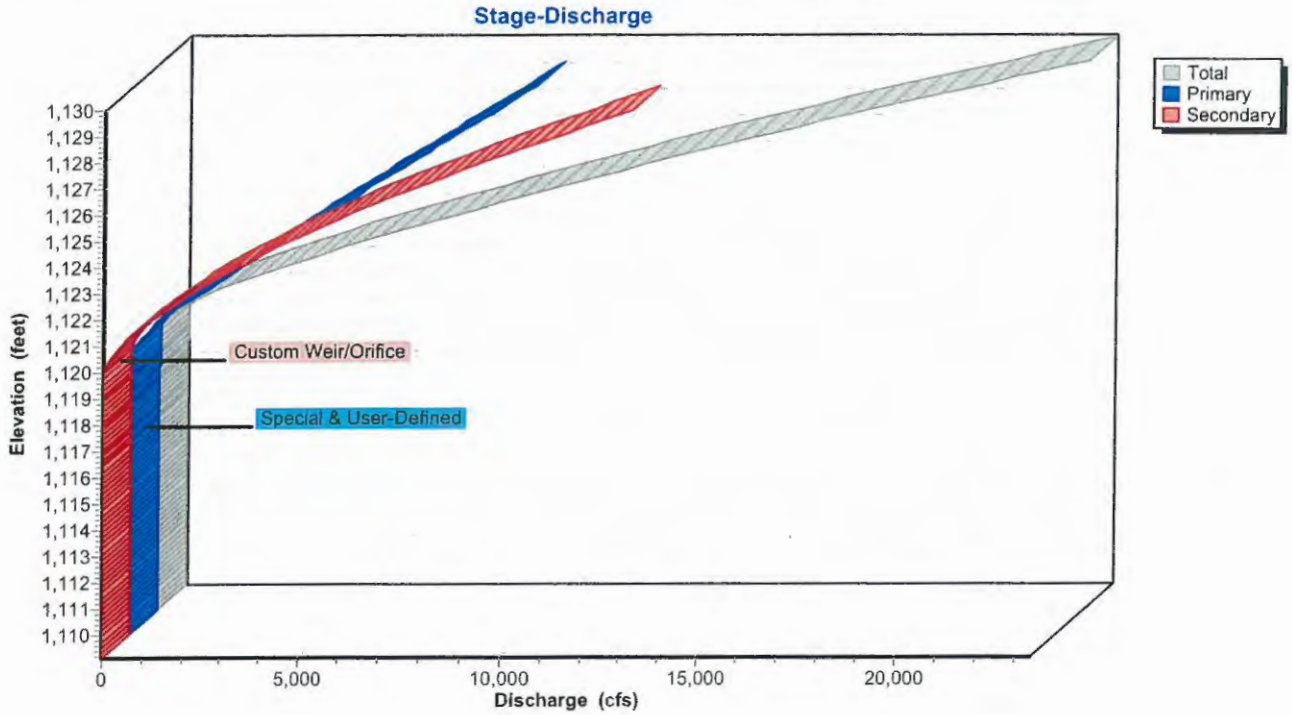
Primary OutFlow Max=85.48 cfs @ 4.33 hrs HW=1,120.03' TW=0.00' (Dynamic Tailwater)
↑—**1=Special & User-Defined** (Custom Controls 85.48 cfs)

Secondary OutFlow Max=2.30 cfs @ 4.33 hrs HW=1,120.03' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 2.30 cfs @ 0.49 fps)

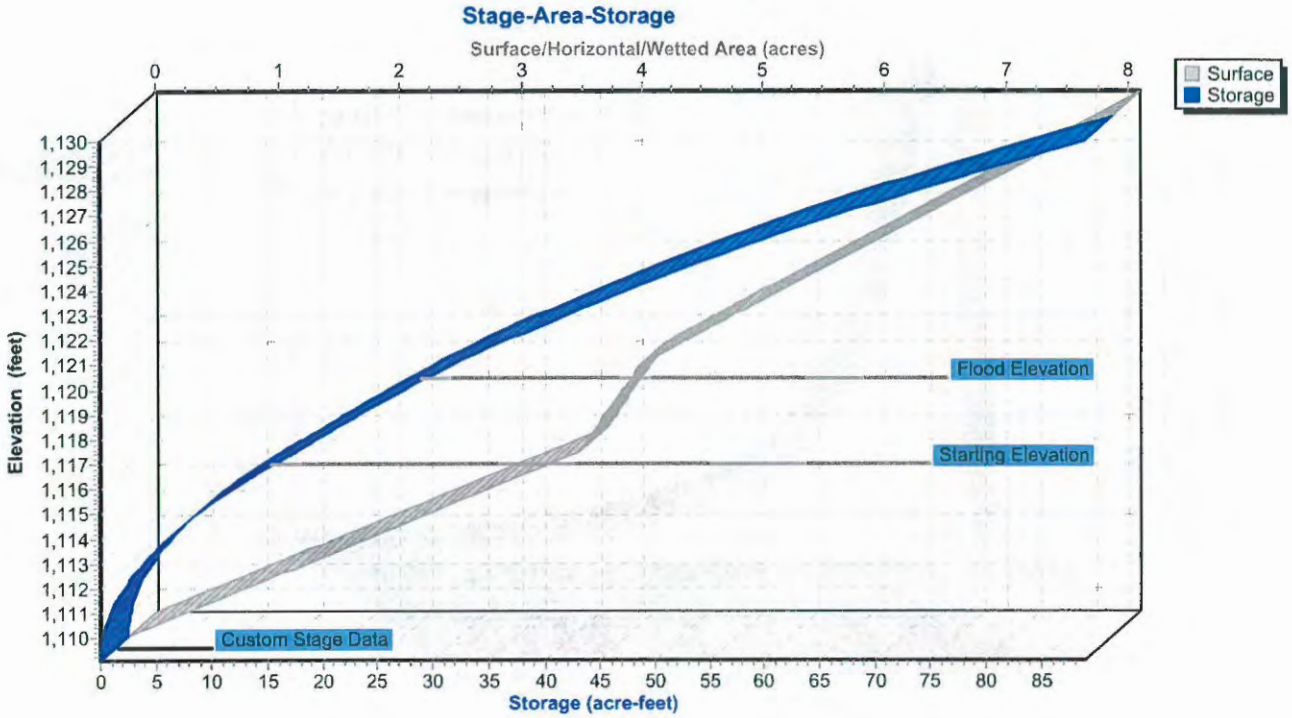
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

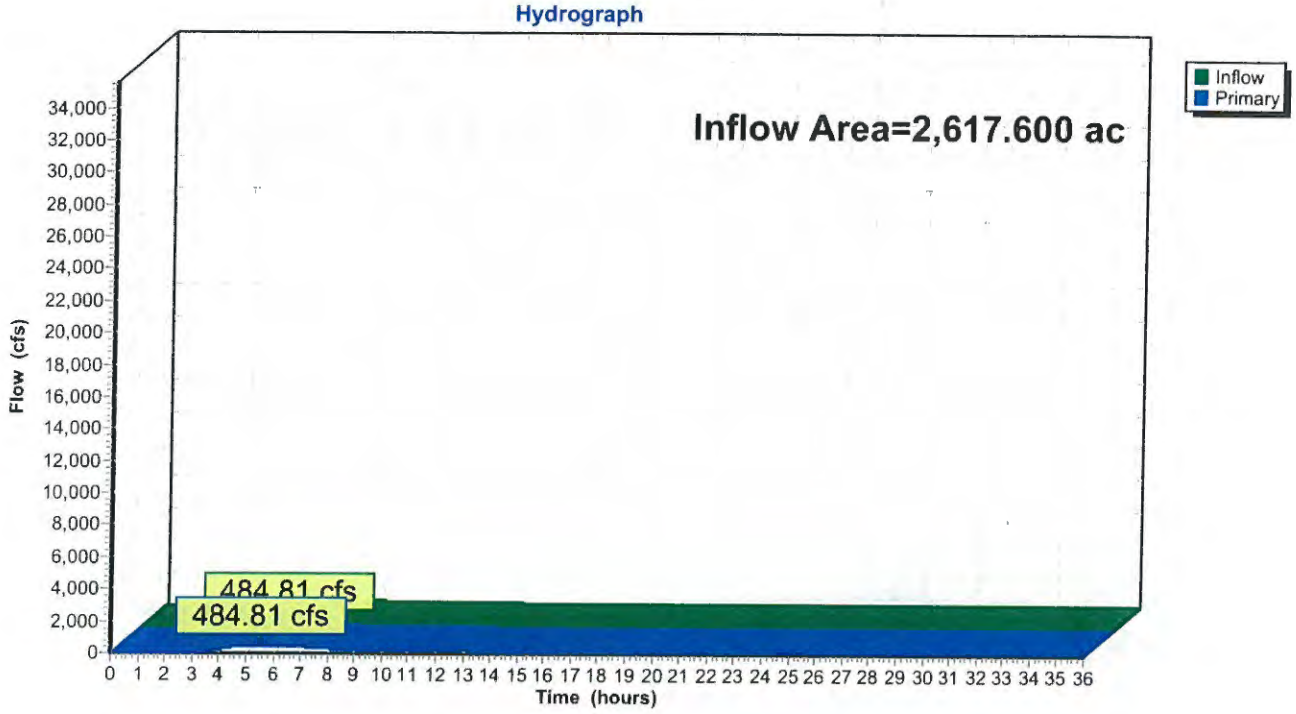


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 2.07" for 6-HR 0.23 PMF event
Inflow = 484.81 cfs @ 5.53 hrs, Volume= 450.744 af
Primary = 484.81 cfs @ 5.54 hrs, Volume= 450.744 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 6C: Confluence 6

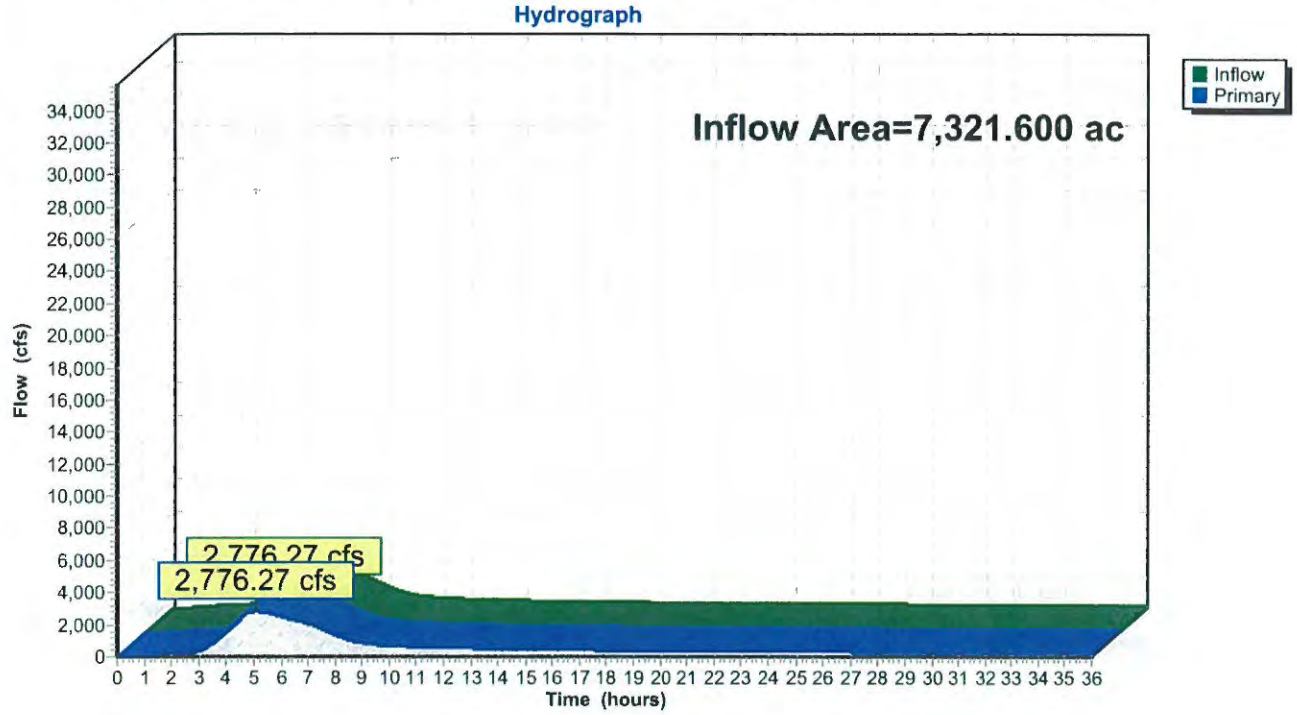


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.83" for 6-HR 0.23 PMF event
Inflow = 2,776.27 cfs @ 5.09 hrs, Volume= 1,725.146 af
Primary = 2,776.27 cfs @ 5.10 hrs, Volume= 1,725.146 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

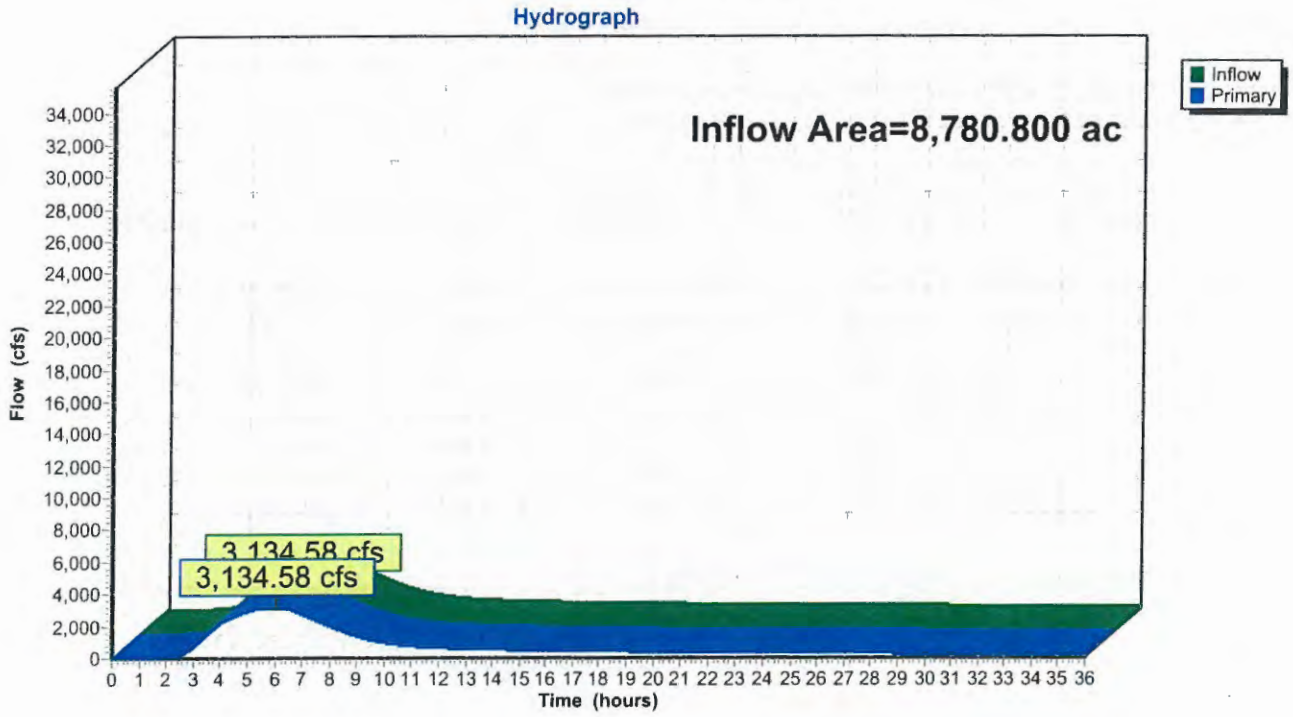


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.85" for 6-HR 0.23 PMF event
Inflow = 3,134.58 cfs @ 5.99 hrs, Volume= 2,089.051 af
Primary = 3,134.58 cfs @ 6.00 hrs, Volume= 2,089.051 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 8C: Confluence 8



Summary for Pond 8P: Storage Area Genoa Rd

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 2.74" for 6-HR 0.23 PMF event
Inflow = 1,409.61 cfs @ 6.09 hrs, Volume= 448.734 af
Outflow = 189.22 cfs @ 10.81 hrs, Volume= 312.797 af, Atten= 87%, Lag= 283.4 min
Primary = 126.92 cfs @ 8.87 hrs, Volume= 289.234 af
Secondary = 68.00 cfs @ 10.82 hrs, Volume= 23.563 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,025.29' @ 10.82 hrs Surf.Area= 142.707 ac Storage= 349.007 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 785.6 min calculated for 312.797 af (70% of inflow)
Center-of-Mass det. time= 710.5 min (1,172.9 - 462.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,018.00'	1,873.781 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

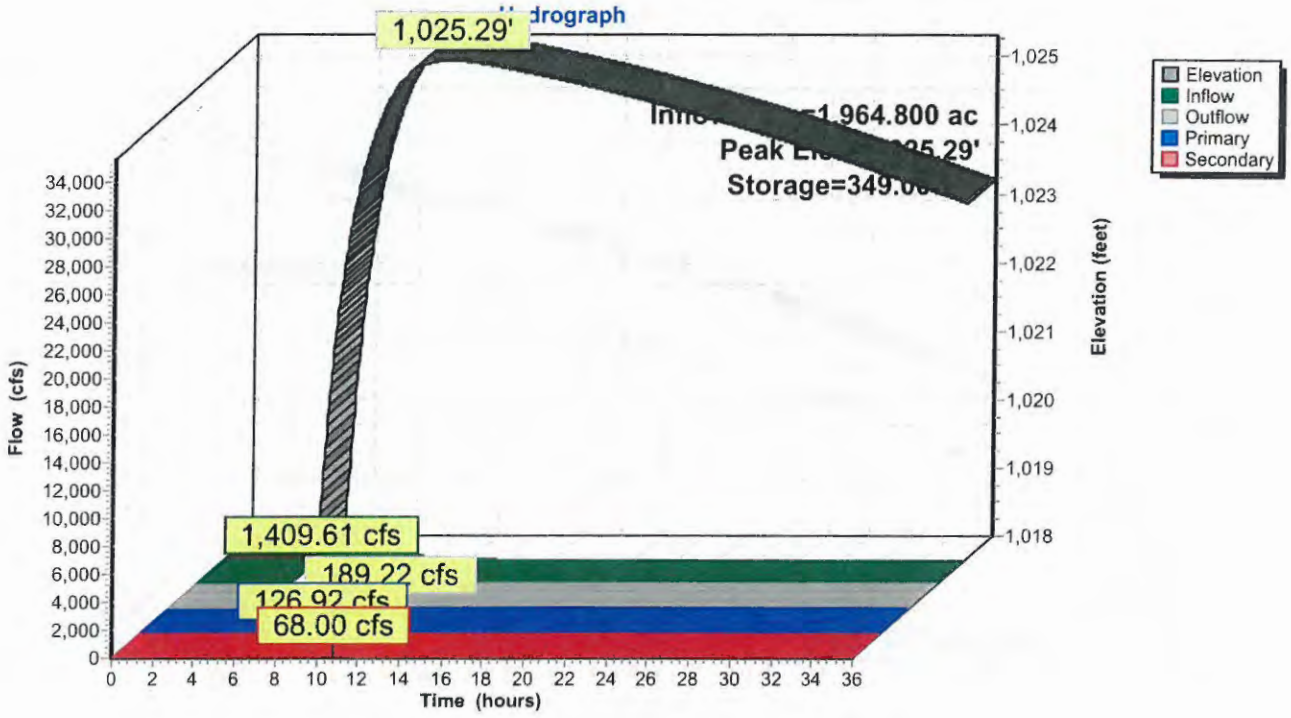
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	176.087	39,123.0	262.448	461.929	2,642.179
1,032.00	300.000	45,000.0	1,411.853	1,873.781	3,545.375

Device	Routing	Invert	Outlet Devices
#1	Primary	1,018.00'	**48.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,018.00' / 1,017.00' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Secondary	1,025.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 5.00 Width (feet) 125.00 192.00 308.00 415.00

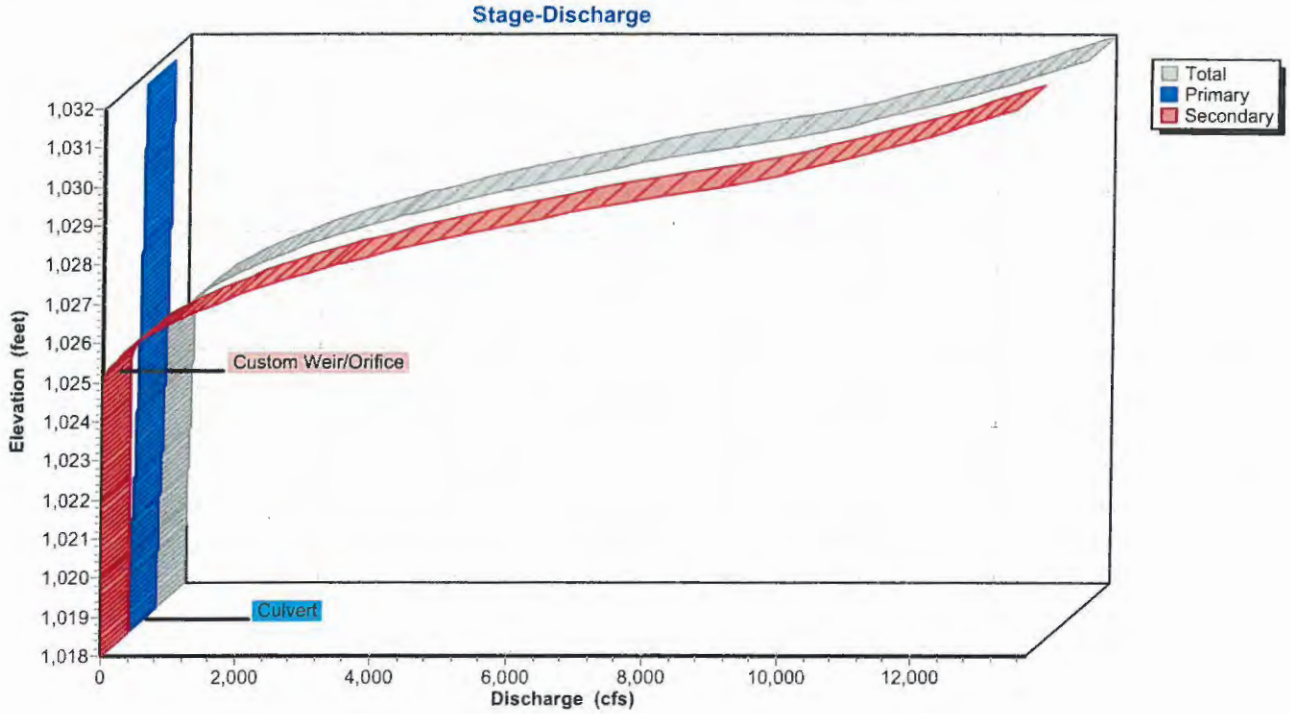
Primary OutFlow Max=126.84 cfs @ 8.87 hrs HW=1,025.11' TW=1,020.72' (Dynamic Tailwater)
1=Culvert (Inlet Controls 126.84 cfs @ 10.09 fps)

Secondary OutFlow Max=68.00 cfs @ 10.82 hrs HW=1,025.29' TW=1,021.28' (Dynamic Tailwater)
2=Custom Weir/Orifice (Weir Controls 68.00 cfs @ 1.74 fps)

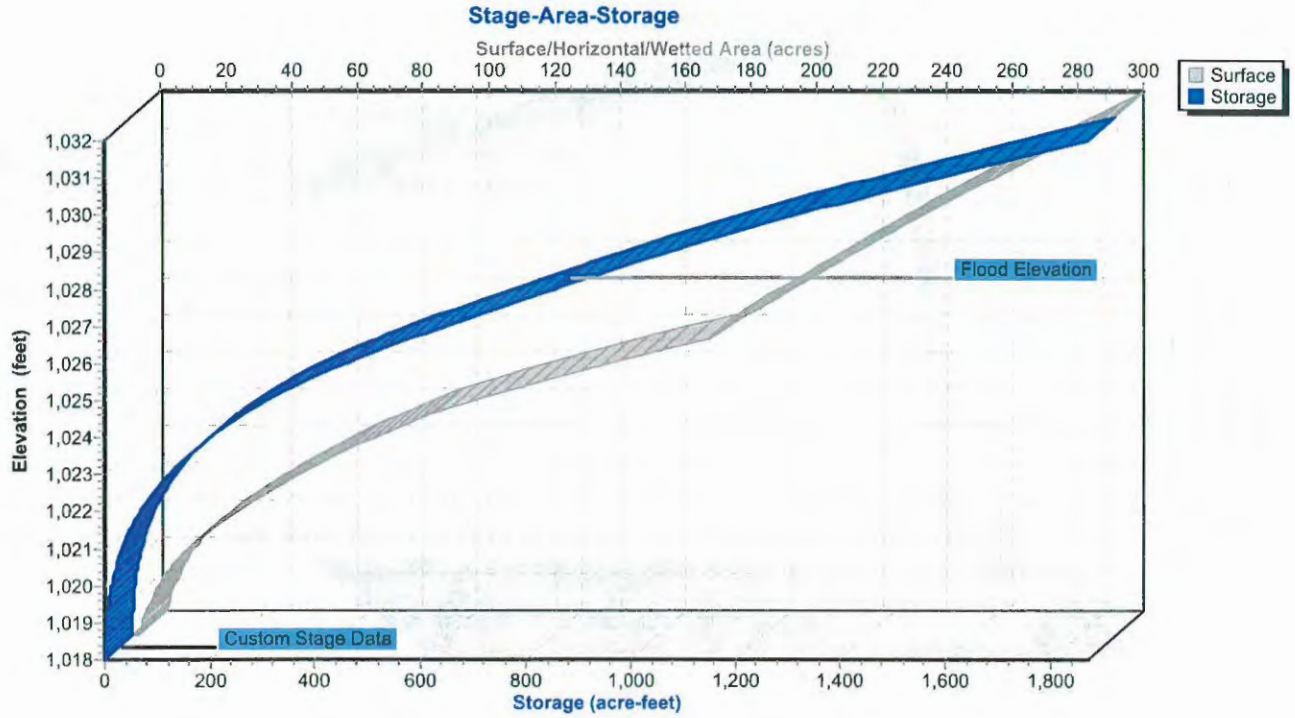
Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Summary for Pond 9P: Sippo Lake

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth = 3.31" for 6-HR 0.23 PMF event
Inflow = 1,764.34 cfs @ 5.03 hrs, Volume= 541.569 af
Outflow = 1,409.61 cfs @ 6.09 hrs, Volume= 448.734 af, Atten= 20%, Lag= 63.8 min
Primary = 1,409.61 cfs @ 6.09 hrs, Volume= 448.734 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= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,027.00' Surf.Area= 88.000 ac Storage= 220.000 af
Peak Elev= 1,029.14' @ 6.09 hrs Surf.Area= 104.722 ac Storage= 425.900 af (205.900 af above start)
Flood Elev= 1,029.30' Surf.Area= 106.000 ac Storage= 443.100 af (223.100 af above start)

Plug-Flow detention time= 291.5 min calculated for 228.671 af (42% of inflow)
Center-of-Mass det. time= 108.8 min (462.4 - 353.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,022.00'	1,220.300 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,022.00	0.000	0.000	0.000
1,027.00	88.000	220.000	220.000
1,029.30	106.000	223.100	443.100
1,036.00	126.000	777.200	1,220.300

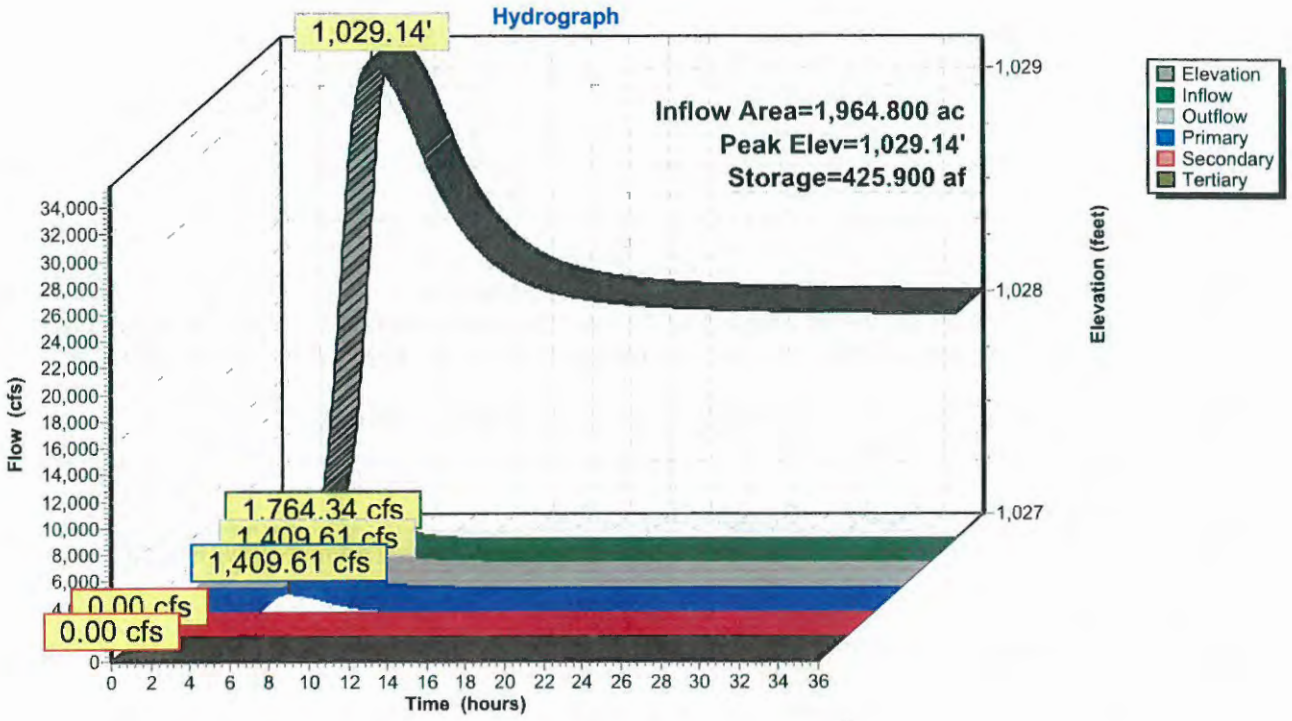
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Secondary	1,029.30'	**30.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Tertiary	1,030.00'	**650.0' long x 50.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1,409.61 cfs @ 6.09 hrs HW=1,029.14' TW=1,022.82' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 958.74 cfs @ 2.81 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 450.87 cfs @ 2.15 fps)

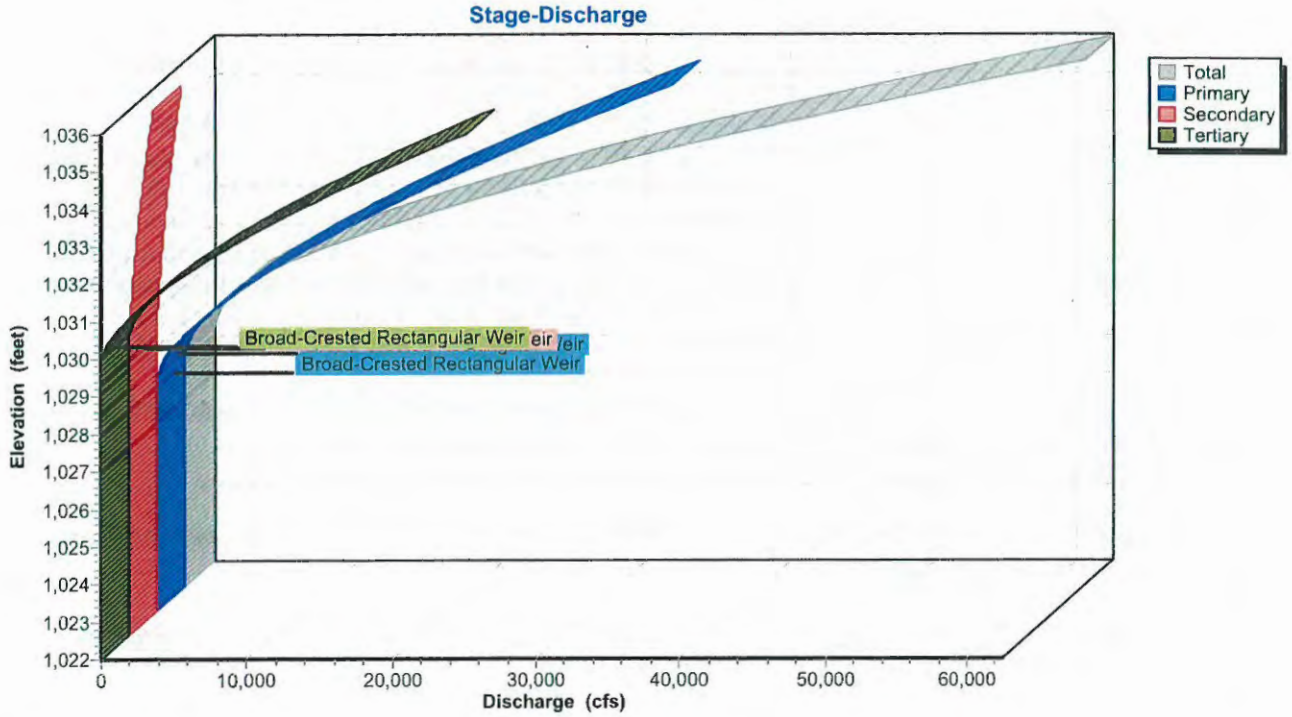
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

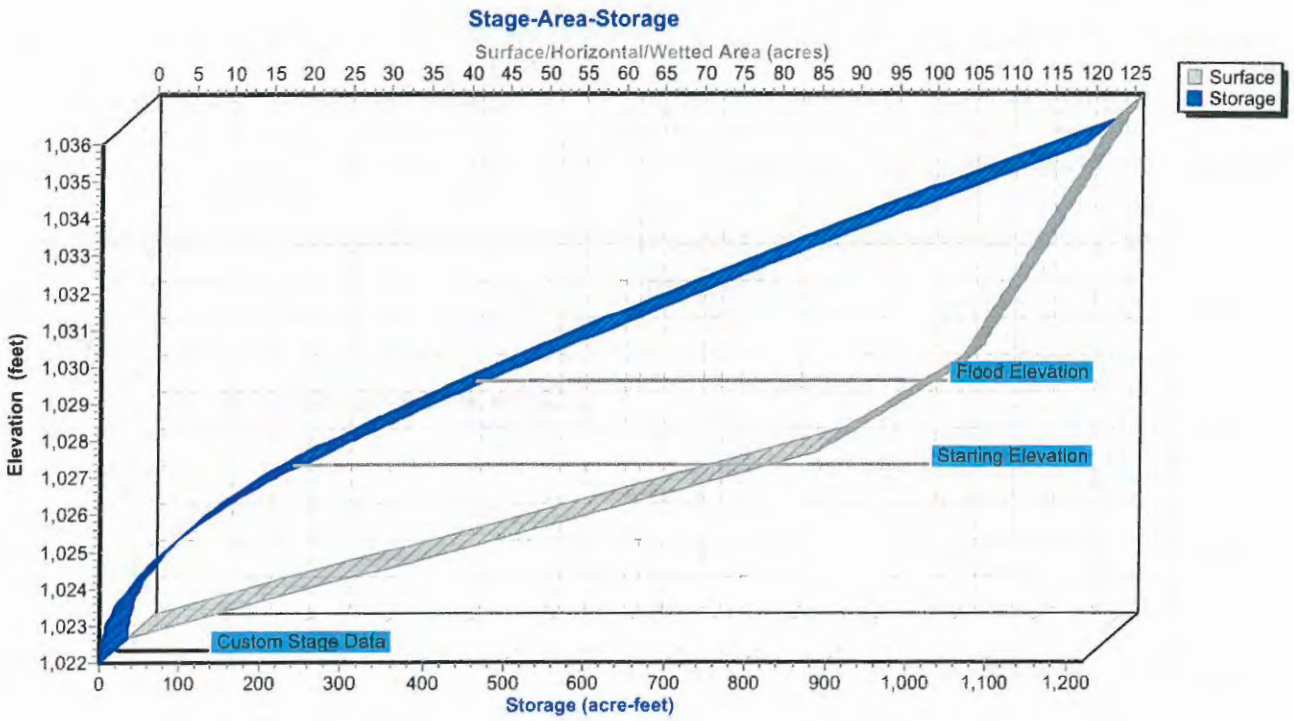
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

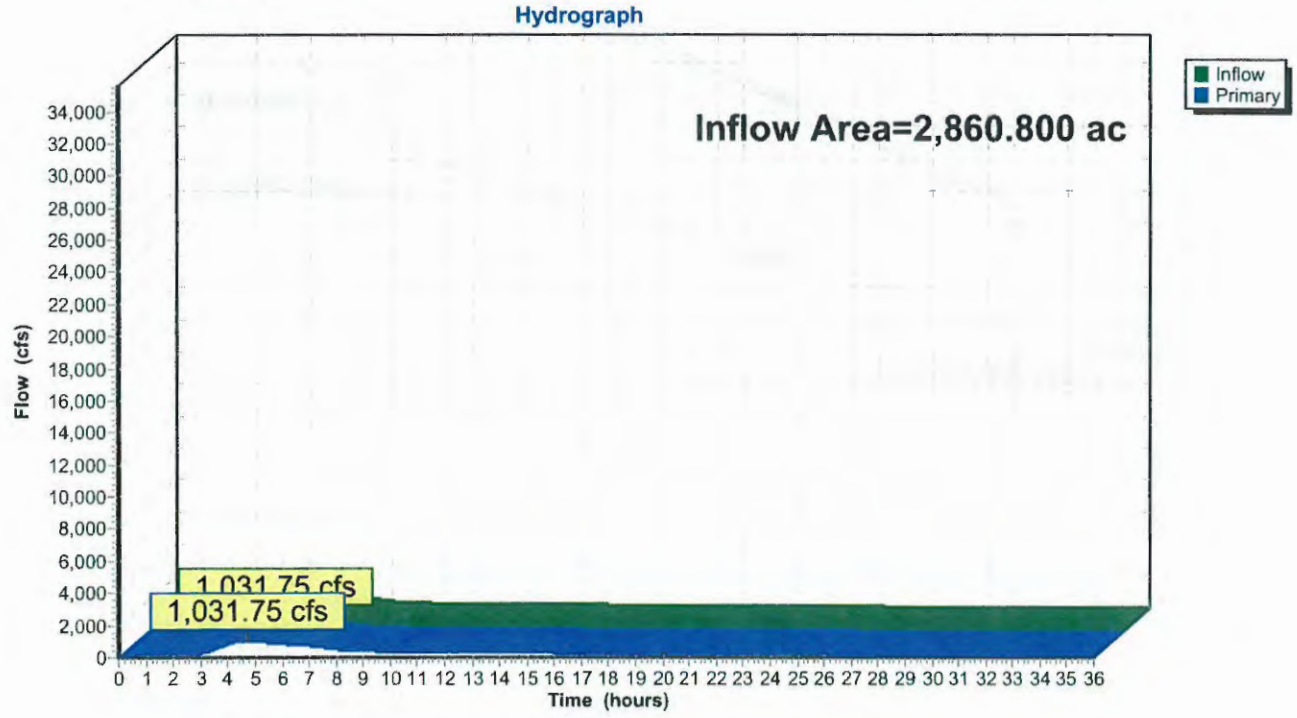


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.67" for 6-HR 0.23 PMF event
Inflow = 1,031.75 cfs @ 4.69 hrs, Volume= 875.056 af
Primary = 1,031.75 cfs @ 4.70 hrs, Volume= 875.056 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed



Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.88" for 6-HR 0.23 PMF event
Inflow = 3,378.21 cfs @ 6.35 hrs, Volume= 2,268.724 af
Outflow = 3,025.00 cfs @ 7.28 hrs, Volume= 2,267.934 af, Atten= 10%, Lag= 56.1 min
Primary = 3,025.00 cfs @ 7.28 hrs, Volume= 2,267.934 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,003.81' @ 7.29 hrs Surf.Area= 11.018 ac Storage= 145.267 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 17.8 min calculated for 2,267.934 af (100% of inflow)
Center-of-Mass det. time= 17.3 min (739.3 - 722.0)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

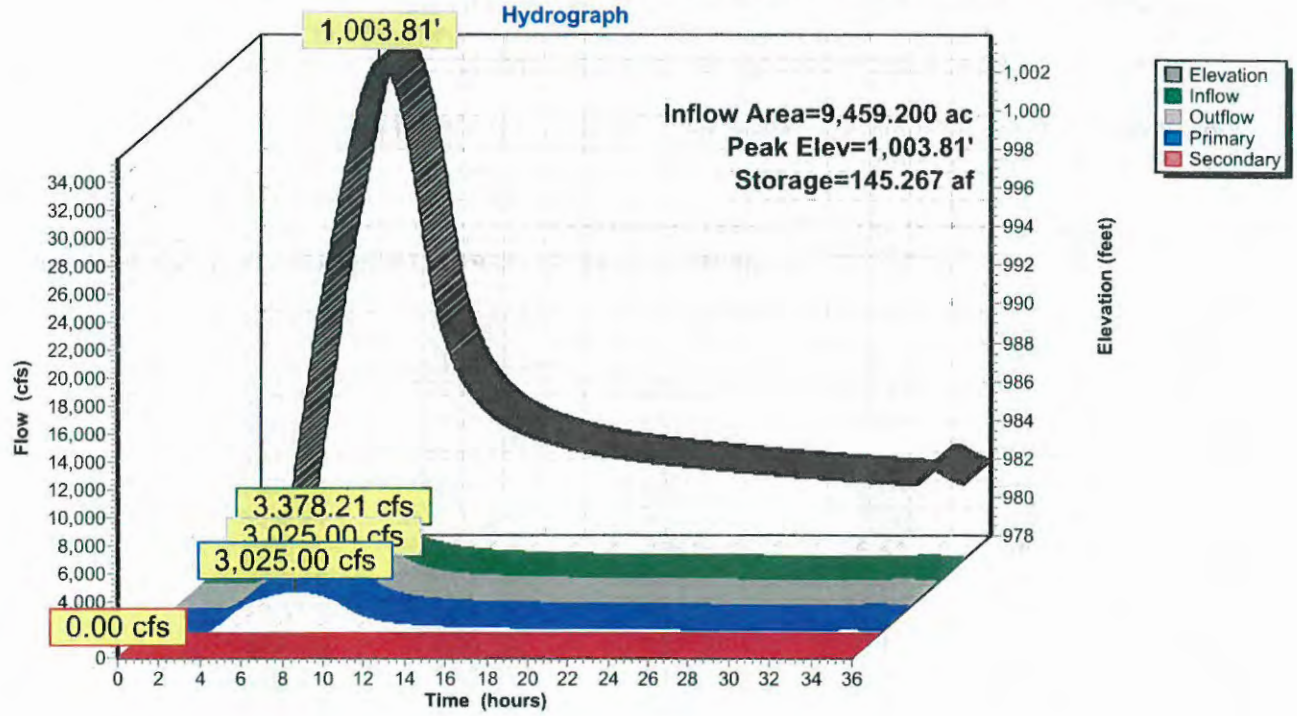
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

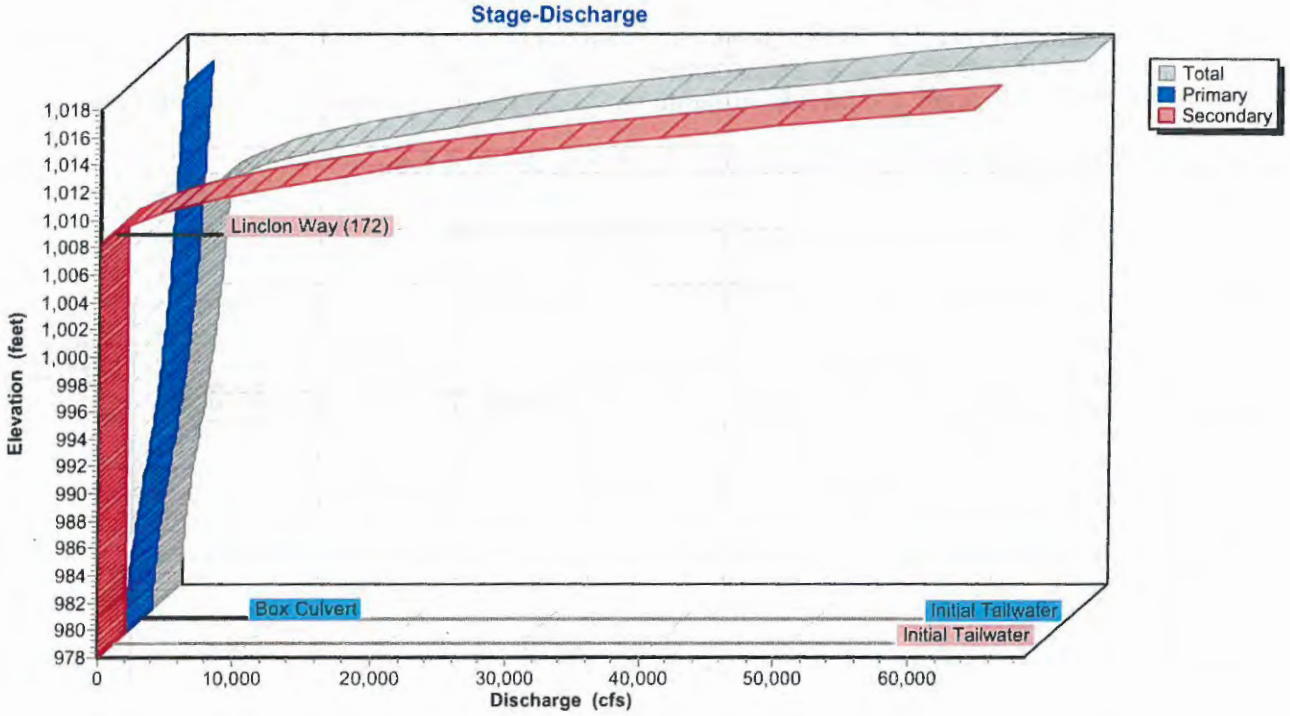
Primary OutFlow Max=3,024.99 cfs @ 7.28 hrs HW=1,003.81' TW=984.17' (Dynamic Tailwater)
└**1=Box Culvert** (Inlet Controls 3,024.99 cfs @ 26.46 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└**2=Linclon Way (172)** (Controls 0.00 cfs)

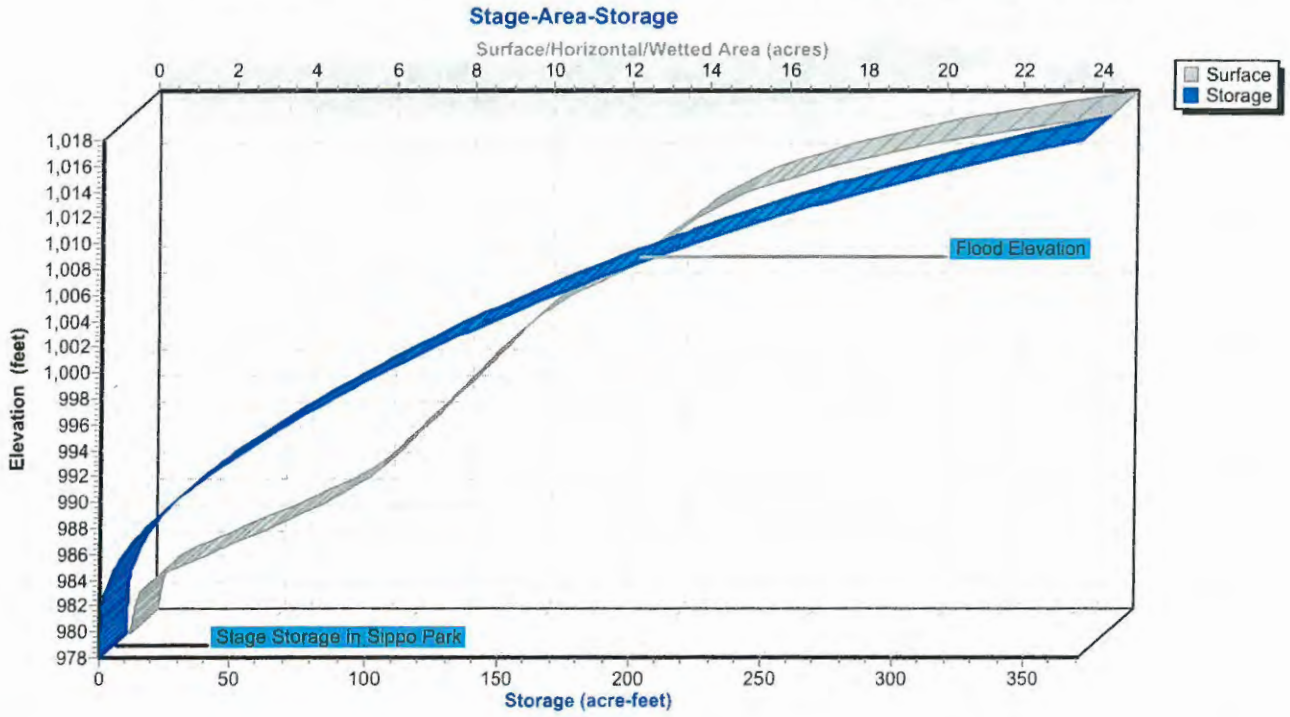
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

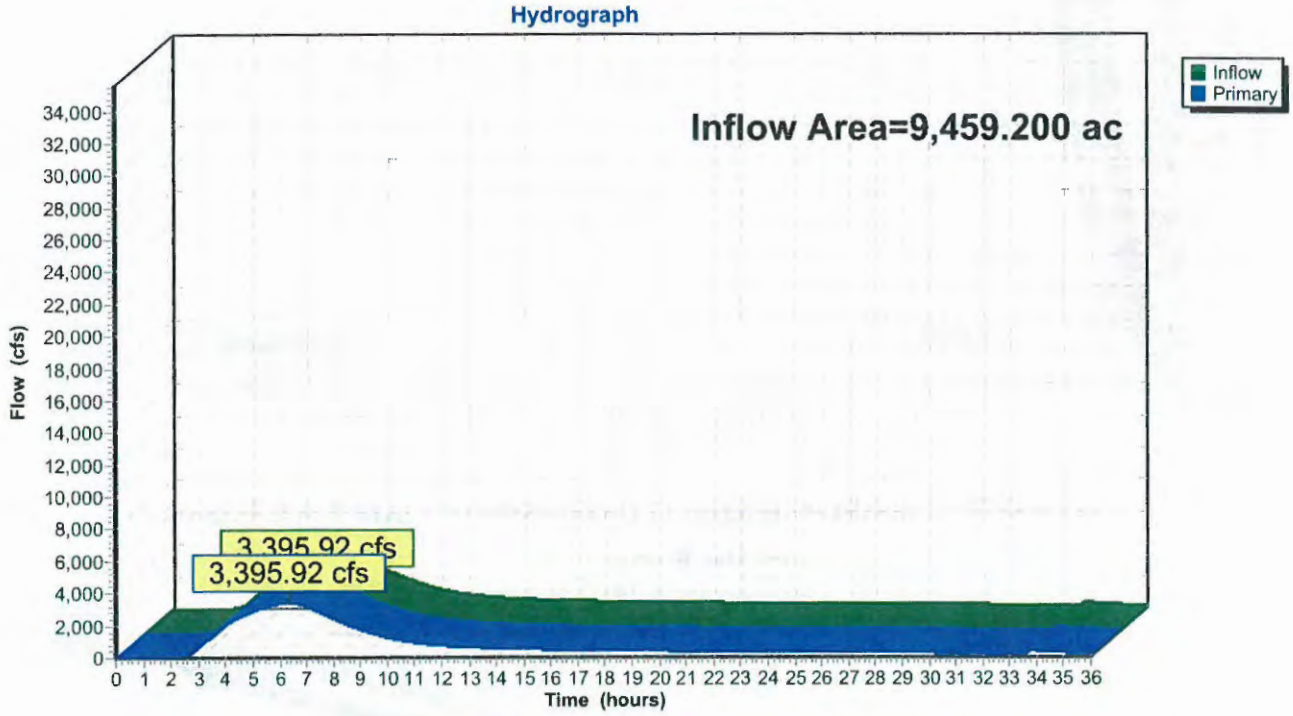


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.89" for 6-HR 0.23 PMF event
Inflow = 3,395.92 cfs @ 6.33 hrs, Volume= 2,280.804 af
Primary = 3,395.92 cfs @ 6.34 hrs, Volume= 2,280.804 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 19C: Confluence 19



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment HYD 1: Lake Eric Drainage Runoff Area=115.200 ac 0.00% Impervious Runoff Depth=3.43"
Tc=44.0 min CN=74 Runoff=181.35 cfs 32.930 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=3.53"
Tc=65.0 min CN=75 Runoff=390.74 cfs 79.084 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=3.04"
Tc=226.0 min CN=70 Runoff=931.95 cfs 354.729 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=2.85"
Tc=128.0 min CN=68 Runoff=907.49 cfs 254.950 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=2.75"
Tc=129.0 min CN=67 Runoff=627.14 cfs 177.523 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=3.43"
Tc=110.0 min CN=74 Runoff=811.83 cfs 206.729 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=3.53"
Tc=72.0 min CN=75 Runoff=1,031.98 cfs 216.540 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=4.04"
Tc=78.0 min CN=80 Runoff=1,066.66 cfs 228.616 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=2.94"
Tc=155.0 min CN=69 Runoff=843.67 cfs 261.930 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=3.53"
Tc=156.0 min CN=75 Runoff=1,886.34 cfs 578.067 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=2.75"
Tc=151.0 min CN=67 Runoff=485.77 cfs 149.647 af

Reach 5R: Channel 5 Avg. Flow Depth=3.13' Max Vel=6.10 fps Inflow=366.70 cfs 667.275 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=366.05 cfs 661.966 af

Reach 7R: Channel 7 Avg. Flow Depth=8.47' Max Vel=3.22 fps Inflow=1,100.11 cfs 916.713 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=1,043.05 cfs 908.032 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=4.34' Max Vel=3.06 fps Inflow=247.65 cfs 342.225 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=247.61 cfs 341.468 af

Reach 15R: Channel 15 Avg. Flow Depth=8.80' Max Vel=2.17 fps Inflow=2,990.35 cfs 1,837.950 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=2,515.23 cfs 1,805.449 af

Reach 16R: Channel 16 Avg. Flow Depth=10.80' Max Vel=2.69 fps Inflow=3,357.93 cfs 2,228.340 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=3,270.92 cfs 2,203.470 af

Reach 18R: Sippo Creek Avg. Flow Depth=6.14' Max Vel=9.59 fps Inflow=3,167.76 cfs 2,417.315 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=3,167.75 cfs 2,417.191 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=454.61 cfs 111.903 af
Primary=454.61 cfs 111.903 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,007.72' Storage=137.395 af Inflow=3,640.02 cfs 2,431.645 af
0.74 cfs 1,975.065 af Secondary=1,469.38 cfs 443.753 af Tertiary=0.00 cfs 0.000 af Outflow=3,551.26 cfs 2,418.818 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=1,114.11 cfs 466.124 af
Primary=1,114.11 cfs 466.124 af

Pond 3P: Lake Cable Peak Elev=1,098.22' Storage=2,105.661 af Inflow=1,114.11 cfs 466.123 af
Primary=366.70 cfs 667.375 af Secondary=0.00 cfs 0.000 af Outflow=366.70 cfs 667.375 af

Pond 4C: Confluence 4 Inflow=1,884.38 cfs 1,169.859 af
Primary=1,884.38 cfs 1,169.859 af

Pond 4P: Lake O'Springs Peak Elev=1,108.02' Storage=81.034 af Inflow=454.61 cfs 111.902 af
Primary=183.00 cfs 111.396 af Secondary=0.00 cfs 0.000 af Outflow=183.00 cfs 111.396 af

Pond 5C: Confluence 5 Inflow=2,484.76 cfs 1,347.279 af
Primary=2,484.76 cfs 1,347.279 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.07' Storage=27.781 af Inflow=181.35 cfs 32.930 af
Primary=105.68 cfs 32.554 af Secondary=7.62 cfs 0.265 af Outflow=113.30 cfs 32.819 af

Pond 6C: Confluence 6 Inflow=525.61 cfs 491.036 af
Primary=525.61 cfs 491.036 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=2,990.35 cfs 1,838.132 af
Primary=2,990.35 cfs 1,838.132 af

Pond 8C: Confluence 8 Inflow=3,357.93 cfs 2,228.528 af
Primary=3,357.93 cfs 2,228.528 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,025.44' Storage=371.494 af Inflow=1,530.85 cfs 485.228 af
Primary=127.09 cfs 290.388 af Secondary=132.70 cfs 51.917 af Outflow=247.65 cfs 342.305 af

Pond 9P: Sippo Lake Peak Elev=1,029.19' Storage=431.369 af Inflow=1,886.34 cfs 578.067 af
mary=1,530.85 cfs 485.229 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,530.85 cfs 485.229 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Inflow=1,100.11 cfs 916.814 af
Primary=1,100.11 cfs 916.814 af

Pond 16P: Lincoln Way Box Peak Elev=1,005.75' Storage=167.887 af Inflow=3,551.26 cfs 2,418.578 af
Primary=3,167.76 cfs 2,417.560 af Secondary=0.00 cfs 0.000 af Outflow=3,167.76 cfs 2,417.560 af

Pond 19C: Confluence 19 Inflow=3,640.02 cfs 2,431.866 af
Primary=3,640.02 cfs 2,431.866 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 2,540.746 af Average Runoff Depth = 3.22"
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

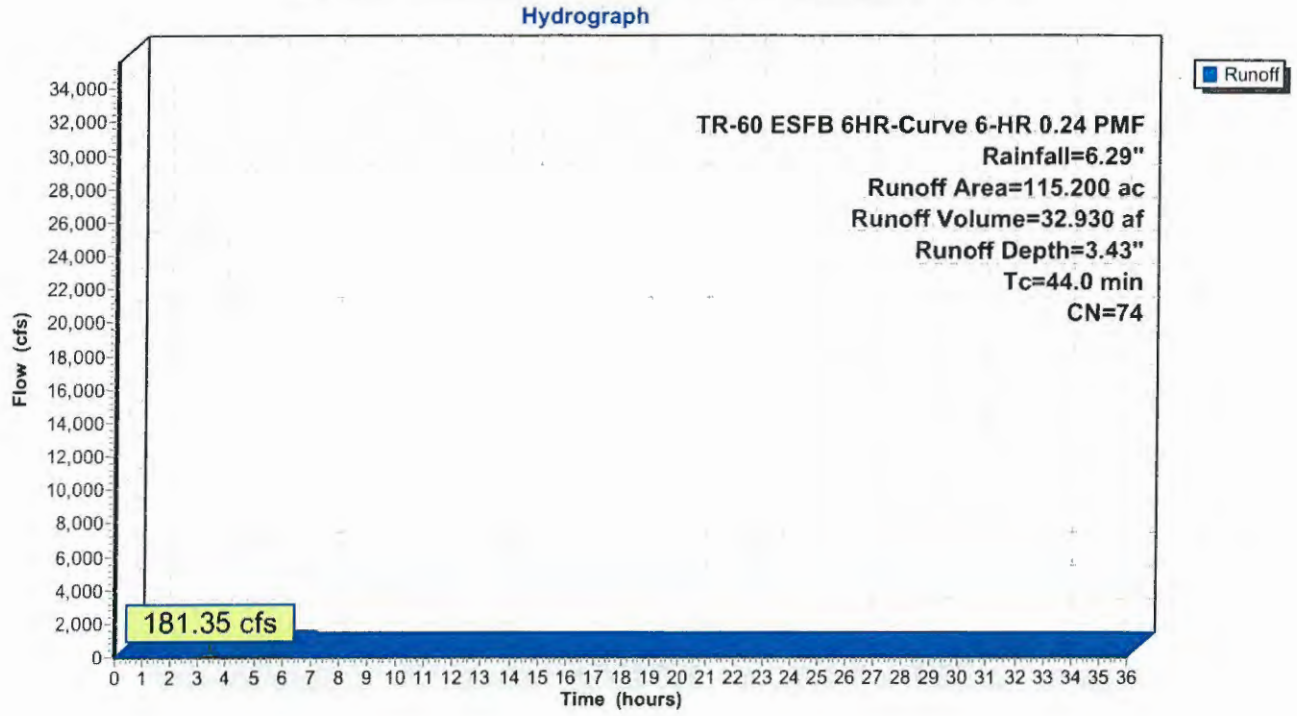
Runoff = 181.35 cfs @ 3.37 hrs, Volume= 32.930 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
115.200	74	>75% Grass cover, Good, HSG C
115.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0					**Direct Entry, HEC-1 Lag Time = 0.44 hr**

Subcatchment HYD 1: Lake Eric Drainage Area



Summary for Subcatchment HYD 2: Lake O'Springs Watershed

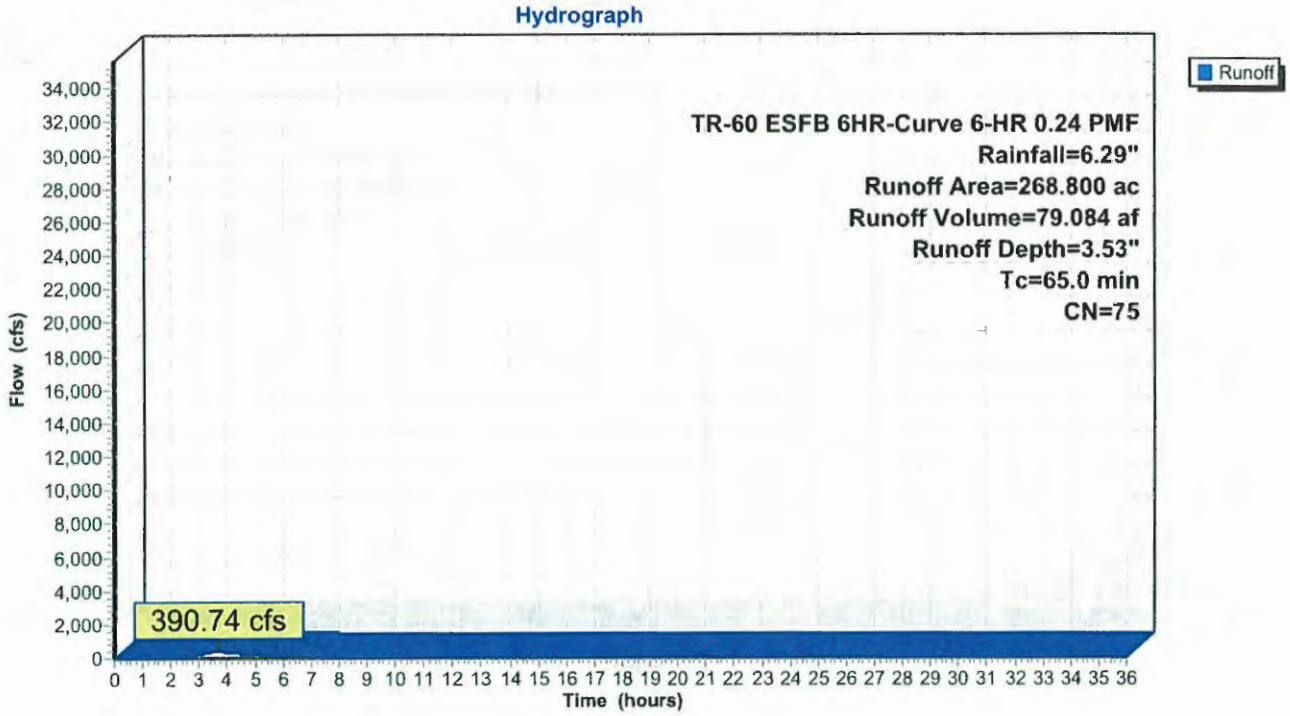
Runoff = 390.74 cfs @ 3.68 hrs, Volume= 79.084 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
268.800	75	1/4 acre lots, 38% imp, HSG B
166.656		62.00% Pervious Area
102.144		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0					**Direct Entry, HEC-1 Lag Time = 0.65 hours**

Subcatchment HYD 2: Lake O'Springs Watershed



Summary for Subcatchment HYD 3: Lake Cable Watershed

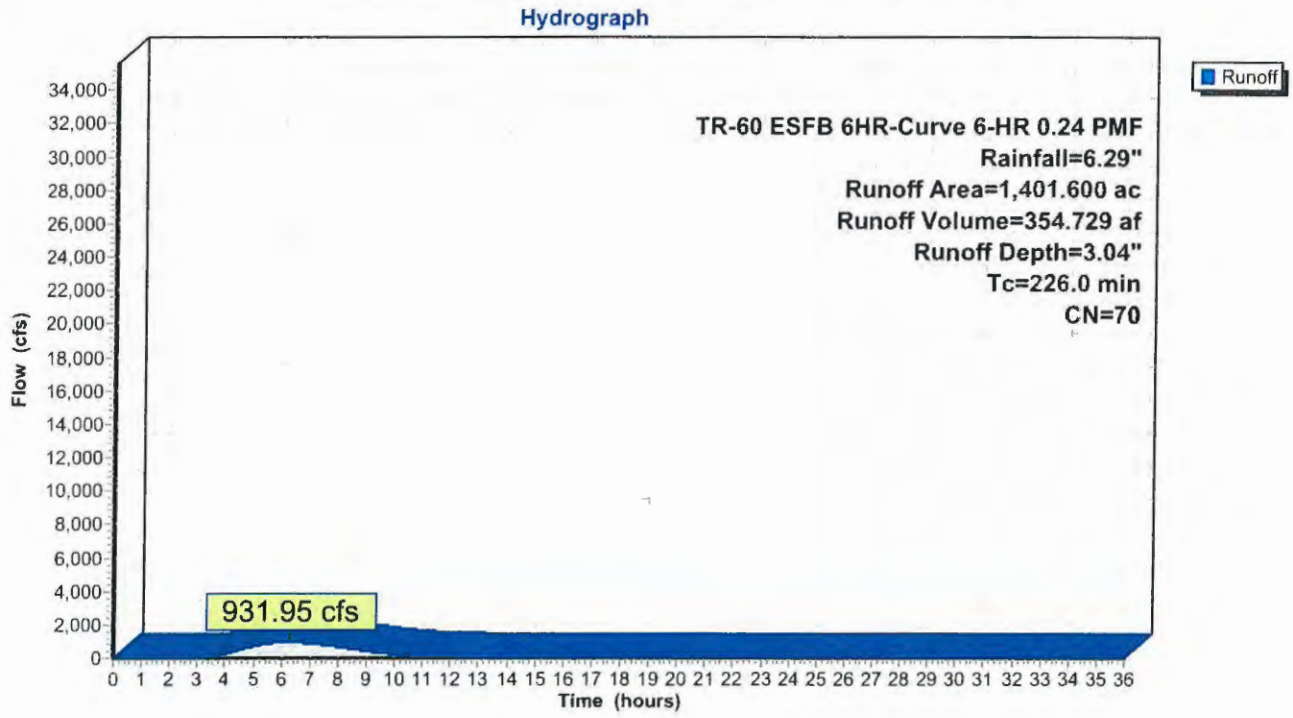
Runoff = 931.95 cfs @ 6.28 hrs, Volume= 354.729 af, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
1,401.600	70	1/2 acre lots, 25% imp, HSG B
1,051.200		75.00% Pervious Area
350.400		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
226.0					**Direct Entry, HEC-1 Lag time 2.26hr**

Subcatchment HYD 3: Lake Cable Watershed



Summary for Subcatchment HYD 4: Hyd 4 Watershed

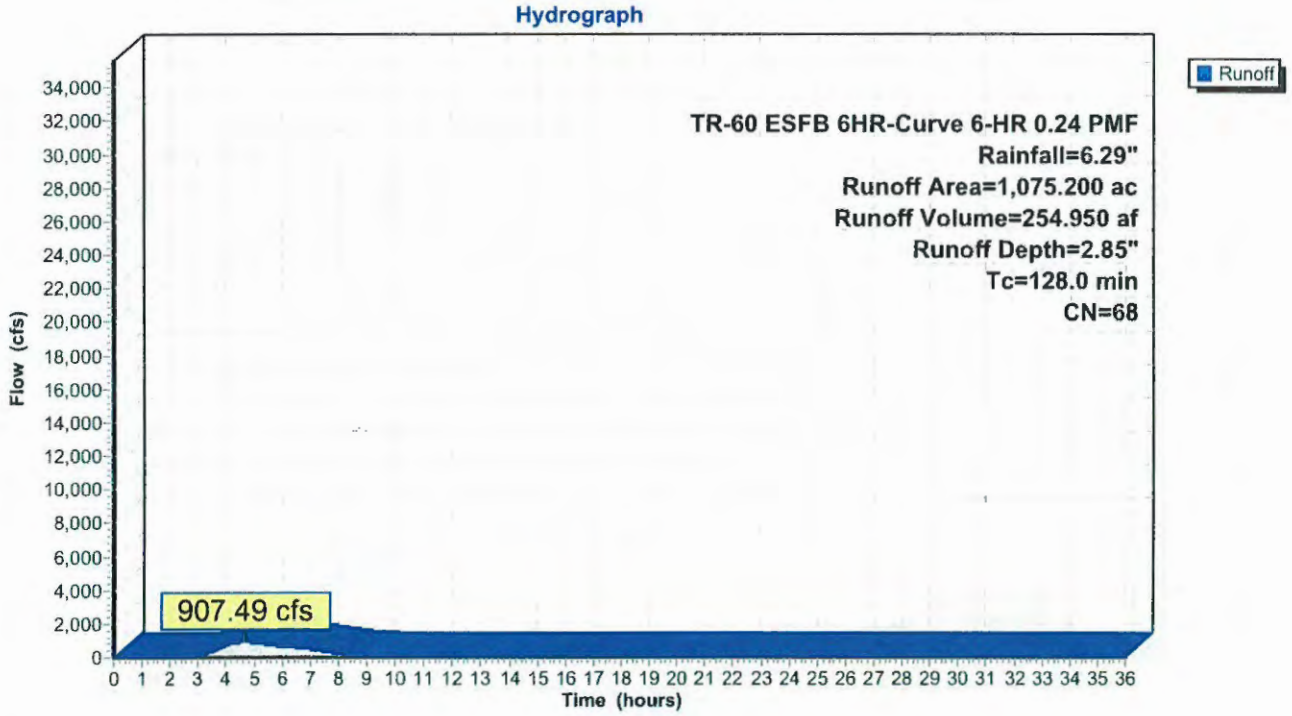
Runoff = 907.49 cfs @ 4.69 hrs, Volume= 254.950 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
1,075.200	68	1 acre lots, 20% imp, HSG B
860.160		80.00% Pervious Area
215.040		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
128.0					**Direct Entry, HEC-1 Lag Time = 1.28 hr**

Subcatchment HYD 4: Hyd 4 Watershed



Summary for Subcatchment HYD11: HYD11 Watershed

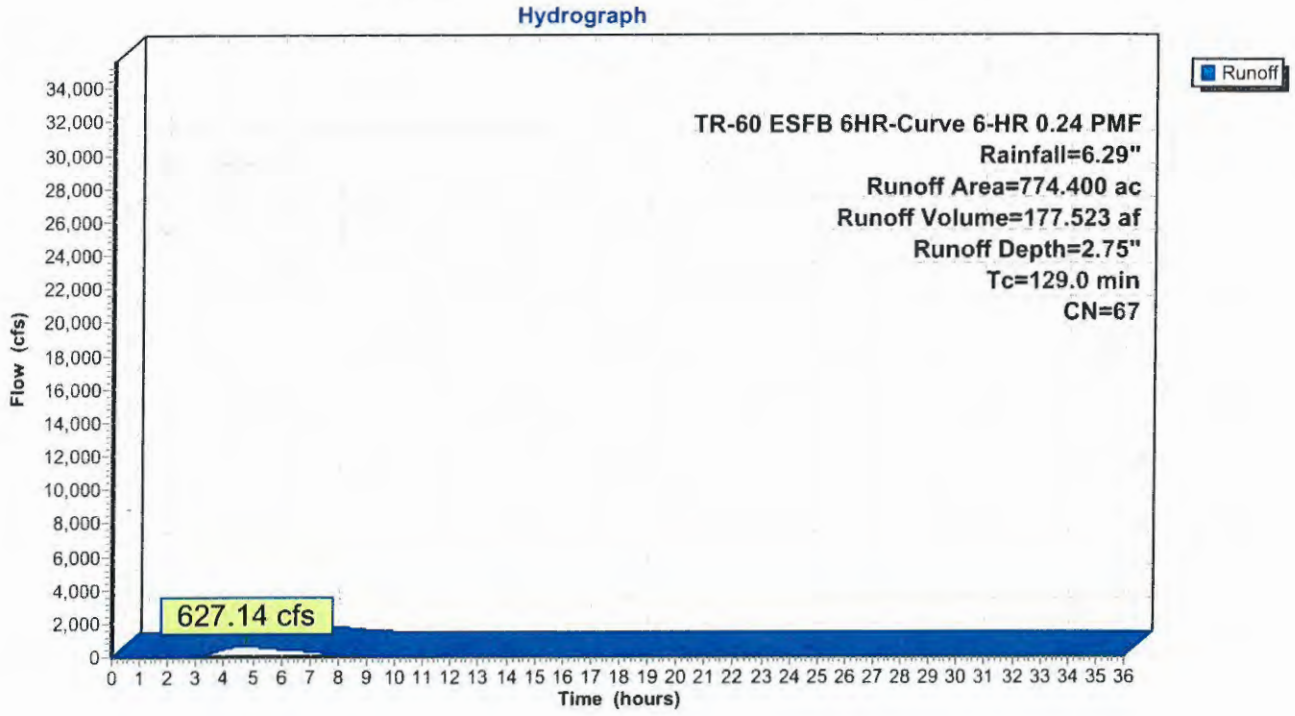
Runoff = 627.14 cfs @ 4.73 hrs, Volume= 177.523 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

	Area (ac)	CN	Description
*	774.400	67	
	774.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
129.0					**Direct Entry, HEC-1 Lag Time = 1.29 hr**

Subcatchment HYD11: HYD11 Watershed



Summary for Subcatchment HYD12: HYD12 Watershed

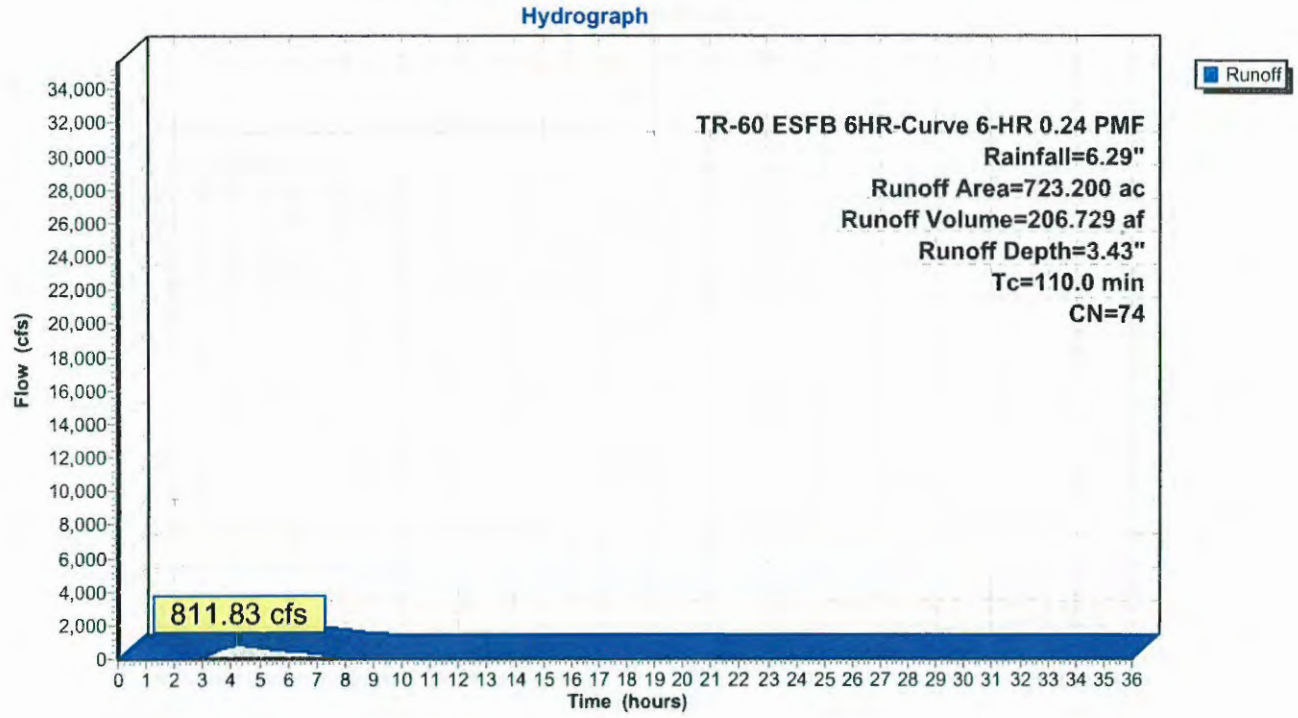
Runoff = 811.83 cfs @ 4.28 hrs, Volume= 206.729 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
723.200	74	>75% Grass cover, Good, HSG C
723.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
110.0					**Direct Entry, HEC-1 Lag Time = 1.10 hr**

Subcatchment HYD12: HYD12 Watershed



Summary for Subcatchment HYD13: HYD13 Watershed

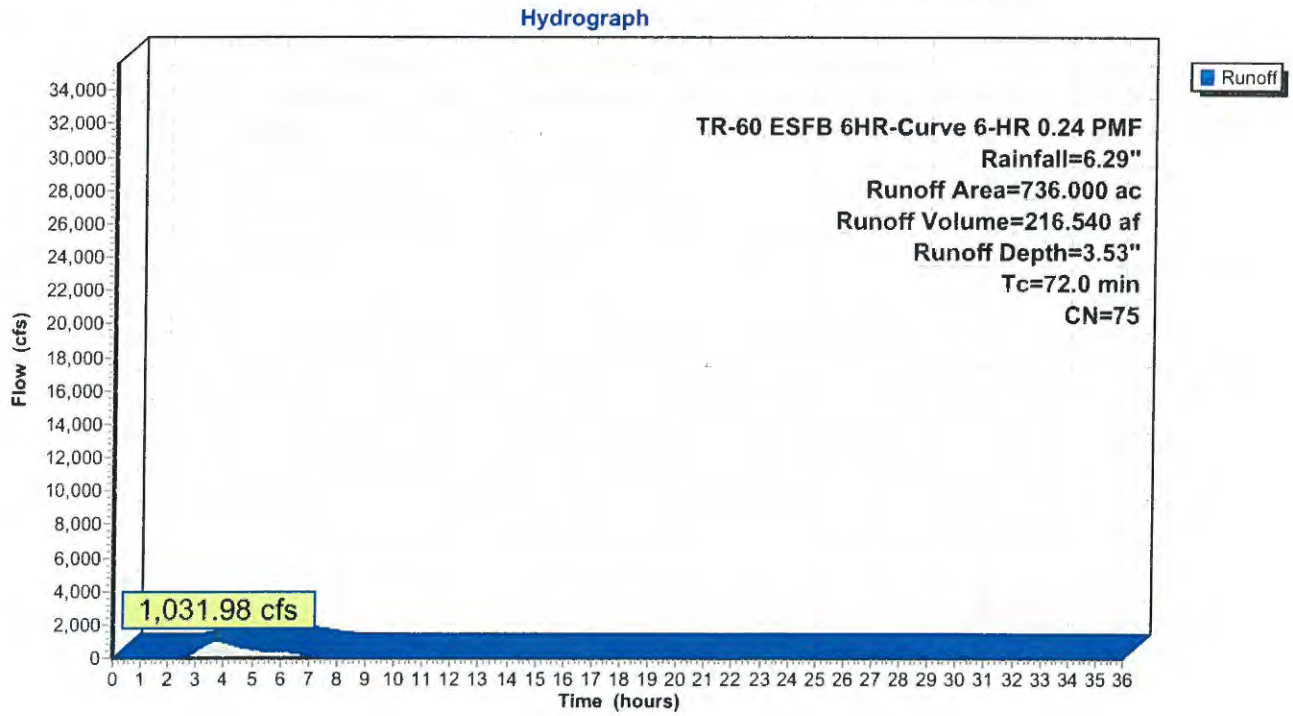
Runoff = 1,031.98 cfs @ 3.76 hrs, Volume= 216.540 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
736.000	75	1/4 acre lots, 38% imp, HSG B
456.320		62.00% Pervious Area
279.680		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0					**Direct Entry, HEC-1 Lag Time = 0.72 hr**

Subcatchment HYD13: HYD13 Watershed



Summary for Subcatchment HYD14: HYD14 Watershed

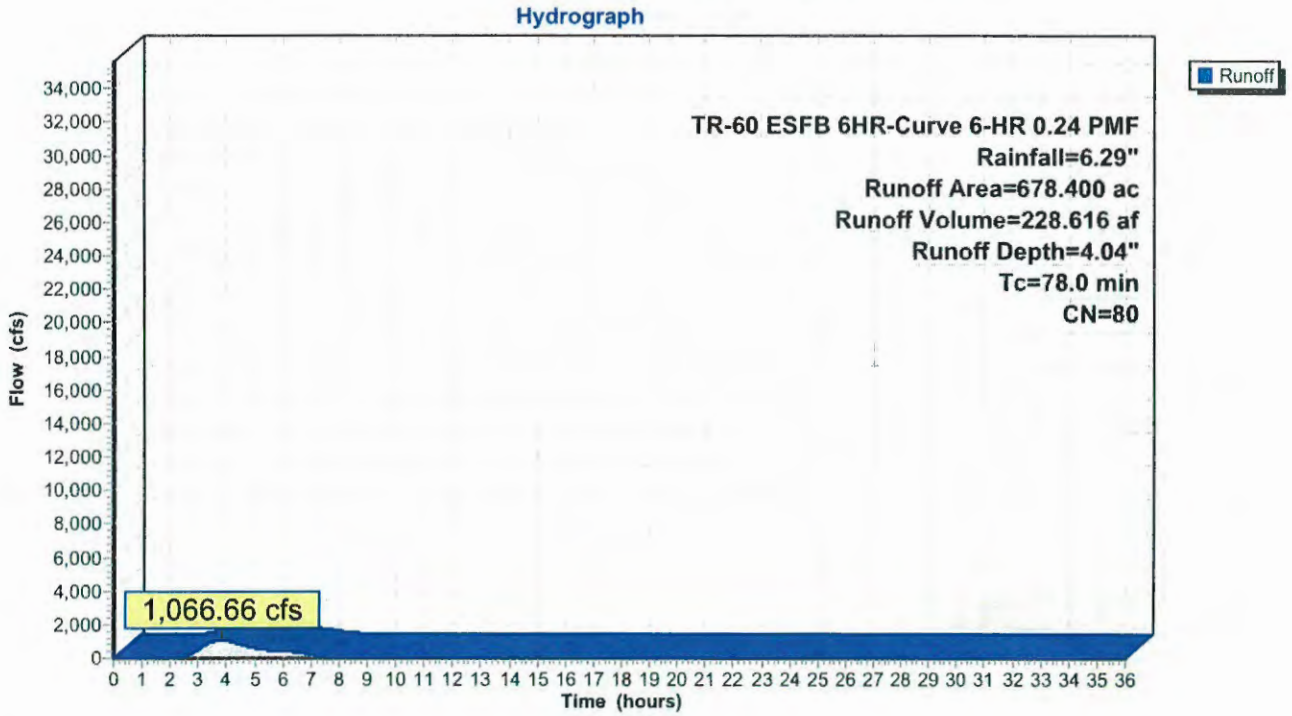
Runoff = 1,066.66 cfs @ 3.81 hrs, Volume= 228.616 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
678.400	80	1/2 acre lots, 25% imp, HSG C
508.800		75.00% Pervious Area
169.600		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
78.0					**Direct Entry, HEC-1 Lag Time = 0.78 hr**

Subcatchment HYD14: HYD14 Watershed



Summary for Subcatchment HYD6: HYD6 Watershed

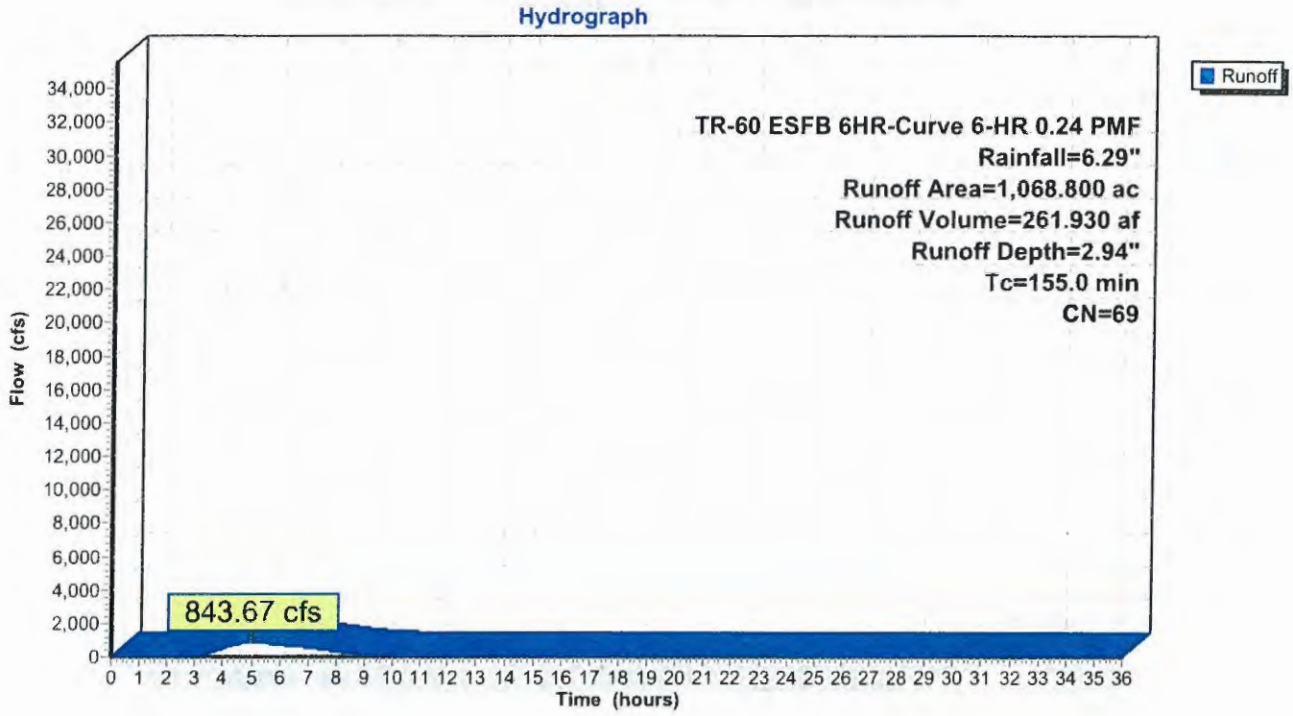
Runoff = 843.67 cfs @ 5.00 hrs, Volume= 261.930 af, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
1,068.800	69	Pasture/grassland/range, Fair, HSG B
1,068.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
155.0					**Direct Entry, HEC-1 Lag Time = 1.55 hr**

Subcatchment HYD6: HYD6 Watershed



Summary for Subcatchment HYD8: Sippo Lake Watershed

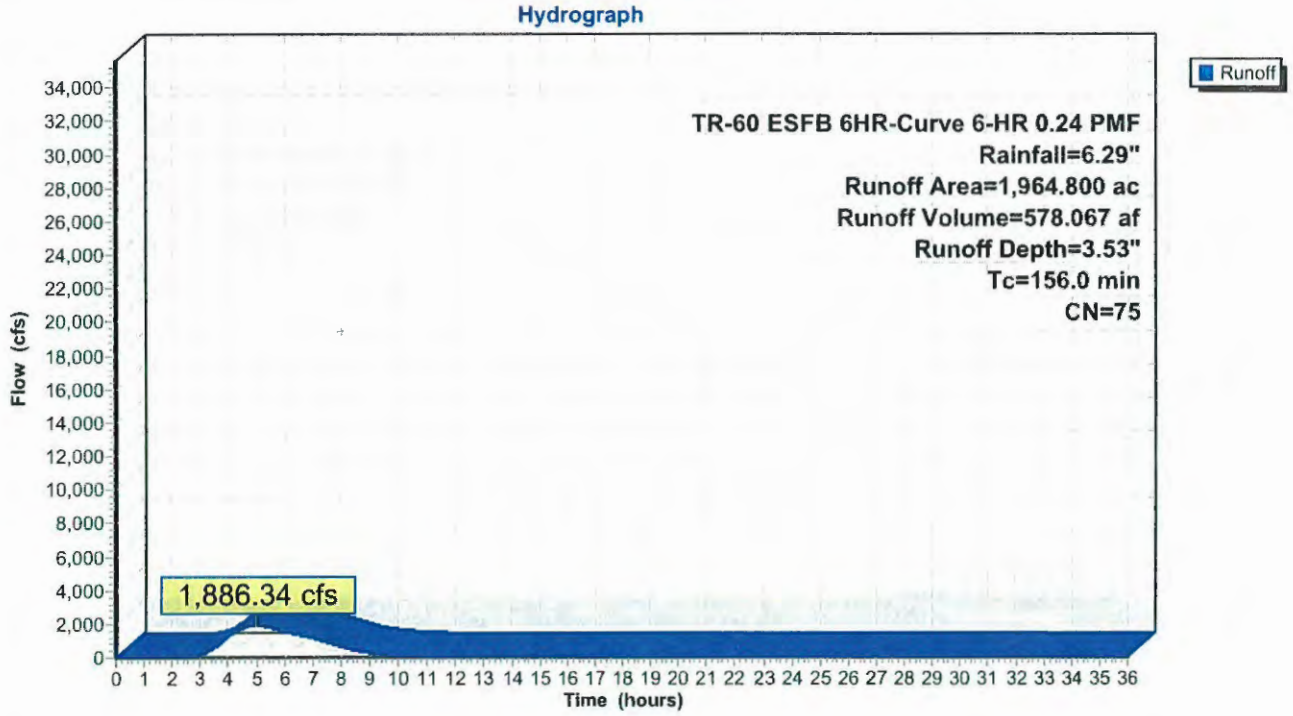
Runoff = 1,886.34 cfs @ 5.03 hrs, Volume= 578.067 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

Area (ac)	CN	Description
1,964.800	75	1/4 acre lots, 38% imp, HSG B
1,218.176		62.00% Pervious Area
746.624		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
156.0					**Direct Entry, HEC-1 Lag Time = 1.56hr**

Subcatchment HYD8: Sippo Lake Watershed



Summary for Subcatchment HYD9: HYD9 Watershed

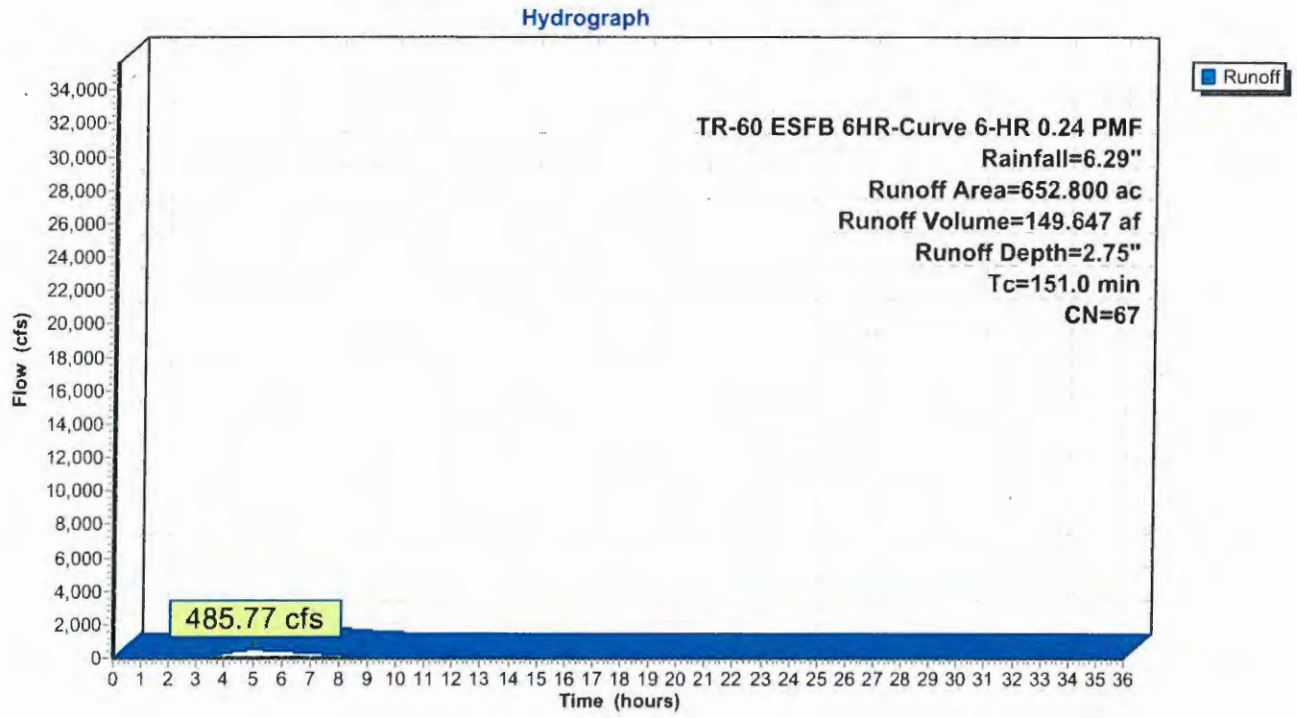
Runoff = 485.77 cfs @ 5.04 hrs, Volume= 149.647 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.24 PMF Rainfall=6.29"

	Area (ac)	CN	Description
*	652.800	67	
	652.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
151.0					**Direct Entry, HEC-1 Lag Time = 1.51hr**

Subcatchment HYD9: HYD9 Watershed



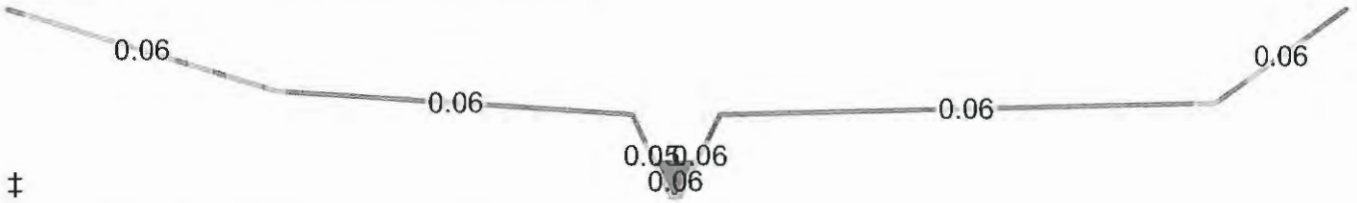
Summary for Reach 5R: Channel 5

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 4.48" for 6-HR 0.24 PMF event
Inflow = 366.70 cfs @ 9.69 hrs, Volume= 667.275 af
Outflow = 366.05 cfs @ 10.00 hrs, Volume= 661.966 af, Atten= 0%, Lag= 19.0 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.10 fps, Min. Travel Time= 24.0 min
Avg. Velocity = 5.29 fps, Avg. Travel Time= 27.7 min

Peak Storage= 528,076 cf @ 10.00 hrs
Average Depth at Peak Storage= 3.13'
Defined Flood Depth= 16.00', Capacity at Flood Depth= 106,015.62 cfs
Bank-Full Depth= 16.00', Capacity at Bank-Full= 106,015.62 cfs

Custom cross-section, Length= 8,800.0' Slope= 0.0240 '/' (102 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,069.00', Outlet Invert= 857.80'

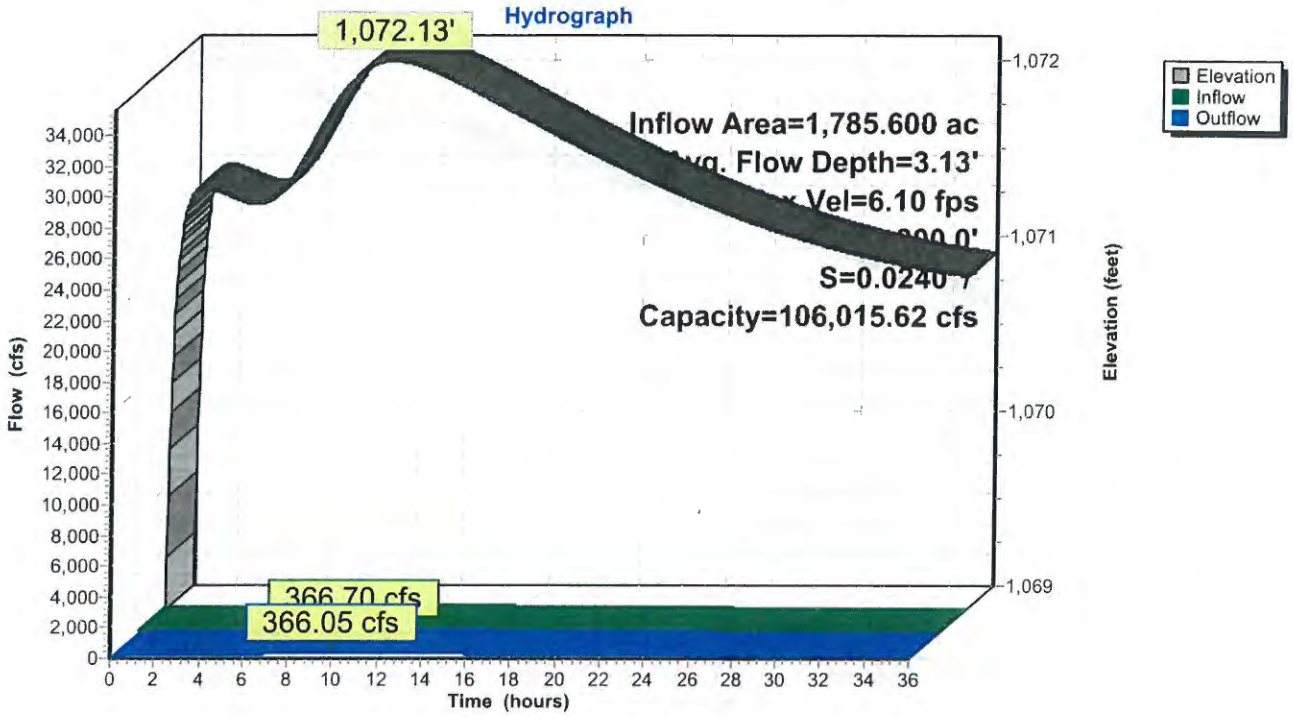


‡

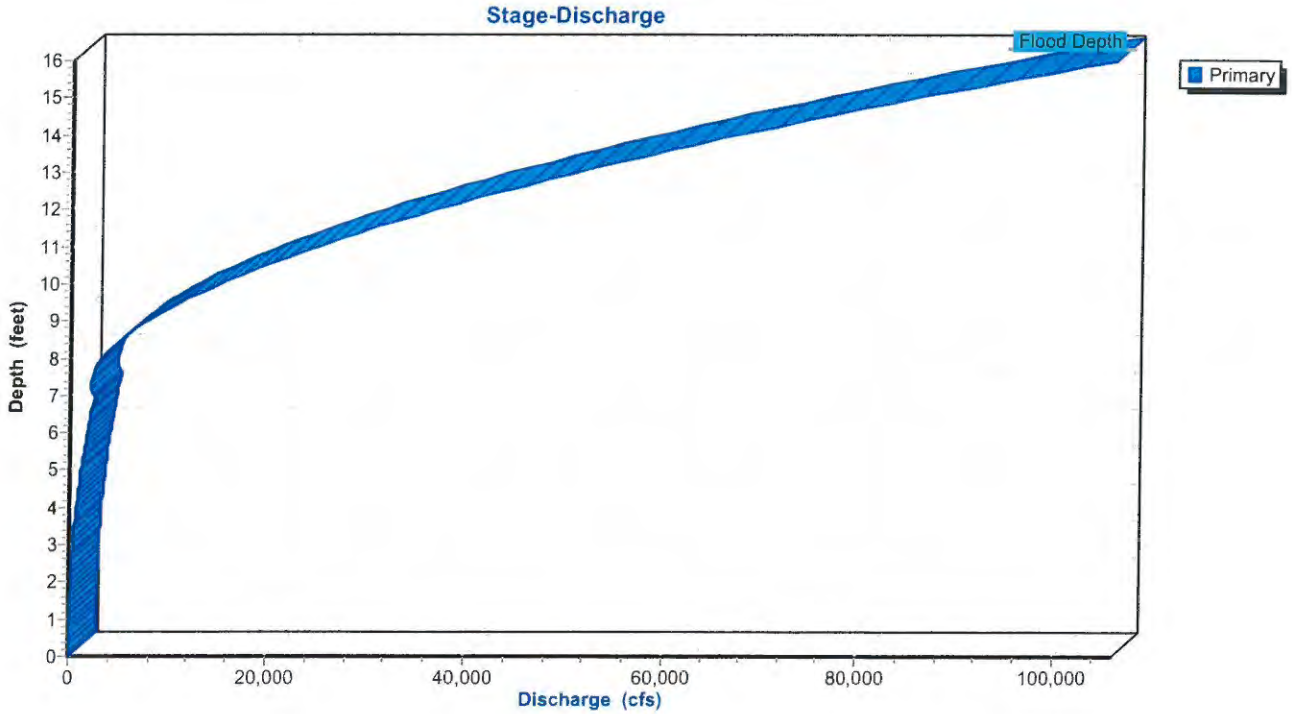
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	6.0	0	0.00
7.00	248.5	66.6	2,186,800	2,476.94
8.00	564.8	569.1	4,969,800	3,087.89
9.00	1,204.8	714.2	10,601,800	7,790.91
16.00	7,198.5	1,002.1	63,346,800	106,015.62

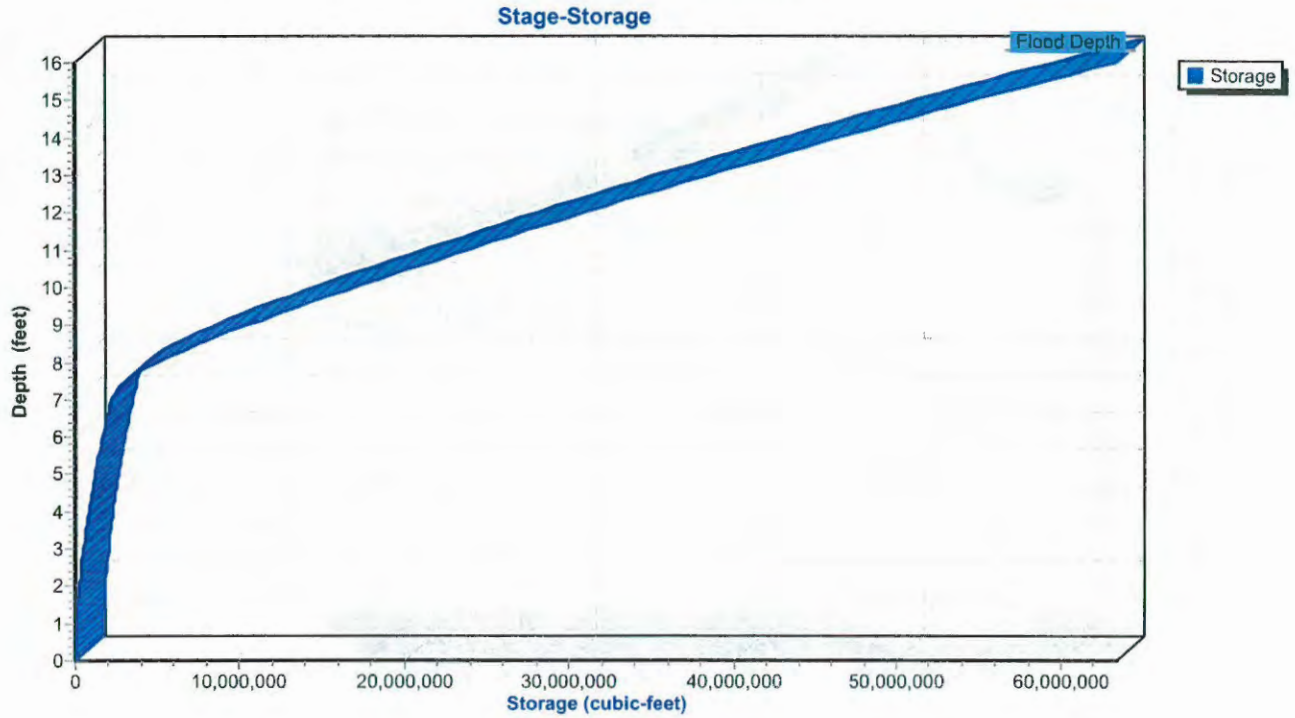
Reach 5R: Channel 5



Reach 5R: Channel 5



Reach 5R: Channel 5



Summary for Reach 7R: Channel 7

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.85" for 6-HR 0.24 PMF event
Inflow = 1,100.11 cfs @ 4.70 hrs, Volume= 916.713 af
Outflow = 1,043.05 cfs @ 5.15 hrs, Volume= 908.032 af, Atten= 5%, Lag= 27.1 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.22 fps, Min. Travel Time= 30.5 min
Avg. Velocity = 2.29 fps, Avg. Travel Time= 43.0 min

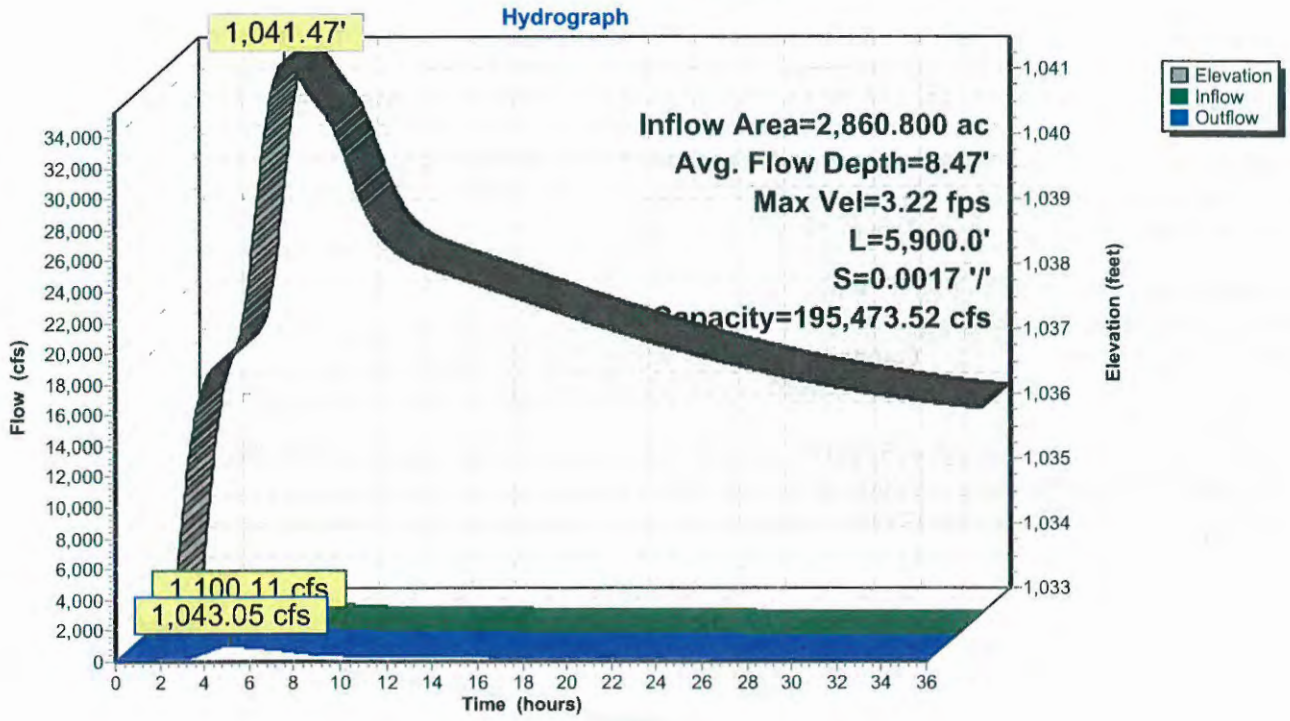
Peak Storage= 1,910,923 cf @ 5.15 hrs
Average Depth at Peak Storage= 8.47'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'

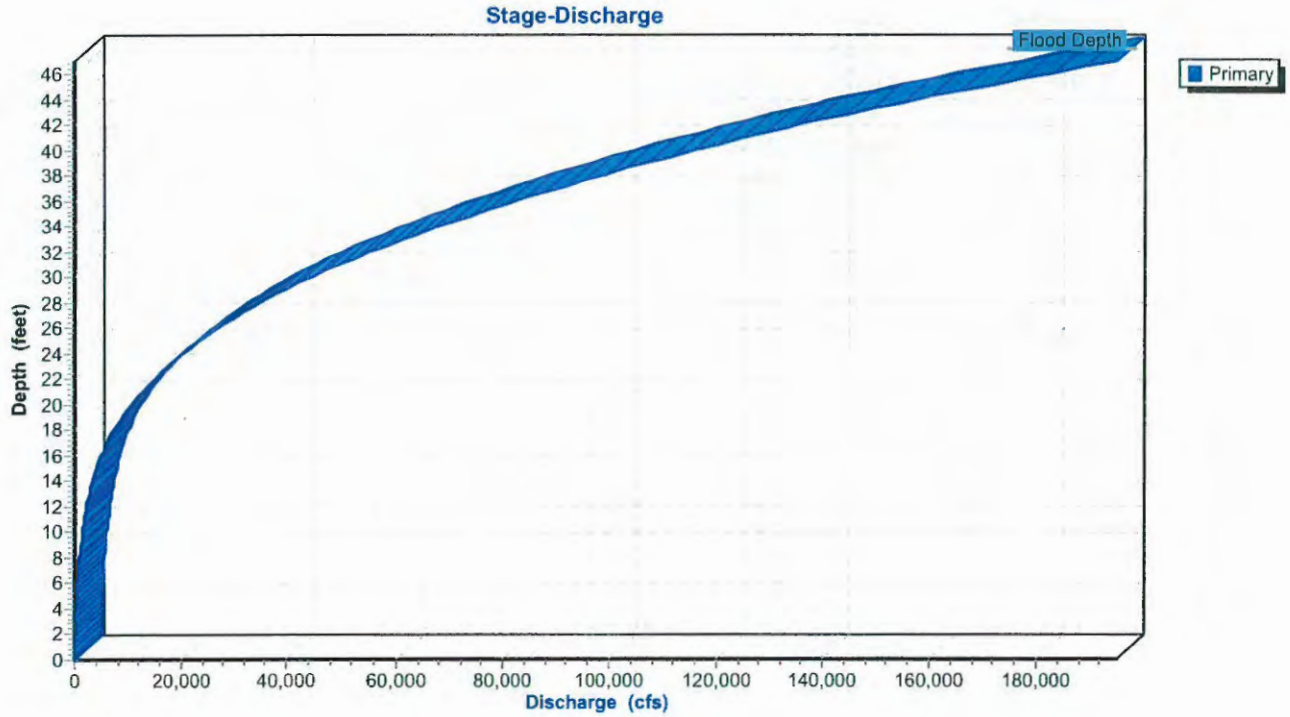
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00	5.00	0.060	
1,005.00	1,080.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
12.00	600.0	93.7	3,540,000	2,349.60
19.00	2,140.0	354.1	12,626,000	8,862.05
32.00	9,417.2	774.5	55,561,326	55,339.93
42.00	18,098.3	972.7	106,780,167	135,620.34
47.00	23,027.5	1,013.5	135,862,250	195,473.52

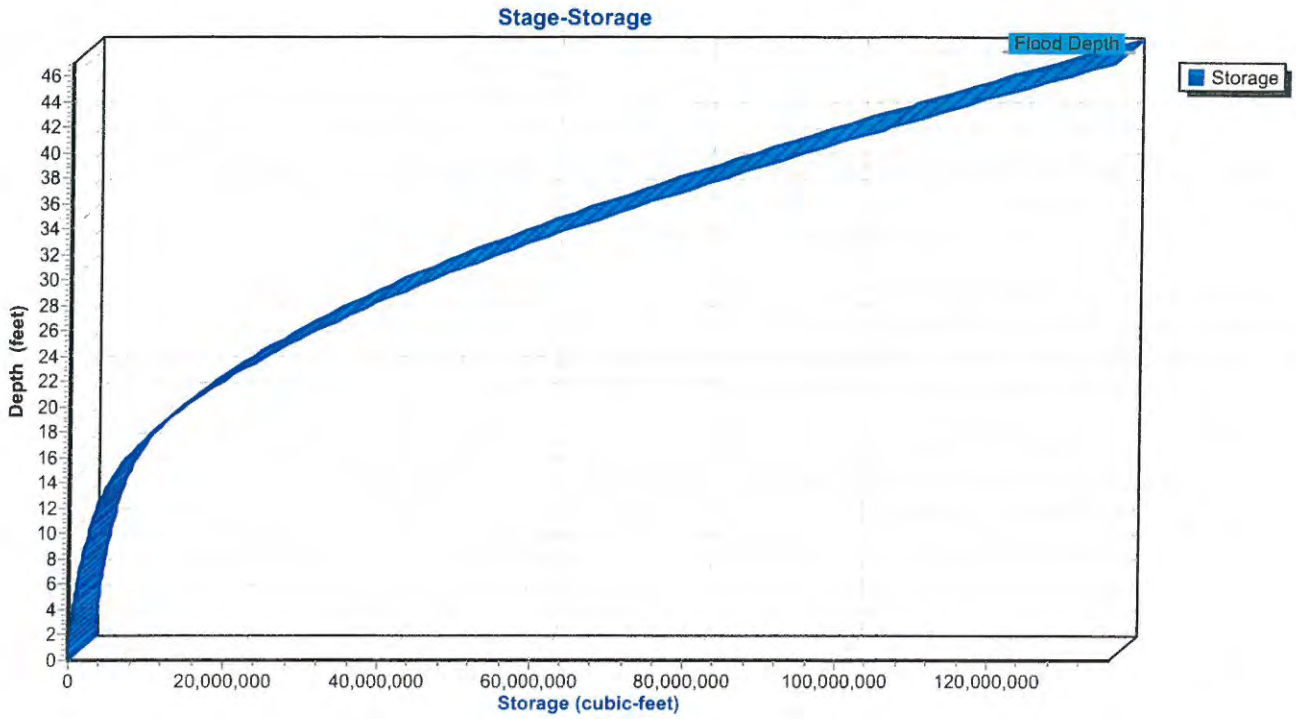
Reach 7R: Channel 7



Reach 7R: Channel 7



Reach 7R: Channel 7



Summary for Reach 10Ra: Channel 10 (Reach West of Genoa Rd)

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 2.09" for 6-HR 0.24 PMF event
Inflow = 247.65 cfs @ 10.32 hrs, Volume= 342.225 af
Outflow = 247.61 cfs @ 10.38 hrs, Volume= 341.468 af, Atten= 0%, Lag= 3.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.06 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 2.53 fps, Avg. Travel Time= 5.9 min

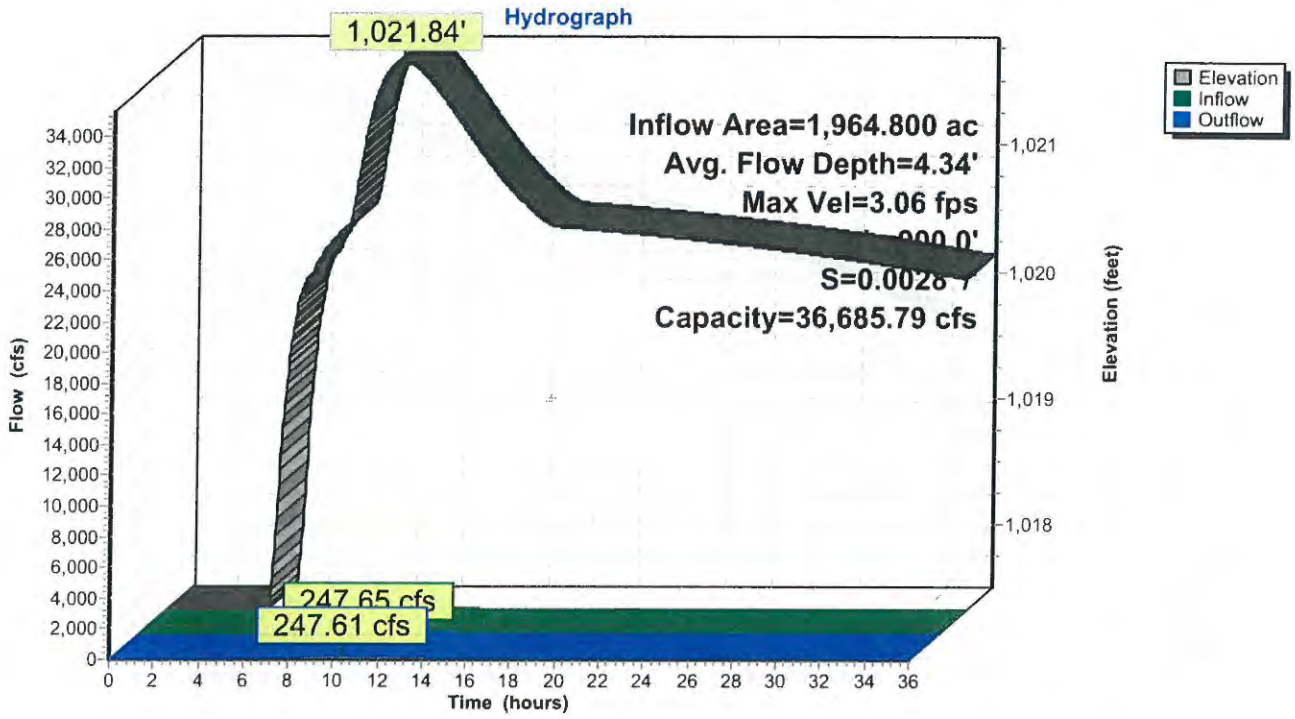
Peak Storage= 72,858 cf @ 10.38 hrs
Average Depth at Peak Storage= 4.34'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 36,685.79 cfs
Bank-Full Depth= 15.00', Capacity at Bank-Full= 36,685.79 cfs

Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

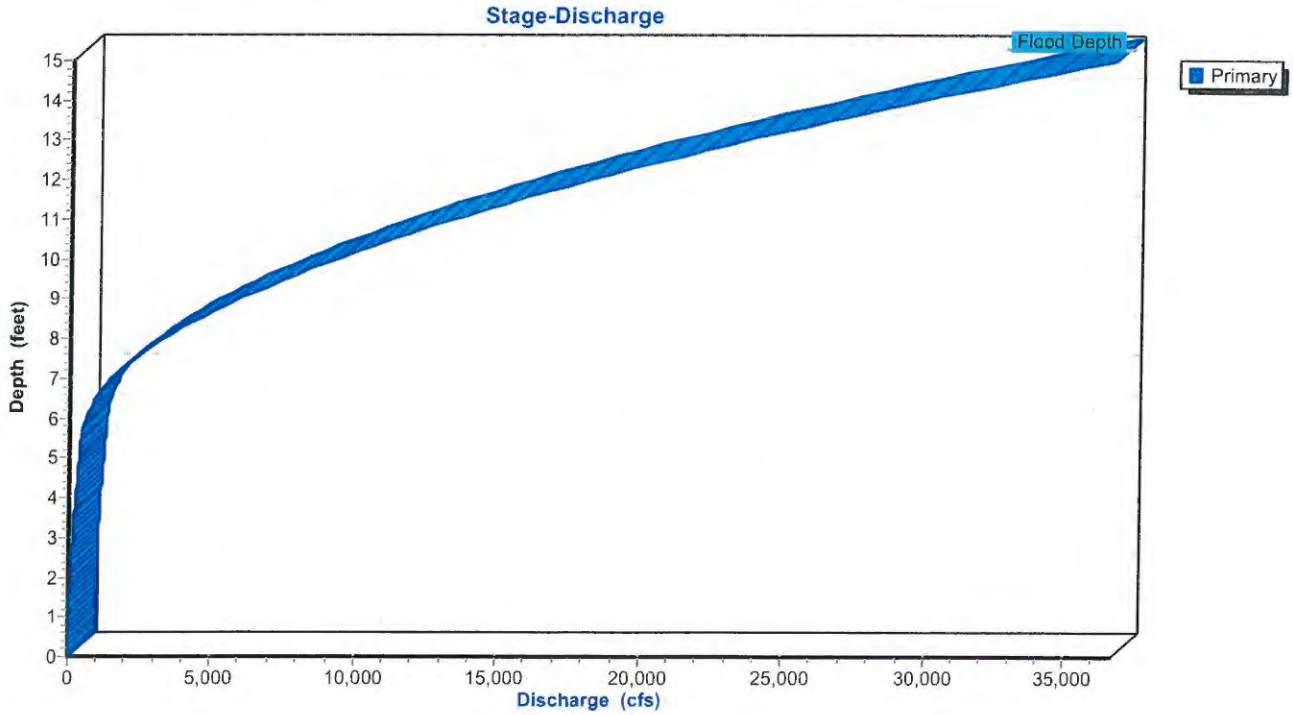
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
5.00	100.0	32.4	90,000	328.73
7.00	760.0	632.4	684,000	1,430.41
10.00	2,876.9	783.7	2,589,188	9,317.36
15.00	7,330.0	1,002.7	6,597,000	36,685.79

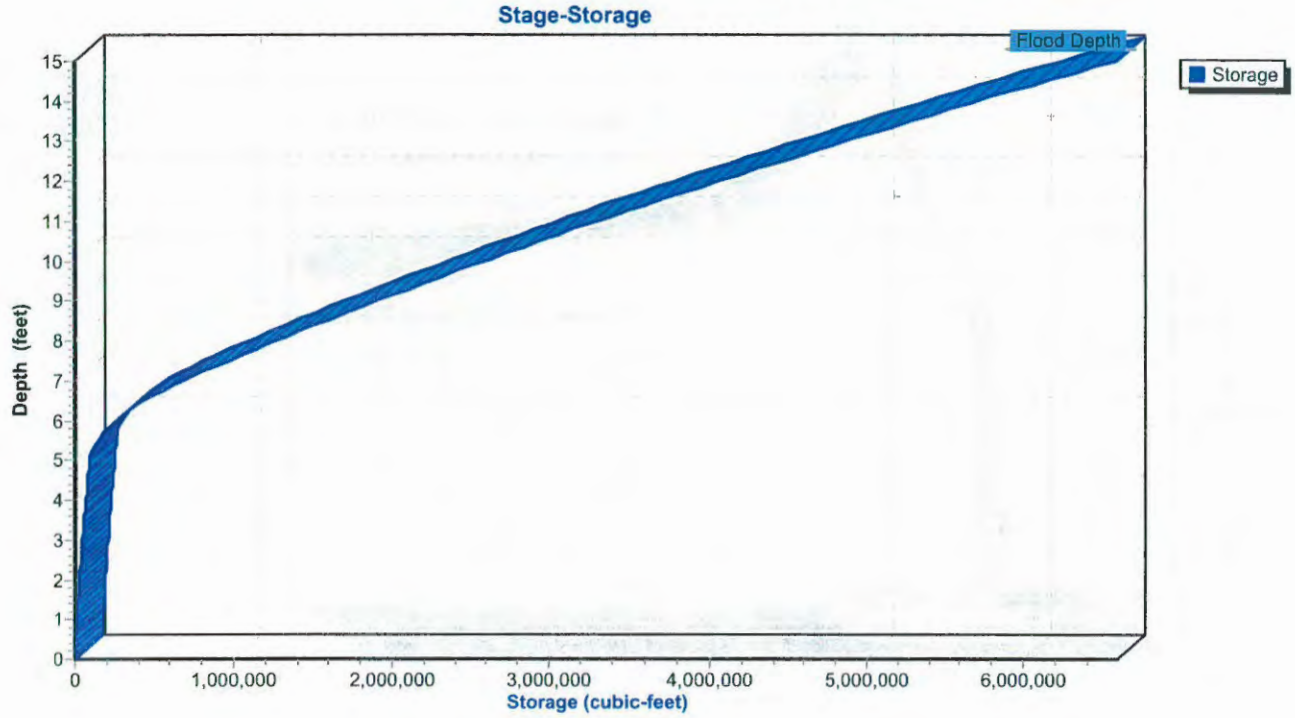
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 3.01" for 6-HR 0.24 PMF event
Inflow = 2,990.35 cfs @ 5.06 hrs, Volume= 1,837.950 af
Outflow = 2,515.23 cfs @ 6.23 hrs, Volume= 1,805.449 af, Atten= 16%, Lag= 70.3 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.17 fps, Min. Travel Time= 67.5 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 95.8 min

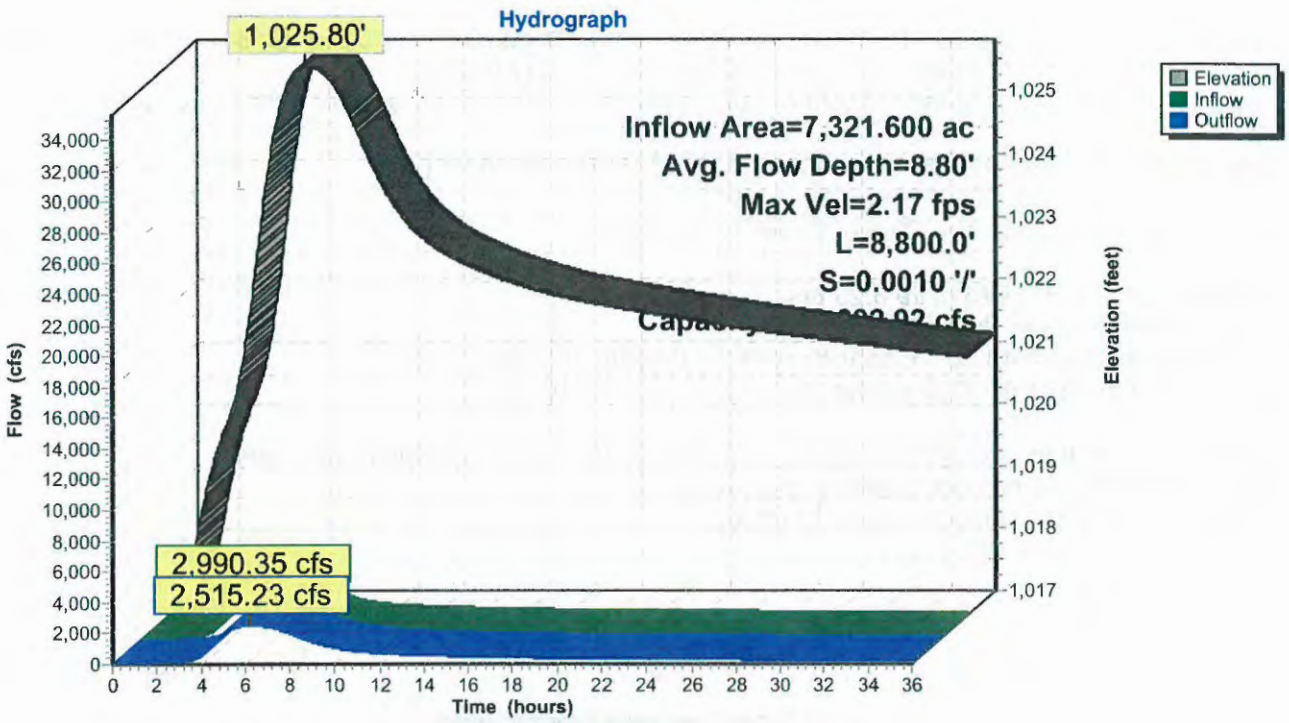
Peak Storage= 10,202,923 cf @ 6.23 hrs
Average Depth at Peak Storage= 8.80'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'

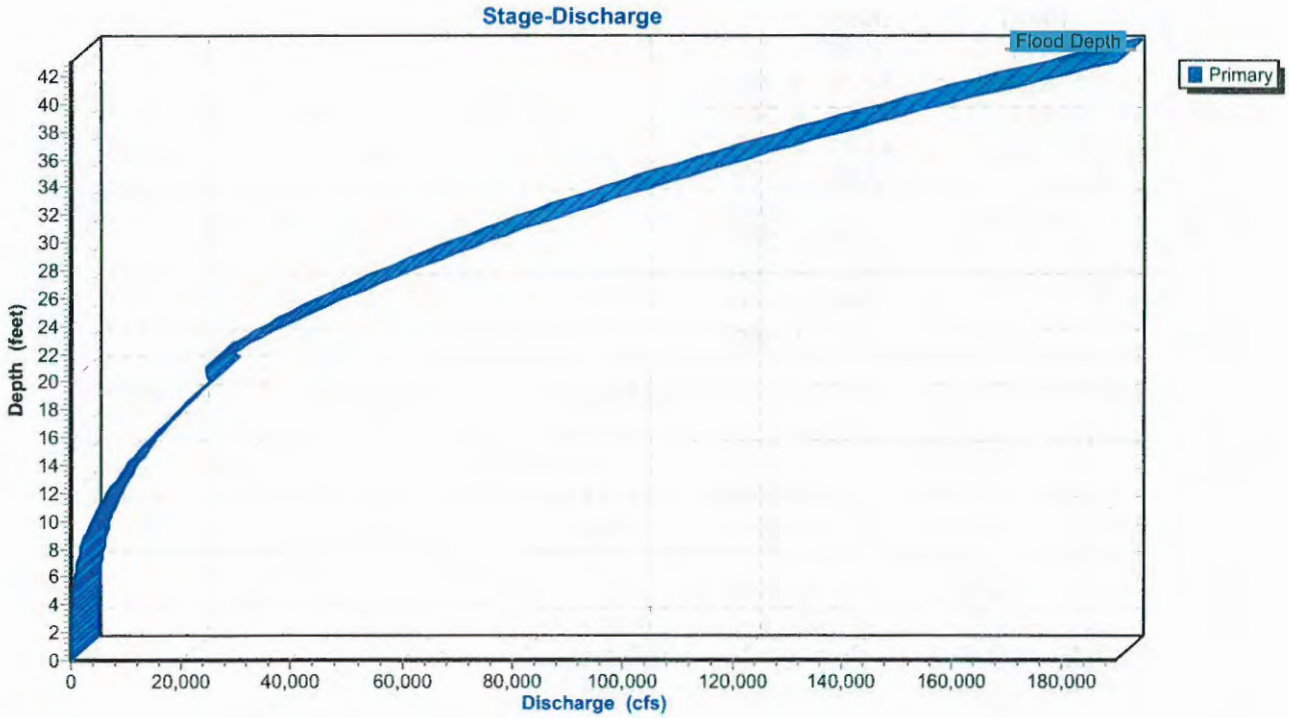
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00	22.00	0.060	
1,010.00	1,060.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	14.0	0	0.00
3.00	78.8	39.2	693,000	116.39
5.00	273.4	157.2	2,406,067	396.99
6.00	435.5	169.2	3,832,400	733.92
9.00	1,230.5	363.4	10,828,400	2,703.81
20.00	6,230.3	549.8	54,826,847	25,737.78
21.00	6,906.8	808.7	60,779,788	24,784.16
43.00	26,881.5	1,028.2	236,557,200	189,892.92

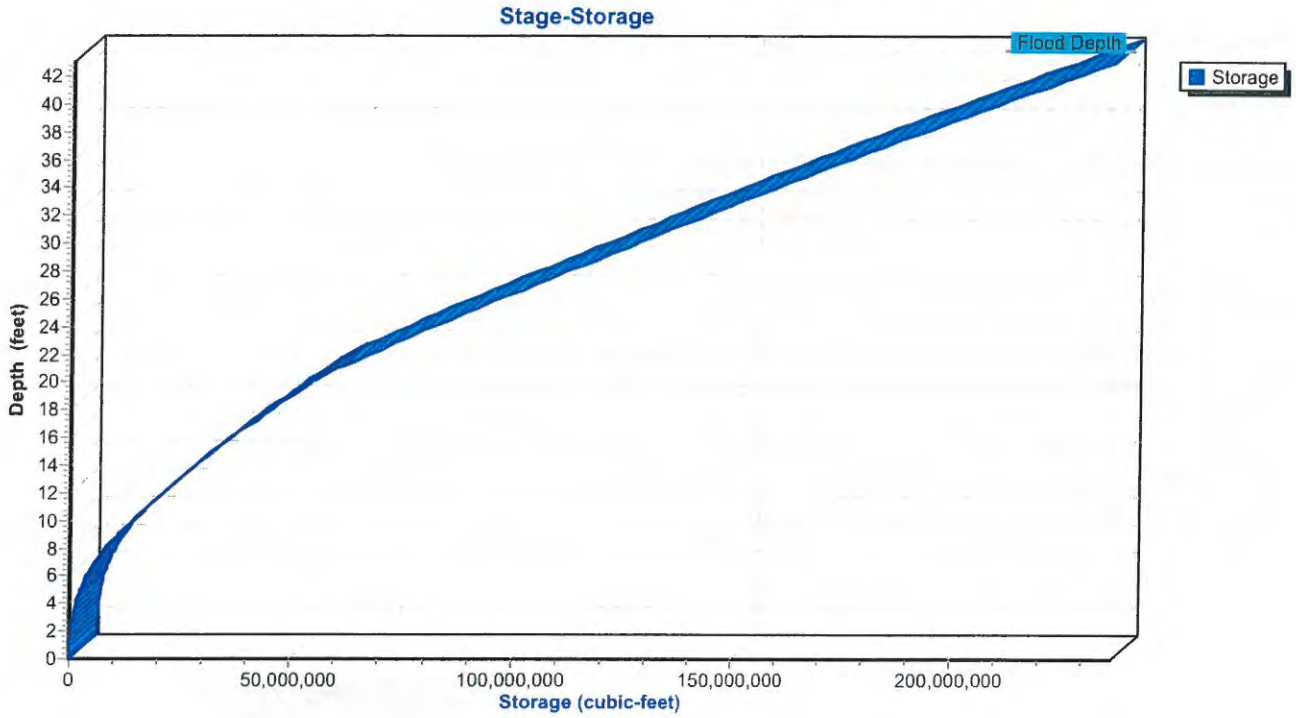
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



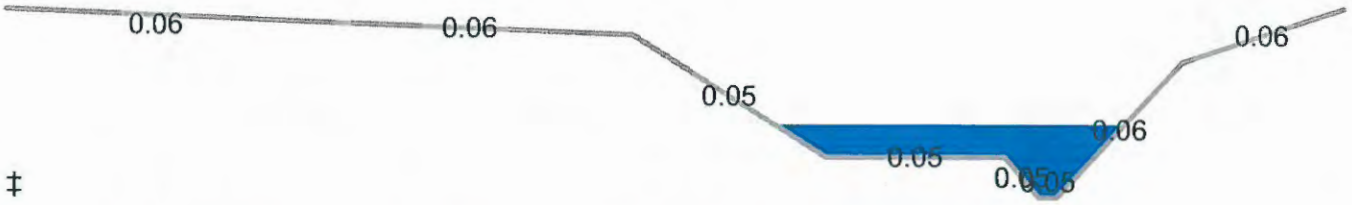
Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 3.05" for 6-HR 0.24 PMF event
Inflow = 3,357.93 cfs @ 5.96 hrs, Volume= 2,228.340 af
Outflow = 3,270.92 cfs @ 6.44 hrs, Volume= 2,203.470 af, Atten= 3%, Lag= 29.1 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.69 fps, Min. Travel Time= 46.4 min
Avg. Velocity = 1.50 fps, Avg. Travel Time= 83.5 min

Peak Storage= 9,115,220 cf @ 6.44 hrs
Average Depth at Peak Storage= 10.80'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

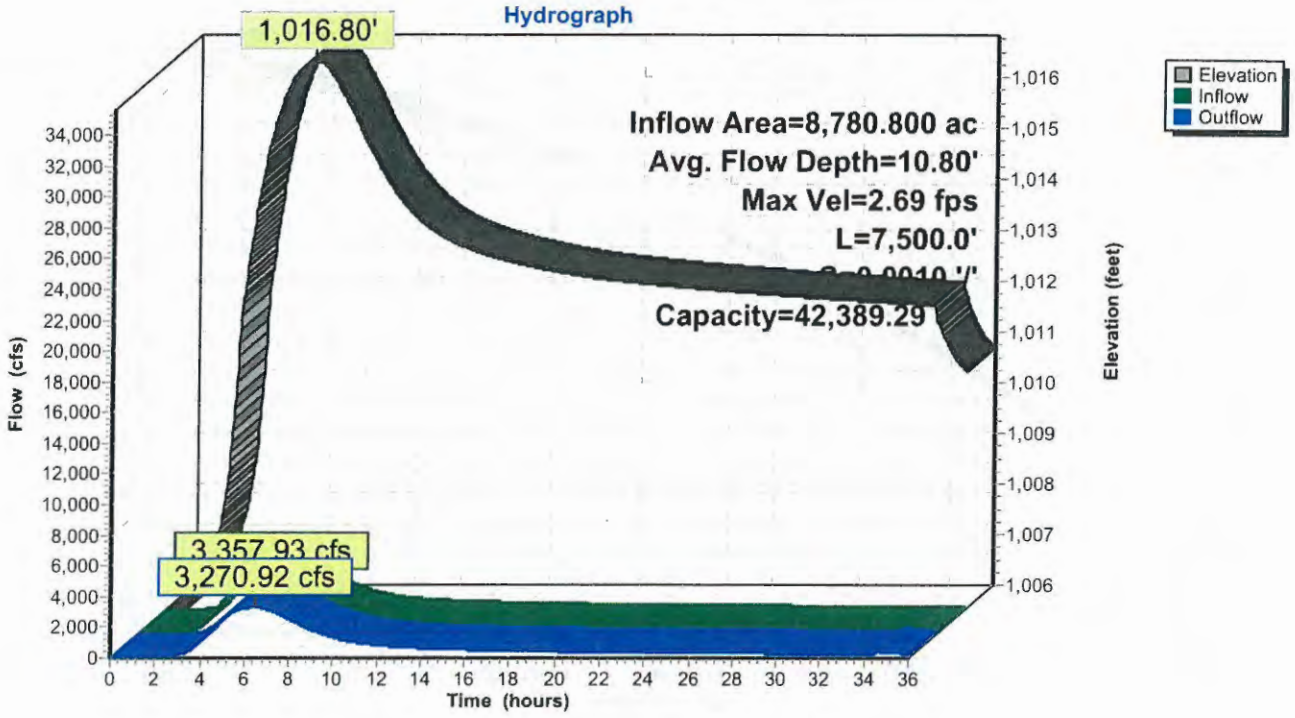
Custom cross-section, Length= 7,500.0' Slope= 0.0010 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,006.00', Outlet Invert= 998.50'



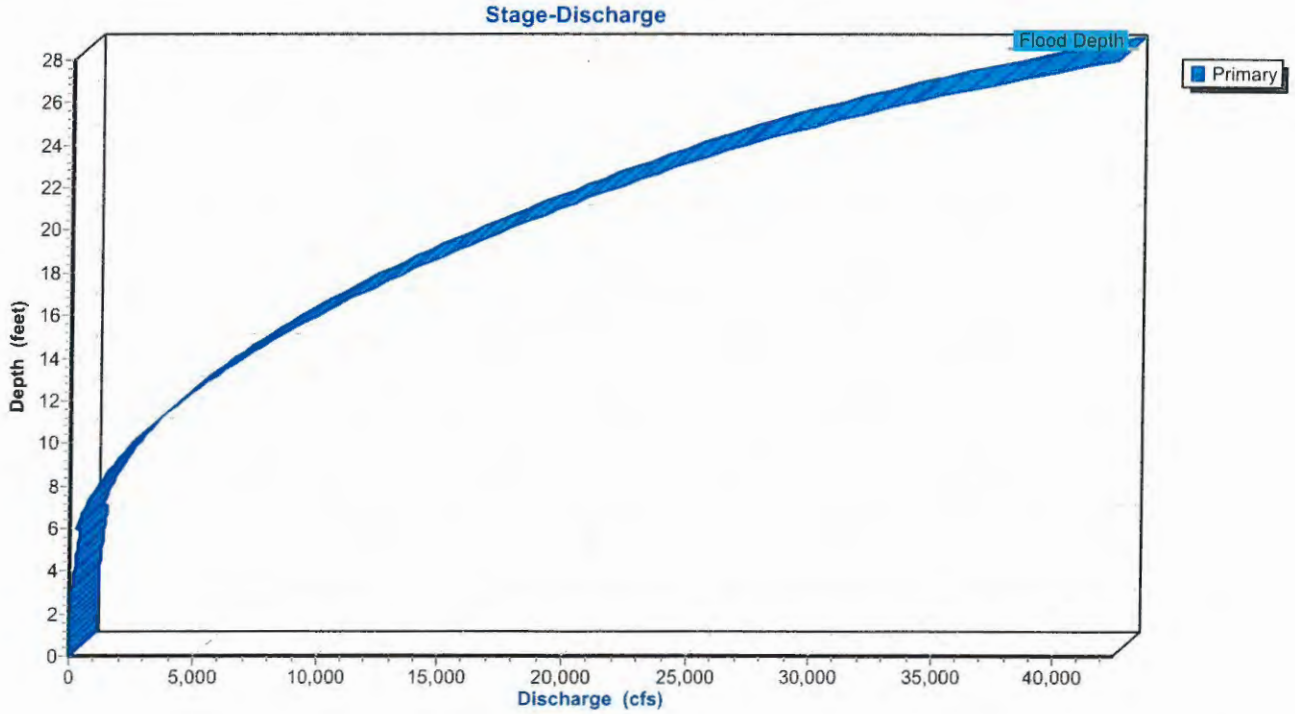
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	12.0	0	0.00
6.00	217.5	182.0	1,631,250	246.41
20.00	3,868.8	345.2	29,015,833	17,663.27
24.00	5,401.0	429.5	40,507,500	27,141.14
26.00	6,498.5	677.1	48,738,750	33,993.67
28.00	8,071.0	904.6	60,532,500	42,389.29

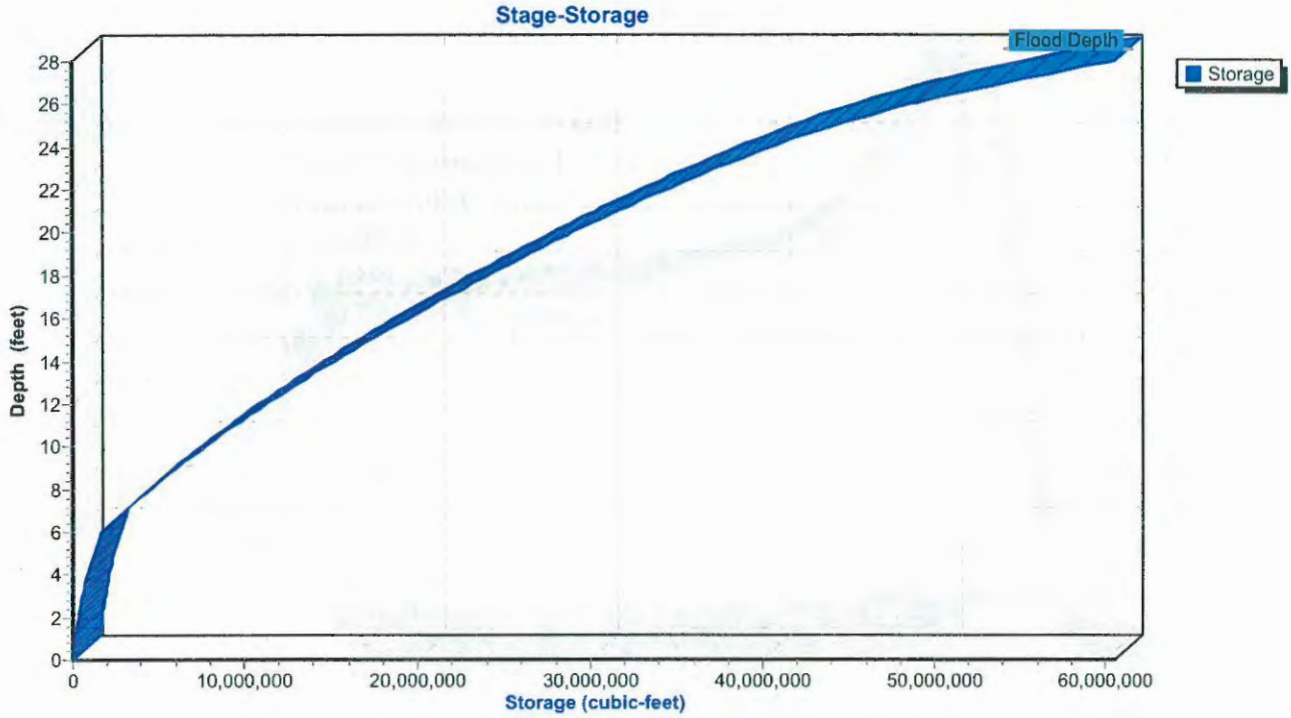
Reach 16R: Channel 16



Reach 16R: Channel 16



Reach 16R: Channel 16



Summary for Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.07" for 6-HR 0.24 PMF event
Inflow = 3,167.76 cfs @ 7.33 hrs, Volume= 2,417.315 af
Outflow = 3,167.75 cfs @ 7.34 hrs, Volume= 2,417.191 af, Atten= 0%, Lag= 0.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.59 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 8.67 fps, Avg. Travel Time= 0.9 min

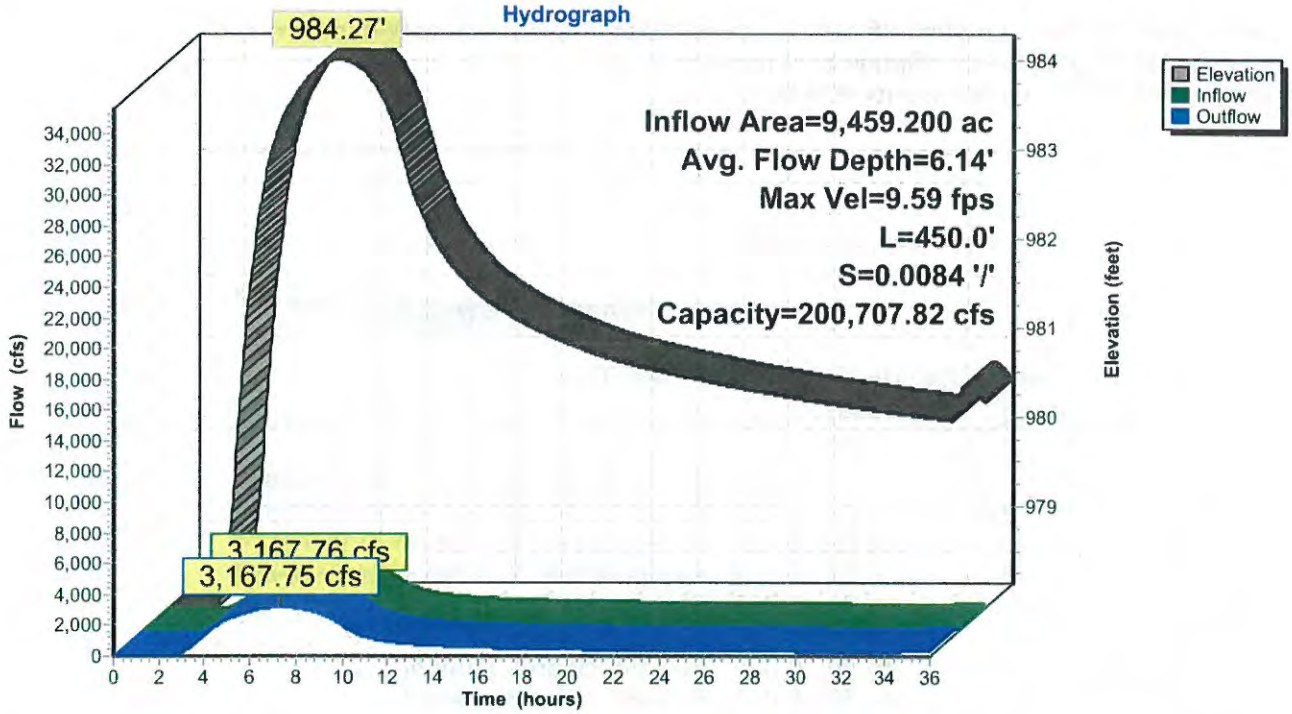
Peak Storage= 148,600 cf @ 7.34 hrs
Average Depth at Peak Storage= 6.14'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

Custom cross-section, Length= 450.0' Slope= 0.0084 '/' (1006 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 978.13', Outlet Invert= 974.35'

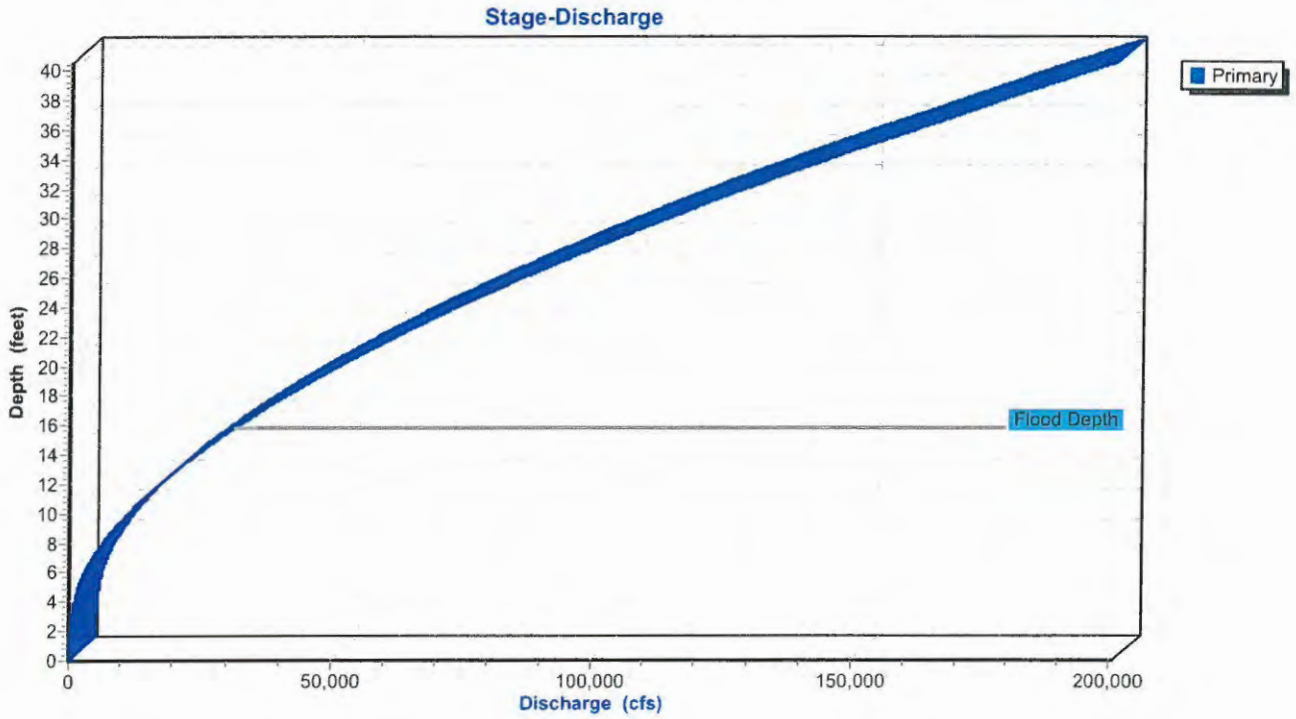
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, flow below branches
173.00	974.00	38.00	0.030	Short grass
175.00	972.00	40.00	0.030	Short grass
176.00	971.50	40.50	0.025	Stream, clean & straight
187.00	971.50	40.50	0.025	Stream, clean & straight
188.00	972.00	40.00	0.025	Stream, clean & straight
194.00	974.00	38.00	0.030	Short grass
206.00	976.00	36.00	0.100	Heavy timber, flow below branches
225.50	978.00	34.00	0.100	Heavy timber, flow below branches
229.50	980.00	32.00	0.100	Heavy timber, flow below branches
248.00	990.00	22.00	0.100	Heavy timber, flow below branches
265.00	1,000.00	12.00	0.100	Heavy timber, flow below branches
289.00	1,012.00	0.00	0.100	Heavy timber, flow below branches

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	11.0	0	0.00
0.50	6.0	13.2	2,700	19.29
2.50	40.0	22.4	18,000	347.53
4.50	146.0	86.6	65,701	1,300.01
6.50	382.5	153.2	172,125	3,703.14
8.50	712.5	180.8	320,625	7,536.06
18.50	2,645.4	216.7	1,190,411	44,005.23
28.50	4,866.4	251.4	2,189,893	103,800.74
36.50	6,855.0	281.2	3,084,750	166,501.22
40.50	7,955.0	310.6	3,579,750	200,707.82

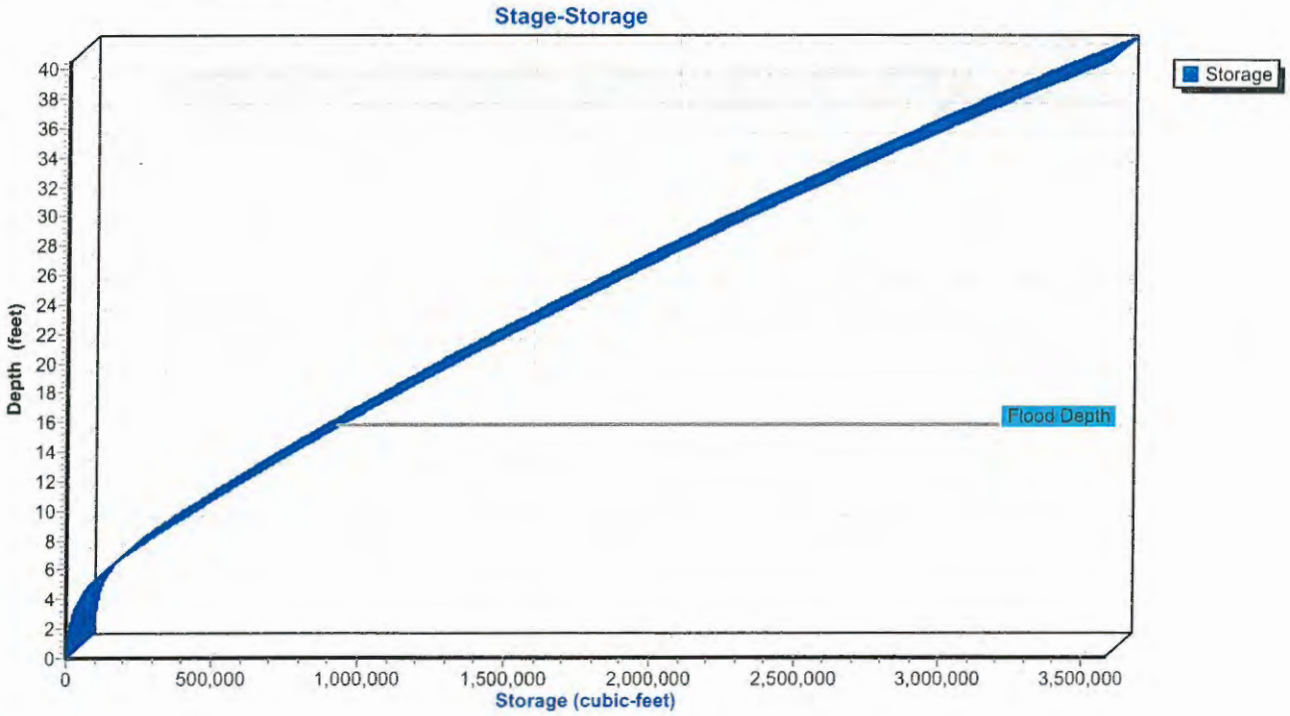
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

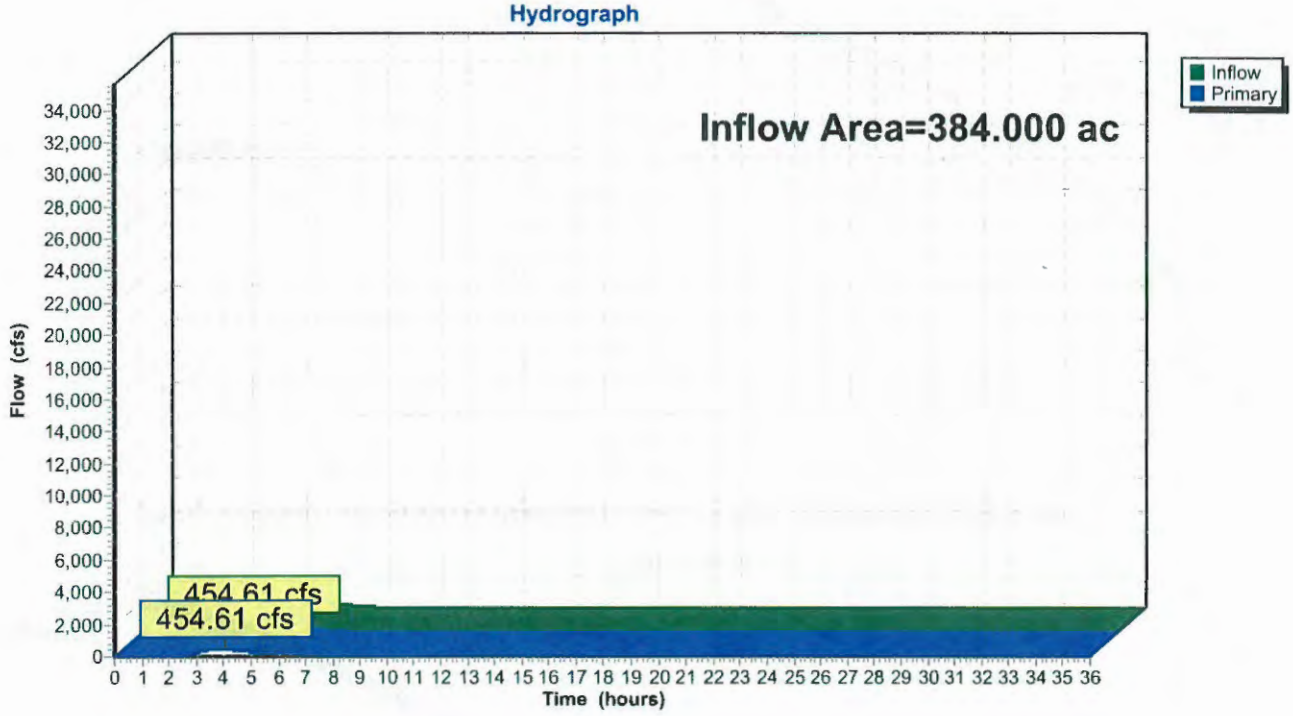


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.50" for 6-HR 0.24 PMF event
Inflow = 454.61 cfs @ 4.03 hrs, Volume= 111.903 af
Primary = 454.61 cfs @ 4.04 hrs, Volume= 111.903 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 1C: CONF 1 Combined O'Springs and Eric



Summary for Pond 1P: Sippo Creek Reservoir - Existing Conditions

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.08" for 6-HR 0.24 PMF event
Inflow = 3,640.02 cfs @ 6.32 hrs, Volume= 2,431.645 af
Outflow = 3,551.26 cfs @ 6.30 hrs, Volume= 2,418.818 af, Atten= 2%, Lag= 0.0 min
Primary = 2,330.74 cfs @ 5.94 hrs, Volume= 1,975.065 af
Secondary = 1,469.38 cfs @ 6.89 hrs, Volume= 443.753 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 7.050 ac Storage= 60.962 af
Peak Elev= 1,007.72' @ 6.97 hrs Surf.Area= 20.761 ac Storage= 137.395 af (76.433 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 91.431 af (30.469 af above start)

Plug-Flow detention time= 69.8 min calculated for 2,357.201 af (97% of inflow)
Center-of-Mass det. time= 13.7 min (713.2 - 699.5)

Volume	Invert	Avail.Storage	Storage Description
#1	985.00'	1,292.544 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
985.00	0.500	500.0	0.000	0.000	0.500
990.00	3.000	1,000.0	7.875	7.875	1.873
998.00	4.870	2,500.0	31.179	39.054	11.469
1,000.00	6.204	3,251.0	11.047	50.101	19.360
1,002.00	7.243	5,147.0	13.434	63.535	48.449
1,004.00	9.610	10,274.0	16.797	80.332	192.887
1,006.00	16.124	11,202.9	25.455	105.787	229.335
1,008.00	21.577	15,736.9	37.569	143.356	452.477
1,010.00	29.674	20,301.4	51.036	194.392	752.988
1,012.00	39.539	22,845.5	68.977	263.369	953.524
1,014.00	68.669	34,370.5	106.876	370.246	2,158.174
1,025.00	100.000	50,000.0	922.298	1,292.544	4,567.204

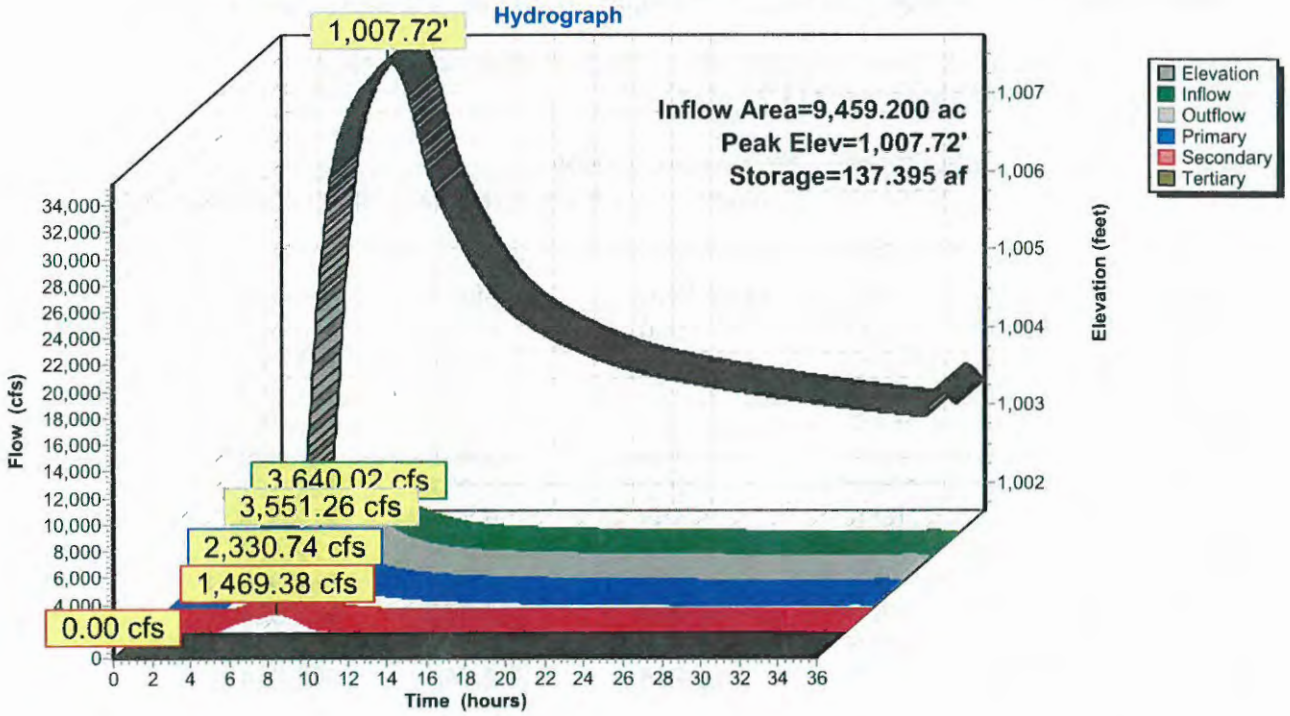
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,005.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.60 20.00 Width (feet) 17.00 23.00 77.00 77.00
#3	Secondary	1,004.20'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.80 3.80 5.80 15.80 Width (feet) 10.00 22.00 45.00 130.00 180.00 205.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,329.16 cfs @ 5.94 hrs HW=1,007.46' TW=1,001.75' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,329.16 cfs @ 8.00 fps)

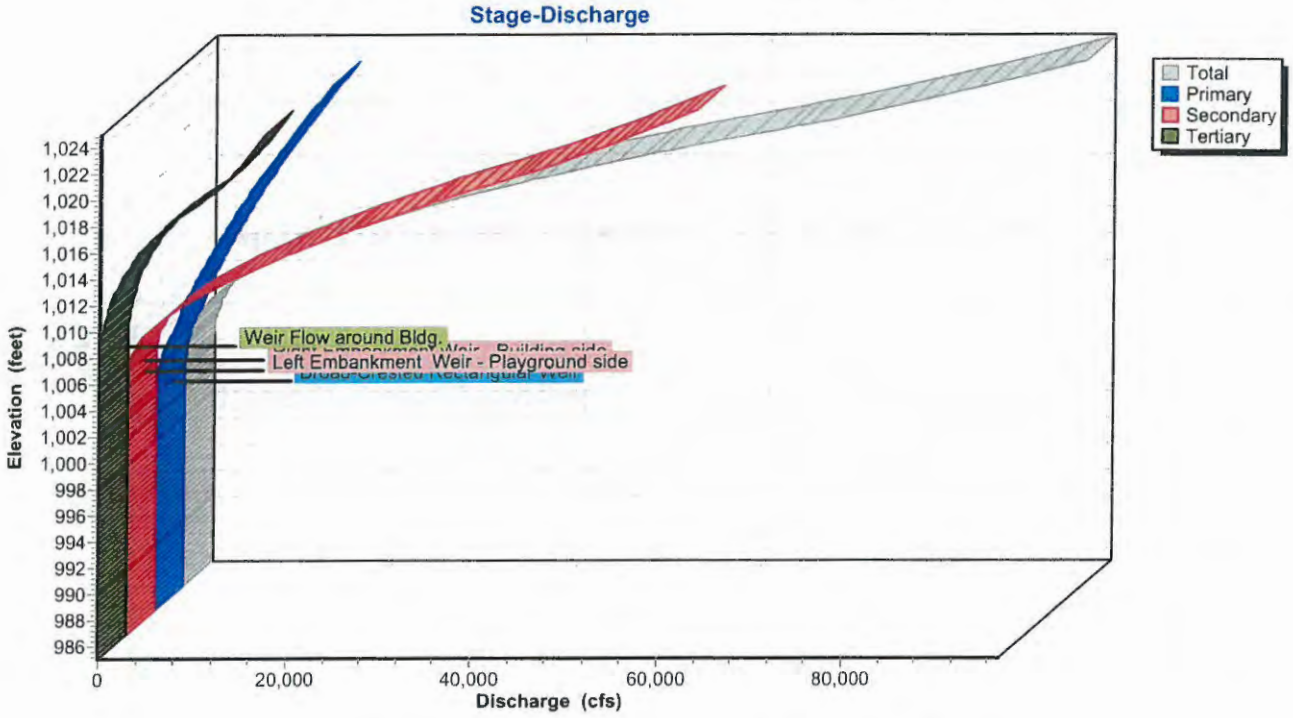
Secondary OutFlow Max=1,468.62 cfs @ 6.89 hrs HW=1,007.72' TW=1,005.33' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 612.50 cfs @ 4.51 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 856.12 cfs @ 4.69 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,001.64' TW=978.00' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Controls 0.00 cfs)

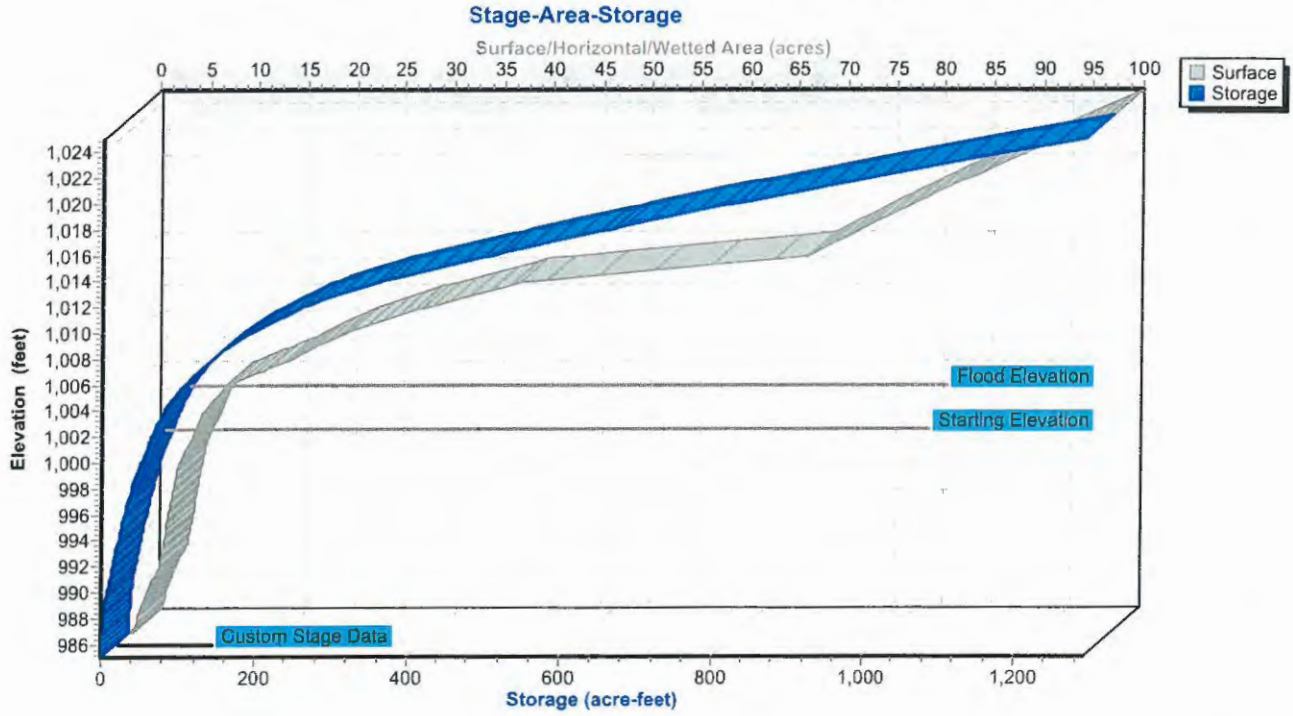
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

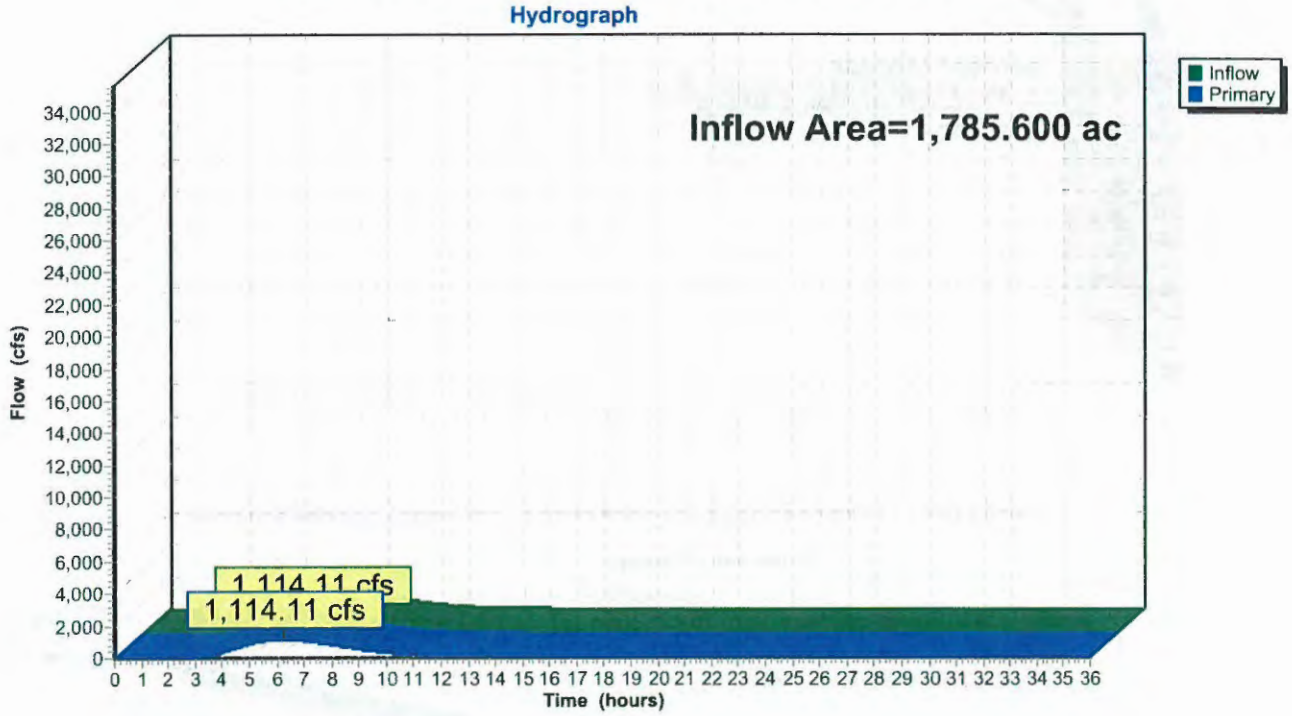


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 3.13" for 6-HR 0.24 PMF event
Inflow = 1,114.11 cfs @ 6.28 hrs, Volume= 466.124 af
Primary = 1,114.11 cfs @ 6.29 hrs, Volume= 466.124 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 2C: CONF 2 Combined Cable and O'Springs



Summary for Pond 3P: Lake Cable

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 3.13" for 6-HR 0.24 PMF event
Inflow = 1,114.11 cfs @ 6.29 hrs, Volume= 466.123 af
Outflow = 366.70 cfs @ 9.69 hrs, Volume= 667.375 af, Atten= 67%, Lag= 204.0 min
Primary = 366.70 cfs @ 9.69 hrs, Volume= 667.375 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,097.40' Surf.Area= 220.000 ac Storage= 1,914.000 af
Peak Elev= 1,098.22' @ 9.69 hrs Surf.Area= 249.545 ac Storage= 2,105.661 af (191.661 af above start)
Flood Elev= 1,099.50' Surf.Area= 296.000 ac Storage= 2,455.800 af (541.800 af above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 485.4 min (945.7 - 460.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.00'	4,144.025 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

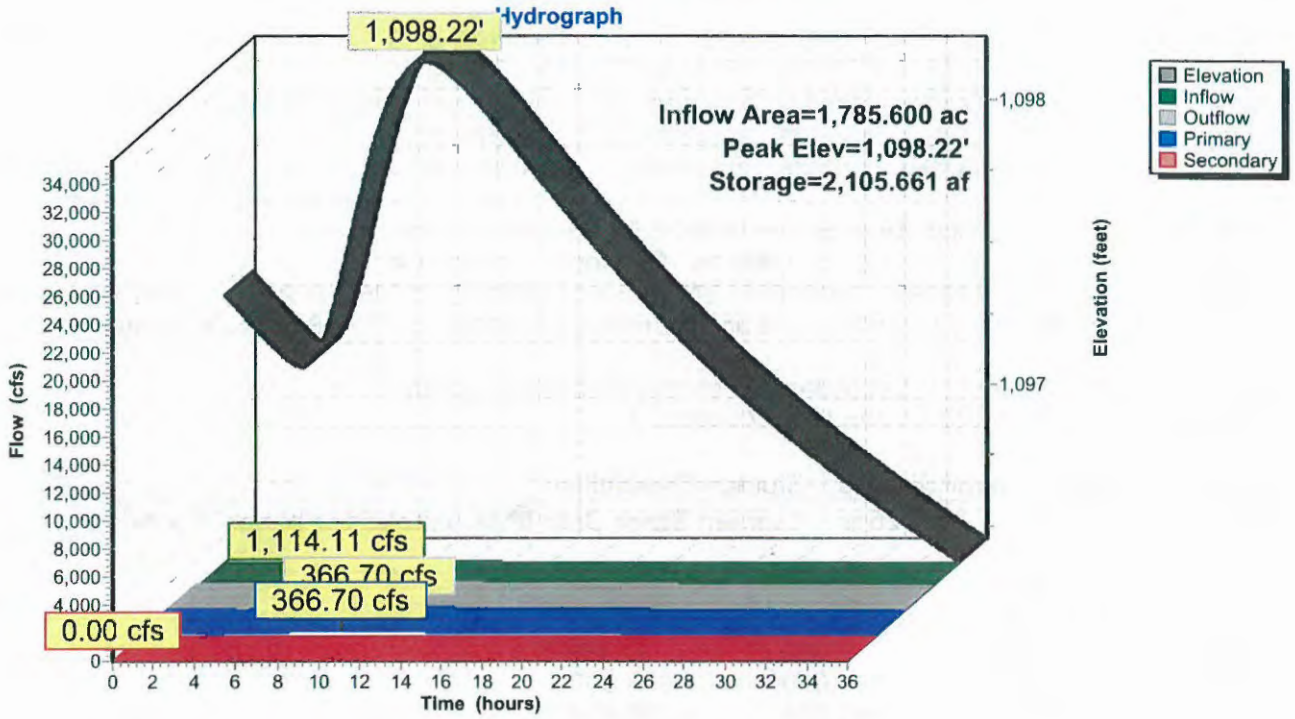
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

Device	Routing	Invert	Outlet Devices
#1	Primary	1,088.00'	**36.0" Round Culvert-RCP** L= 450.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 1,088.00' / 1,076.00' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished
#2	Primary	1,096.40'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.10 6.00 Width (feet) 30.00 30.00 30.00
#3	Secondary	1,099.50'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 3.00 Width (feet) 1,000.00 1,000.00

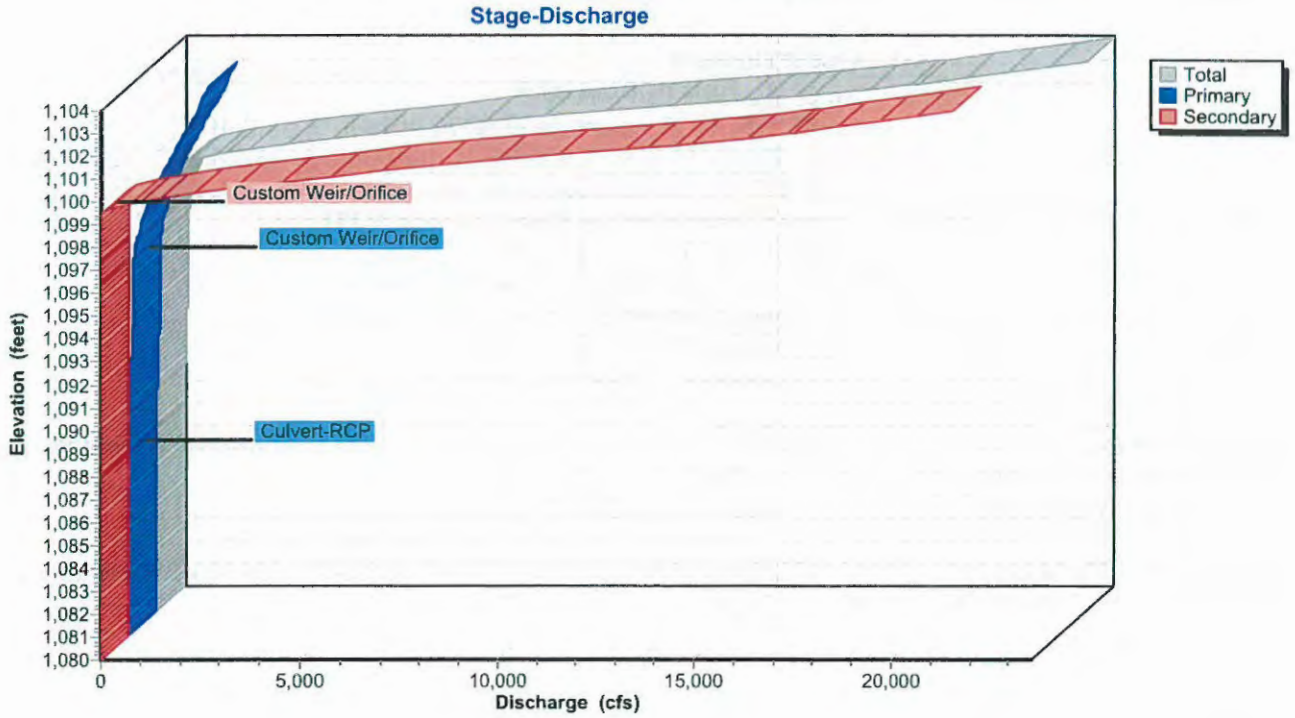
Primary OutFlow Max=366.70 cfs @ 9.69 hrs HW=1,098.22' TW=1,072.12' (Dynamic Tailwater)
└─**1=Culvert-RCP** (Barrel Controls 126.18 cfs @ 17.85 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 240.51 cfs @ 4.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,097.40' TW=1,069.00' (Dynamic Tailwater)
└─**3=Custom Weir/Orifice** (Controls 0.00 cfs)

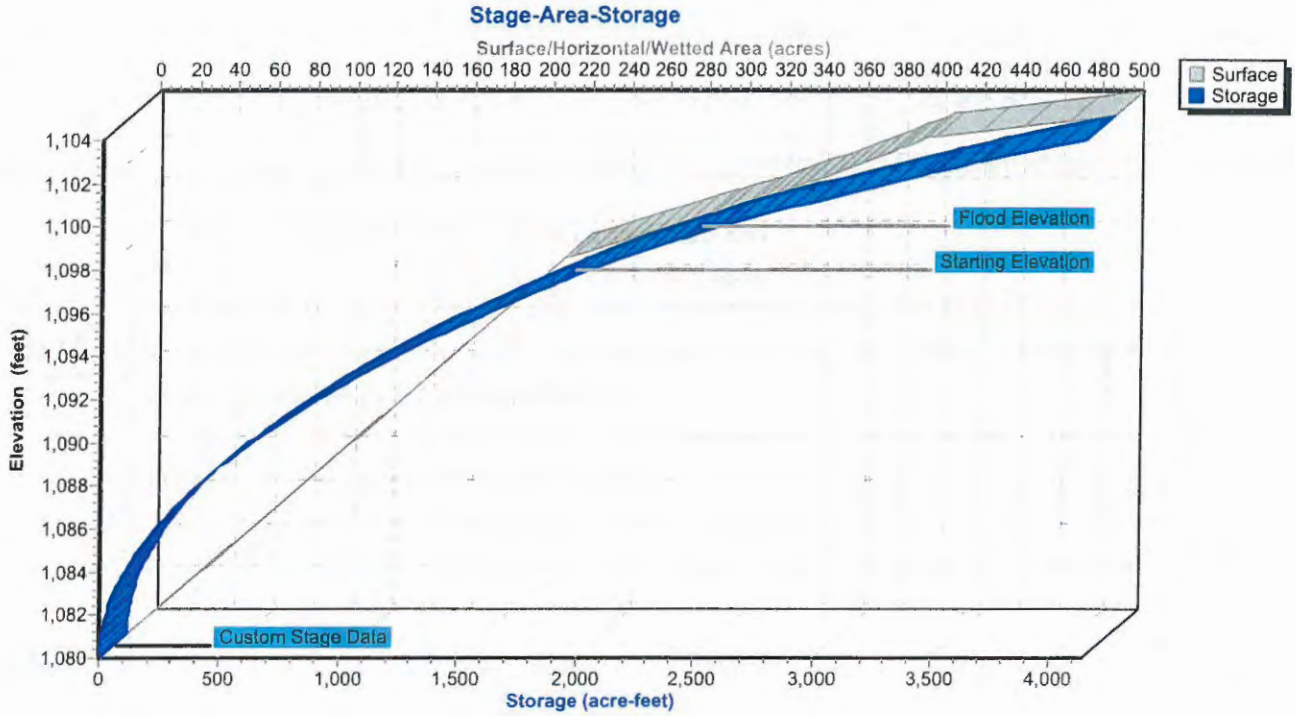
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

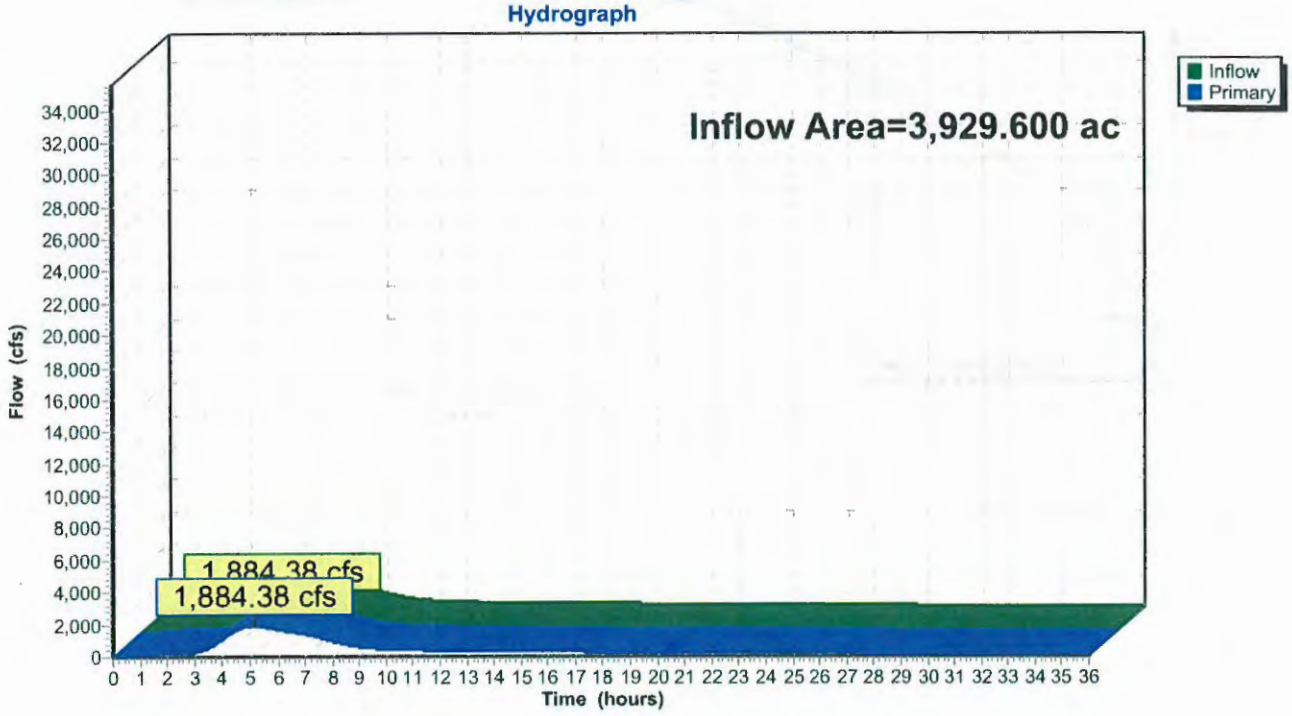


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 3.57" for 6-HR 0.24 PMF event
Inflow = 1,884.38 cfs @ 5.12 hrs, Volume= 1,169.859 af
Primary = 1,884.38 cfs @ 5.13 hrs, Volume= 1,169.859 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 4C: Confluence 4



Summary for Pond 4P: Lake O'Springs

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.50" for 6-HR 0.24 PMF event
Inflow = 454.61 cfs @ 4.04 hrs, Volume= 111.902 af
Outflow = 183.00 cfs @ 6.47 hrs, Volume= 111.396 af, Atten= 60%, Lag= 146.1 min
Primary = 183.00 cfs @ 6.47 hrs, Volume= 111.396 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,106.00' Surf.Area= 27.000 ac Storage= 24.300 af
Peak Elev= 1,108.02' @ 6.47 hrs Surf.Area= 29.242 ac Storage= 81.034 af (56.734 af above start)
Flood Elev= 1,108.70' Surf.Area= 30.000 ac Storage= 101.250 af (76.950 af above start)

Plug-Flow detention time= 402.9 min calculated for 87.096 af (78% of inflow)
Center-of-Mass det. time= 262.6 min (578.0 - 315.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,104.20'	268.550 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

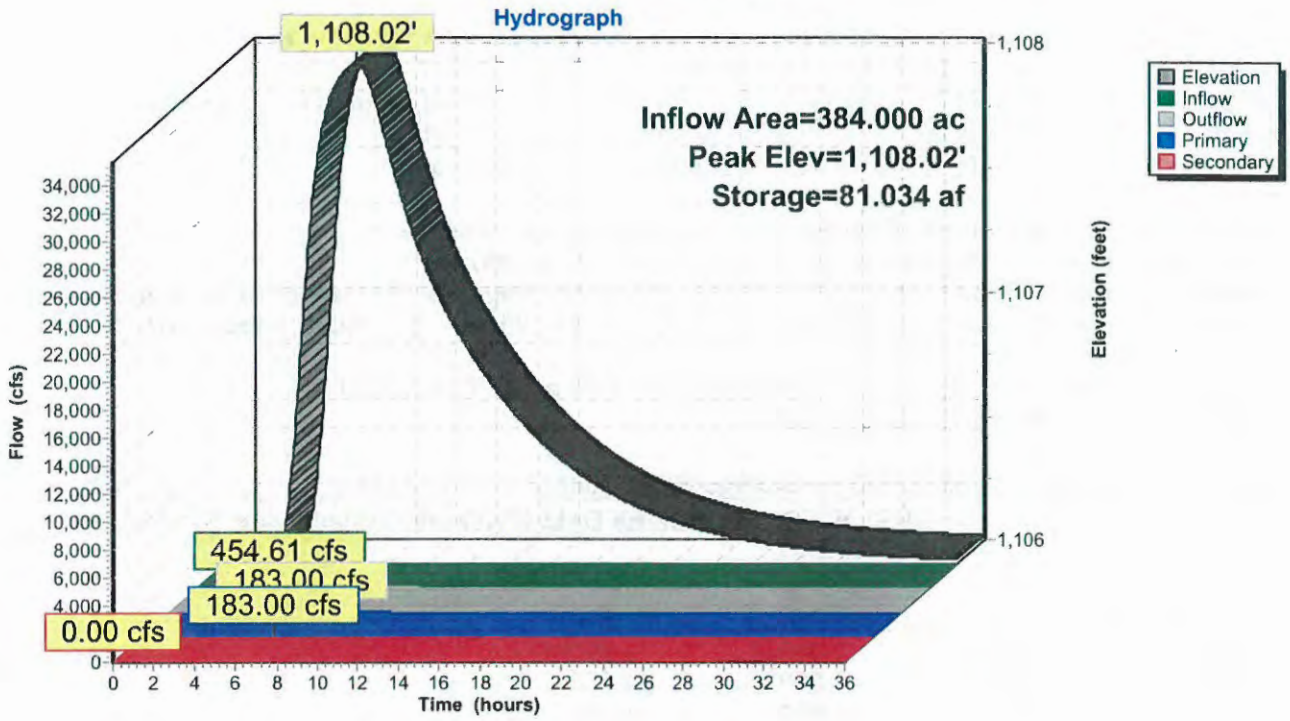
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.00'	**Lake Eric Special & User-Defined Outlet** Head (feet) 0.00 1.00 2.00 2.70 3.00 4.00 Disch. (cfs) 0.000 60.000 180.000 300.000 1,240.000 3,930.000
#2	Secondary	1,108.70'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 1.30 Width (feet) 150.00 150.00

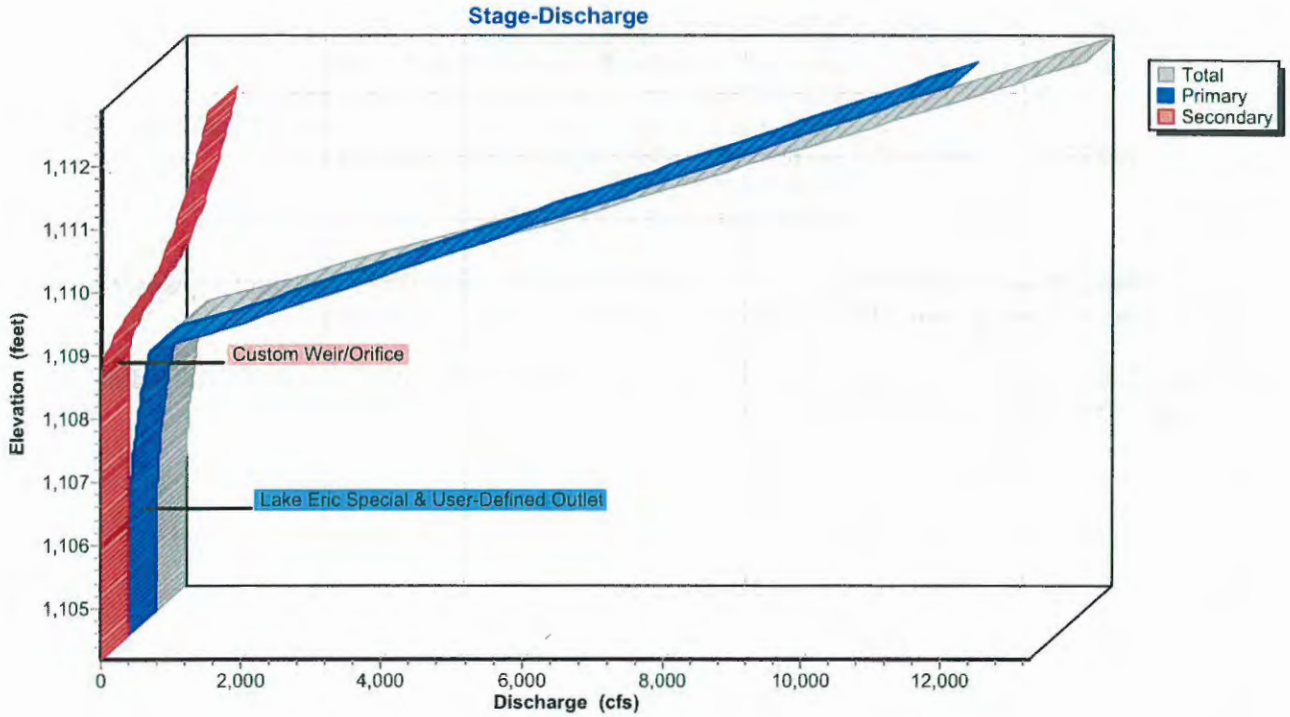
Primary OutFlow Max=183.00 cfs @ 6.47 hrs HW=1,108.02' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet**(Custom Controls 183.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,106.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Controls 0.00 cfs)

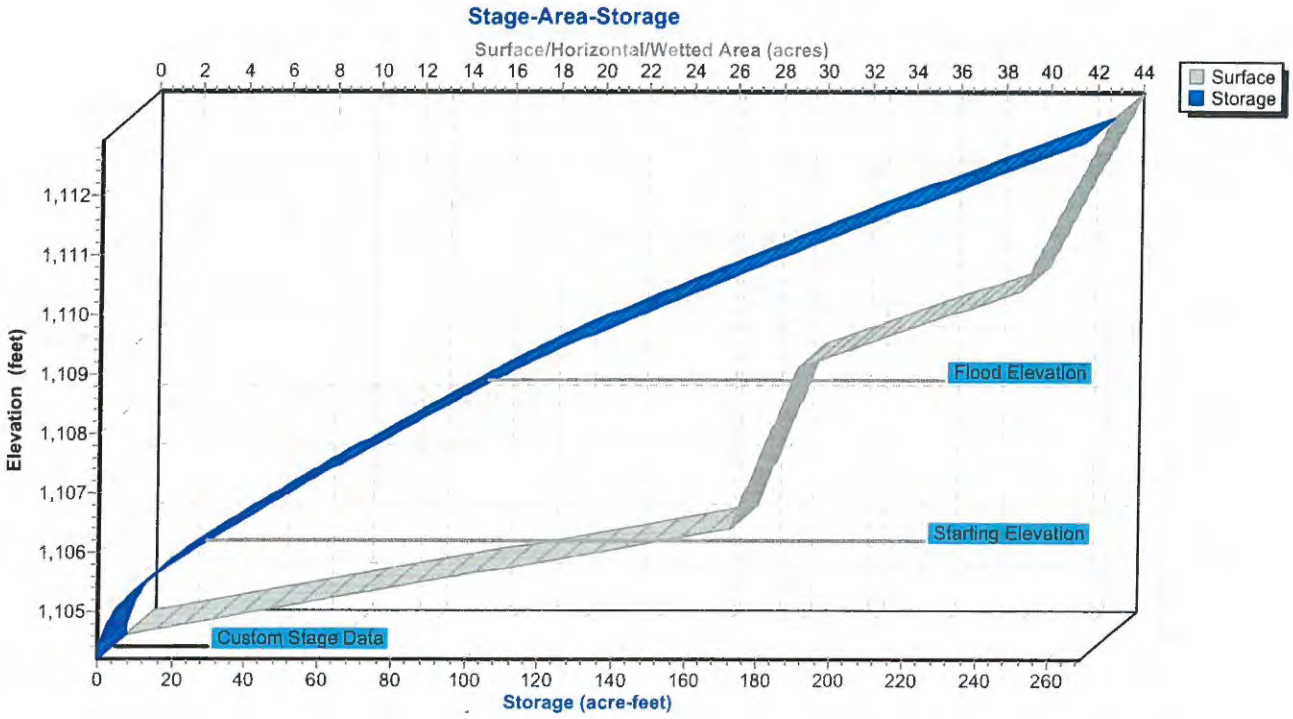
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

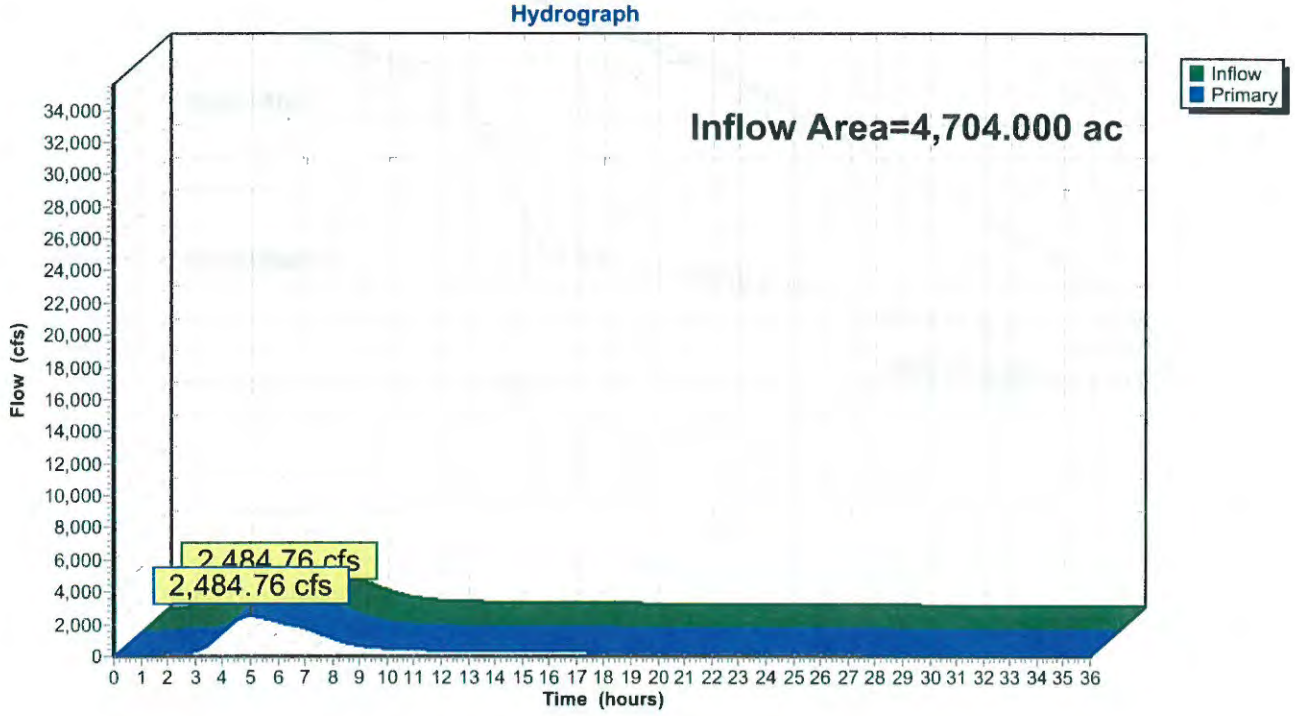


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 3.44" for 6-HR 0.24 PMF event
Inflow = 2,484.76 cfs @ 5.01 hrs, Volume= 1,347.279 af
Primary = 2,484.76 cfs @ 5.02 hrs, Volume= 1,347.279 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 5C: Confluence 5



Summary for Pond 5P: Lake Eric (Slagle)

Inflow Area = 115.200 ac, 0.00% Impervious, Inflow Depth = 3.43" for 6-HR 0.24 PMF event
Inflow = 181.35 cfs @ 3.37 hrs, Volume= 32.930 af
Outflow = 113.30 cfs @ 4.10 hrs, Volume= 32.819 af, Atten= 38%, Lag= 43.6 min
Primary = 105.68 cfs @ 4.10 hrs, Volume= 32.554 af
Secondary = 7.62 cfs @ 4.10 hrs, Volume= 0.265 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,116.50' Surf.Area= 3.700 ac Storage= 13.690 af
Peak Elev= 1,120.07' @ 4.10 hrs Surf.Area= 4.227 ac Storage= 27.781 af (14.091 af above start)
Flood Elev= 1,120.00' Surf.Area= 4.200 ac Storage= 27.490 af (13.800 af above start)

Plug-Flow detention time= 342.3 min calculated for 19.123 af (58% of inflow)
Center-of-Mass det. time= 176.4 min (426.4 - 250.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,109.10'	88.990 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

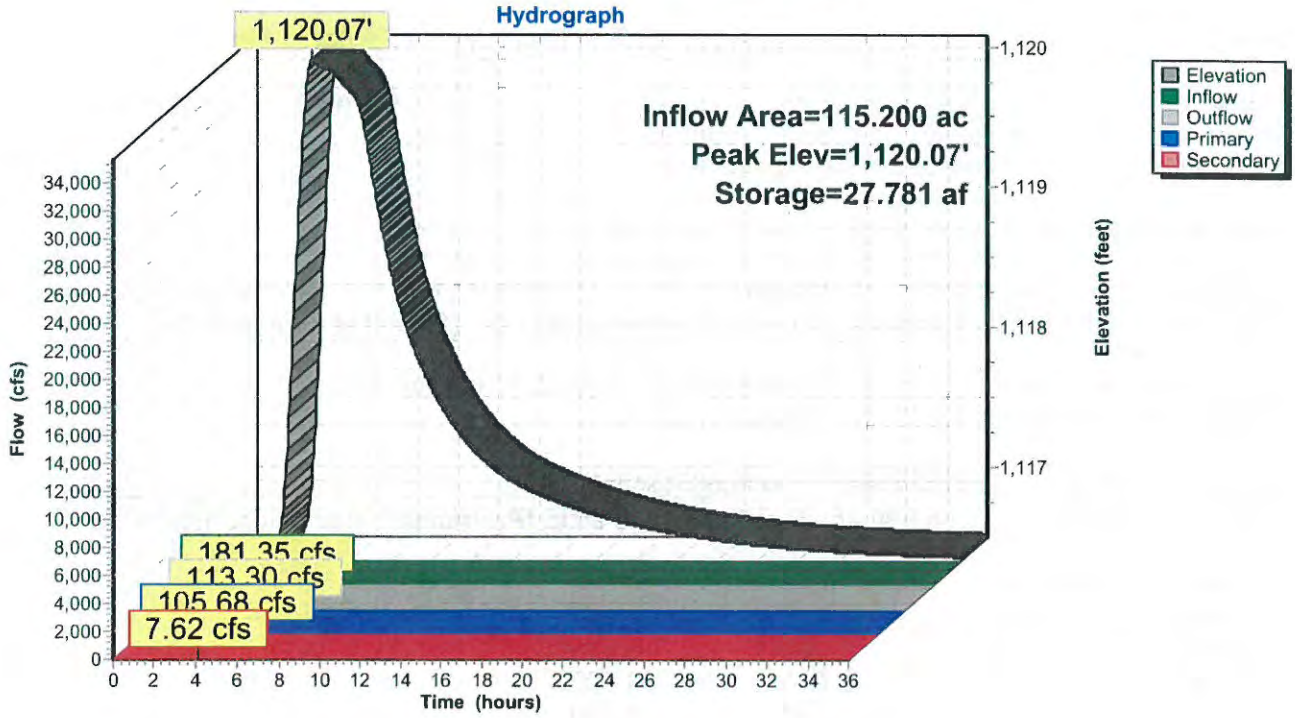
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

Device	Routing	Invert	Outlet Devices
#1	Primary	1,116.50'	**Special & User-Defined** Head (feet) 0.00 0.50 1.50 2.50 3.50 4.50 5.00 Disch. (cfs) 0.000 3.000 17.000 40.000 69.000 600.000 1,130.000
#2	Secondary	1,120.00'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 10.00 Width (feet) 150.00 150.00

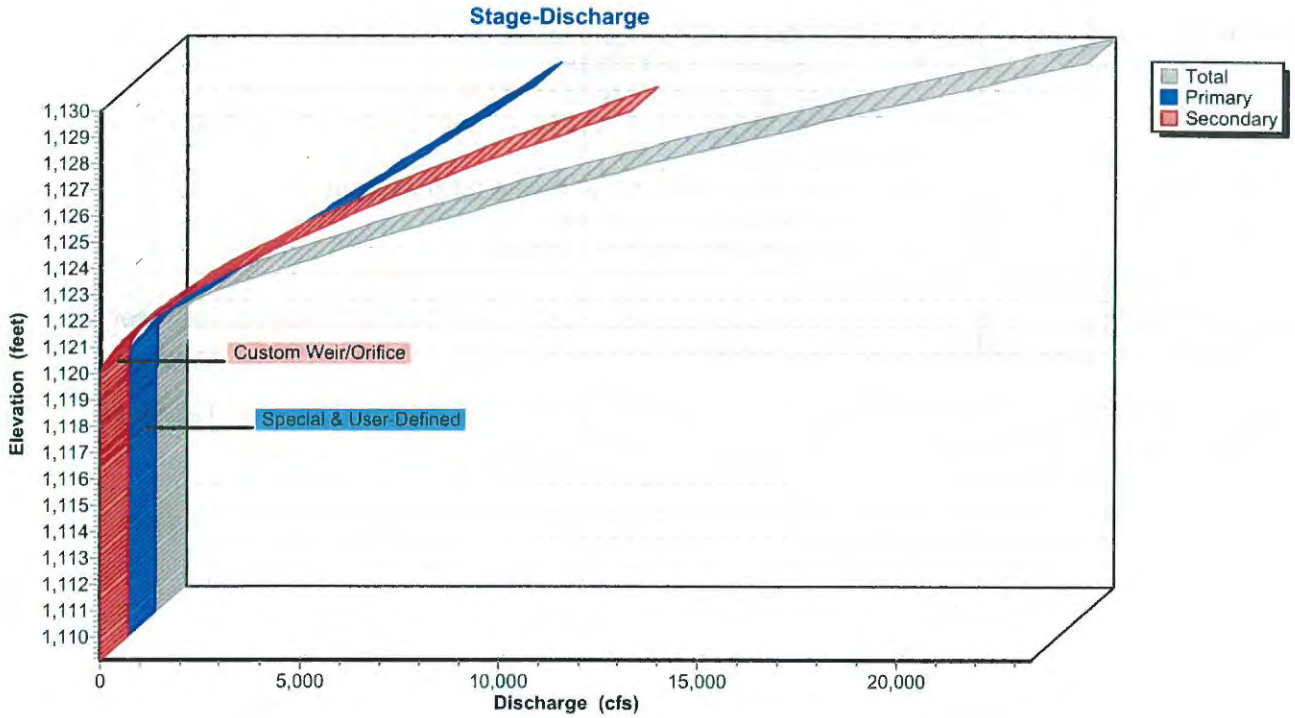
Primary OutFlow Max=105.66 cfs @ 4.10 hrs HW=1,120.07' TW=0.00' (Dynamic Tailwater)
└**1=Special & User-Defined** (Custom Controls 105.66 cfs)

Secondary OutFlow Max=7.62 cfs @ 4.10 hrs HW=1,120.07' TW=0.00' (Dynamic Tailwater)
└**2=Custom Weir/Orifice** (Weir Controls 7.62 cfs @ 0.74 fps)

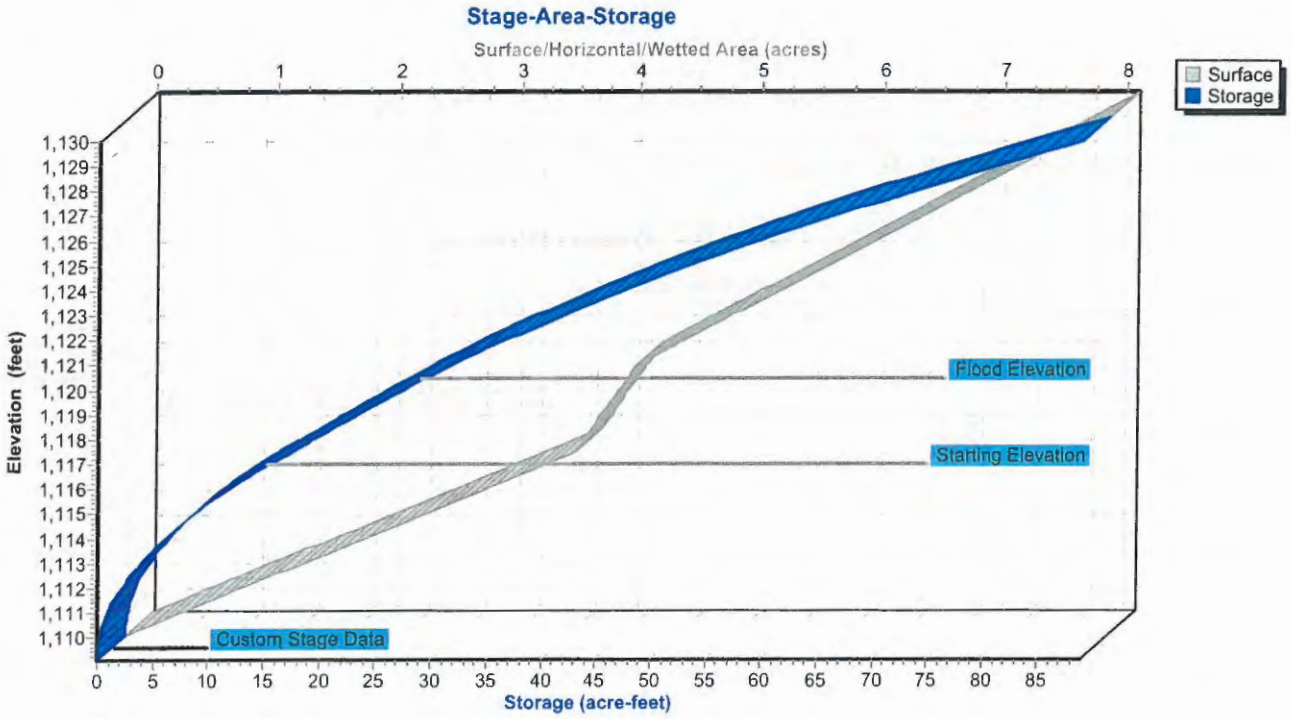
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

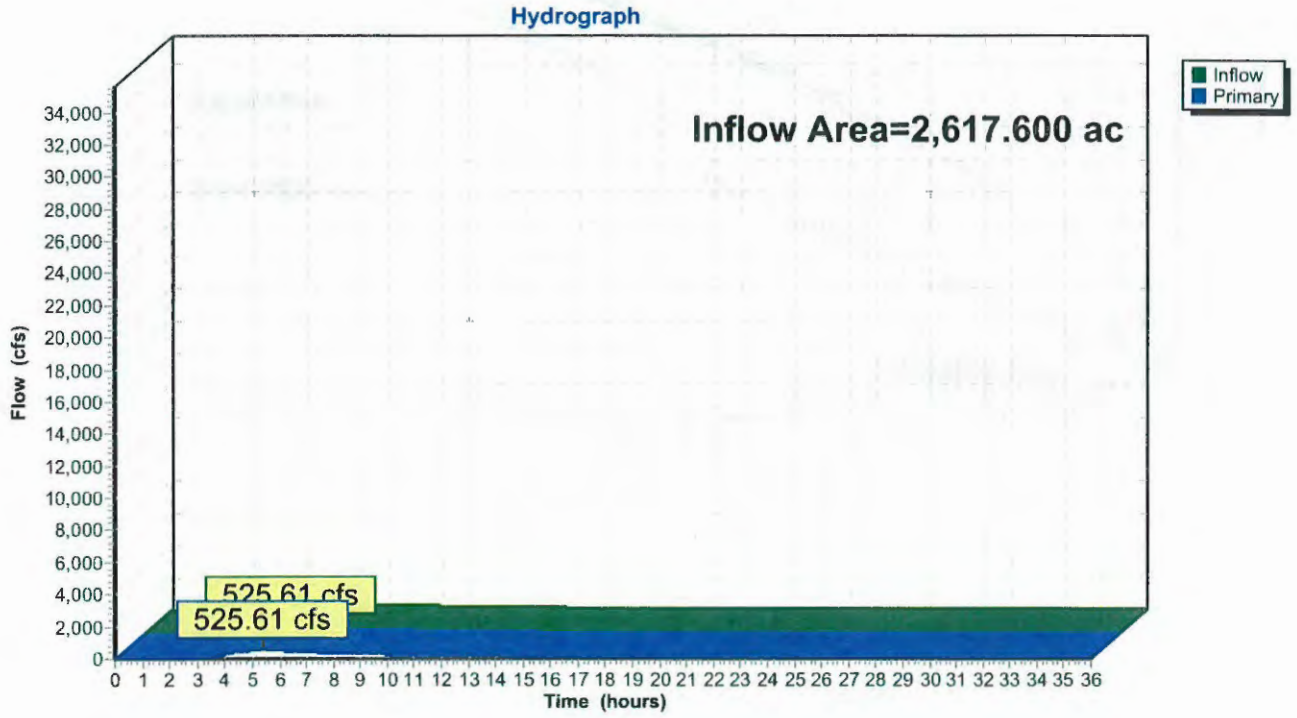


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 2.25" for 6-HR 0.24 PMF event
Inflow = 525.61 cfs @ 5.39 hrs, Volume= 491.036 af
Primary = 525.61 cfs @ 5.40 hrs, Volume= 491.036 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 6C: Confluence 6

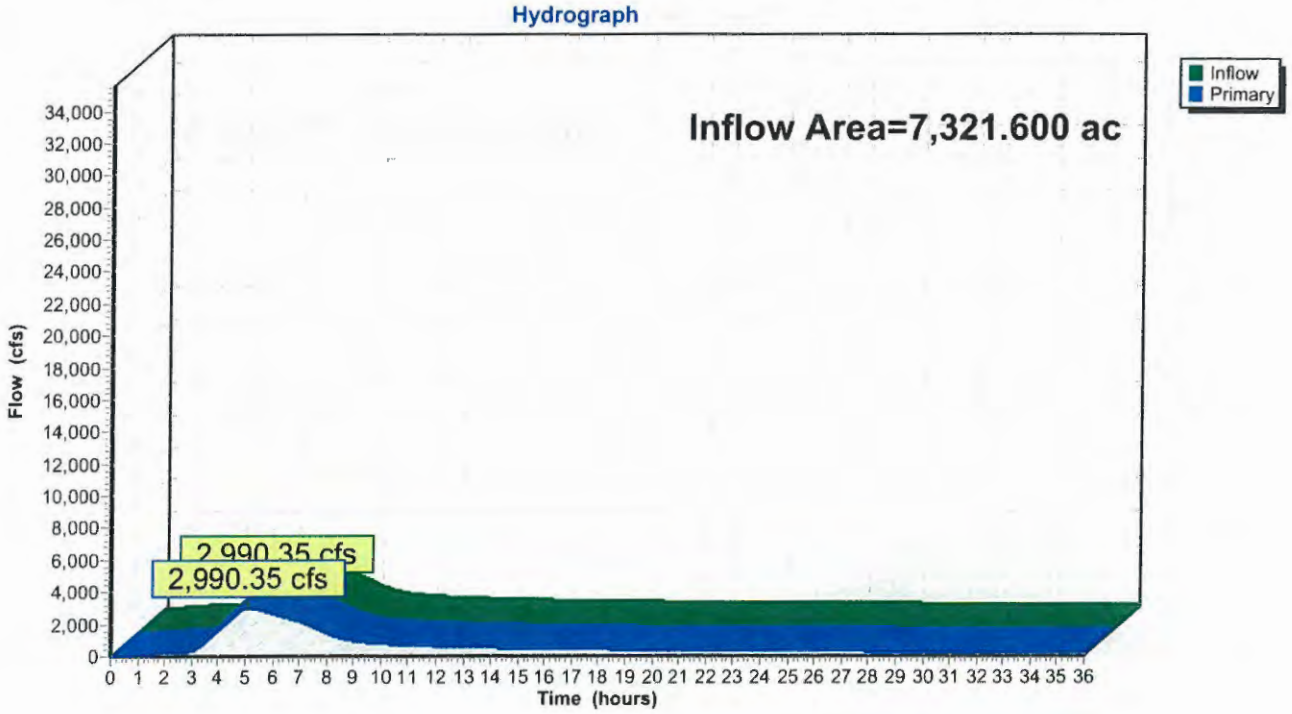


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 3.01" for 6-HR 0.24 PMF event
Inflow = 2,990.35 cfs @ 5.05 hrs, Volume= 1,838.132 af
Primary = 2,990.35 cfs @ 5.06 hrs, Volume= 1,838.132 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

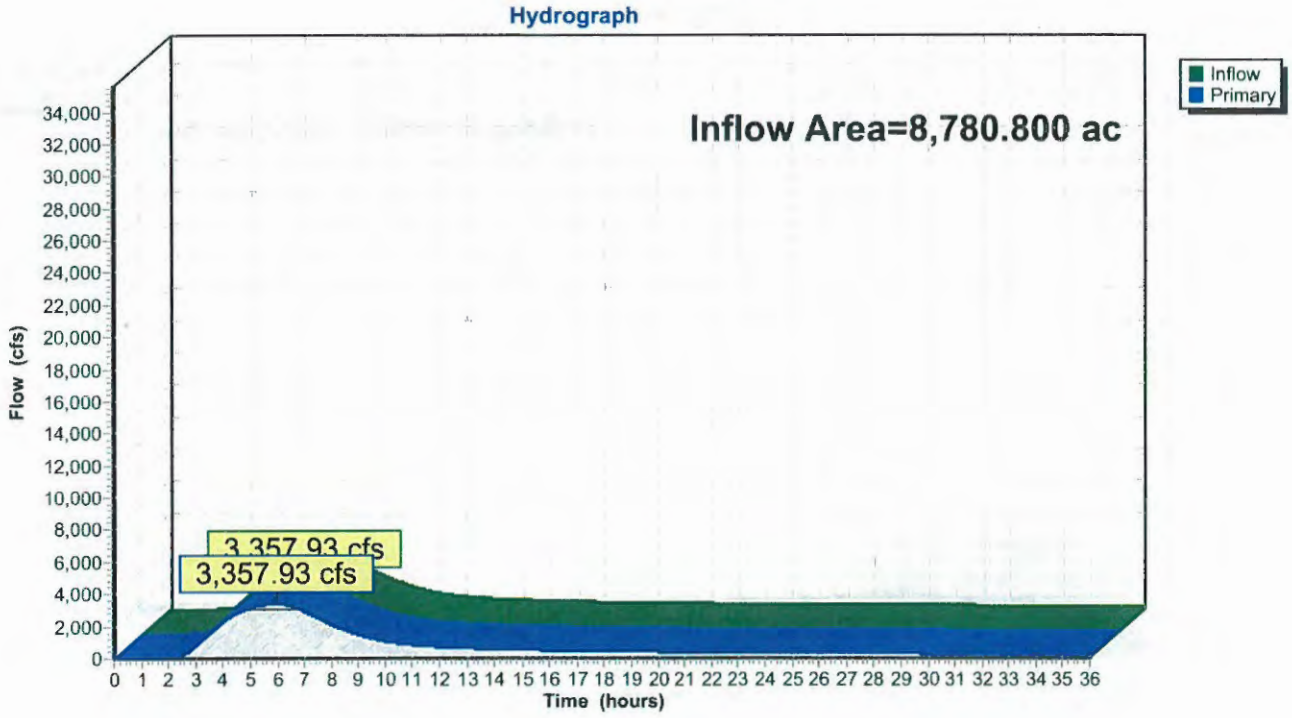


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 3.05" for 6-HR 0.24 PMF event
Inflow = 3,357.93 cfs @ 5.95 hrs, Volume= 2,228.528 af
Primary = 3,357.93 cfs @ 5.96 hrs, Volume= 2,228.528 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 8C: Confluence 8



Summary for Pond 8P: Storage Area Genoa Rd

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 2.96" for 6-HR 0.24 PMF event
Inflow = 1,530.85 cfs @ 6.01 hrs, Volume= 485.228 af
Outflow = 247.65 cfs @ 10.32 hrs, Volume= 342.305 af, Atten= 84%, Lag= 258.3 min
Primary = 127.09 cfs @ 8.22 hrs, Volume= 290.388 af
Secondary = 132.70 cfs @ 10.33 hrs, Volume= 51.917 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,025.44' @ 10.33 hrs Surf.Area= 149.645 ac Storage= 371.494 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 750.0 min calculated for 342.210 af (71% of inflow)
Center-of-Mass det. time= 677.4 min (1,134.6 - 457.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,018.00'	1,873.781 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

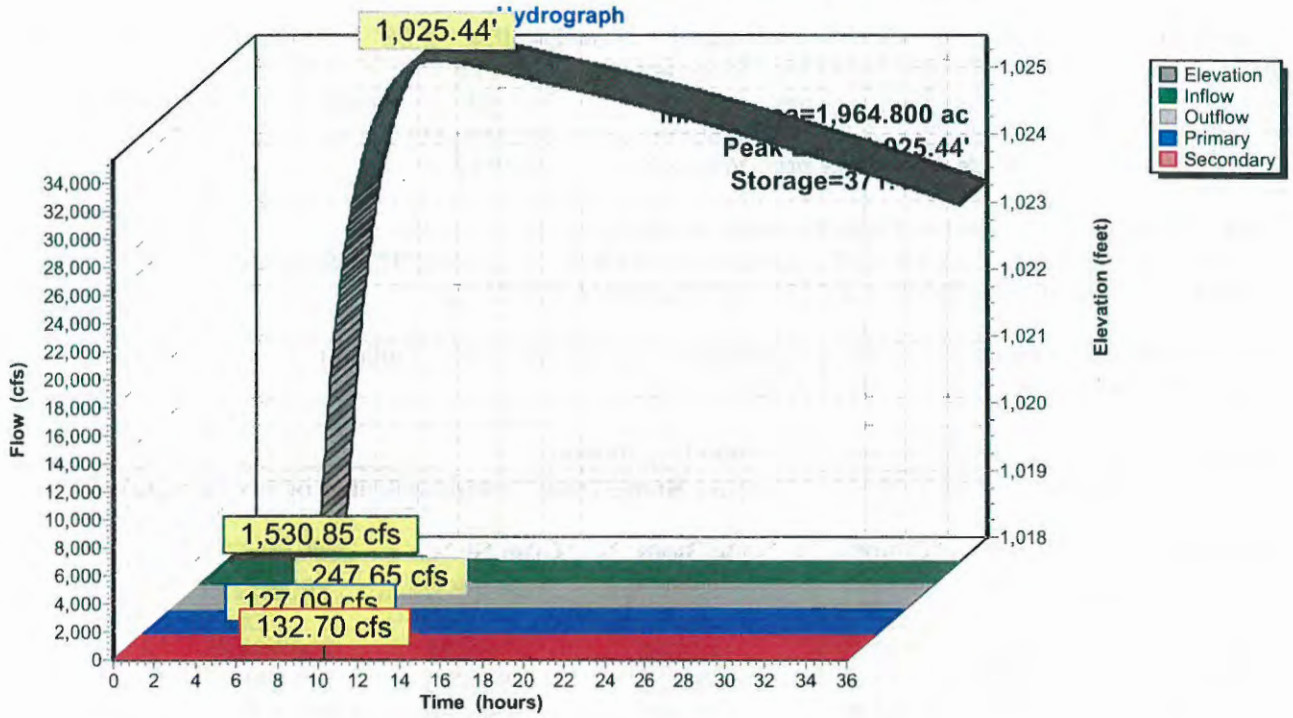
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	176.087	39,123.0	262.448	461.929	2,642.179
1,032.00	300.000	45,000.0	1,411.853	1,873.781	3,545.375

Device	Routing	Invert	Outlet Devices
#1	Primary	1,018.00'	**48.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,018.00' / 1,017.00' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Secondary	1,025.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 5.00 Width (feet) 125.00 192.00 308.00 415.00

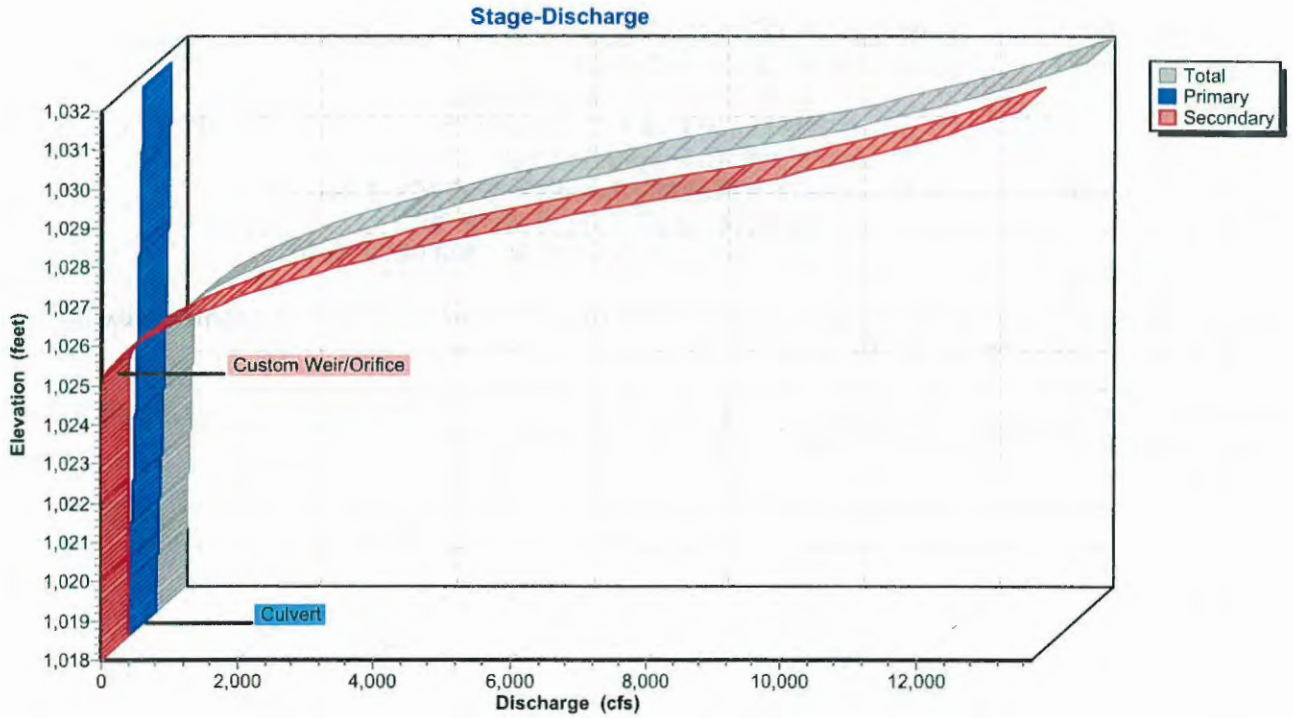
Primary OutFlow Max=126.97 cfs @ 8.22 hrs HW=1,025.13' TW=1,020.72' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 126.97 cfs @ 10.10 fps)

Secondary OutFlow Max=132.70 cfs @ 10.33 hrs HW=1,025.44' TW=1,021.84' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 132.70 cfs @ 2.14 fps)

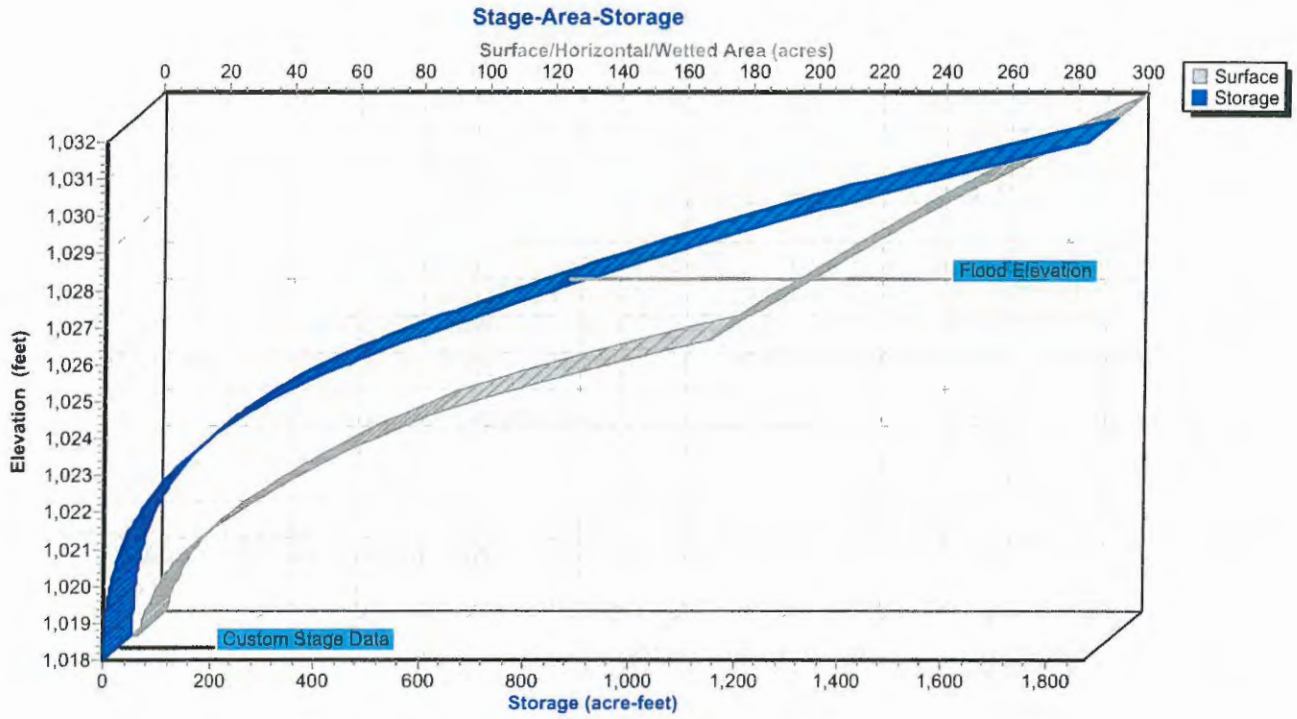
Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Summary for Pond 9P: Sippo Lake

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth = 3.53" for 6-HR 0.24 PMF event
Inflow = 1,886.34 cfs @ 5.03 hrs, Volume= 578.067 af
Outflow = 1,530.85 cfs @ 6.01 hrs, Volume= 485.229 af, Atten= 19%, Lag= 59.3 min
Primary = 1,530.85 cfs @ 6.01 hrs, Volume= 485.229 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= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,027.00' Surf.Area= 88.000 ac Storage= 220.000 af
Peak Elev= 1,029.19' @ 6.01 hrs Surf.Area= 105.130 ac Storage= 431.369 af (211.369 af above start)
Flood Elev= 1,029.30' Surf.Area= 106.000 ac Storage= 443.100 af (223.100 af above start)

Plug-Flow detention time= 272.1 min calculated for 265.229 af (46% of inflow)
Center-of-Mass det. time= 104.3 min (457.1 - 352.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,022.00'	1,220.300 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,022.00	0.000	0.000	0.000
1,027.00	88.000	220.000	220.000
1,029.30	106.000	223.100	443.100
1,036.00	126.000	777.200	1,220.300

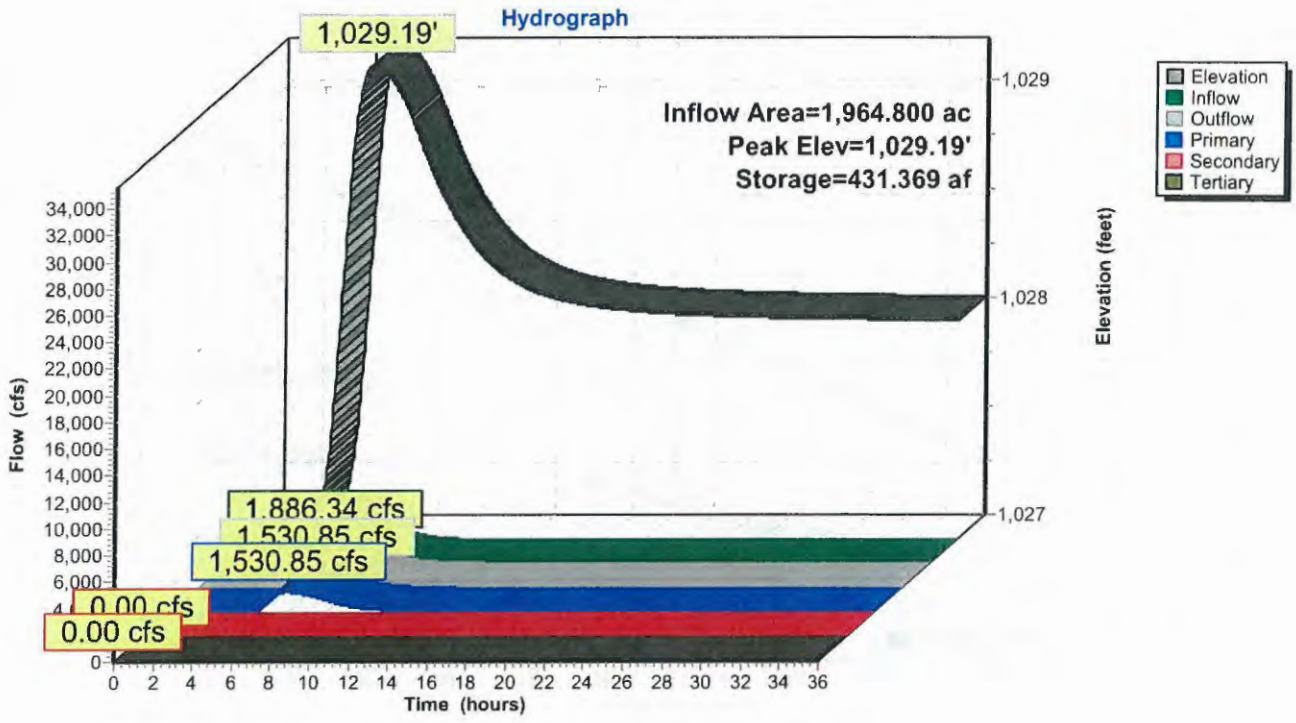
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Secondary	1,029.30'	**30.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Tertiary	1,030.00'	**650.0' long x 50.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1,530.84 cfs @ 6.01 hrs HW=1,029.19' TW=1,022.95' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1,026.45 cfs @ 2.88 fps)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 504.40 cfs @ 2.22 fps)

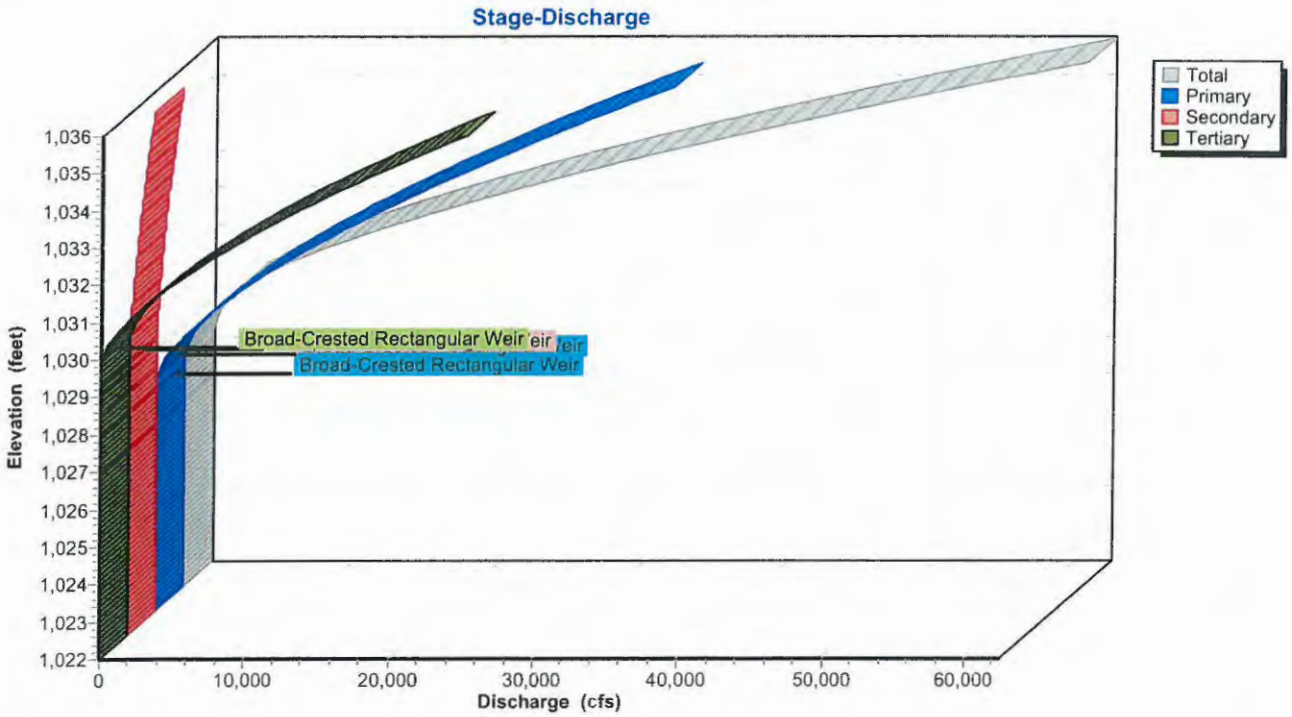
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

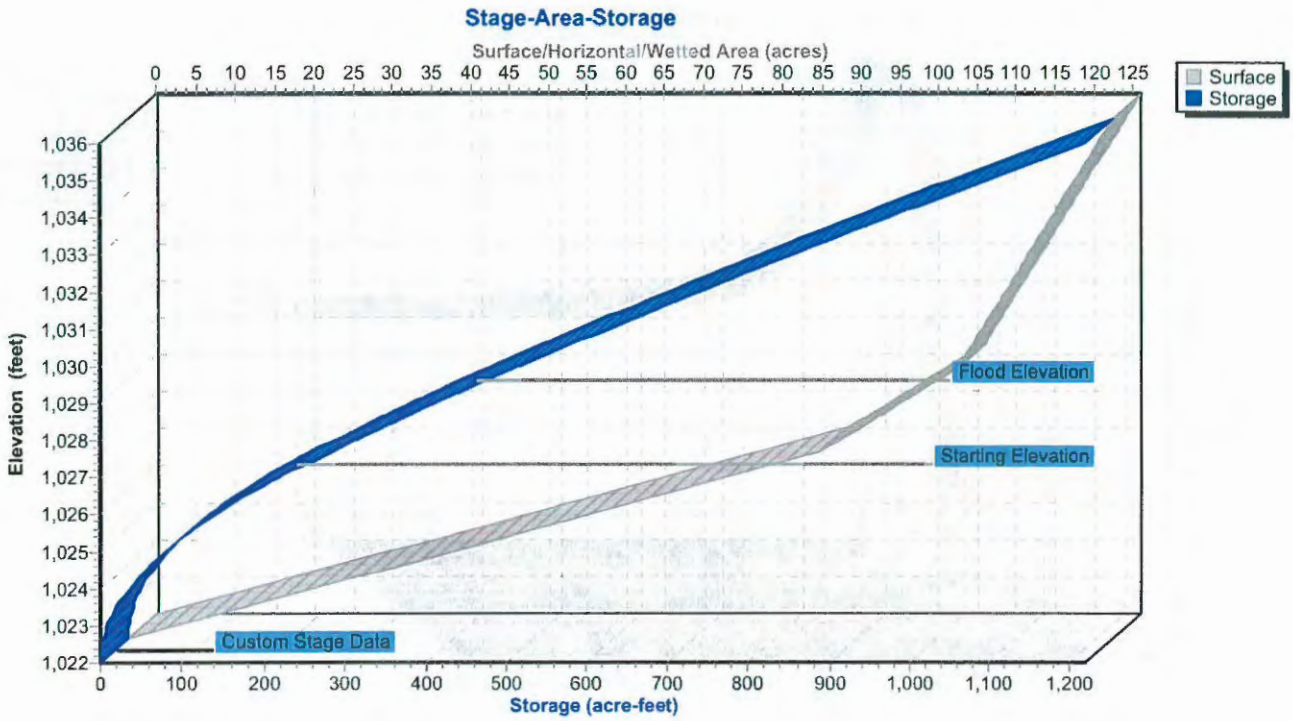
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

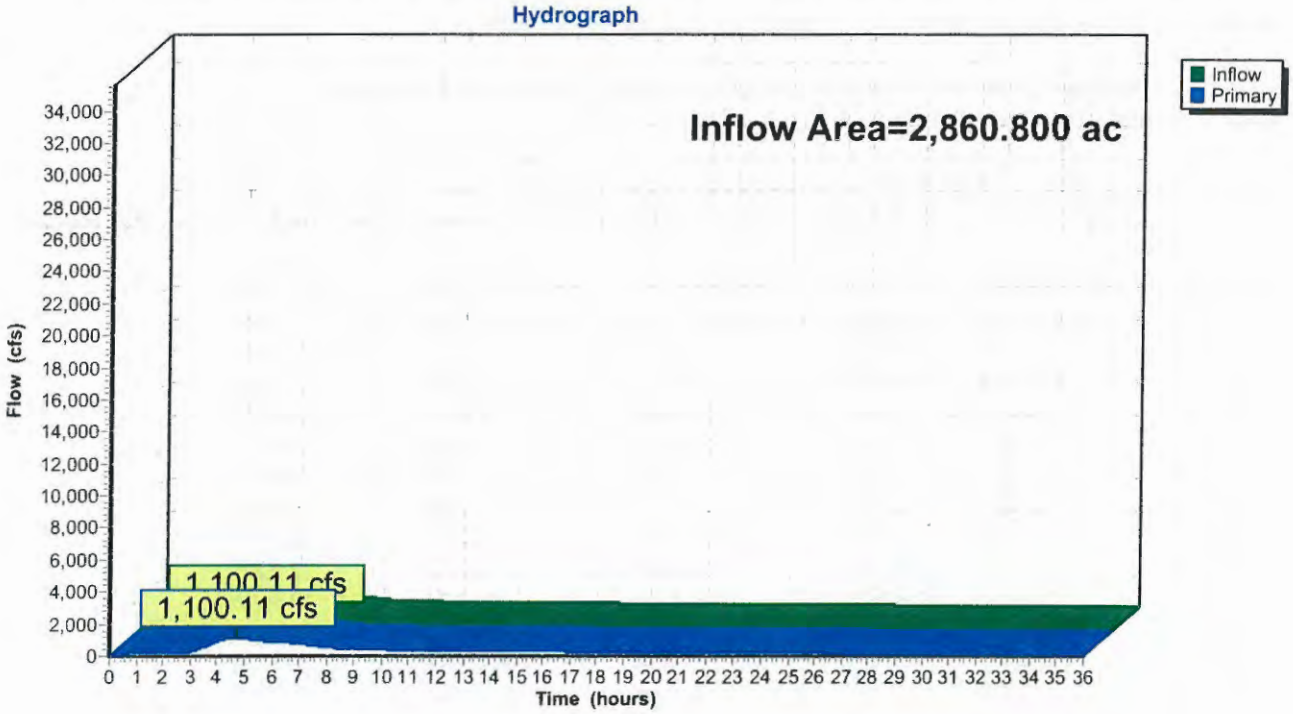


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.85" for 6-HR 0.24 PMF event
Inflow = 1,100.11 cfs @ 4.69 hrs, Volume= 916.814 af
Primary = 1,100.11 cfs @ 4.70 hrs, Volume= 916.814 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed



Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.07" for 6-HR 0.24 PMF event
Inflow = 3,551.26 cfs @ 6.30 hrs, Volume= 2,418.578 af
Outflow = 3,167.76 cfs @ 7.33 hrs, Volume= 2,417.560 af, Atten= 11%, Lag= 61.6 min
Primary = 3,167.76 cfs @ 7.33 hrs, Volume= 2,417.560 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,005.75' @ 7.33 hrs Surf.Area= 12.353 ac Storage= 167.887 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 19.7 min calculated for 2,417.560 af (100% of inflow)
Center-of-Mass det. time= 19.1 min (732.2 - 713.1)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

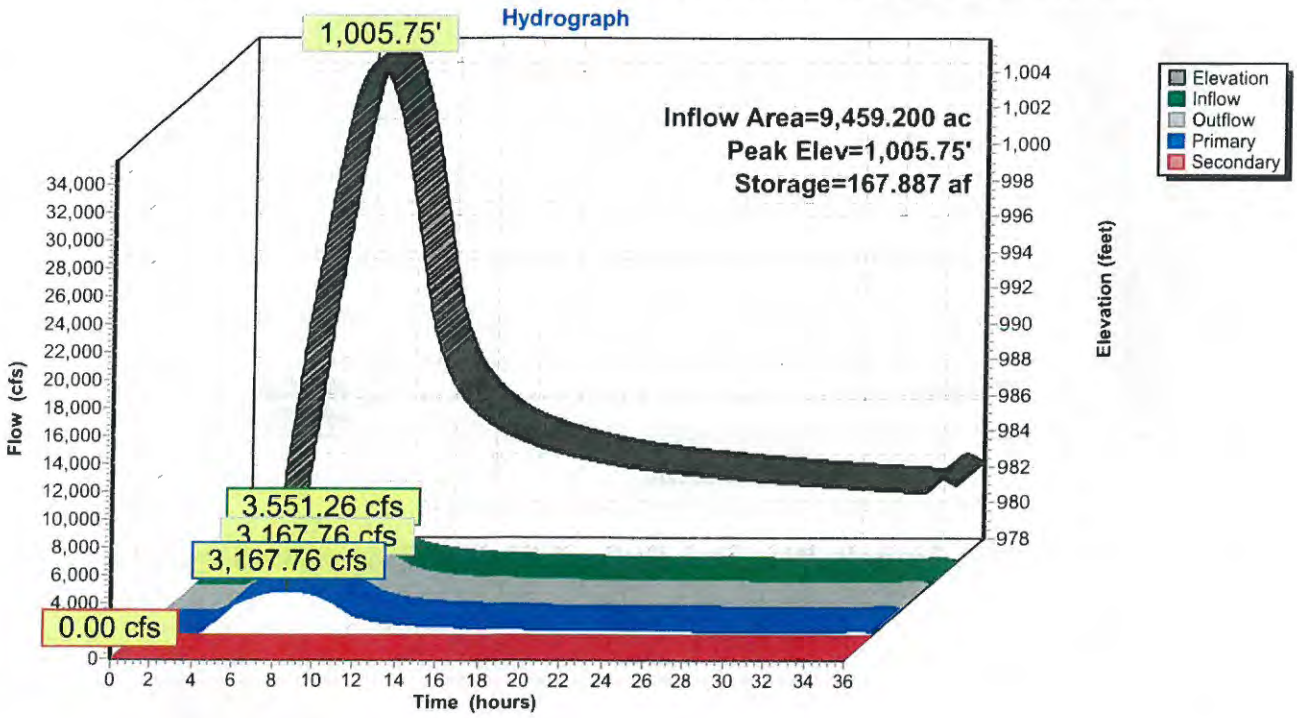
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

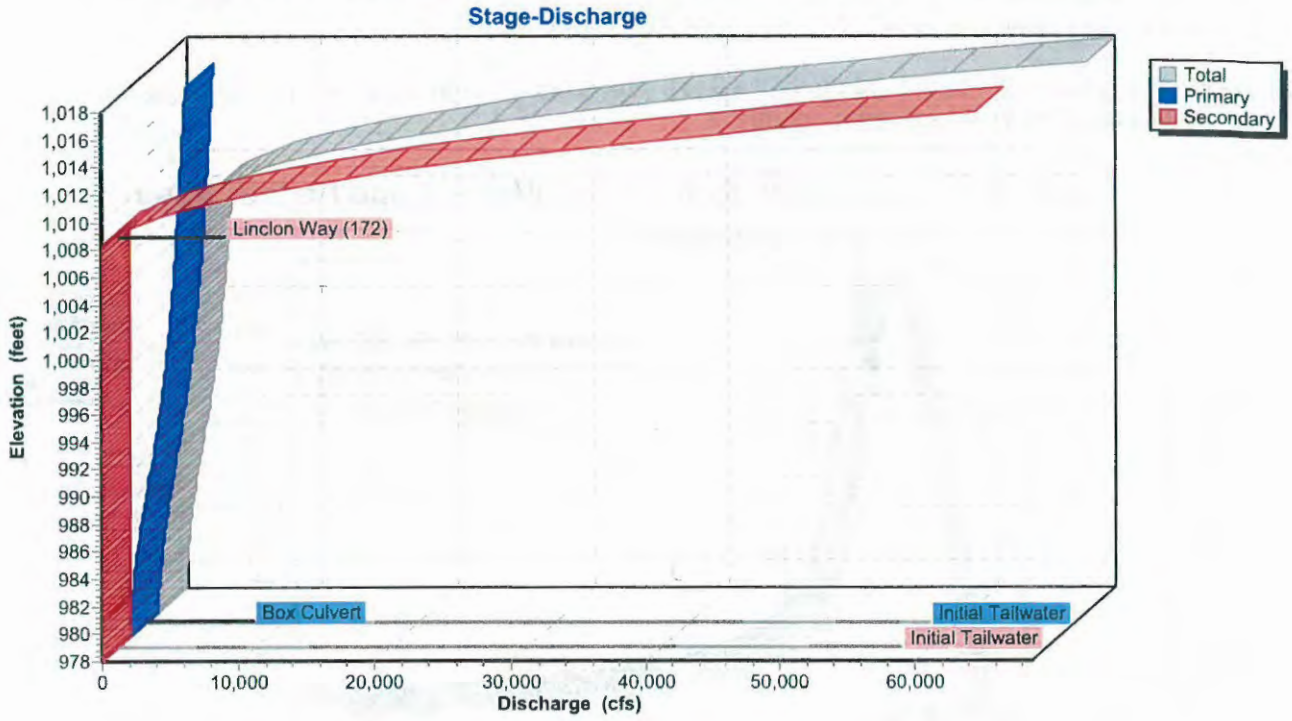
Primary OutFlow Max=3,167.75 cfs @ 7.33 hrs HW=1,005.75' TW=984.27' (Dynamic Tailwater)
└**1=Box Culvert** (Inlet Controls 3,167.75 cfs @ 27.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└**2=Linclon Way (172)** (Controls 0.00 cfs)

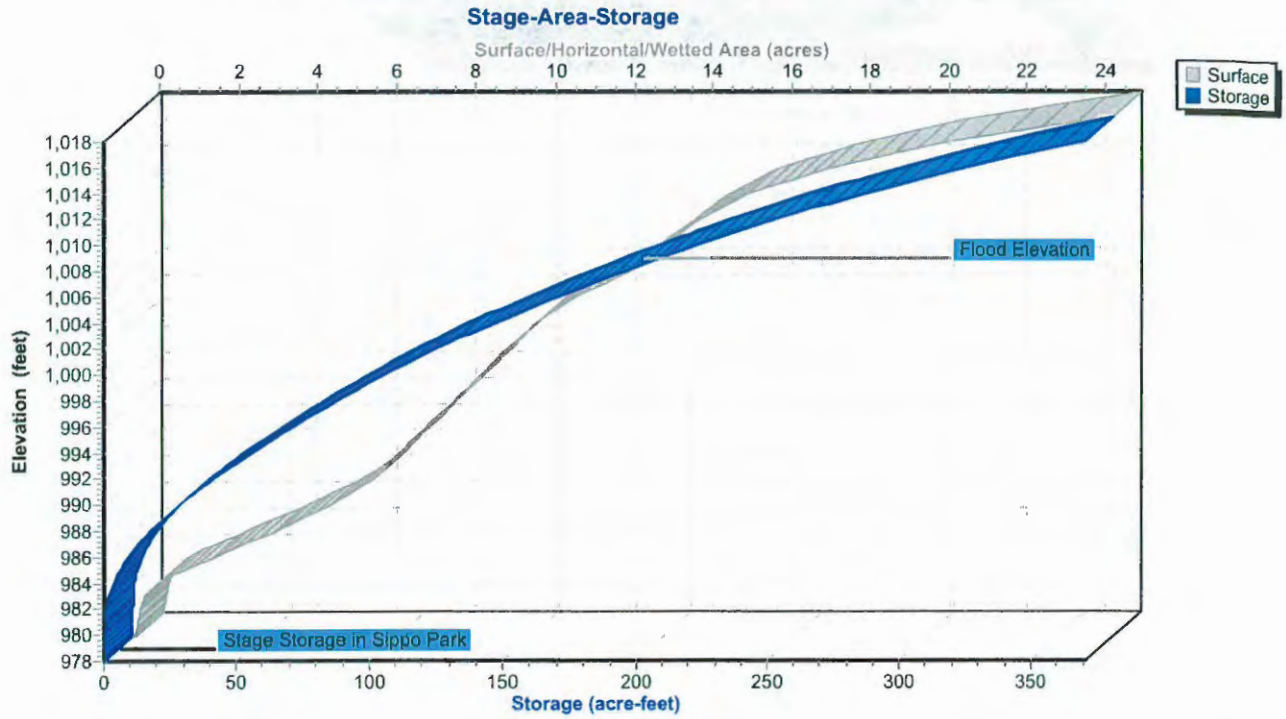
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

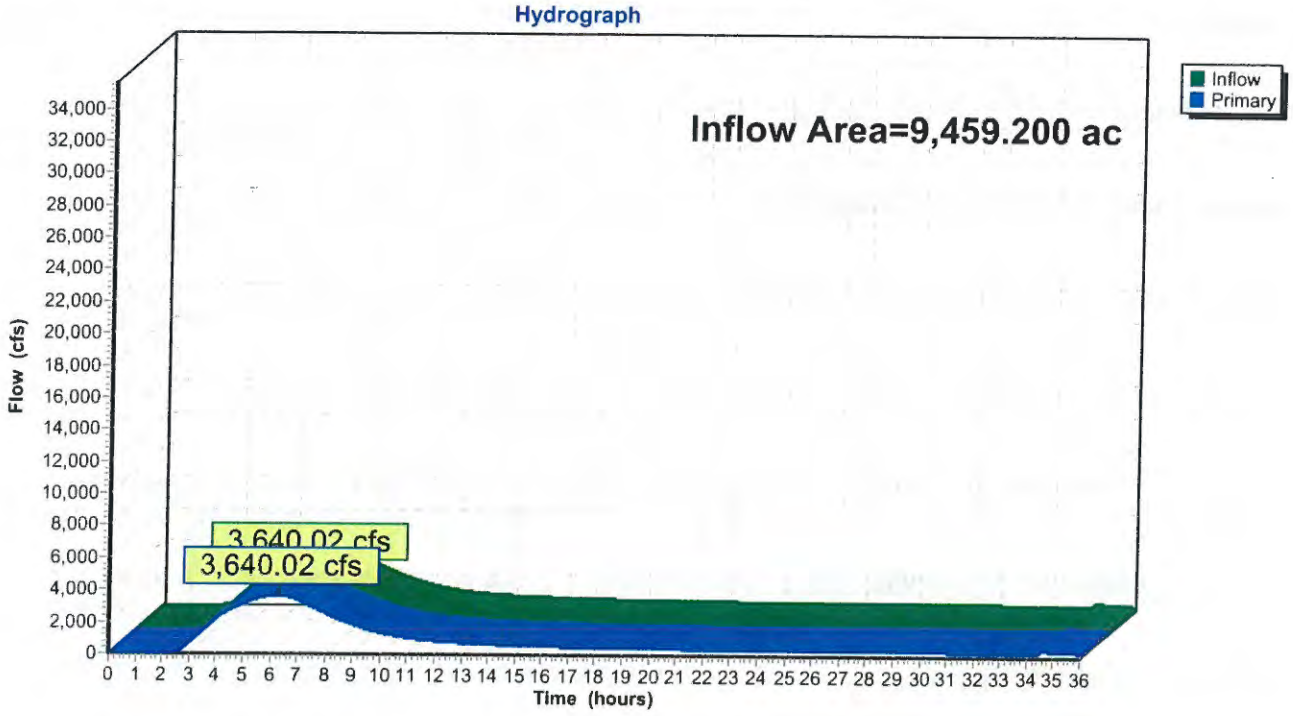


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.09" for 6-HR 0.24 PMF event
Inflow = 3,640.02 cfs @ 6.31 hrs, Volume= 2,431.866 af
Primary = 3,640.02 cfs @ 6.32 hrs, Volume= 2,431.866 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 19C: Confluence 19



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment HYD 1: Lake Eric Drainage Runoff Area=115.200 ac 0.00% Impervious Runoff Depth=3.64"
Tc=44.0 min CN=74 Runoff=192.98 cfs 34.982 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=3.75"
Tc=65.0 min CN=75 Runoff=415.35 cfs 83.930 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=3.24"
Tc=226.0 min CN=70 Runoff=994.32 cfs 378.393 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=3.04"
Tc=128.0 min CN=68 Runoff=972.63 cfs 272.562 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=2.94"
Tc=129.0 min CN=67 Runoff=672.94 cfs 190.006 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=3.64"
Tc=110.0 min CN=74 Runoff=864.59 cfs 219.610 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=3.75"
Tc=72.0 min CN=75 Runoff=1,097.33 cfs 229.807 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=4.27"
Tc=78.0 min CN=80 Runoff=1,128.40 cfs 241.502 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=3.14"
Tc=155.0 min CN=69 Runoff=903.46 cfs 279.709 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=3.75"
Tc=156.0 min CN=75 Runoff=2,004.56 cfs 613.485 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=2.94"
Tc=151.0 min CN=67 Runoff=521.24 cfs 160.170 af

Reach 5R: Channel 5 Avg. Flow Depth=3.19' Max Vel=6.18 fps Inflow=384.71 cfs 690.739 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=384.07 cfs 685.377 af

Reach 7R: Channel 7 Avg. Flow Depth=8.69' Max Vel=3.27 fps Inflow=1,166.85 cfs 957.734 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=1,106.36 cfs 948.955 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=4.86' Max Vel=3.24 fps Inflow=311.19 cfs 373.132 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=311.12 cfs 372.374 af

Reach 15R: Channel 15 Avg. Flow Depth=8.98' Max Vel=2.20 fps Inflow=3,198.75 cfs 1,950.558 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=2,686.85 cfs 1,917.568 af

Reach 16R: Channel 16 Avg. Flow Depth=11.02' Max Vel=2.75 fps Inflow=3,581.16 cfs 2,366.601 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=3,490.57 cfs 2,338.683 af

Reach 18R: Sippo Creek Avg. Flow Depth=6.22' Max Vel=9.61 fps Inflow=3,280.91 cfs 2,563.505 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=3,280.90 cfs 2,563.379 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=521.11 cfs 118.799 af
Primary=521.11 cfs 118.799 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,008.28' Storage=149.493 af Inflow=3,880.61 cfs 2,579.670 af
.85 cfs 1,997.395 af Secondary=1,829.55 cfs 567.242 af Tertiary=12.51 cfs 0.771 af Outflow=3,731.59 cfs 2,565.408 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=1,193.03 cfs 496.676 af
Primary=1,193.03 cfs 496.676 af

Pond 3P: Lake Cable Peak Elev=1,098.30' Storage=2,127.803 af Inflow=1,193.03 cfs 496.675 af
Primary=384.71 cfs 690.840 af Secondary=0.00 cfs 0.000 af Outflow=384.71 cfs 690.840 af

Pond 4C: Confluence 4 Inflow=2,006.86 cfs 1,228.560 af
Primary=2,006.86 cfs 1,228.560 af

Pond 4P: Lake O'Springs Peak Elev=1,108.11' Storage=83.758 af Inflow=521.11 cfs 118.799 af
Primary=198.94 cfs 118.284 af Secondary=0.00 cfs 0.000 af Outflow=198.94 cfs 118.284 af

Pond 5C: Confluence 5 Inflow=2,651.25 cfs 1,418.462 af
Primary=2,651.25 cfs 1,418.462 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.10' Storage=27.914 af Inflow=192.98 cfs 34.982 af
Primary=122.40 cfs 34.344 af Secondary=13.39 cfs 0.525 af Outflow=135.80 cfs 34.870 af

Pond 6C: Confluence 6 Inflow=565.85 cfs 532.464 af
Primary=565.85 cfs 532.464 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=3,198.75 cfs 1,950.742 af
Primary=3,198.75 cfs 1,950.742 af

Pond 8C: Confluence 8 Inflow=3,581.16 cfs 2,366.793 af
Primary=3,581.16 cfs 2,366.793 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,025.58' Storage=392.080 af Inflow=1,648.77 cfs 520.643 af
Primary=127.22 cfs 290.267 af Secondary=202.69 cfs 82.944 af Outflow=311.19 cfs 373.212 af

Pond 9P: Sippo Lake Peak Elev=1,029.24' Storage=436.613 af Inflow=2,004.56 cfs 613.485 af
mary=1,648.77 cfs 520.643 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,648.77 cfs 520.643 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Inflow=1,166.85 cfs 957.837 af
Primary=1,166.85 cfs 957.837 af

Pond 16P: Lincoln Way Box Peak Elev=1,007.35' Storage=188.322 af Inflow=3,731.59 cfs 2,565.131 af
Primary=3,280.91 cfs 2,563.787 af Secondary=0.00 cfs 0.000 af Outflow=3,280.91 cfs 2,563.787 af

Pond 19C: Confluence 19 Inflow=3,880.61 cfs 2,579.928 af
Primary=3,880.61 cfs 2,579.928 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 2,704.156 af Average Runoff Depth = 3.43"
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

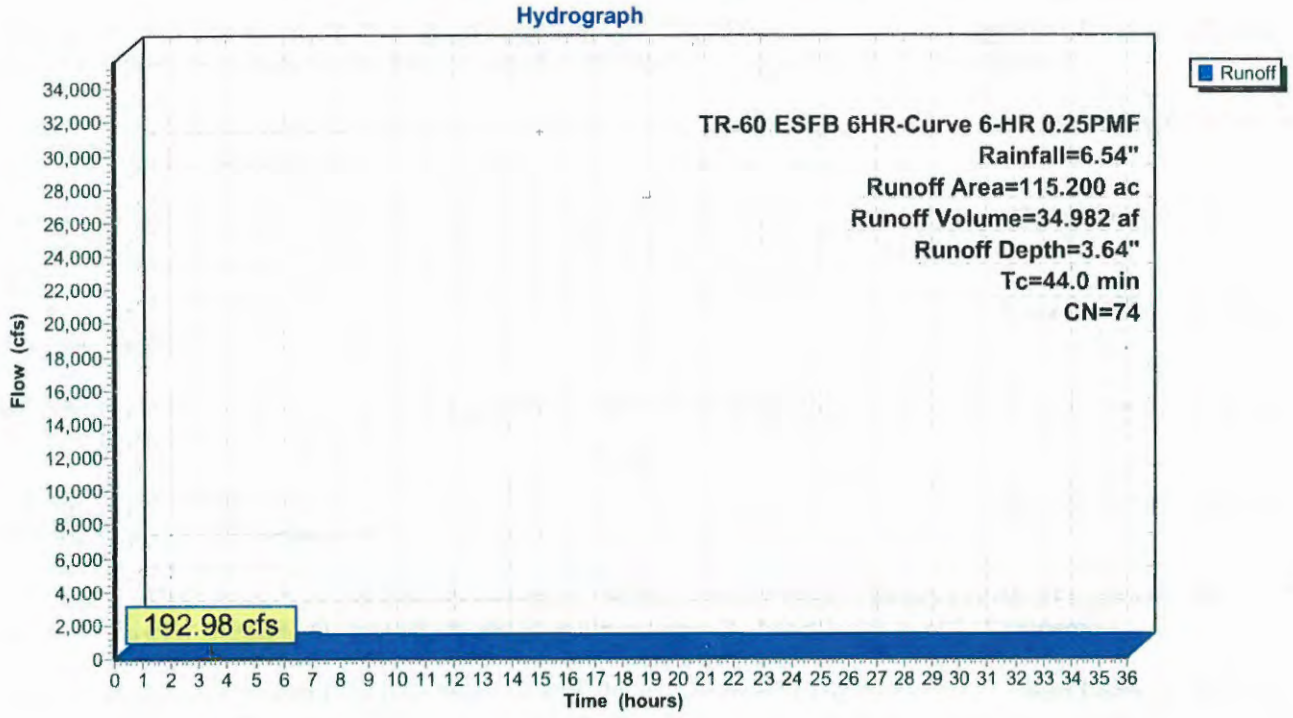
Runoff = 192.98 cfs @ 3.37 hrs, Volume= 34.982 af, Depth= 3.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
115.200	74	>75% Grass cover, Good, HSG C
115.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0					**Direct Entry, HEC-1 Lag Time = 0.44 hr**

Subcatchment HYD 1: Lake Eric Drainage Area



Summary for Subcatchment HYD 2: Lake O'Springs Watershed

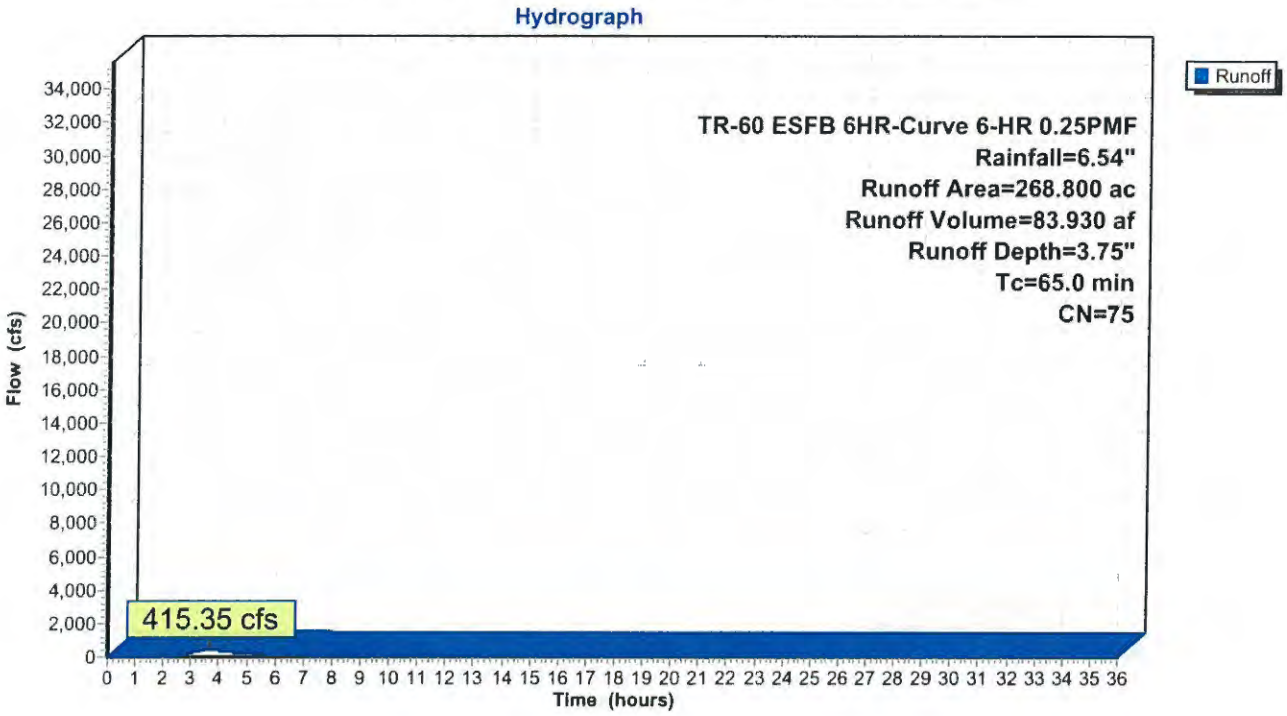
Runoff = 415.35 cfs @ 3.68 hrs, Volume= 83.930 af, Depth= 3.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
268.800	75	1/4 acre lots, 38% imp, HSG B
166.656		62.00% Pervious Area
102.144		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0					**Direct Entry, HEC-1 Lag Time = 0.65 hours**

Subcatchment HYD 2: Lake O'Springs Watershed



Summary for Subcatchment HYD 3: Lake Cable Watershed

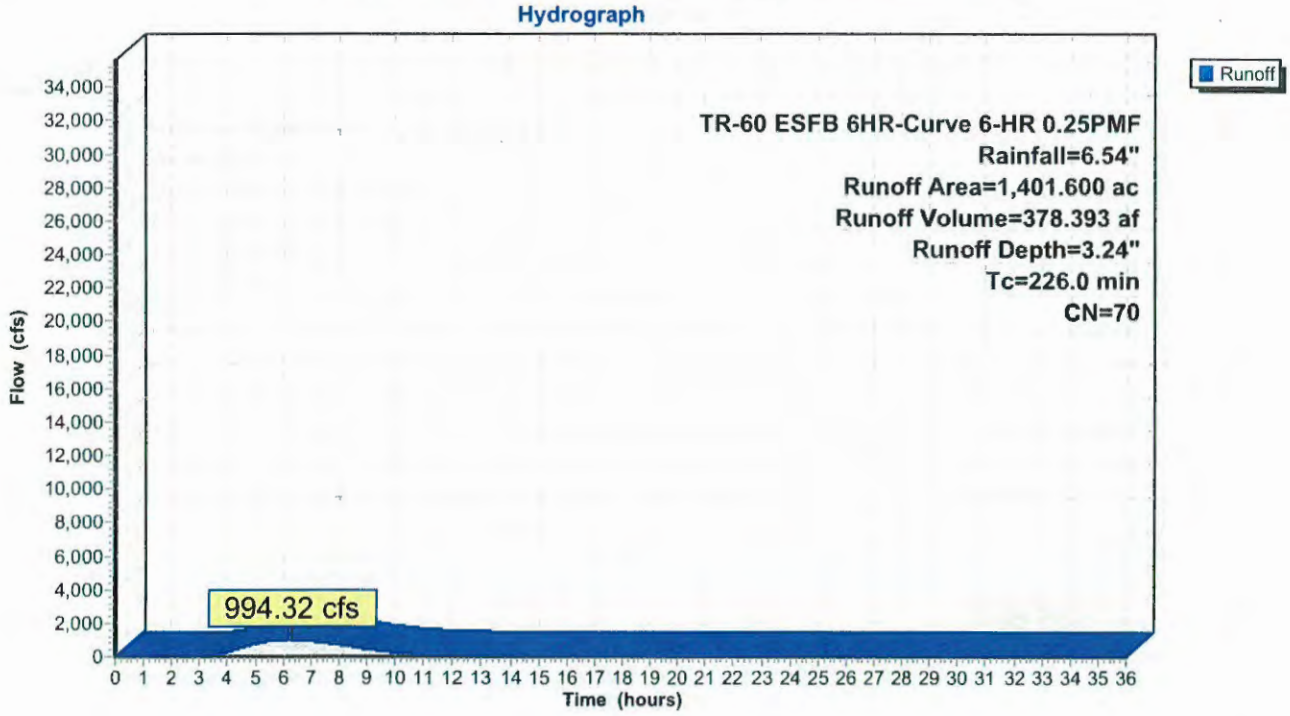
Runoff = 994.32 cfs @ 6.28 hrs, Volume= 378.393 af, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
1,401.600	70	1/2 acre lots, 25% imp, HSG B
1,051.200		75.00% Pervious Area
350.400		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
226.0					**Direct Entry, HEC-1 Lag time 2.26hr**

Subcatchment HYD 3: Lake Cable Watershed



Summary for Subcatchment HYD 4: Hyd 4 Watershed

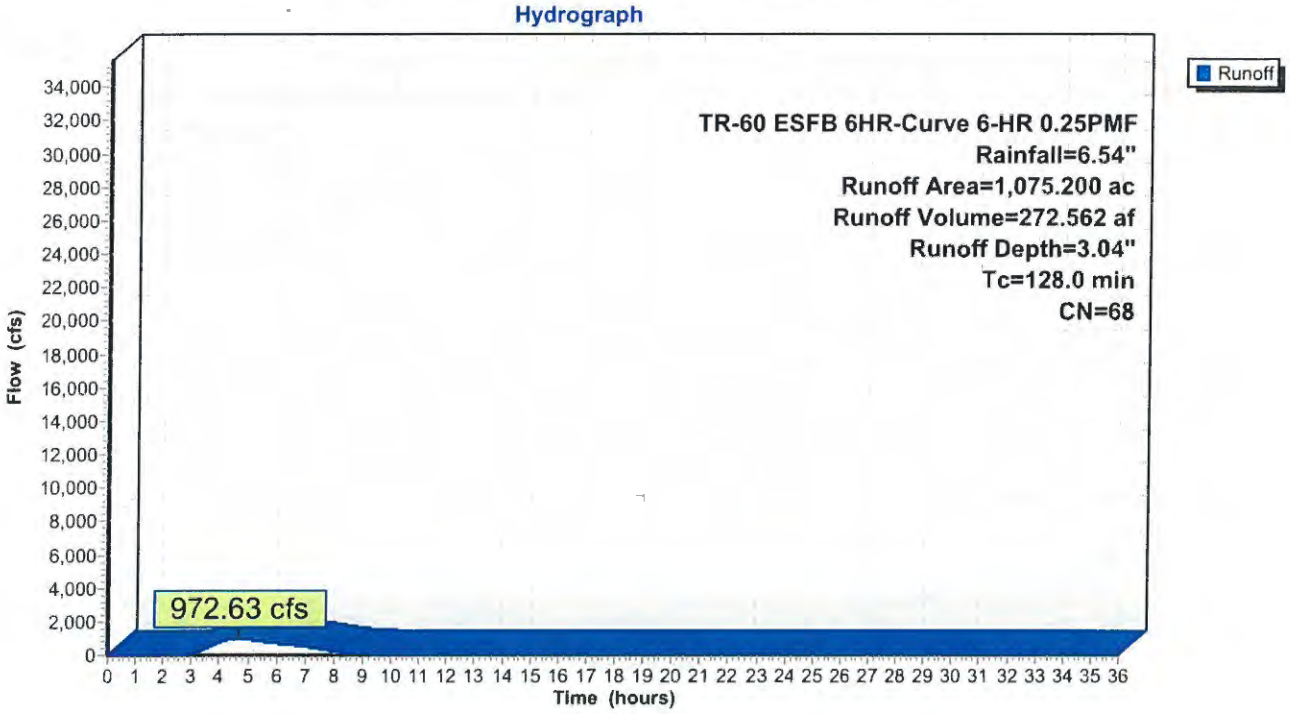
Runoff = 972.63 cfs @ 4.69 hrs, Volume= 272.562 af, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
1,075.200	68	1 acre lots, 20% imp, HSG B
860.160		80.00% Pervious Area
215.040		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
128.0					**Direct Entry, HEC-1 Lag Time = 1.28 hr**

Subcatchment HYD 4: Hyd 4 Watershed



Summary for Subcatchment HYD11: HYD11 Watershed

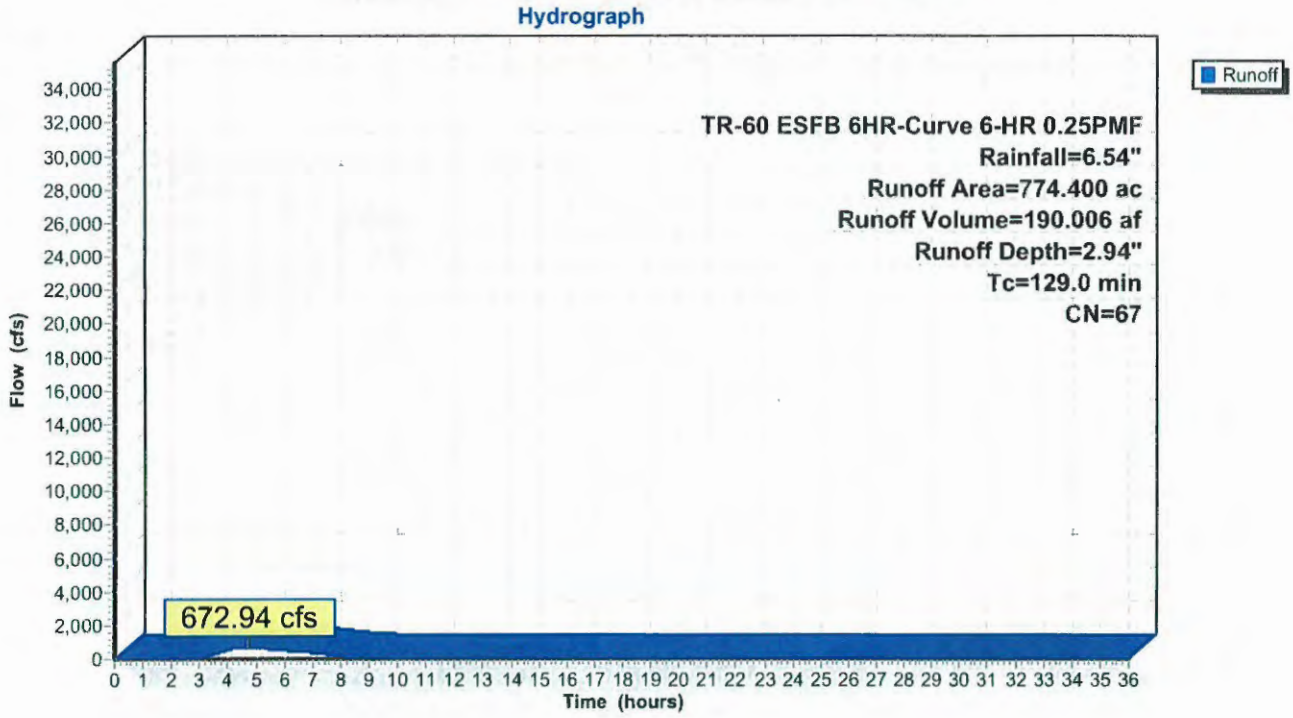
Runoff = 672.94 cfs @ 4.73 hrs, Volume= 190.006 af, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

	Area (ac)	CN	Description
*	774.400	67	
	774.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
129.0					**Direct Entry, HEC-1 Lag Time = 1.29 hr**

Subcatchment HYD11: HYD11 Watershed



Summary for Subcatchment HYD12: HYD12 Watershed

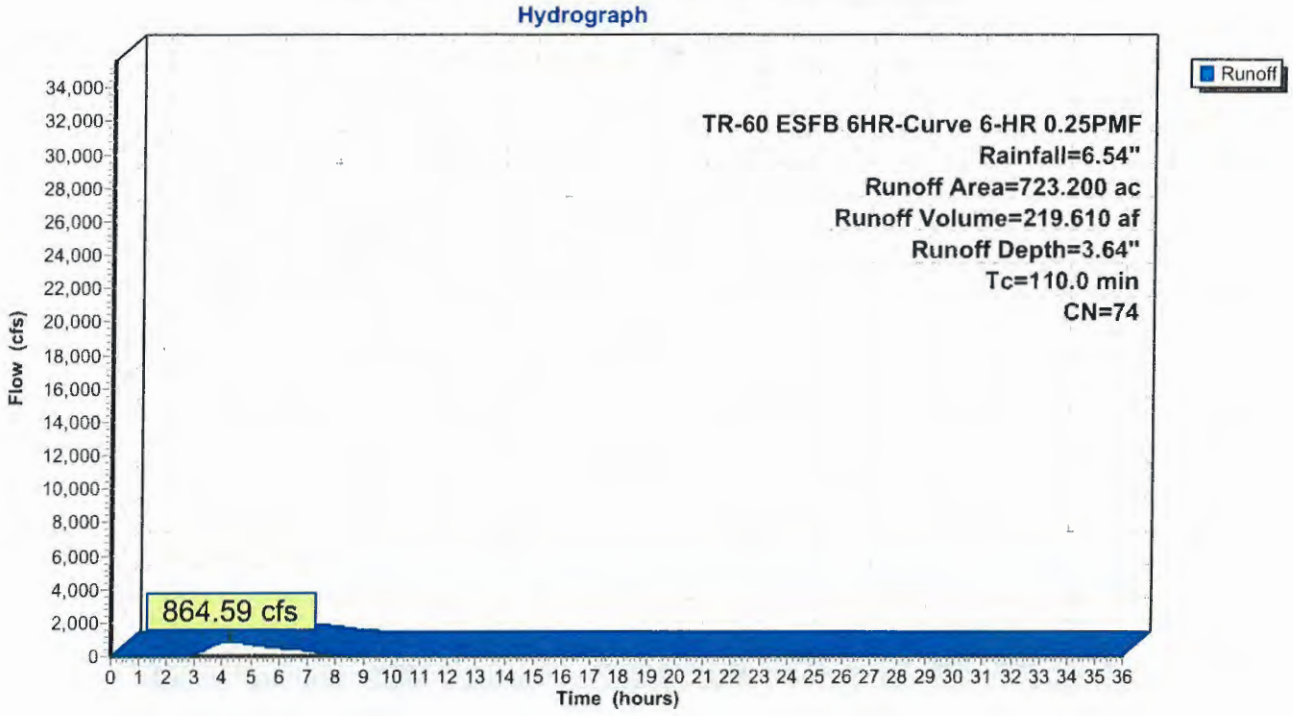
Runoff = 864.59 cfs @ 4.28 hrs, Volume= 219.610 af, Depth= 3.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
723.200	74	>75% Grass cover, Good, HSG C
723.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
110.0					**Direct Entry, HEC-1 Lag Time = 1.10 hr**

Subcatchment HYD12: HYD12 Watershed



Summary for Subcatchment HYD13: HYD13 Watershed

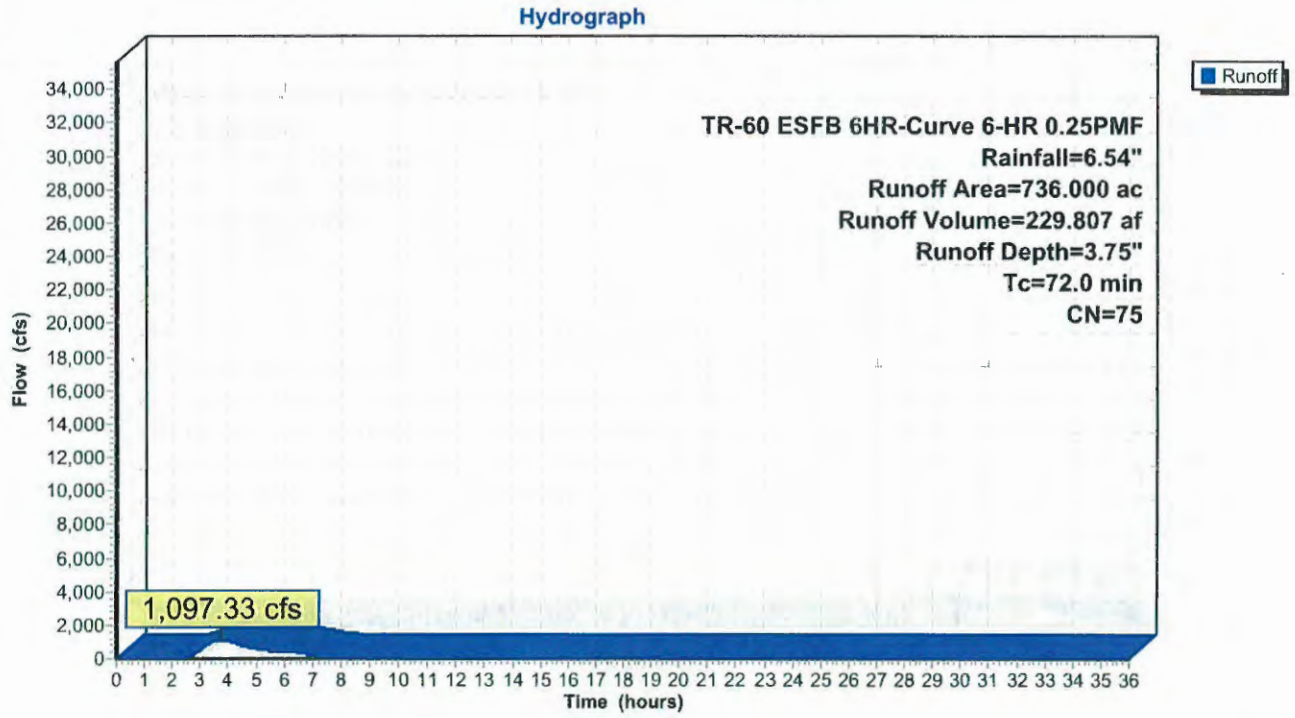
Runoff = 1,097.33 cfs @ 3.76 hrs, Volume= 229.807 af, Depth= 3.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
736.000	75	1/4 acre lots, 38% imp, HSG B
456.320		62.00% Pervious Area
279.680		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0					**Direct Entry, HEC-1 Lag Time = 0.72 hr**

Subcatchment HYD13: HYD13 Watershed



Summary for Subcatchment HYD14: HYD14 Watershed

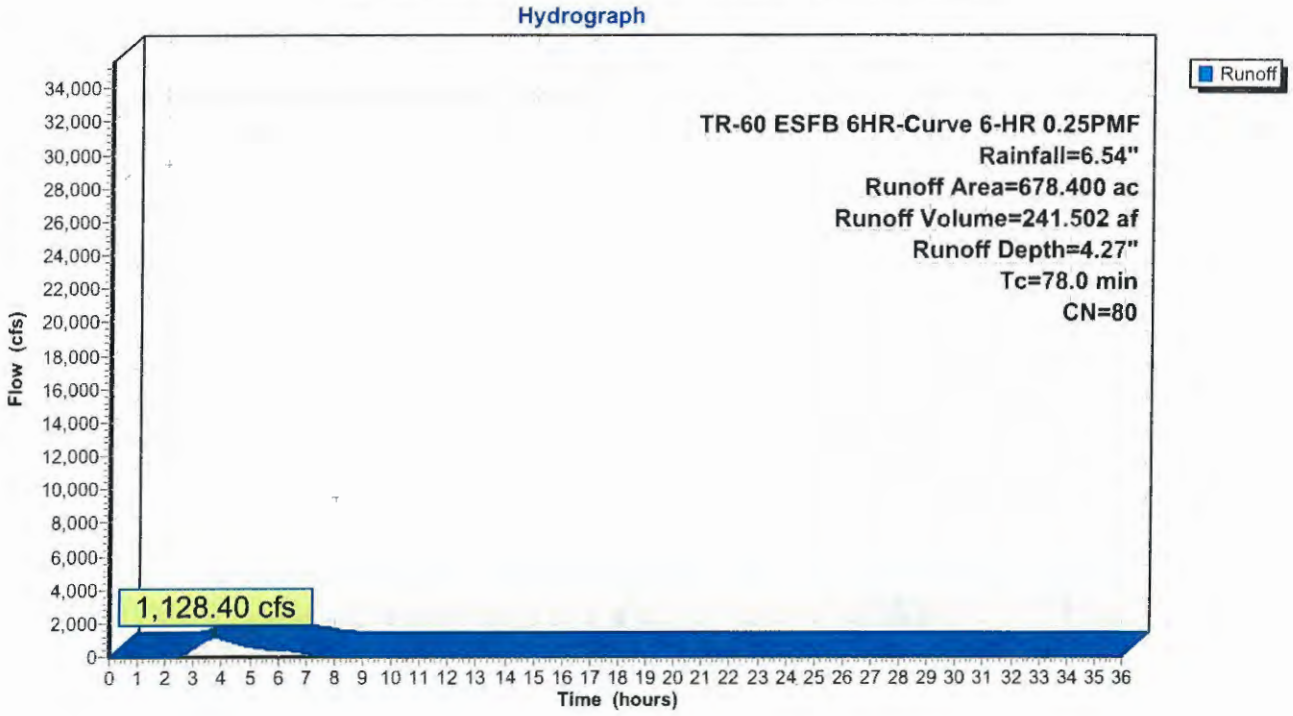
Runoff = 1,128.40 cfs @ 3.73 hrs, Volume= 241.502 af, Depth= 4.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
678.400	80	1/2 acre lots, 25% imp, HSG C
508.800		75.00% Pervious Area
169.600		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
78.0					**Direct Entry, HEC-1 Lag Time = 0.78 hr**

Subcatchment HYD14: HYD14 Watershed



Summary for Subcatchment HYD6: HYD6 Watershed

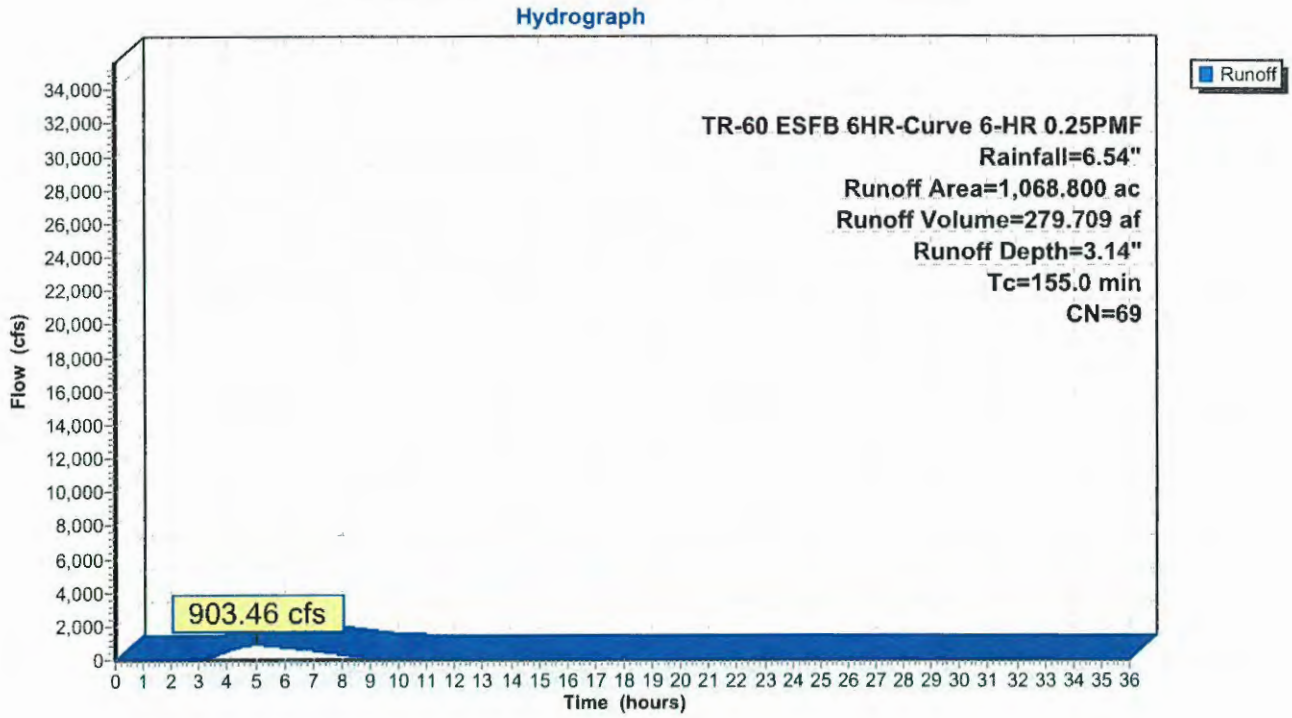
Runoff = 903.46 cfs @ 5.00 hrs, Volume= 279.709 af, Depth= 3.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
1,068.800	69	Pasture/grassland/range, Fair, HSG B
1,068.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
155.0					**Direct Entry, HEC-1 Lag Time = 1.55 hr**

Subcatchment HYD6: HYD6 Watershed



Summary for Subcatchment HYD8: Sippo Lake Watershed

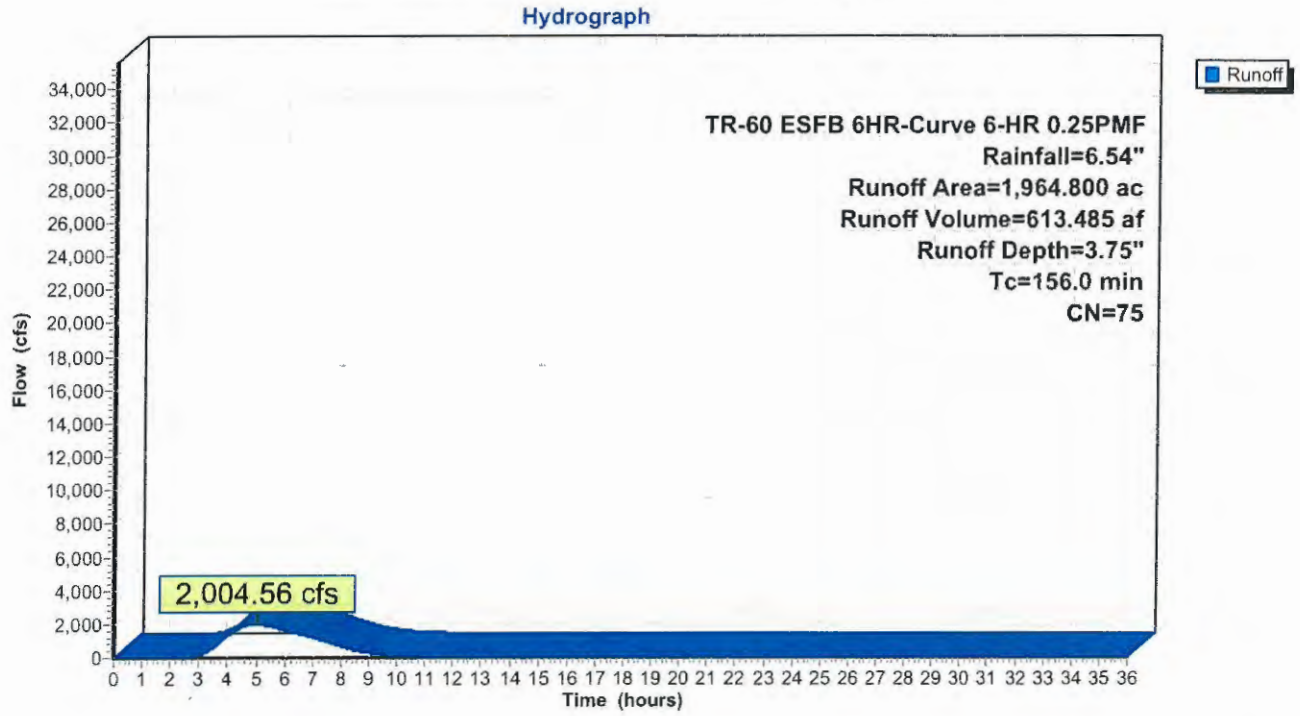
Runoff = 2,004.56 cfs @ 5.02 hrs, Volume= 613.485 af, Depth= 3.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

Area (ac)	CN	Description
1,964.800	75	1/4 acre lots, 38% imp, HSG B
1,218.176		62.00% Pervious Area
746.624		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
156.0					**Direct Entry, HEC-1 Lag Time = 1.56hr**

Subcatchment HYD8: Sippo Lake Watershed



Summary for Subcatchment HYD9: HYD9 Watershed

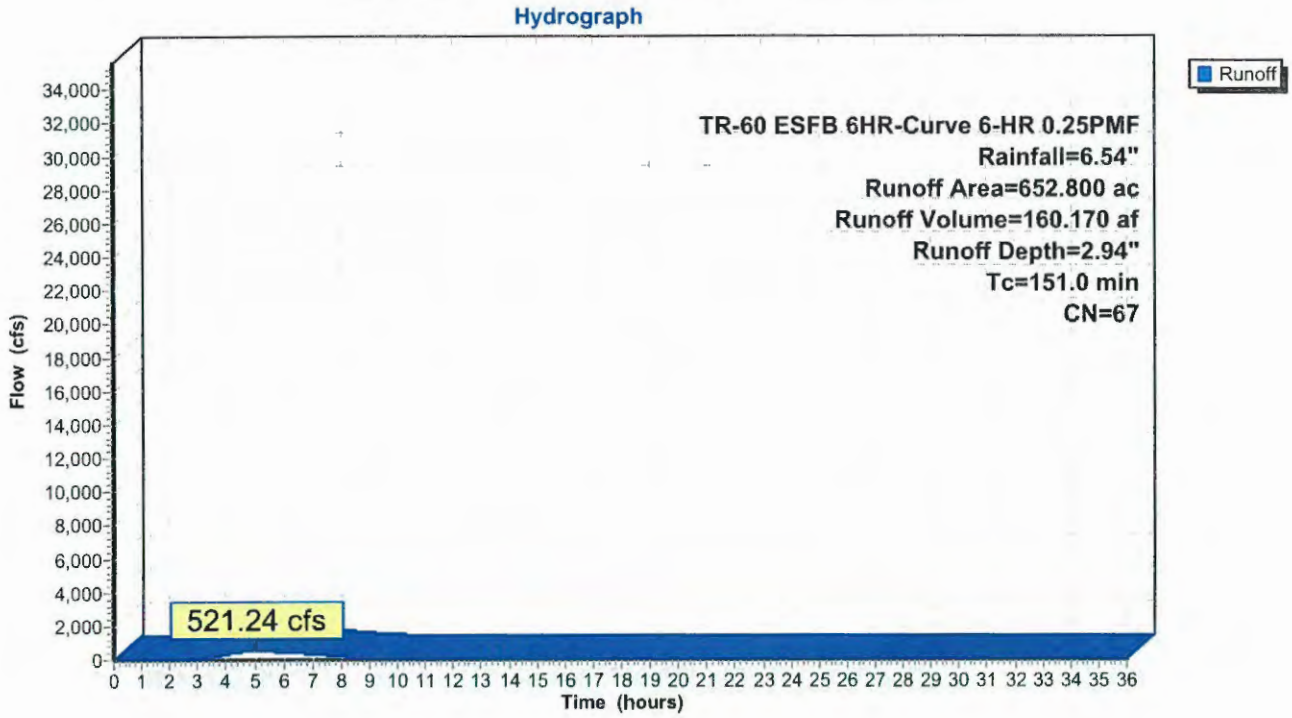
Runoff = 521.24 cfs @ 5.03 hrs, Volume= 160.170 af, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.25PMF Rainfall=6.54"

	Area (ac)	CN	Description
*	652.800	67	
	652.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
151.0					**Direct Entry, HEC-1 Lag Time = 1.51hr**

Subcatchment HYD9: HYD9 Watershed



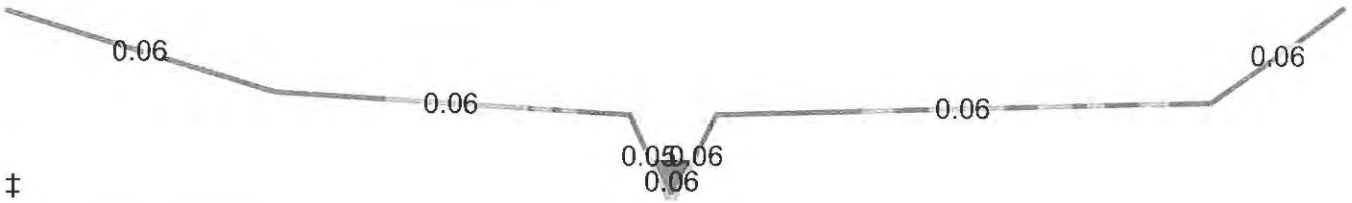
Summary for Reach 5R: Channel 5

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 4.64" for 6-HR 0.25PMF event
Inflow = 384.71 cfs @ 9.70 hrs, Volume= 690.739 af
Outflow = 384.07 cfs @ 10.01 hrs, Volume= 685.377 af, Atten= 0%, Lag= 18.5 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.18 fps, Min. Travel Time= 23.7 min
Avg. Velocity = 5.34 fps, Avg. Travel Time= 27.5 min

Peak Storage= 546,998 cf @ 10.01 hrs
Average Depth at Peak Storage= 3.19'
Defined Flood Depth= 16.00', Capacity at Flood Depth= 106,015.62 cfs
Bank-Full Depth= 16.00', Capacity at Bank-Full= 106,015.62 cfs

Custom cross-section, Length= 8,800.0' Slope= 0.0240 '/' (102 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,069.00', Outlet Invert= 857.80'

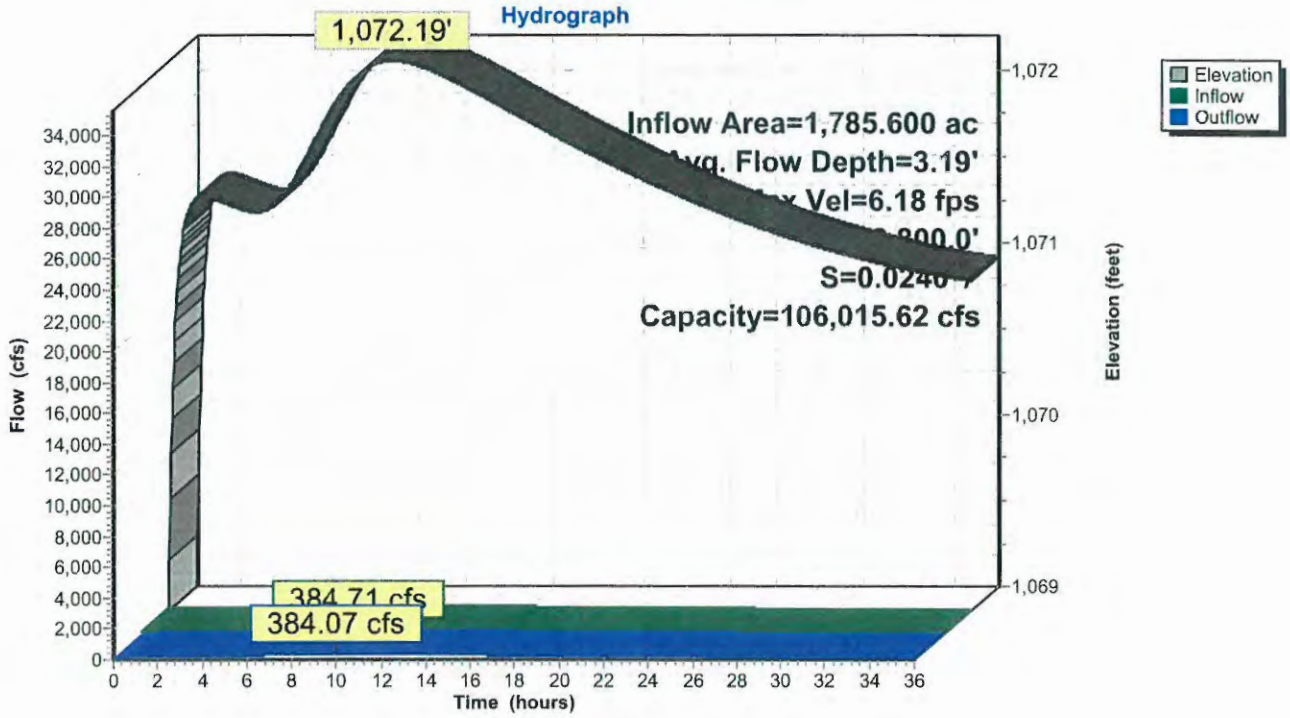


‡

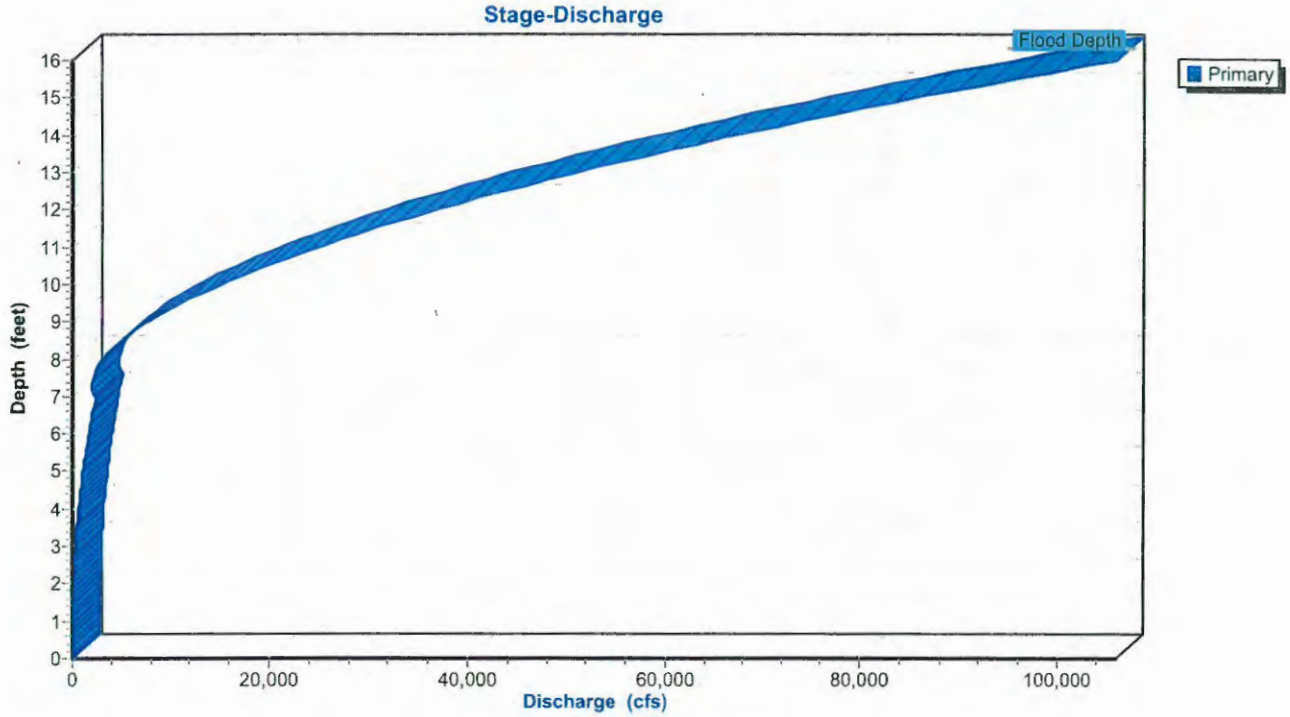
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	6.0	0	0.00
7.00	248.5	66.6	2,186,800	2,476.94
8.00	564.8	569.1	4,969,800	3,087.89
9.00	1,204.8	714.2	10,601,800	7,790.91
16.00	7,198.5	1,002.1	63,346,800	106,015.62

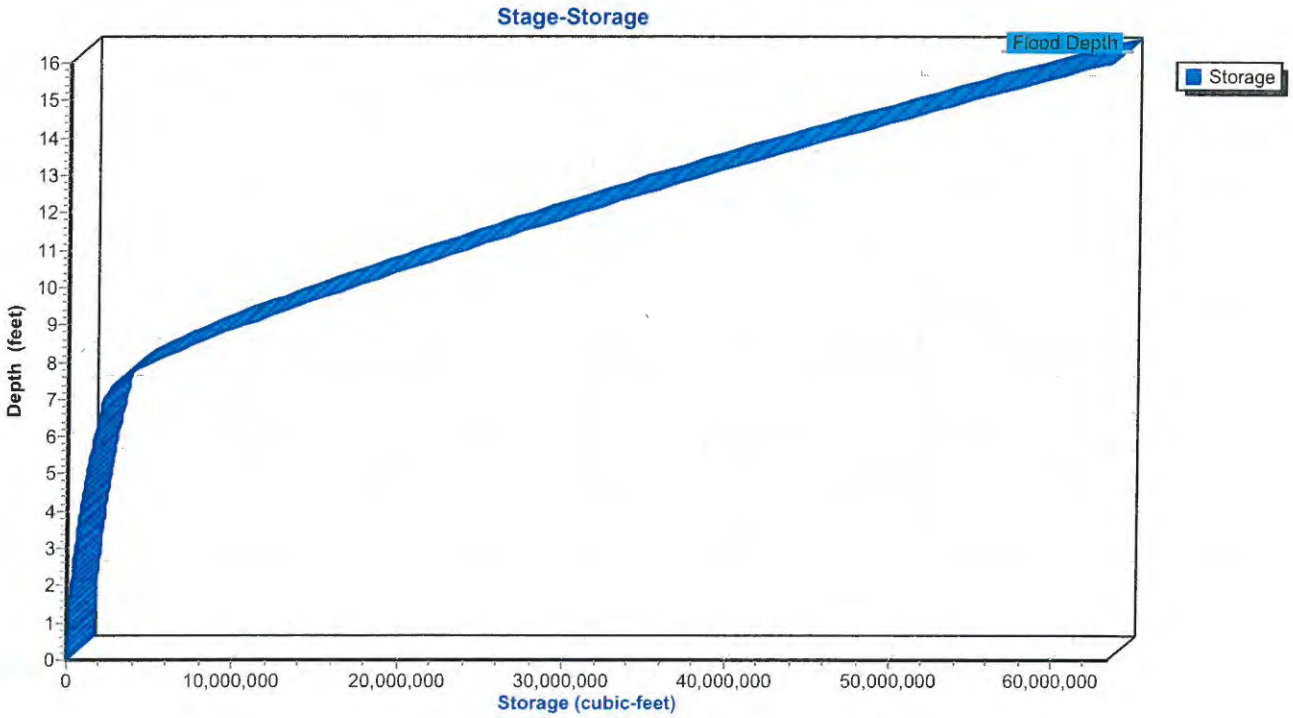
Reach 5R: Channel 5



Reach 5R: Channel 5



Reach 5R: Channel 5



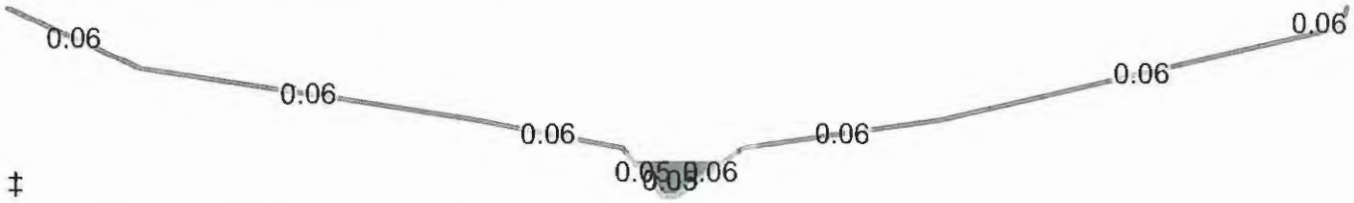
Summary for Reach 7R: Channel 7

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 4.02" for 6-HR 0.25PMF event
Inflow = 1,166.85 cfs @ 4.70 hrs, Volume= 957.734 af
Outflow = 1,106.36 cfs @ 5.14 hrs, Volume= 948.955 af, Atten= 5%, Lag= 26.1 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.27 fps, Min. Travel Time= 30.1 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 42.6 min

Peak Storage= 1,999,391 cf @ 5.14 hrs
Average Depth at Peak Storage= 8.69'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

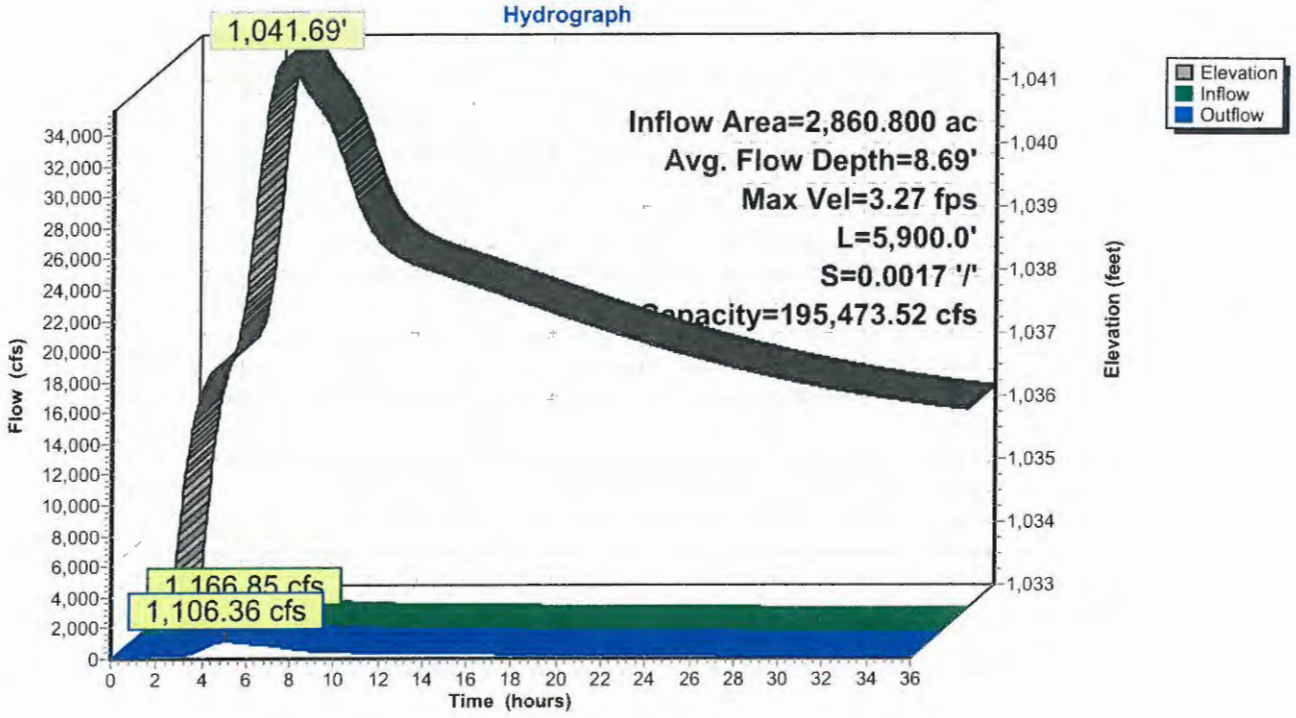
Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'



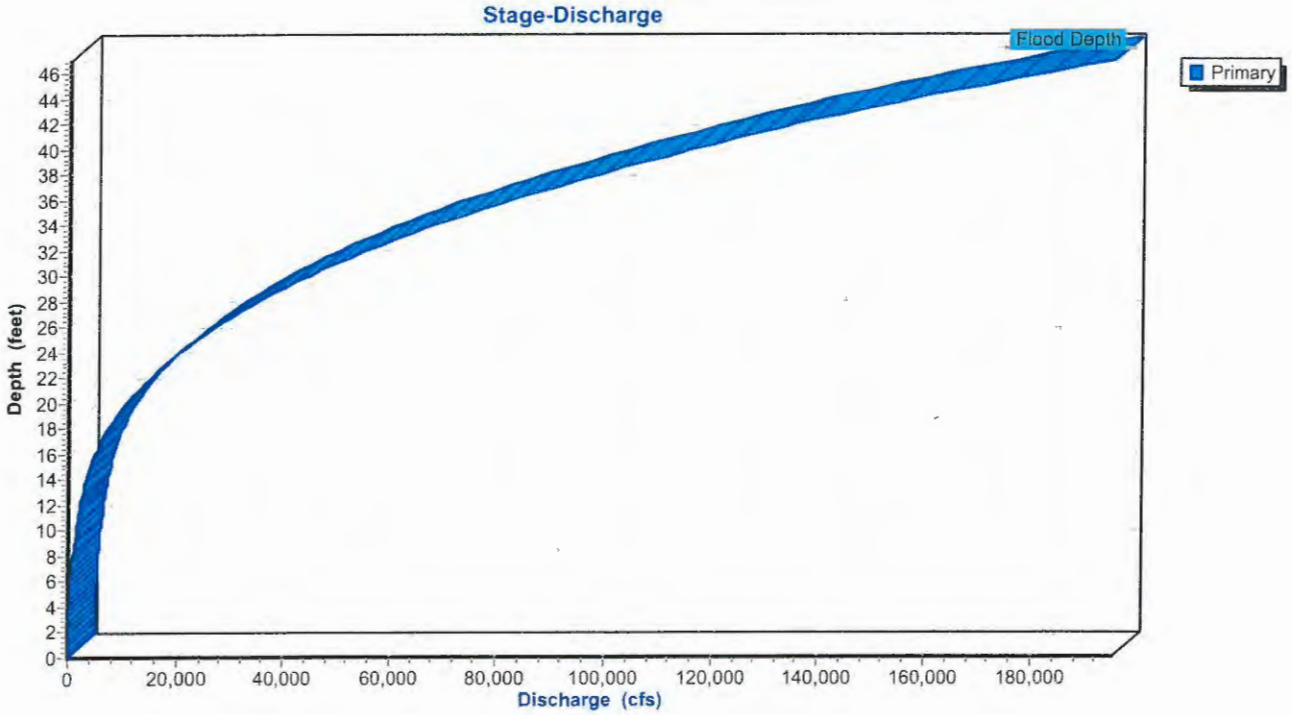
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00	5.00	0.060	
1,005.00	1,080.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
12.00	600.0	93.7	3,540,000	2,349.60
19.00	2,140.0	354.1	12,626,000	8,862.05
32.00	9,417.2	774.5	55,561,326	55,339.93
42.00	18,098.3	972.7	106,780,167	135,620.34
47.00	23,027.5	1,013.5	135,862,250	195,473.52

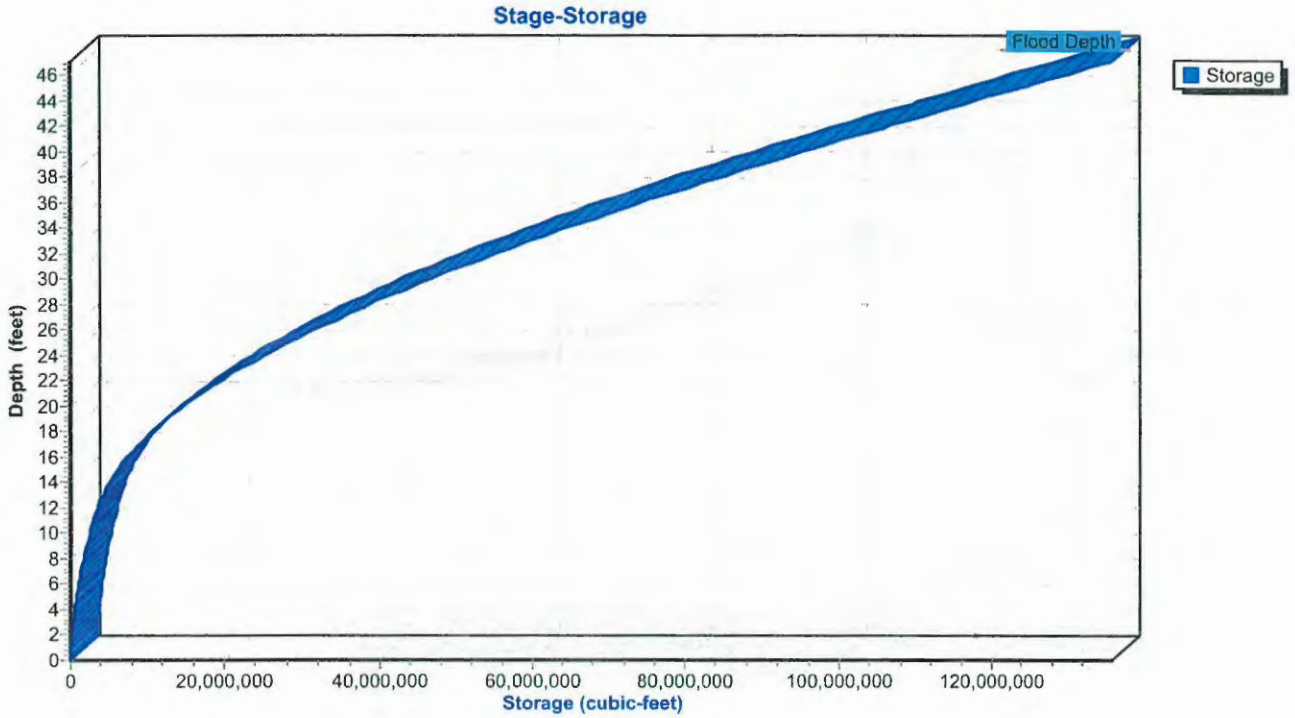
Reach 7R: Channel 7



Reach 7R: Channel 7



Reach 7R: Channel 7



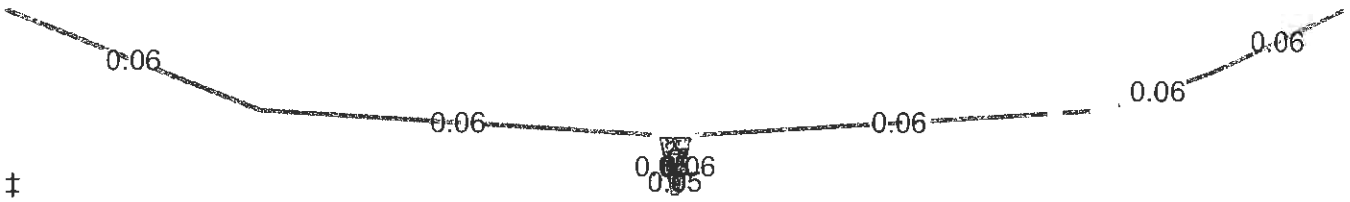
Summary for Reach 10Ra: Channel 10 (Reach West of Genoa Rd)

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 2.28" for 6-HR 0.25PMF event
Inflow = 311.19 cfs @ 9.91 hrs, Volume= 373.132 af
Outflow = 311.12 cfs @ 9.97 hrs, Volume= 372.374 af, Atten= 0%, Lag= 3.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 2.58 fps, Avg. Travel Time= 5.8 min

Peak Storage= 86,381 cf @ 9.97 hrs
Average Depth at Peak Storage= 4.86'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 36,685.79 cfs
Bank-Full Depth= 15.00', Capacity at Bank-Full= 36,685.79 cfs

Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

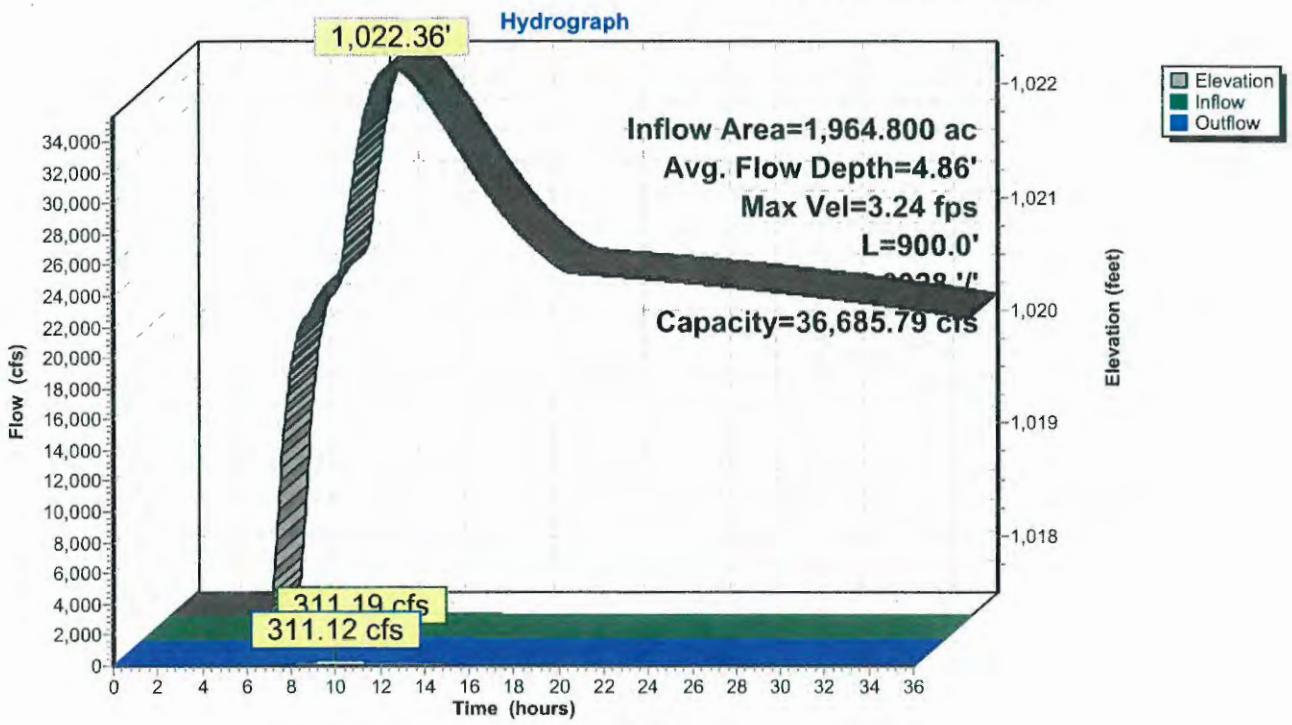


‡

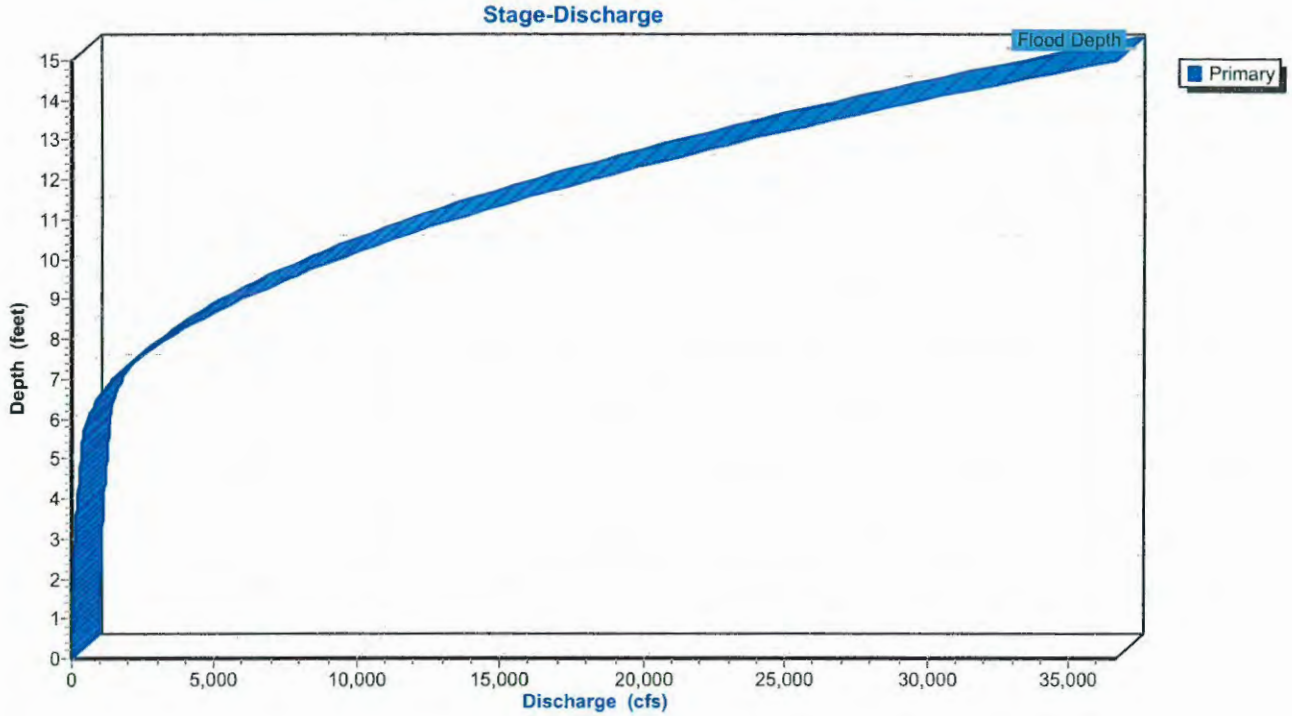
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
5.00	100.0	32.4	90,000	328.73
7.00	760.0	632.4	684,000	1,430.41
10.00	2,876.9	783.7	2,589,188	9,317.36
15.00	7,330.0	1,002.7	6,597,000	36,685.79

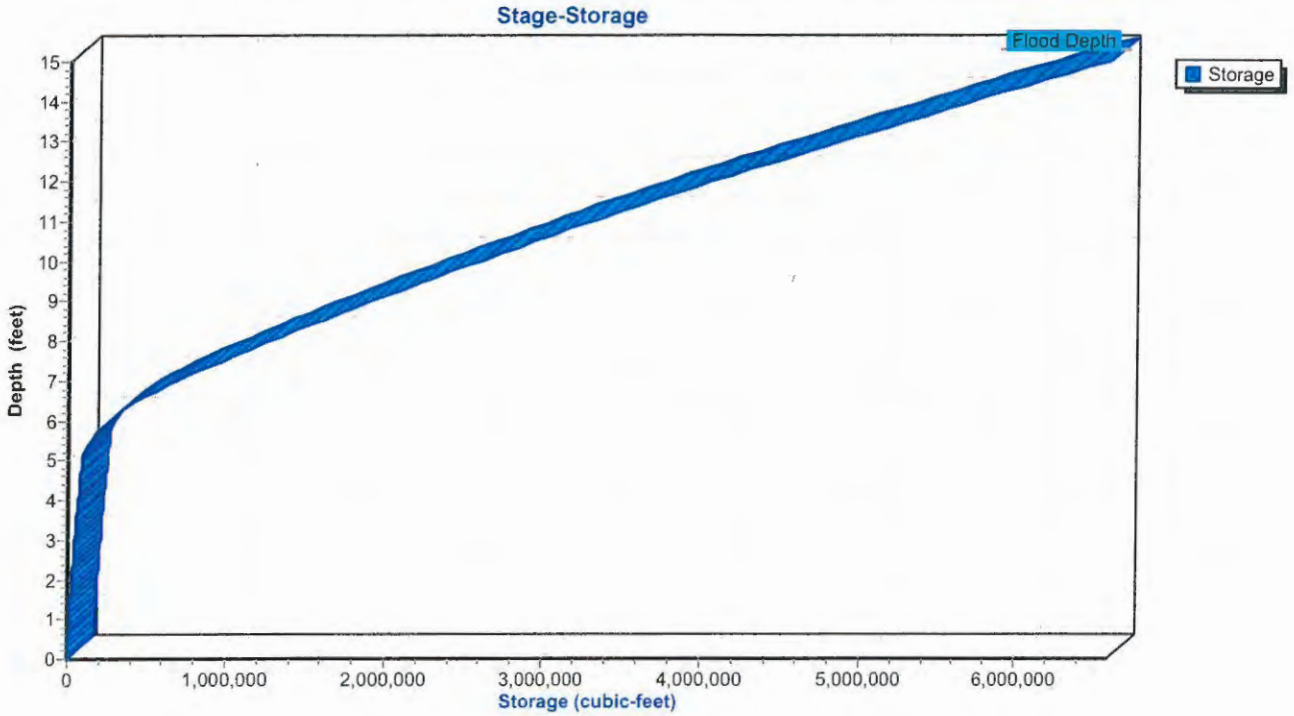
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



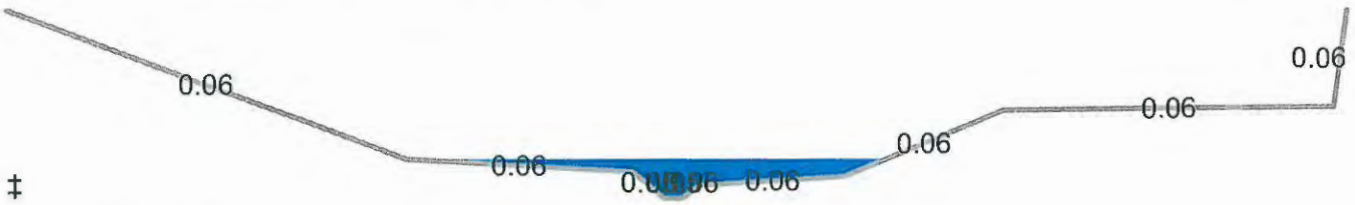
Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 3.20" for 6-HR 0.25PMF event
Inflow = 3,198.75 cfs @ 5.05 hrs, Volume= 1,950.558 af
Outflow = 2,686.85 cfs @ 6.18 hrs, Volume= 1,917.568 af, Atten= 16%, Lag= 68.0 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.20 fps, Min. Travel Time= 66.8 min
Avg. Velocity = 1.54 fps, Avg. Travel Time= 95.0 min

Peak Storage= 10,773,372 cf @ 6.18 hrs
Average Depth at Peak Storage= 8.98'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

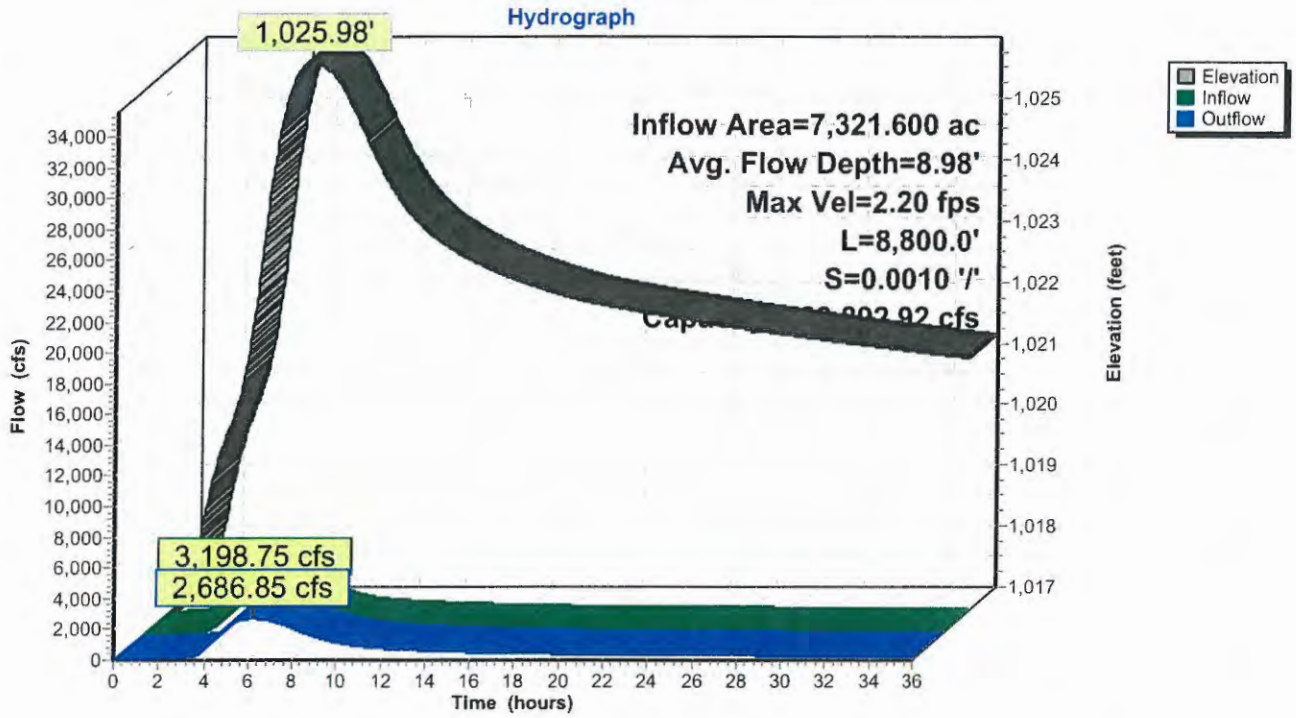
Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'



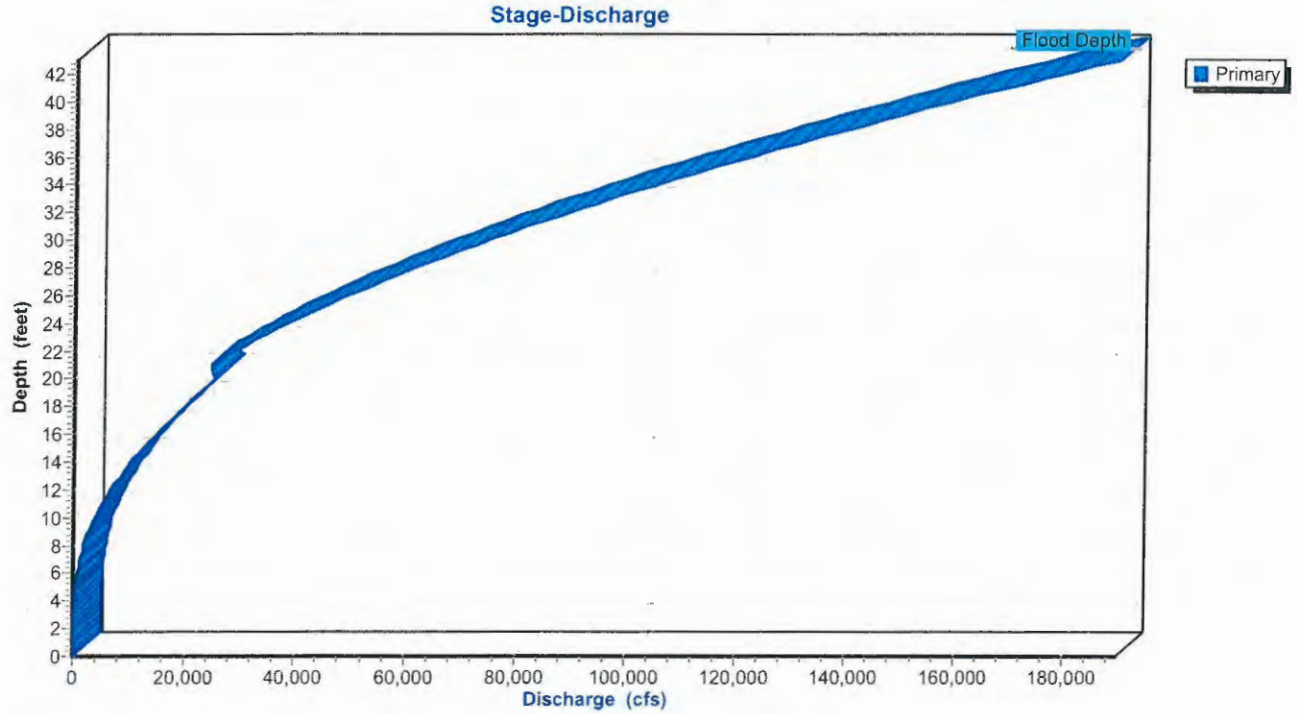
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00	22.00	0.060	
1,010.00	1,060.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	14.0	0	0.00
3.00	78.8	39.2	693,000	116.39
5.00	273.4	157.2	2,406,067	396.99
6.00	435.5	169.2	3,832,400	733.92
9.00	1,230.5	363.4	10,828,400	2,703.81
20.00	6,230.3	549.8	54,826,847	25,737.78
21.00	6,906.8	808.7	60,779,788	24,784.16
43.00	26,881.5	1,028.2	236,557,200	189,892.92

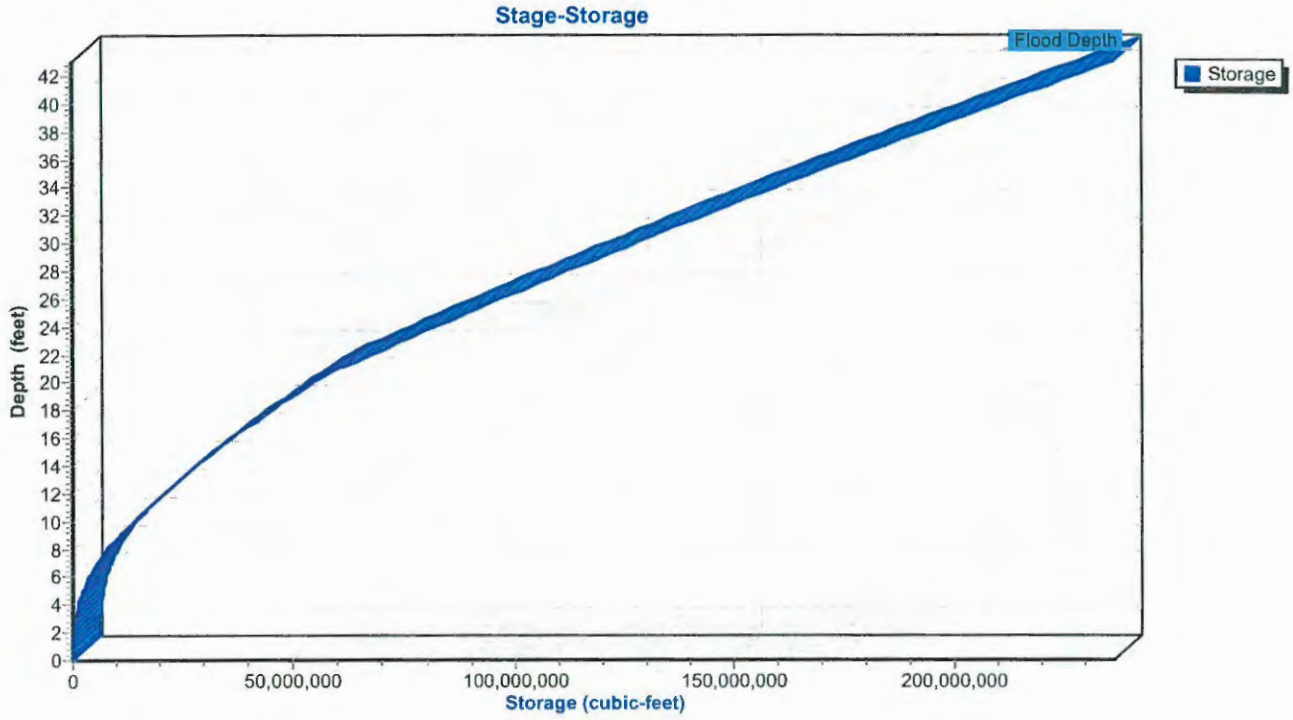
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



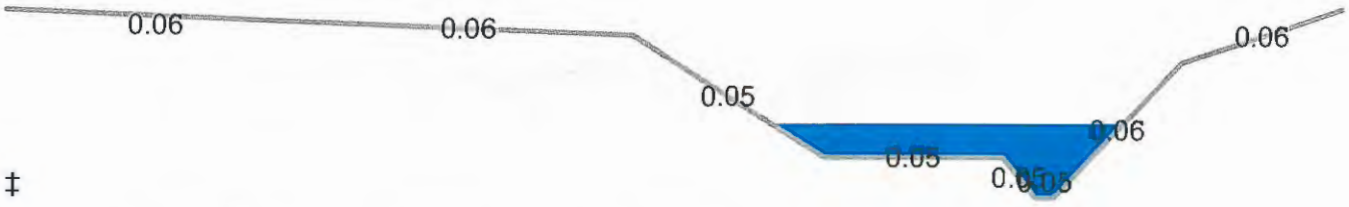
Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 3.23" for 6-HR 0.25PMF event
Inflow = 3,581.16 cfs @ 5.90 hrs, Volume= 2,366.601 af
Outflow = 3,490.57 cfs @ 6.41 hrs, Volume= 2,338.683 af, Atten= 3%, Lag= 30.2 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.75 fps, Min. Travel Time= 45.4 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 82.9 min

Peak Storage= 9,518,152 cf @ 6.41 hrs
Average Depth at Peak Storage= 11.02'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

Custom cross-section, Length= 7,500.0' Slope= 0.0010 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,006.00', Outlet Invert= 998.50'

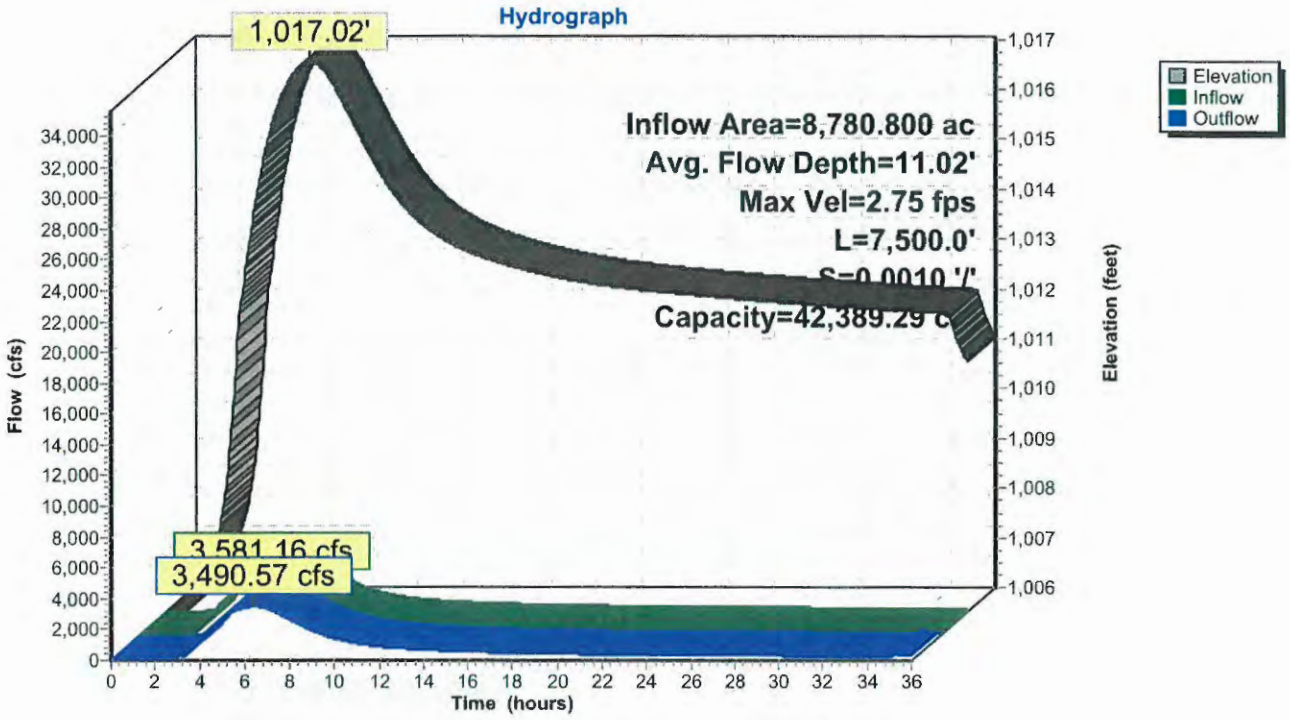


‡

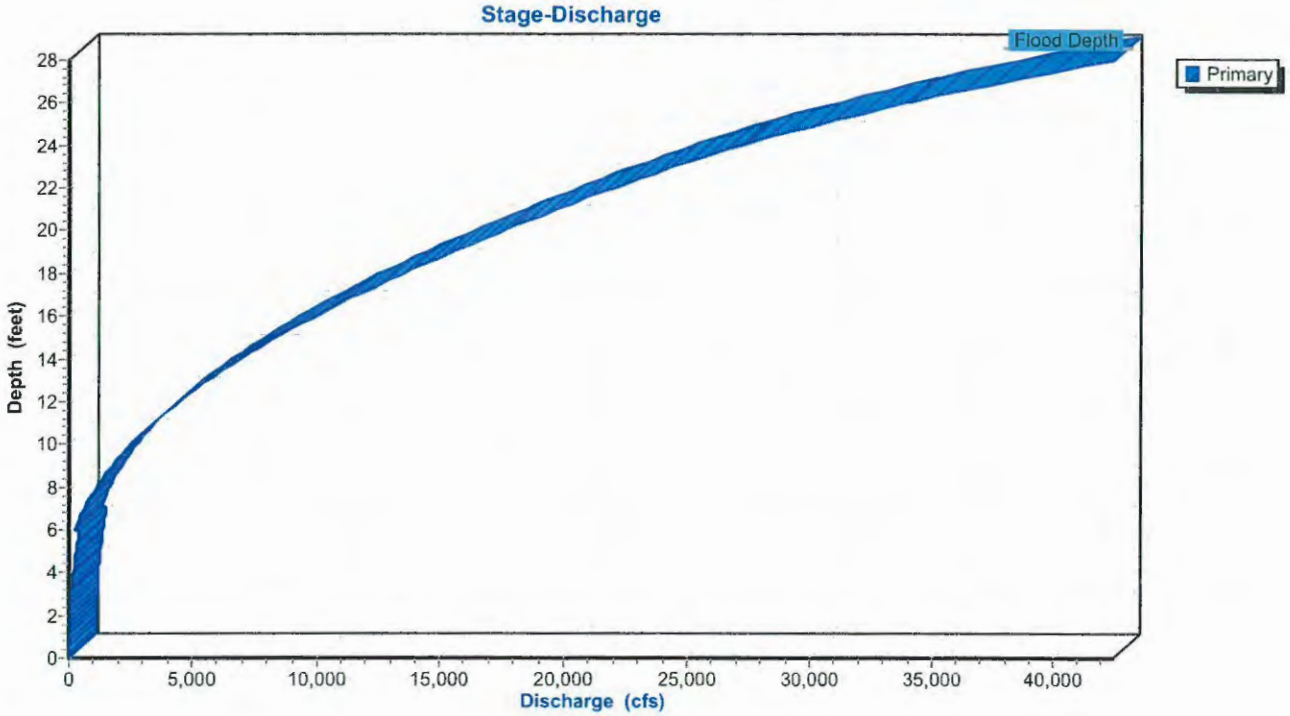
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	12.0	0	0.00
6.00	217.5	182.0	1,631,250	246.41
20.00	3,868.8	345.2	29,015,833	17,663.27
24.00	5,401.0	429.5	40,507,500	27,141.14
26.00	6,498.5	677.1	48,738,750	33,993.67
28.00	8,071.0	904.6	60,532,500	42,389.29

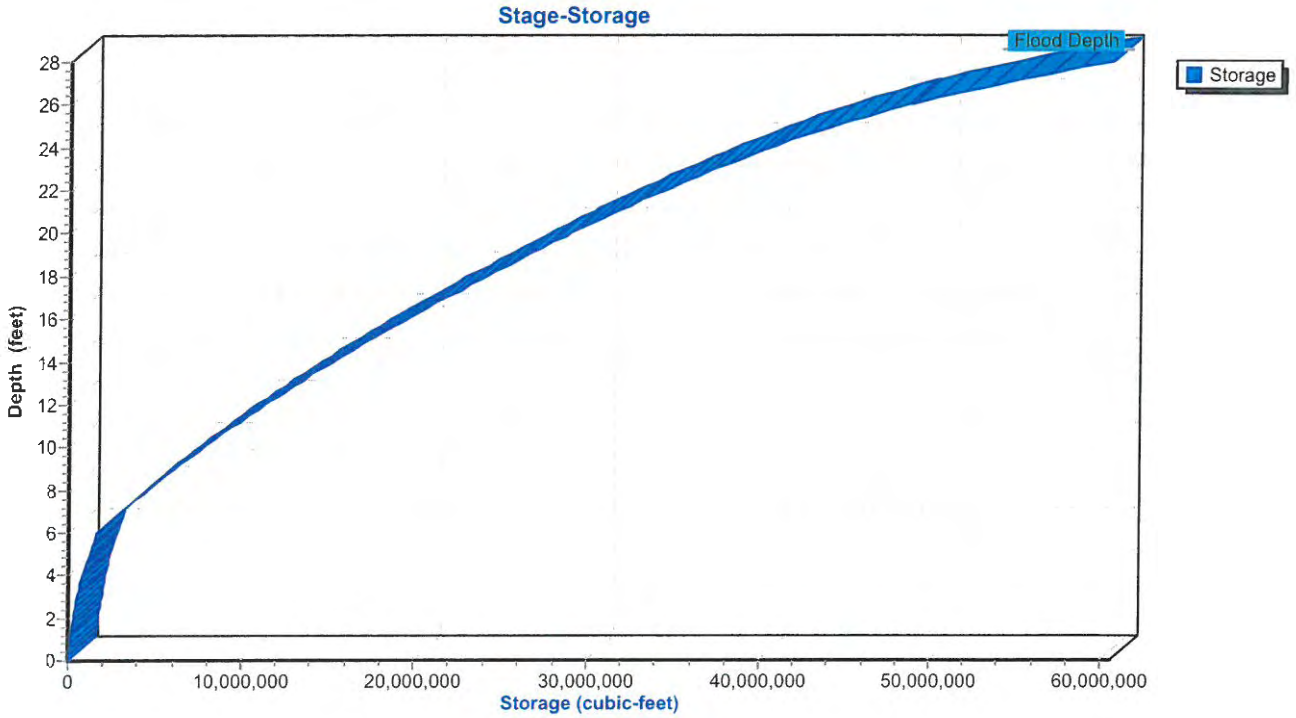
Reach 16R: Channel 16



Reach 16R: Channel 16



Reach 16R: Channel 16



Summary for Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.25" for 6-HR 0.25PMF event
Inflow = 3,280.91 cfs @ 7.37 hrs, Volume= 2,563.505 af
Outflow = 3,280.90 cfs @ 7.39 hrs, Volume= 2,563.379 af, Atten= 0%, Lag= 0.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.61 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 8.70 fps, Avg. Travel Time= 0.9 min

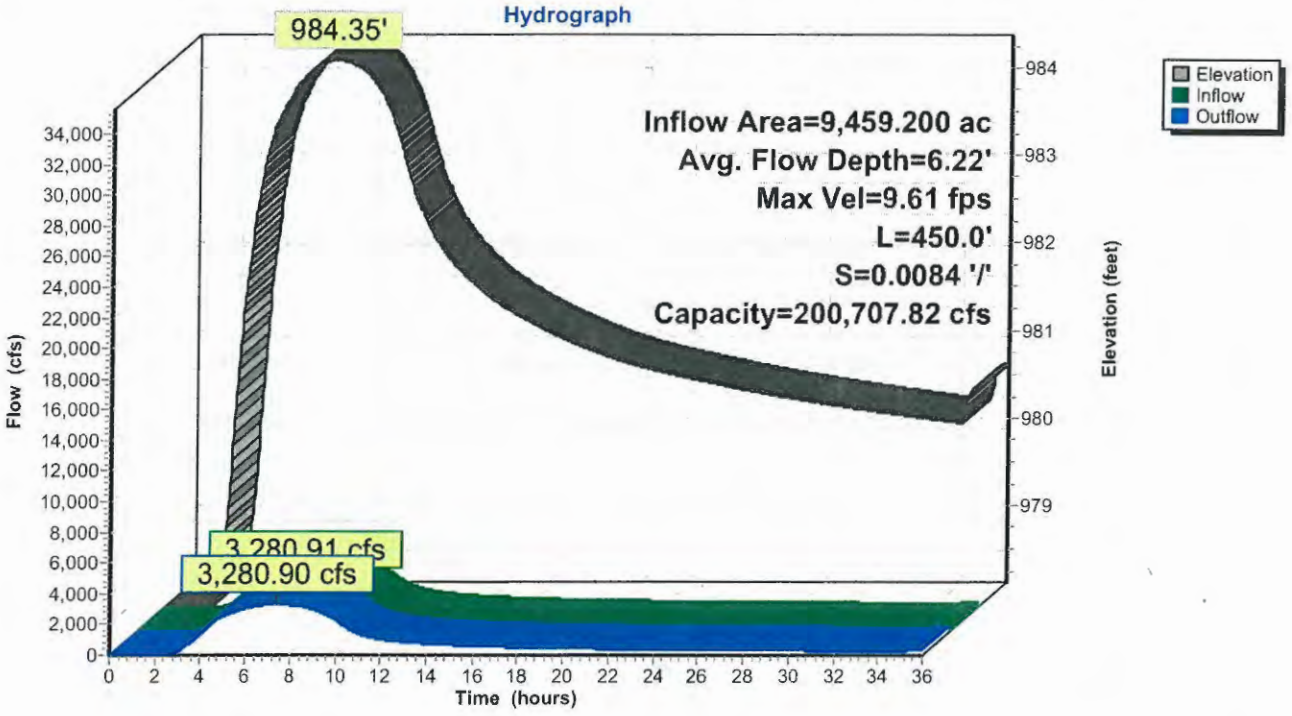
Peak Storage= 153,579 cf @ 7.39 hrs
Average Depth at Peak Storage= 6.22'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

Custom cross-section, Length= 450.0' Slope= 0.0084 '/' (1006 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 978.13', Outlet Invert= 974.35'

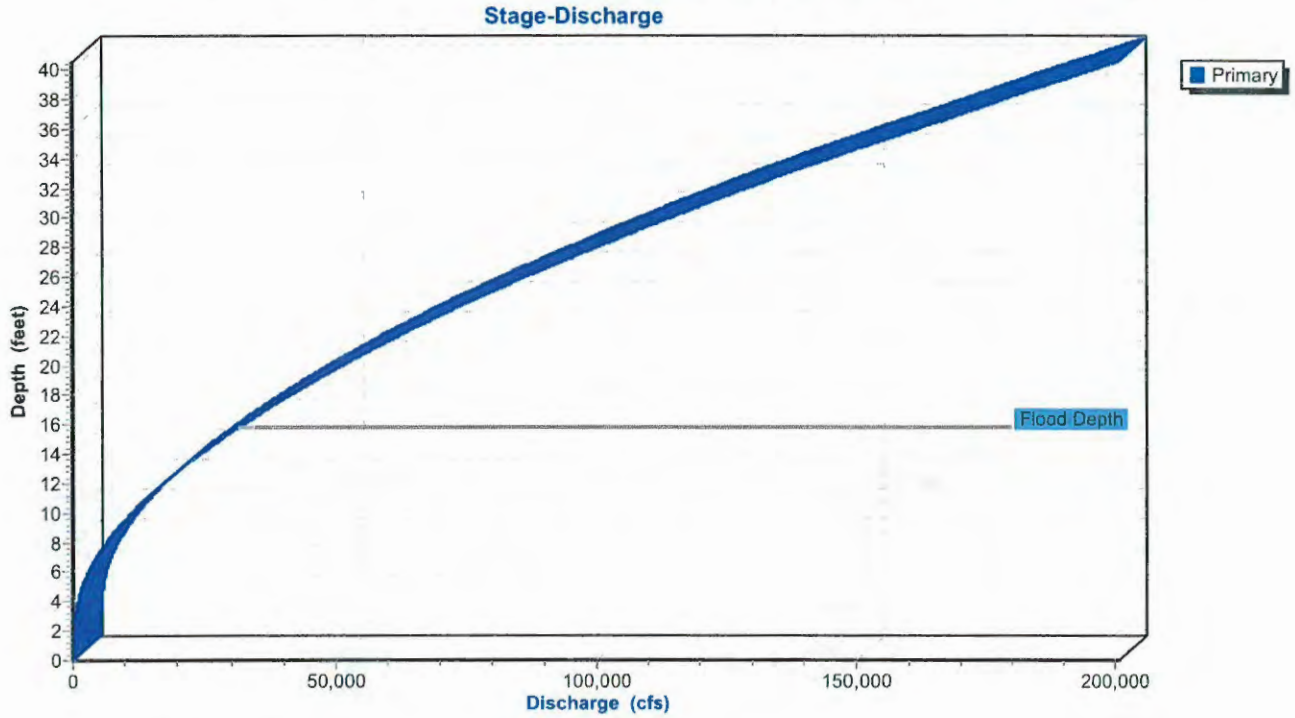
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, flow below branches
173.00	974.00	38.00	0.030	Short grass
175.00	972.00	40.00	0.030	Short grass
176.00	971.50	40.50	0.025	Stream, clean & straight
187.00	971.50	40.50	0.025	Stream, clean & straight
188.00	972.00	40.00	0.025	Stream, clean & straight
194.00	974.00	38.00	0.030	Short grass
206.00	976.00	36.00	0.100	Heavy timber, flow below branches
225.50	978.00	34.00	0.100	Heavy timber, flow below branches
229.50	980.00	32.00	0.100	Heavy timber, flow below branches
248.00	990.00	22.00	0.100	Heavy timber, flow below branches
265.00	1,000.00	12.00	0.100	Heavy timber, flow below branches
289.00	1,012.00	0.00	0.100	Heavy timber, flow below branches

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	11.0	0	0.00
0.50	6.0	13.2	2,700	19.29
2.50	40.0	22.4	18,000	347.53
4.50	146.0	86.6	65,701	1,300.01
6.50	382.5	153.2	172,125	3,703.14
8.50	712.5	180.8	320,625	7,536.06
18.50	2,645.4	216.7	1,190,411	44,005.23
28.50	4,866.4	251.4	2,189,893	103,800.74
36.50	6,855.0	281.2	3,084,750	166,501.22
40.50	7,955.0	310.6	3,579,750	200,707.82

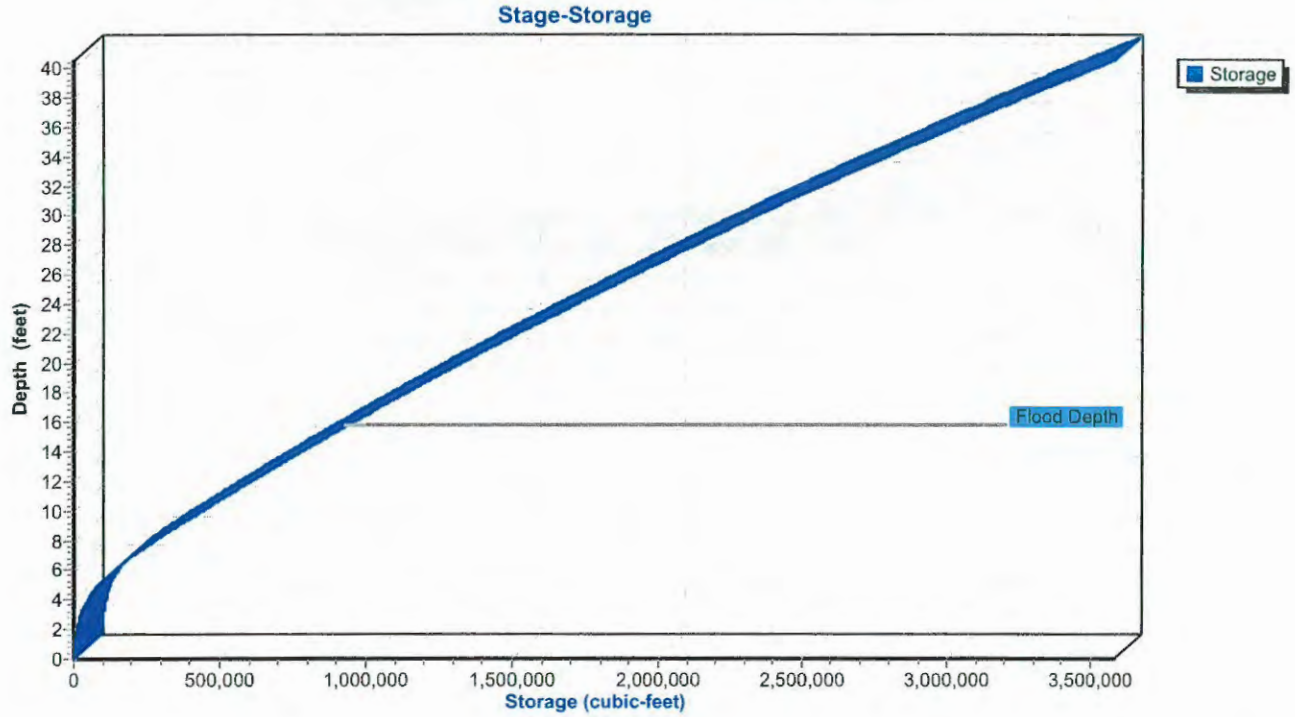
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

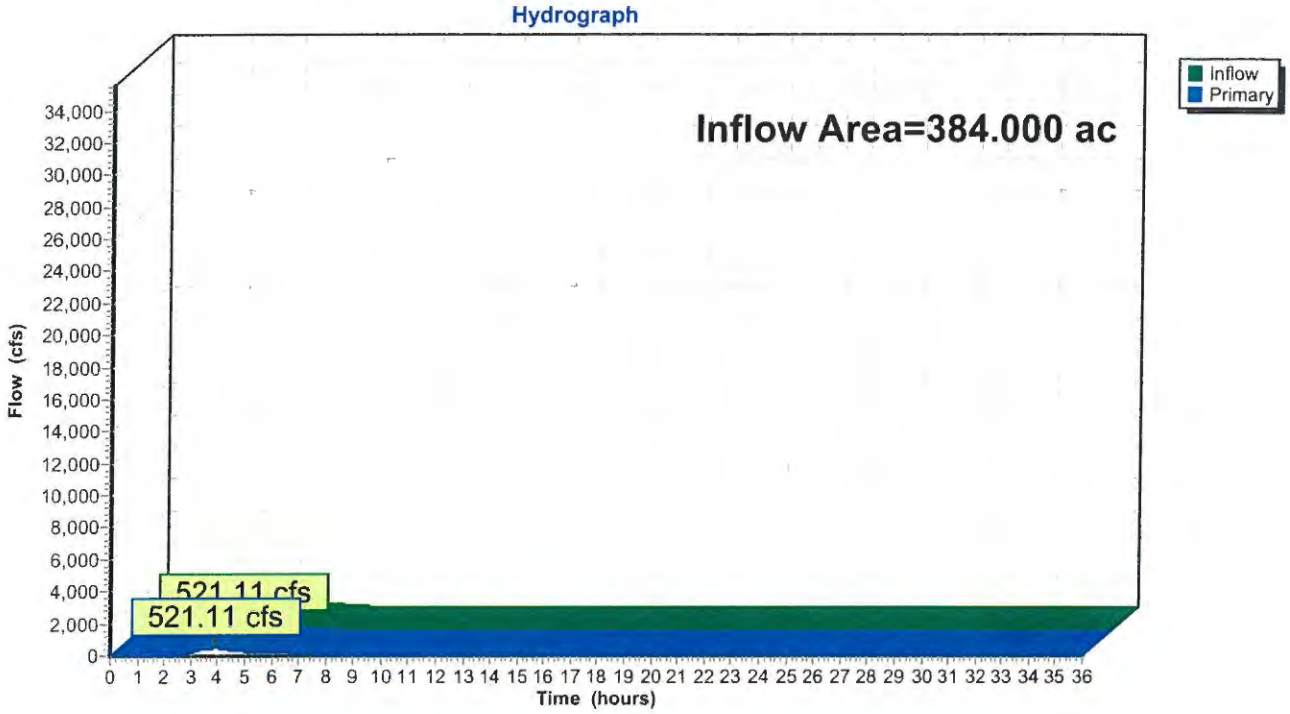


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.71" for 6-HR 0.25PMF event
Inflow = 521.11 cfs @ 3.91 hrs, Volume= 118.799 af
Primary = 521.11 cfs @ 3.92 hrs, Volume= 118.799 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 1C: CONF 1 Combined O'Springs and Eric



Summary for Pond 1P: Sippo Creek Reservoir - Existing Conditions

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.27" for 6-HR 0.25PMF event
Inflow = 3,880.61 cfs @ 6.29 hrs, Volume= 2,579.670 af
Outflow = 3,731.59 cfs @ 6.21 hrs, Volume= 2,565.408 af, Atten= 4%, Lag= 0.0 min
Primary = 2,376.85 cfs @ 5.66 hrs, Volume= 1,997.395 af
Secondary = 1,829.55 cfs @ 6.86 hrs, Volume= 567.242 af
Tertiary = 12.51 cfs @ 7.26 hrs, Volume= 0.771 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,001.64' Surf.Area= 7.050 ac Storage= 60.962 af
Peak Elev= 1,008.28' @ 7.26 hrs Surf.Area= 22.624 ac Storage= 149.493 af (88.531 af above start)
Flood Elev= 1,005.00' Surf.Area= 12.657 ac Storage= 91.431 af (30.469 af above start)

Plug-Flow detention time= 66.9 min calculated for 2,503.751 af (97% of inflow)
Center-of-Mass det. time= 13.4 min (704.3 - 691.0)

Volume	Invert	Avail.Storage	Storage Description
#1	985.00'	1,292.544 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
985.00	0.500	500.0	0.000	0.000	0.500
990.00	3.000	1,000.0	7.875	7.875	1.873
998.00	4.870	2,500.0	31.179	39.054	11.469
1,000.00	6.204	3,251.0	11.047	50.101	19.360
1,002.00	7.243	5,147.0	13.434	63.535	48.449
1,004.00	9.610	10,274.0	16.797	80.332	192.887
1,006.00	16.124	11,202.9	25.455	105.787	229.335
1,008.00	21.577	15,736.9	37.569	143.356	452.477
1,010.00	29.674	20,301.4	51.036	194.392	752.988
1,012.00	39.539	22,845.5	68.977	263.369	953.524
1,014.00	68.669	34,370.5	106.876	370.246	2,158.174
1,025.00	100.000	50,000.0	922.298	1,292.544	4,567.204

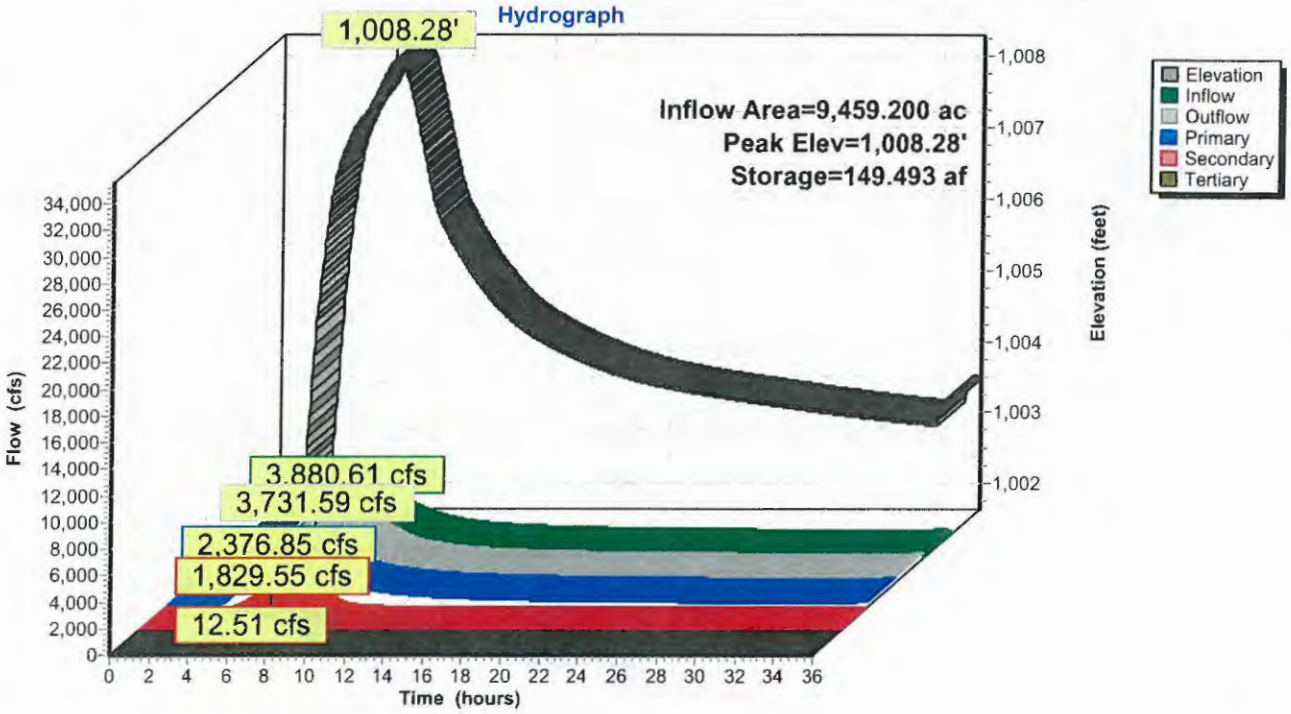
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	1,005.00'	**Right Embankment Weir - Building side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.60 20.00 Width (feet) 17.00 23.00 77.00 77.00
#3	Secondary	1,004.20'	**Left Embankment Weir - Playground side, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.80 3.80 5.80 15.80 Width (feet) 10.00 22.00 45.00 130.00 180.00 205.00
#4	Tertiary	1,008.00'	**Weir Flow around Bldg. X 0.50, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 4.00 6.00 8.00 10.00 12.00 Width (feet) 50.00 90.00 122.00 166.00 240.00 334.00 420.00

Primary OutFlow Max=2,374.69 cfs @ 5.66 hrs HW=1,007.54' TW=1,001.79' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,374.69 cfs @ 8.05 fps)

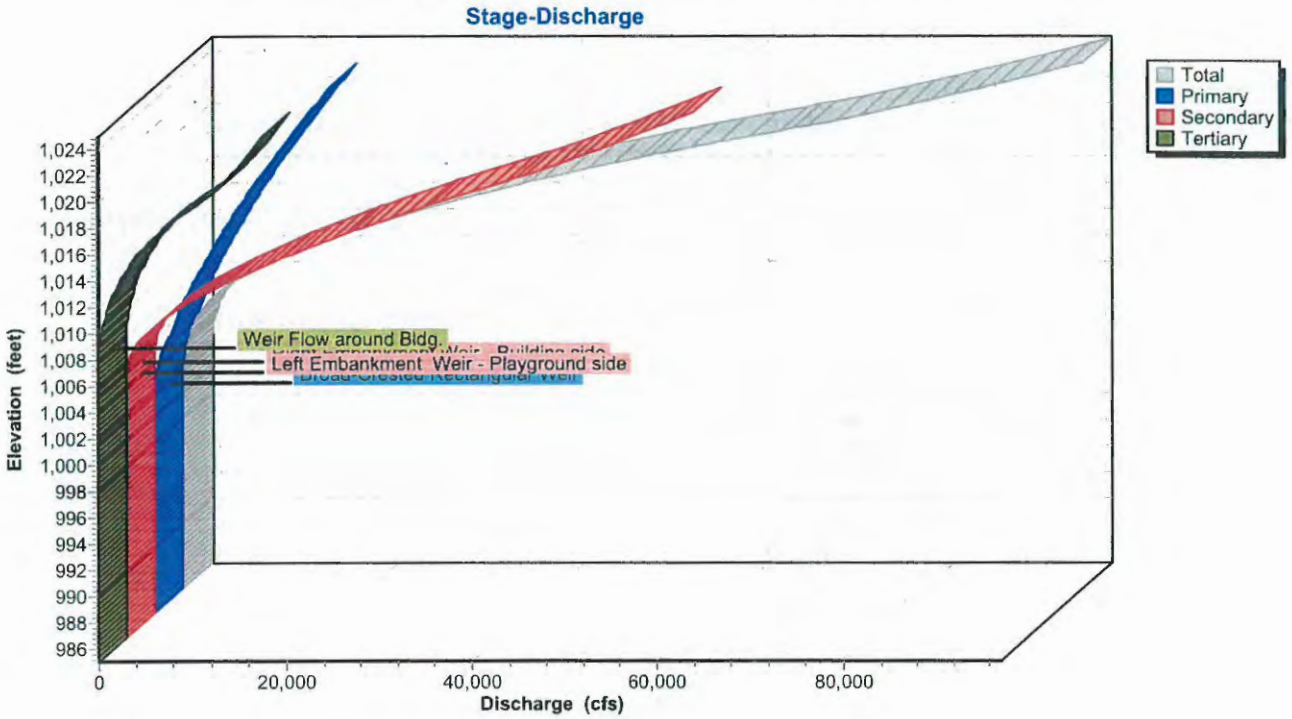
Secondary OutFlow Max=1,822.53 cfs @ 6.86 hrs HW=1,008.18' TW=1,006.89' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 769.39 cfs @ 4.49 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 1,053.14 cfs @ 4.37 fps)

Tertiary OutFlow Max=12.51 cfs @ 7.26 hrs HW=1,008.28' TW=1,007.32' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Weir Controls 12.51 cfs @ 0.85 fps)

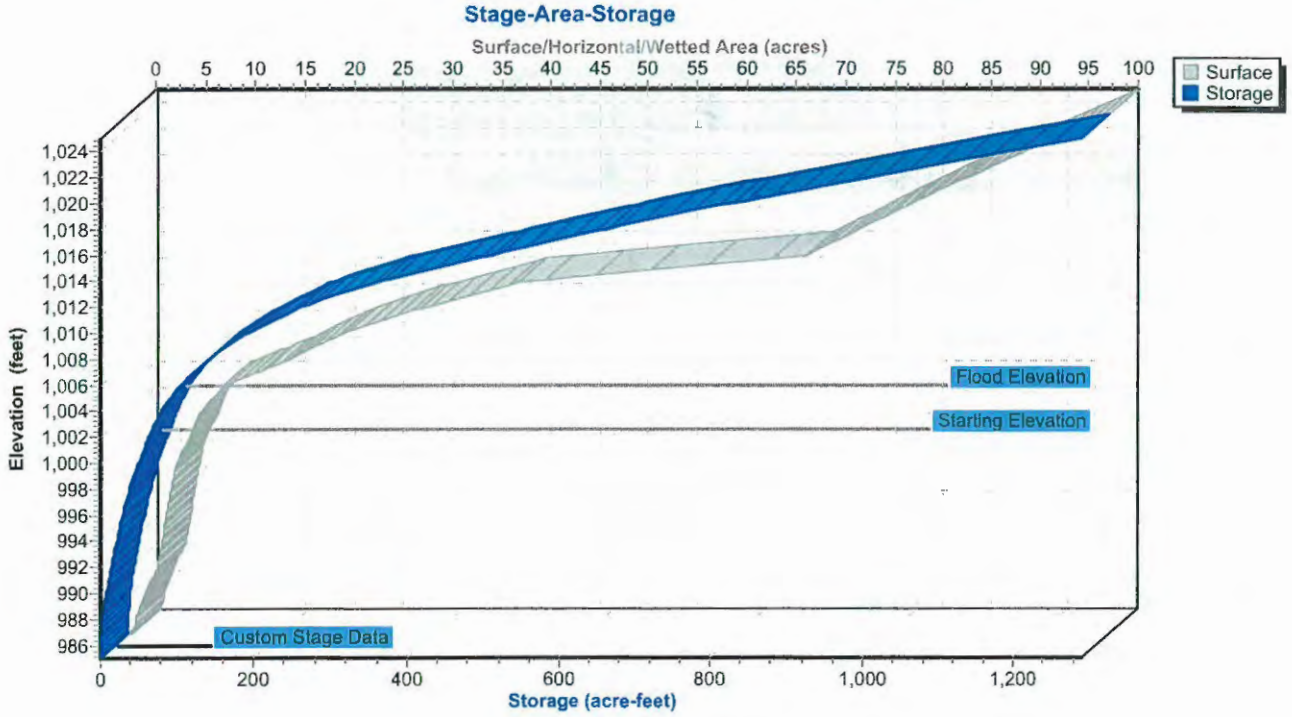
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

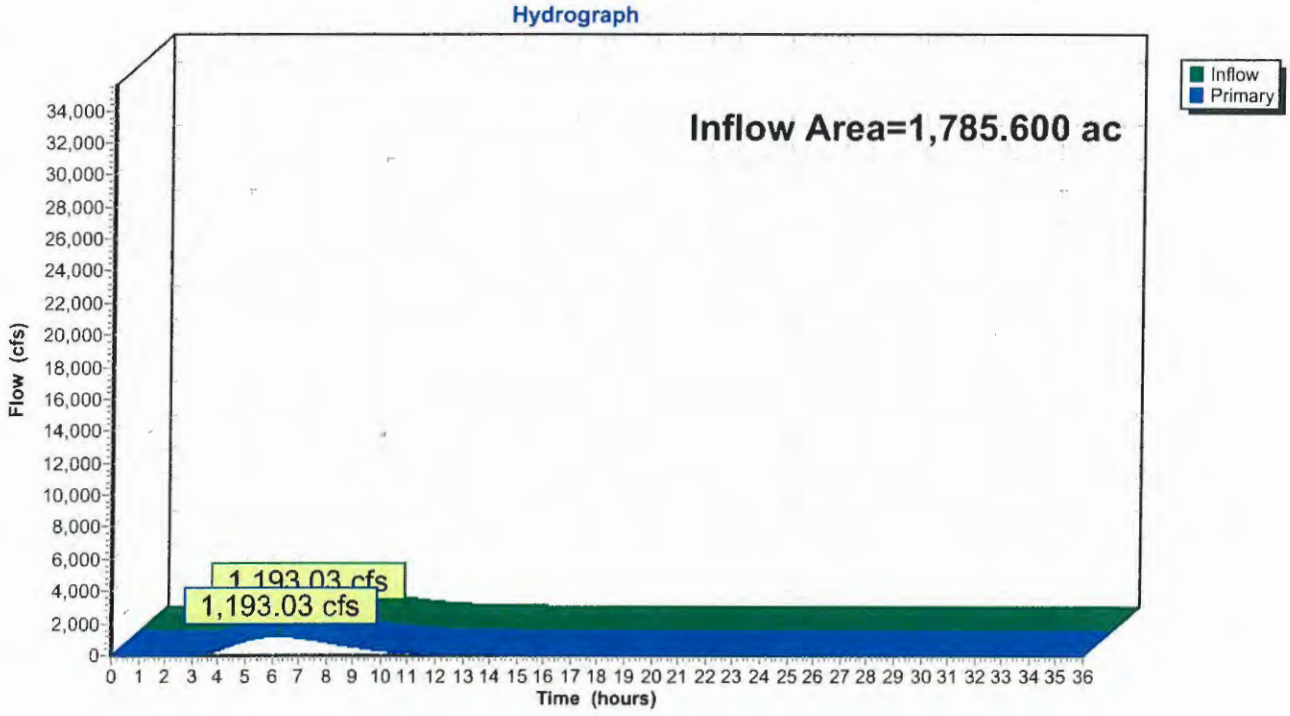


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 3.34" for 6-HR 0.25PMF event
Inflow = 1,193.03 cfs @ 6.28 hrs, Volume= 496.676 af
Primary = 1,193.03 cfs @ 6.29 hrs, Volume= 496.676 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 2C: CONF 2 Combined Cable and O'Springs



Summary for Pond 3P: Lake Cable

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 3.34" for 6-HR 0.25PMF event
Inflow = 1,193.03 cfs @ 6.29 hrs, Volume= 496.675 af
Outflow = 384.71 cfs @ 9.70 hrs, Volume= 690.840 af, Atten= 68%, Lag= 204.8 min
Primary = 384.71 cfs @ 9.70 hrs, Volume= 690.840 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,097.40' Surf.Area= 220.000 ac Storage= 1,914.000 af
Peak Elev= 1,098.30' @ 9.70 hrs Surf.Area= 252.736 ac Storage= 2,127.803 af (213.803 af above start)
Flood Elev= 1,099.50' Surf.Area= 296.000 ac Storage= 2,455.800 af (541.800 af above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 488.5 min (946.2 - 457.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.00'	4,144.025 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

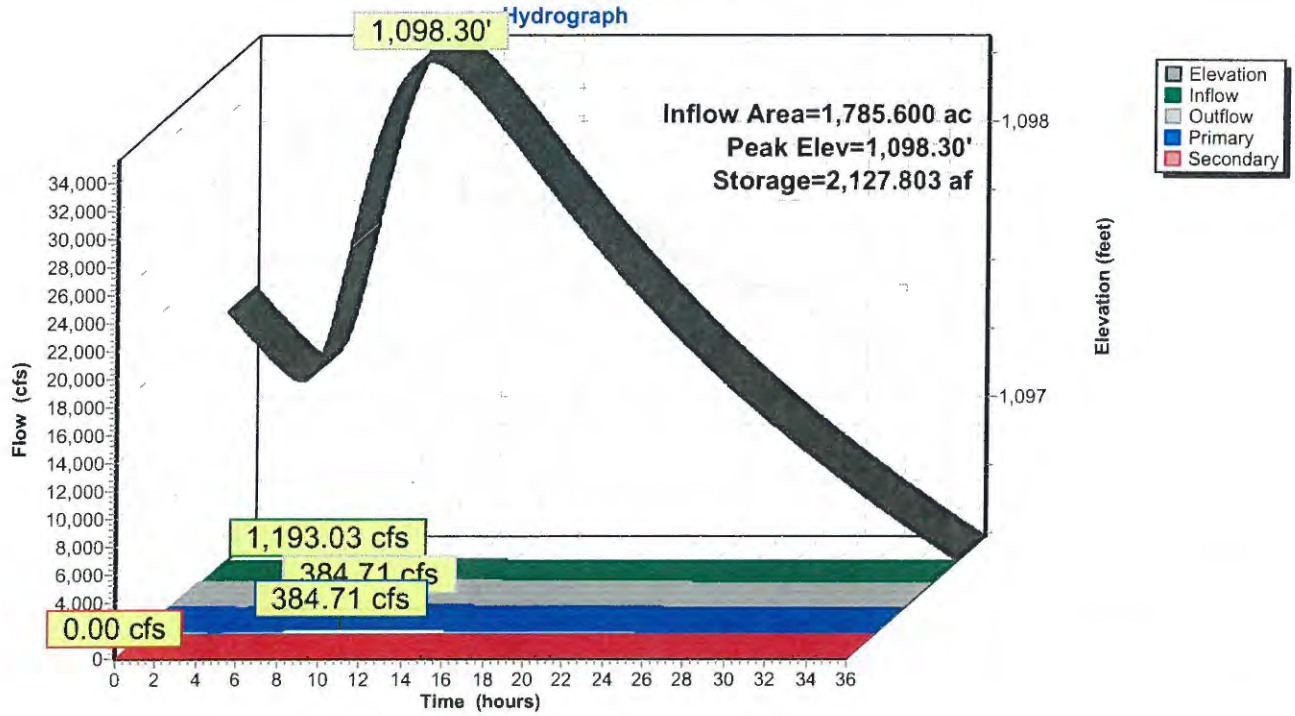
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

Device	Routing	Invert	Outlet Devices
#1	Primary	1,088.00'	**36.0" Round Culvert-RCP** L= 450.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 1,088.00' / 1,076.00' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished
#2	Primary	1,096.40'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 3.10 6.00 Width (feet) 30.00 30.00 30.00
#3	Secondary	1,099.50'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 3.00 Width (feet) 1,000.00 1,000.00

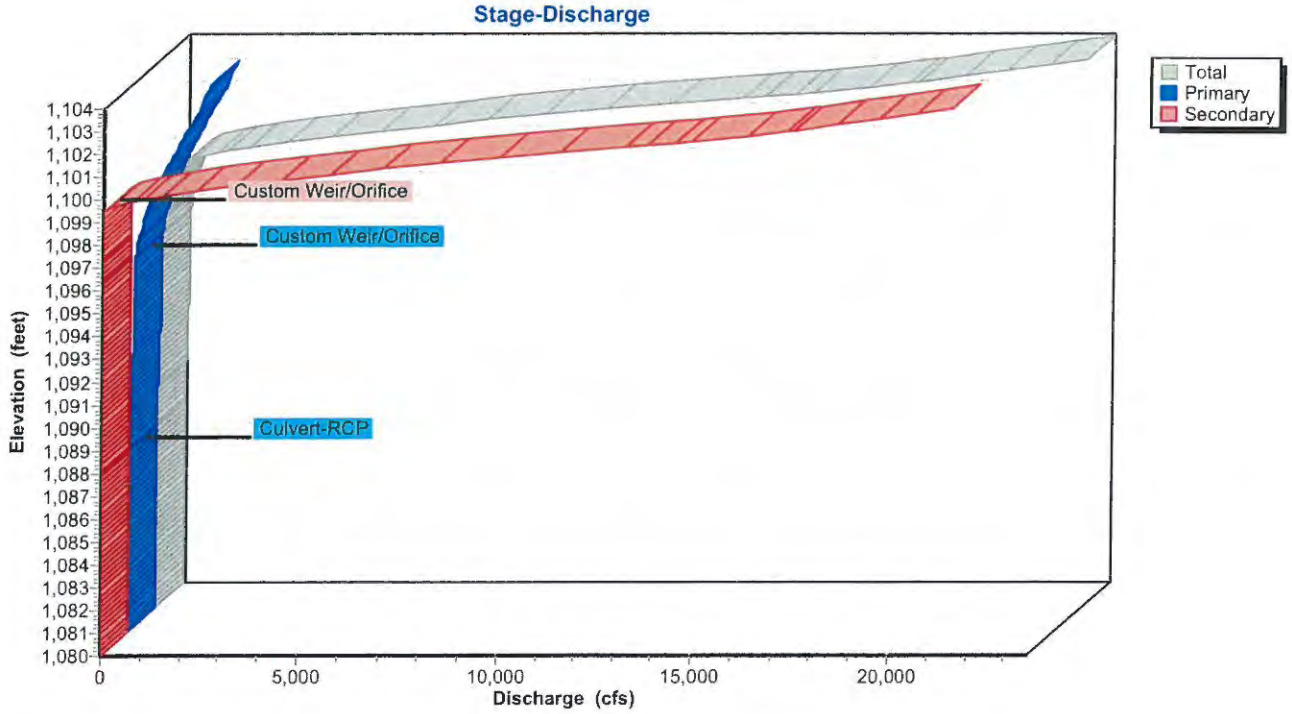
Primary OutFlow Max=384.71 cfs @ 9.70 hrs HW=1,098.30' TW=1,072.19' (Dynamic Tailwater)
↑—**1=Culvert-RCP** (Barrel Controls 126.47 cfs @ 17.89 fps)
└—**2=Custom Weir/Orifice** (Weir Controls 258.24 cfs @ 4.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,097.40' TW=1,069.00' (Dynamic Tailwater)
↑—**3=Custom Weir/Orifice** (Controls 0.00 cfs)

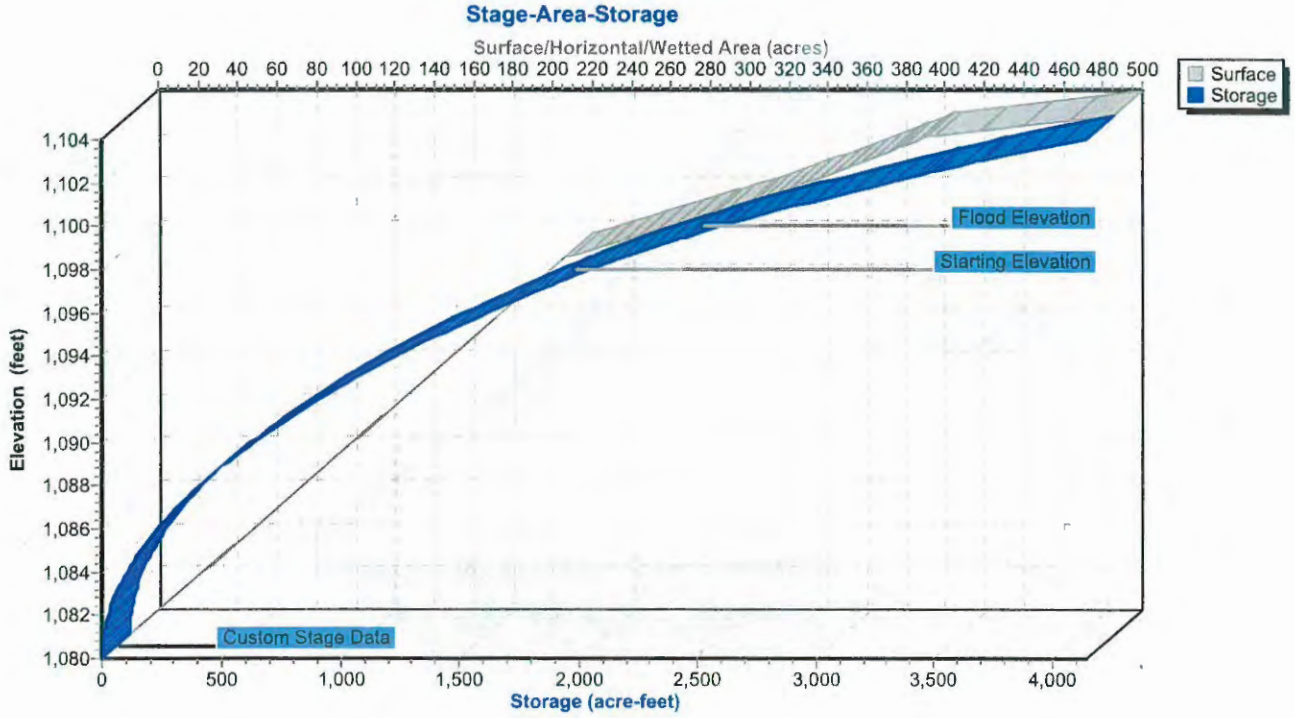
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

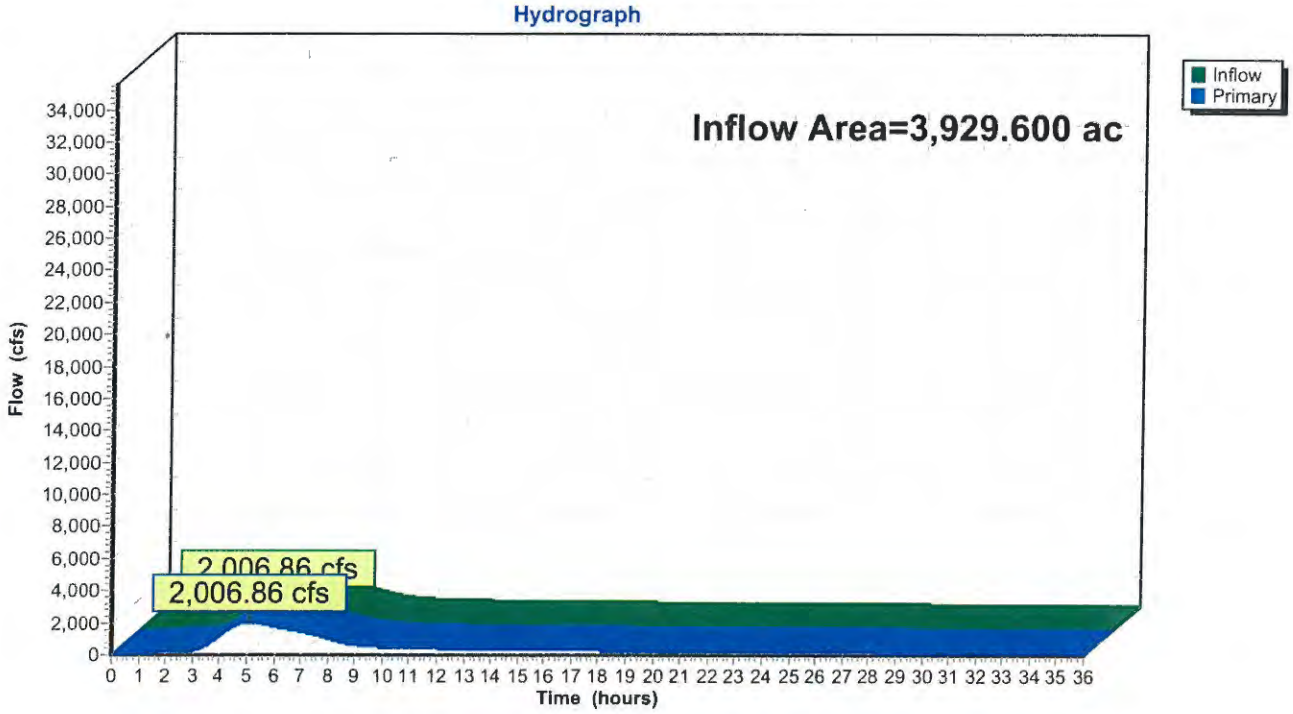


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 3.75" for 6-HR 0.25PMF event
Inflow = 2,006.86 cfs @ 5.09 hrs, Volume= 1,228.560 af
Primary = 2,006.86 cfs @ 5.10 hrs, Volume= 1,228.560 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 4C: Confluence 4



Summary for Pond 4P: Lake O'Springs

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.71" for 6-HR 0.25PMF event
Inflow = 521.11 cfs @ 3.92 hrs, Volume= 118.799 af
Outflow = 198.94 cfs @ 6.39 hrs, Volume= 118.284 af, Atten= 62%, Lag= 147.7 min
Primary = 198.94 cfs @ 6.39 hrs, Volume= 118.284 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,106.00' Surf.Area= 27.000 ac Storage= 24.300 af
Peak Elev= 1,108.11' @ 6.39 hrs Surf.Area= 29.345 ac Storage= 83.758 af (59.458 af above start)
Flood Elev= 1,108.70' Surf.Area= 30.000 ac Storage= 101.250 af (76.950 af above start)

Plug-Flow detention time= 388.2 min calculated for 93.958 af (79% of inflow)
Center-of-Mass det. time= 257.6 min (570.1 - 312.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,104.20'	268.550 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

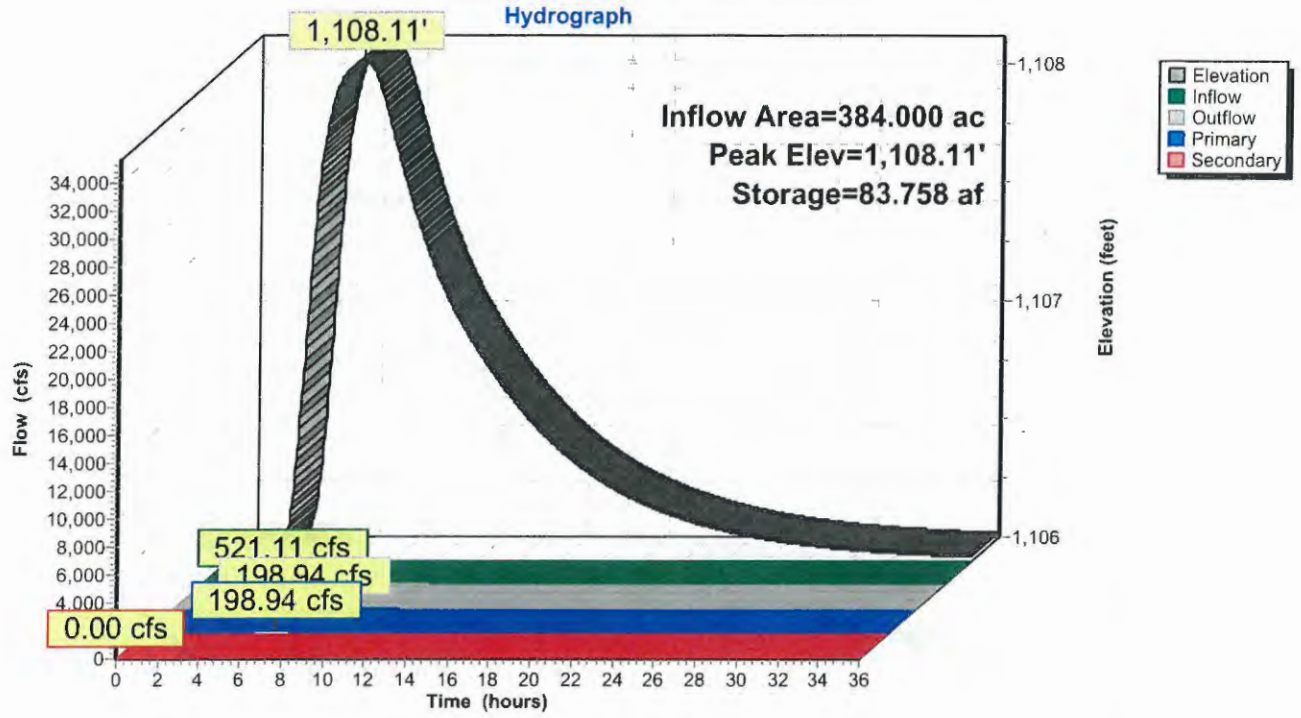
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

Device	Routing	Invert	Outlet Devices
#1	Primary	1,106.00'	**Lake Eric Special & User-Defined Outlet** Head (feet) 0.00 1.00 2.00 2.70 3.00 4.00 Disch. (cfs) 0.000 60.000 180.000 300.000 1,240.000 3,930.000
#2	Secondary	1,108.70'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 1.30 Width (feet) 150.00 150.00

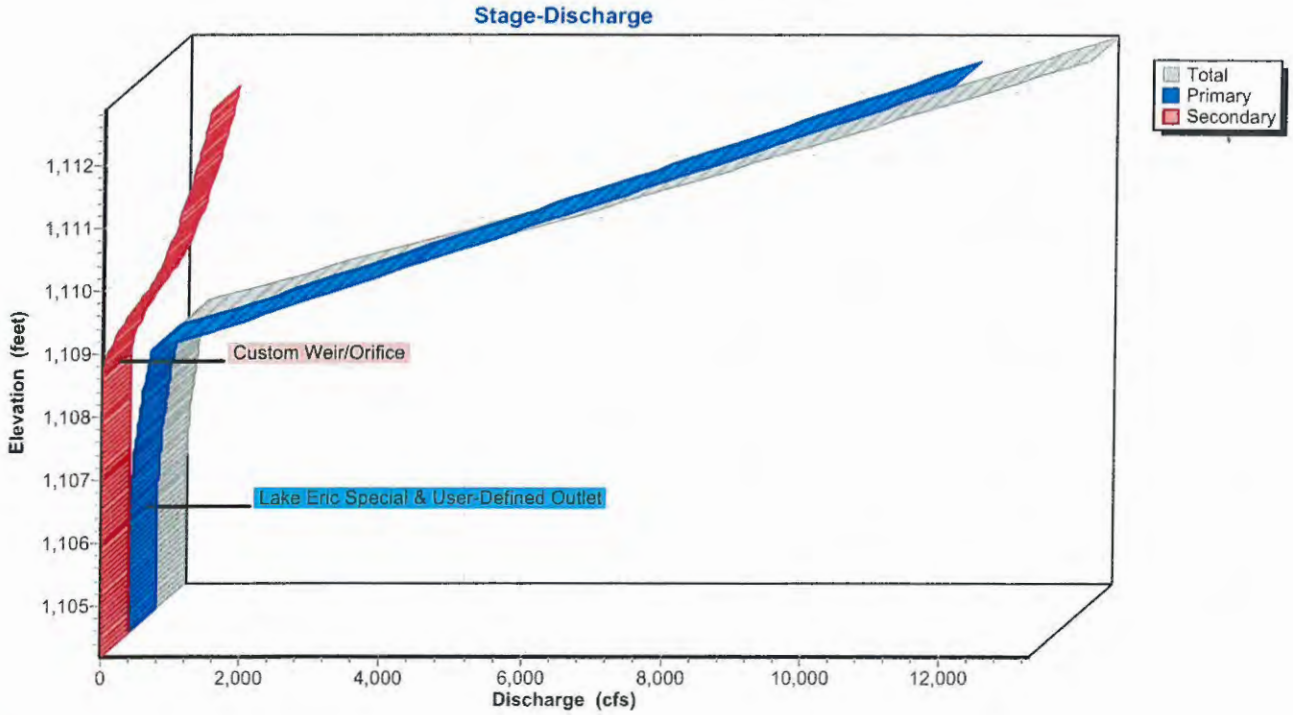
Primary OutFlow Max=198.94 cfs @ 6.39 hrs HW=1,108.11' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet**(Custom Controls 198.94 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,106.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Controls 0.00 cfs)

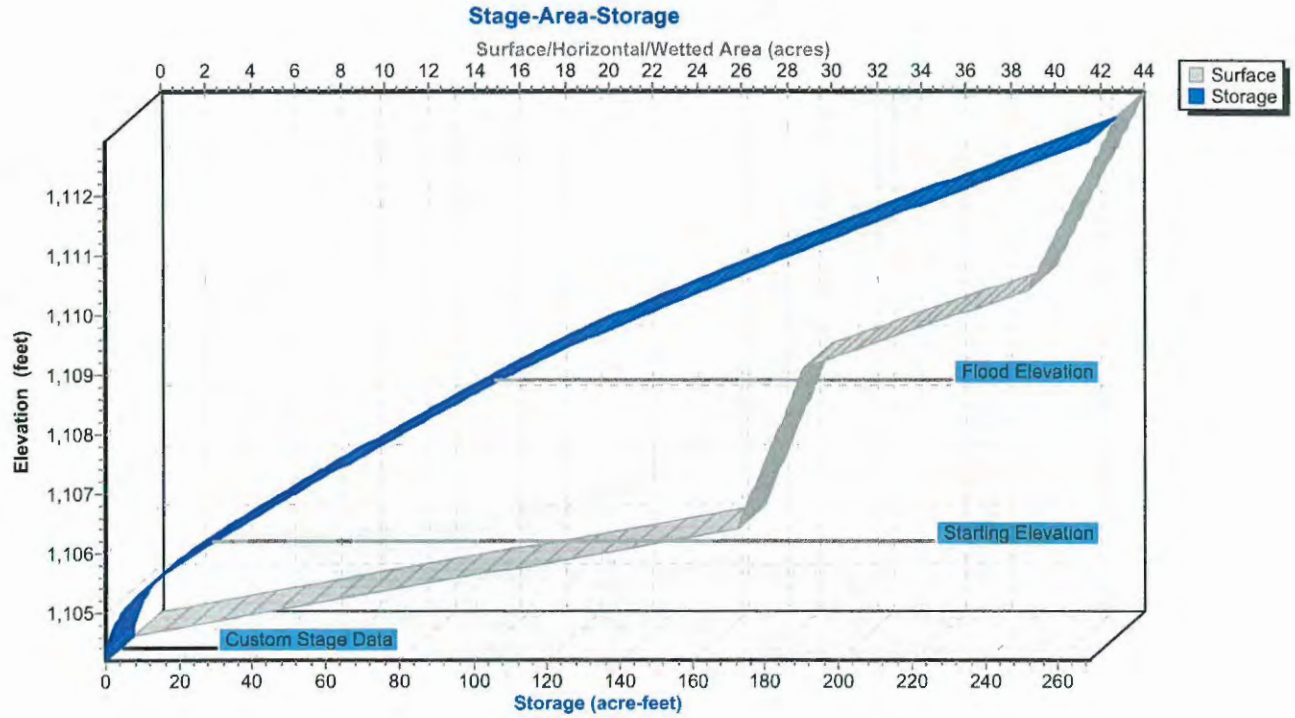
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

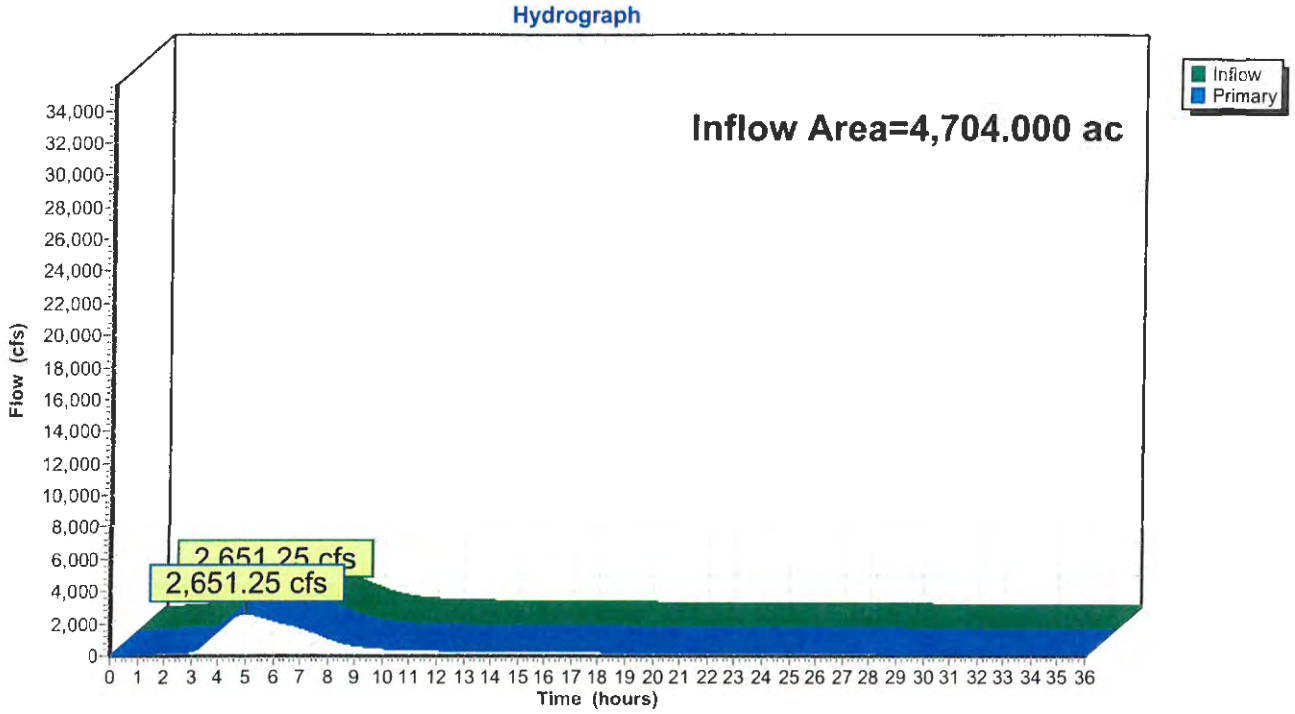


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 3.62" for 6-HR 0.25PMF event
Inflow = 2,651.25 cfs @ 5.01 hrs, Volume= 1,418.462 af
Primary = 2,651.25 cfs @ 5.02 hrs, Volume= 1,418.462 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 5C: Confluence 5



Summary for Pond 5P: Lake Eric (Slagle)

Inflow Area = 115.200 ac, 0.00% Impervious, Inflow Depth = 3.64" for 6-HR 0.25PMF event
Inflow = 192.98 cfs @ 3.37 hrs, Volume= 34.982 af
Outflow = 135.80 cfs @ 3.97 hrs, Volume= 34.870 af, Atten= 30%, Lag= 36.1 min
Primary = 122.40 cfs @ 3.97 hrs, Volume= 34.344 af
Secondary = 13.39 cfs @ 3.97 hrs, Volume= 0.525 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,116.50' Surf.Area= 3.700 ac Storage= 13.690 af
Peak Elev= 1,120.10' @ 3.97 hrs Surf.Area= 4.239 ac Storage= 27.914 af (14.224 af above start)
Flood Elev= 1,120.00' Surf.Area= 4.200 ac Storage= 27.490 af (13.800 af above start)

Plug-Flow detention time= 322.5 min calculated for 21.180 af (61% of inflow)
Center-of-Mass det. time= 168.9 min (418.1 - 249.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,109.10'	88.990 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

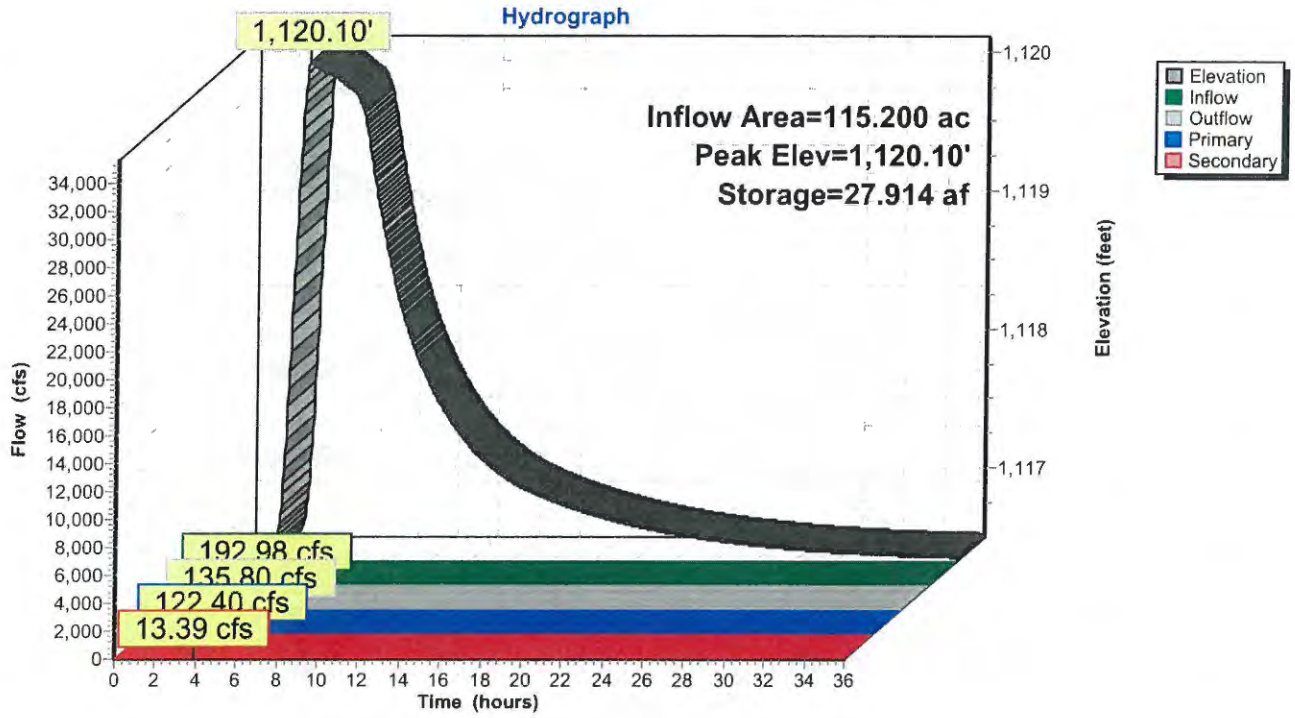
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

Device	Routing	Invert	Outlet Devices
#1	Primary	1,116.50'	**Special & User-Defined** Head (feet) 0.00 0.50 1.50 2.50 3.50 4.50 5.00 Disch. (cfs) 0.000 3.000 17.000 40.000 69.000 600.000 1,130.000
#2	Secondary	1,120.00'	**Custom Weir/Orifice, Cv= 2.24 (C= 2.80)** Head (feet) 0.00 10.00 Width (feet) 150.00 150.00

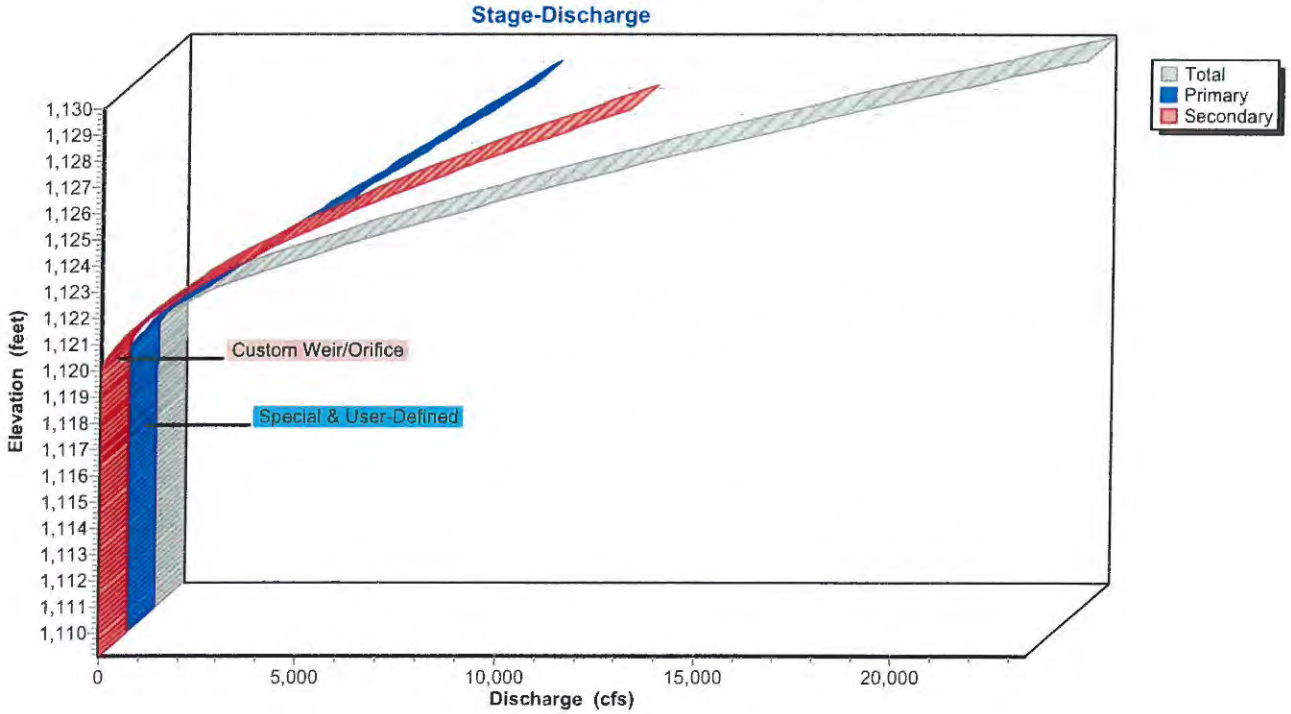
Primary OutFlow Max=122.40 cfs @ 3.97 hrs HW=1,120.10' TW=0.00' (Dynamic Tailwater)
↑—**1=Special & User-Defined** (Custom Controls 122.40 cfs)

Secondary OutFlow Max=13.39 cfs @ 3.97 hrs HW=1,120.10' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 13.39 cfs @ 0.89 fps)

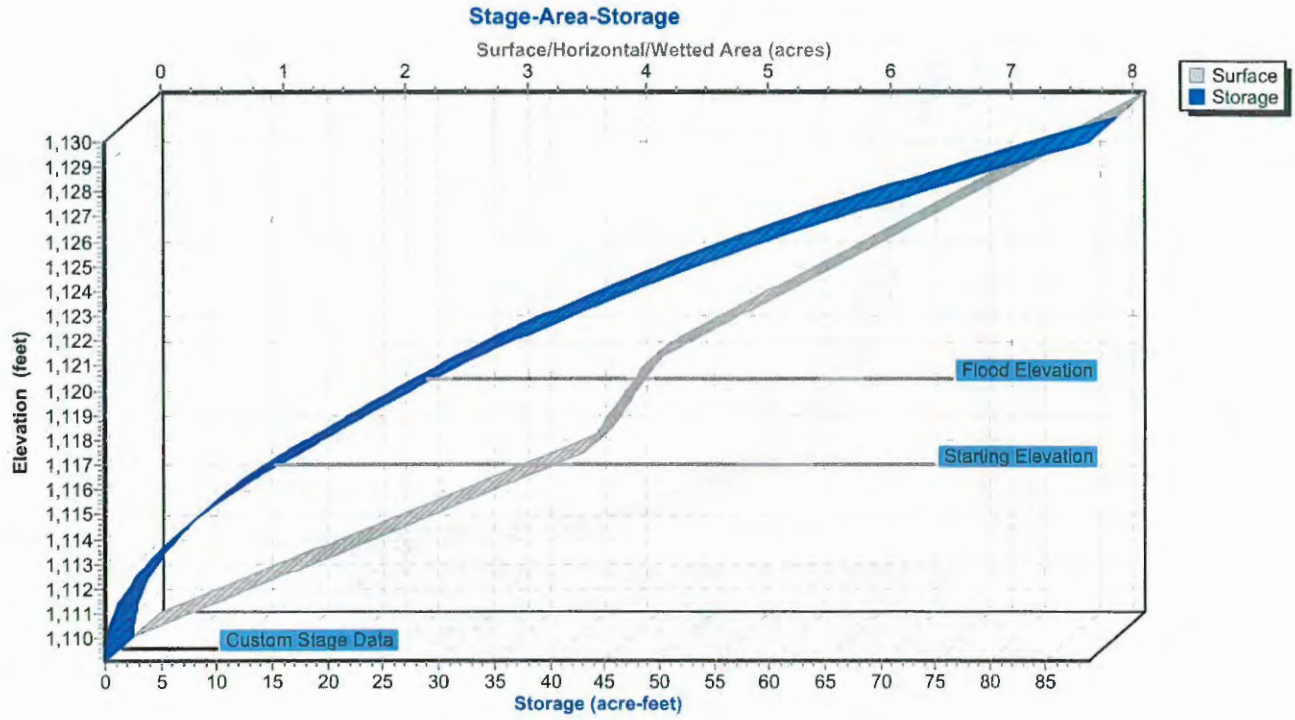
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

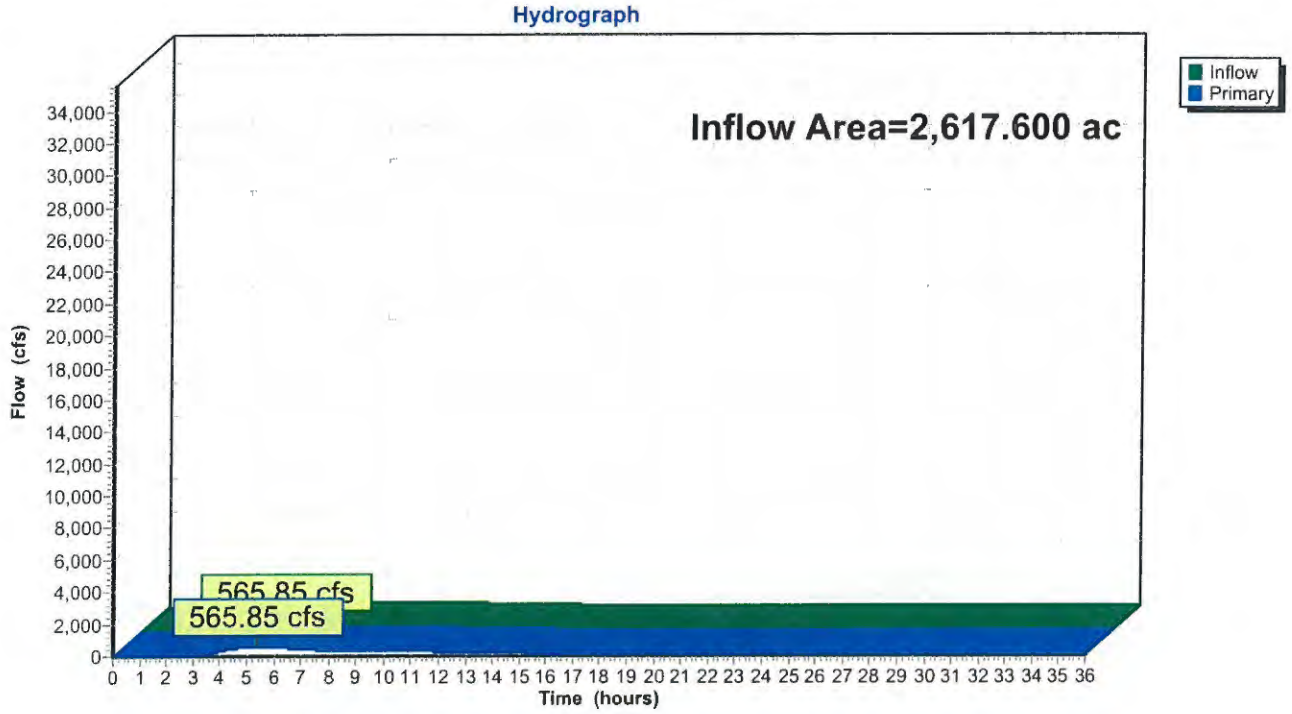


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 2.44" for 6-HR 0.25PMF event
Inflow = 565.85 cfs @ 5.37 hrs, Volume= 532.464 af
Primary = 565.85 cfs @ 5.38 hrs, Volume= 532.464 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 6C: Confluence 6

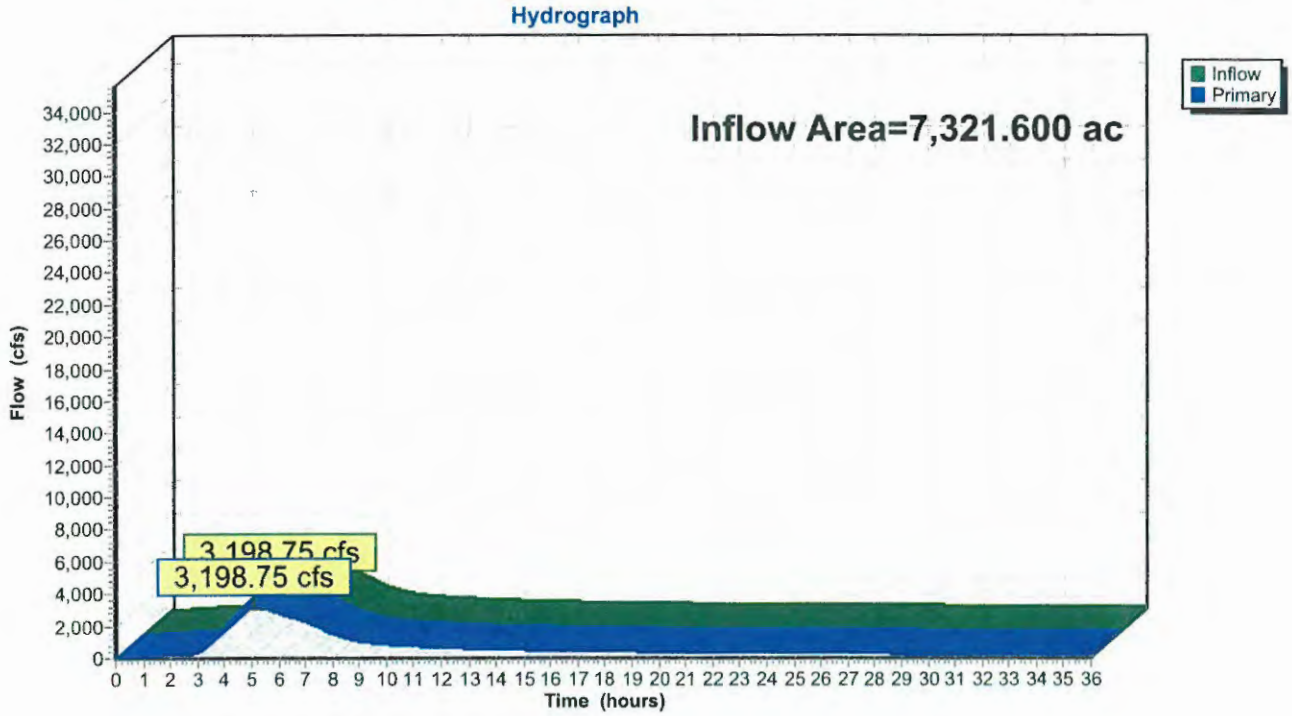


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 3.20" for 6-HR 0.25PMF event
Inflow = 3,198.75 cfs @ 5.04 hrs, Volume= 1,950.742 af
Primary = 3,198.75 cfs @ 5.05 hrs, Volume= 1,950.742 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

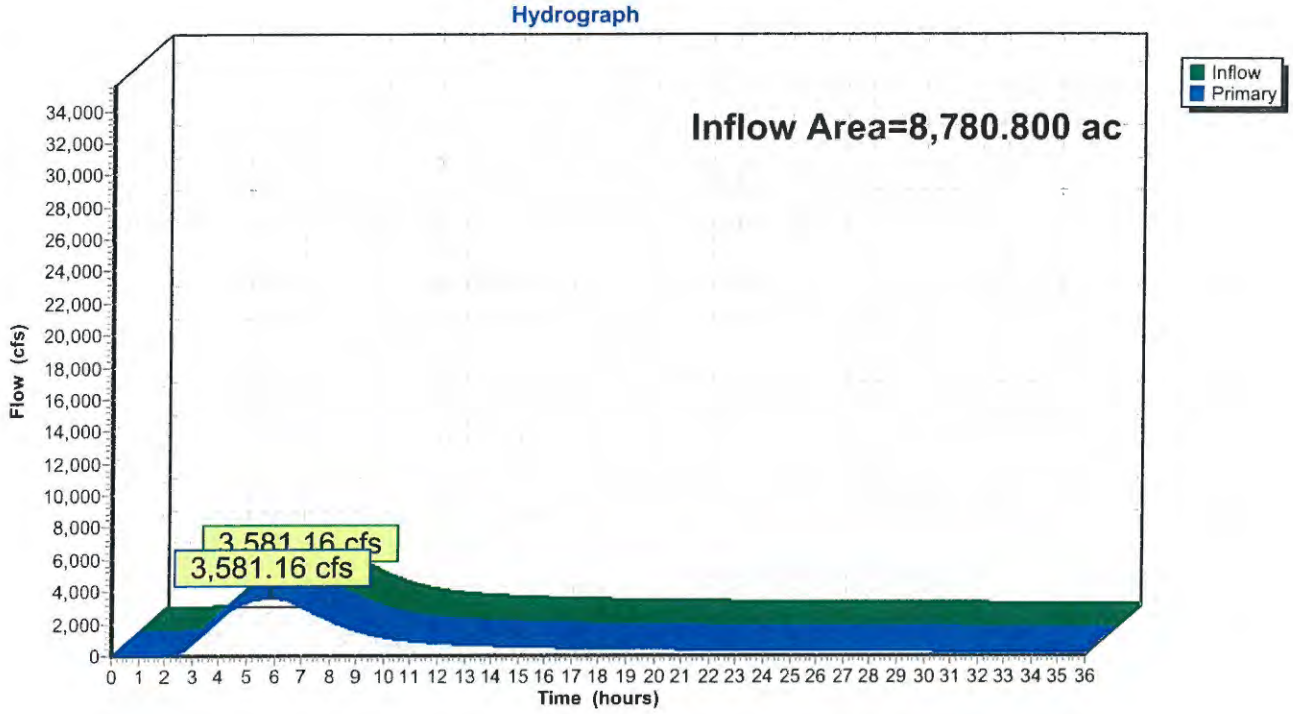


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 3.23" for 6-HR 0.25PMF event
Inflow = 3,581.16 cfs @ 5.89 hrs, Volume= 2,366.793 af
Primary = 3,581.16 cfs @ 5.90 hrs, Volume= 2,366.793 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 8C: Confluence 8



Summary for Pond 8P: Storage Area Genoa Rd

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 3.18" for 6-HR 0.25PMF event
Inflow = 1,648.77 cfs @ 5.95 hrs, Volume= 520.643 af
Outflow = 311.19 cfs @ 9.91 hrs, Volume= 373.212 af, Atten= 81%, Lag= 237.9 min
Primary = 127.22 cfs @ 7.82 hrs, Volume= 290.267 af
Secondary = 202.69 cfs @ 9.92 hrs, Volume= 82.944 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,025.58' @ 9.92 hrs Surf.Area= 155.859 ac Storage= 392.080 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 715.4 min calculated for 373.108 af (72% of inflow)
Center-of-Mass det. time= 645.3 min (1,097.9 - 452.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,018.00'	1,873.781 af	**Custom Stage Data (Irregular)**Listed below (Recalc)

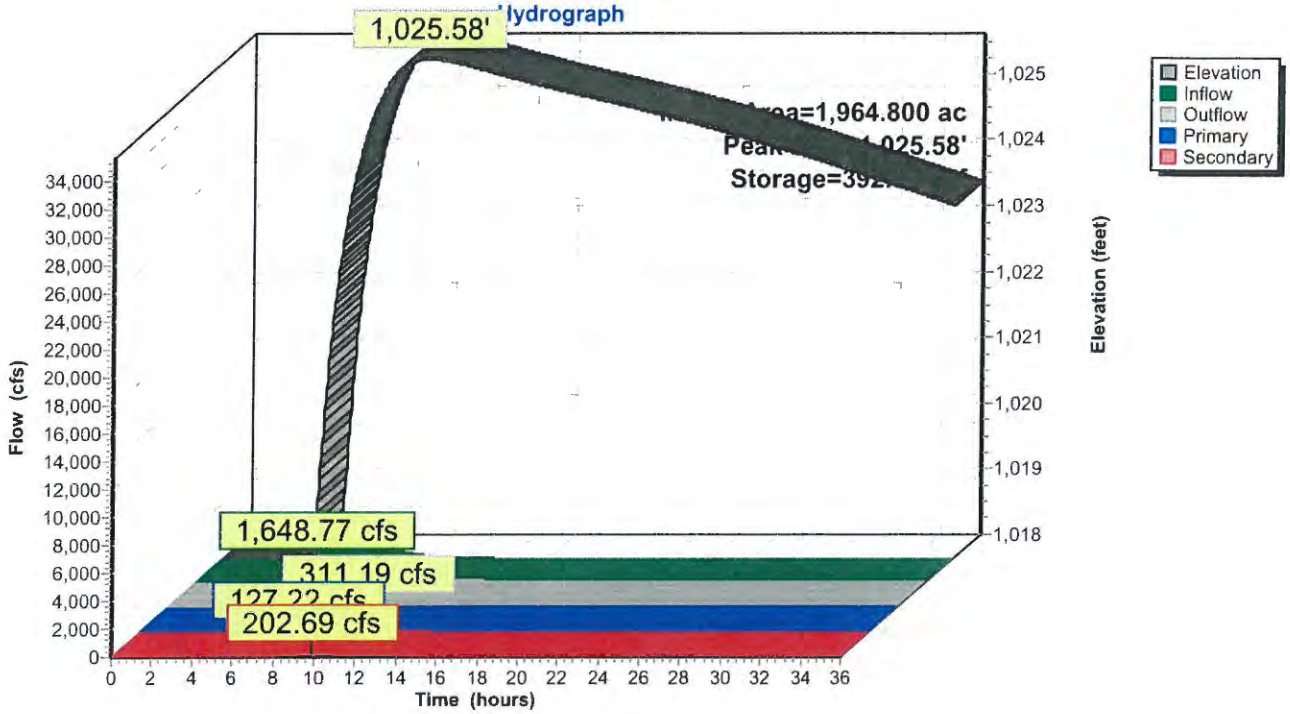
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	176.087	39,123.0	262.448	461.929	2,642.179
1,032.00	300.000	45,000.0	1,411.853	1,873.781	3,545.375

Device	Routing	Invert	Outlet Devices
#1	Primary	1,018.00'	**48.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 1,018.00' / 1,017.00' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Secondary	1,025.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 3.00 5.00 Width (feet) 125.00 192.00 308.00 415.00

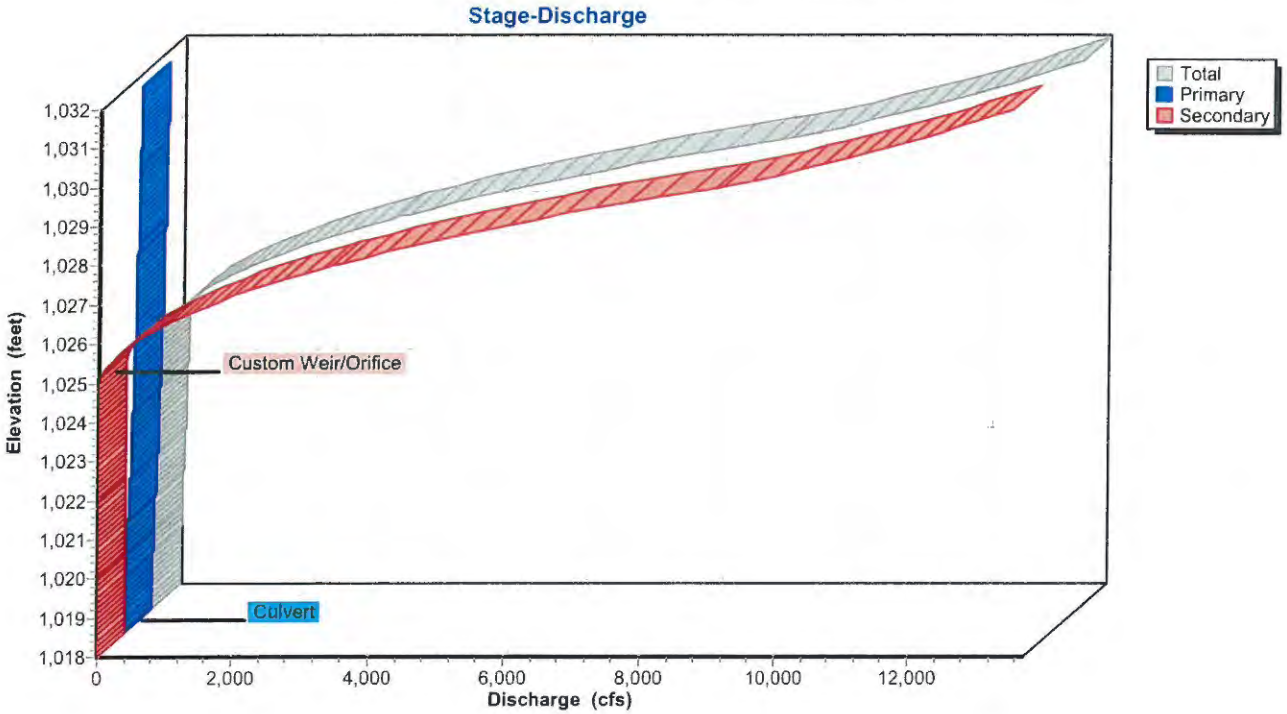
Primary OutFlow Max=127.06 cfs @ 7.82 hrs HW=1,025.14' TW=1,020.73' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 127.06 cfs @ 10.11 fps)

Secondary OutFlow Max=202.69 cfs @ 9.92 hrs HW=1,025.58' TW=1,022.36' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 202.69 cfs @ 2.42 fps)

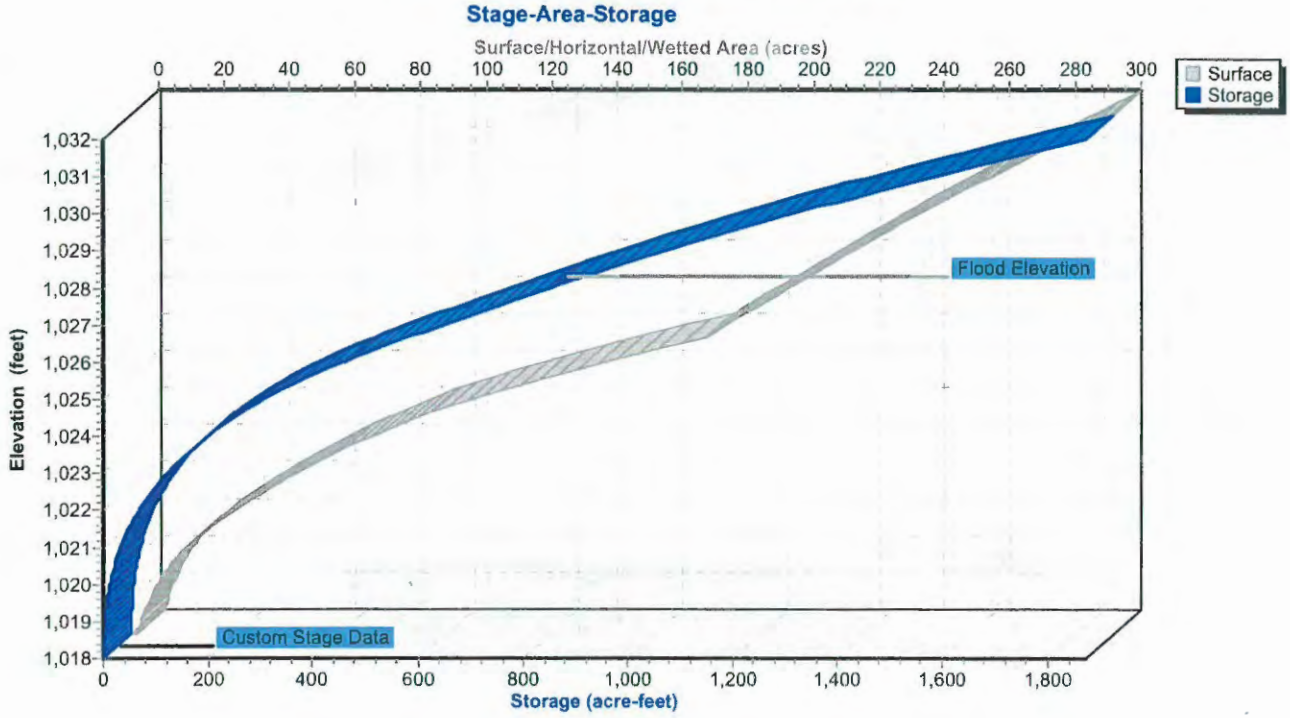
Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Pond 8P: Storage Area Genoa Rd



Summary for Pond 9P: Sippo Lake

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth = 3.75" for 6-HR 0.25PMF event
Inflow = 2,004.56 cfs @ 5.02 hrs, Volume= 613.485 af
Outflow = 1,648.77 cfs @ 5.95 hrs, Volume= 520.643 af, Atten= 18%, Lag= 55.4 min
Primary = 1,648.77 cfs @ 5.95 hrs, Volume= 520.643 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= 0.00-36.00 hrs, dt= 0.01 hrs
Starting Elev= 1,027.00' Surf.Area= 88.000 ac Storage= 220.000 af
Peak Elev= 1,029.24' @ 5.95 hrs Surf.Area= 105.520 ac Storage= 436.613 af (216.613 af above start)
Flood Elev= 1,029.30' Surf.Area= 106.000 ac Storage= 443.100 af (223.100 af above start)

Plug-Flow detention time= 255.7 min calculated for 300.560 af (49% of inflow)
Center-of-Mass det. time= 100.4 min (452.6 - 352.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,022.00'	1,220.300 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,022.00	0.000	0.000	0.000
1,027.00	88.000	220.000	220.000
1,029.30	106.000	223.100	443.100
1,036.00	126.000	777.200	1,220.300

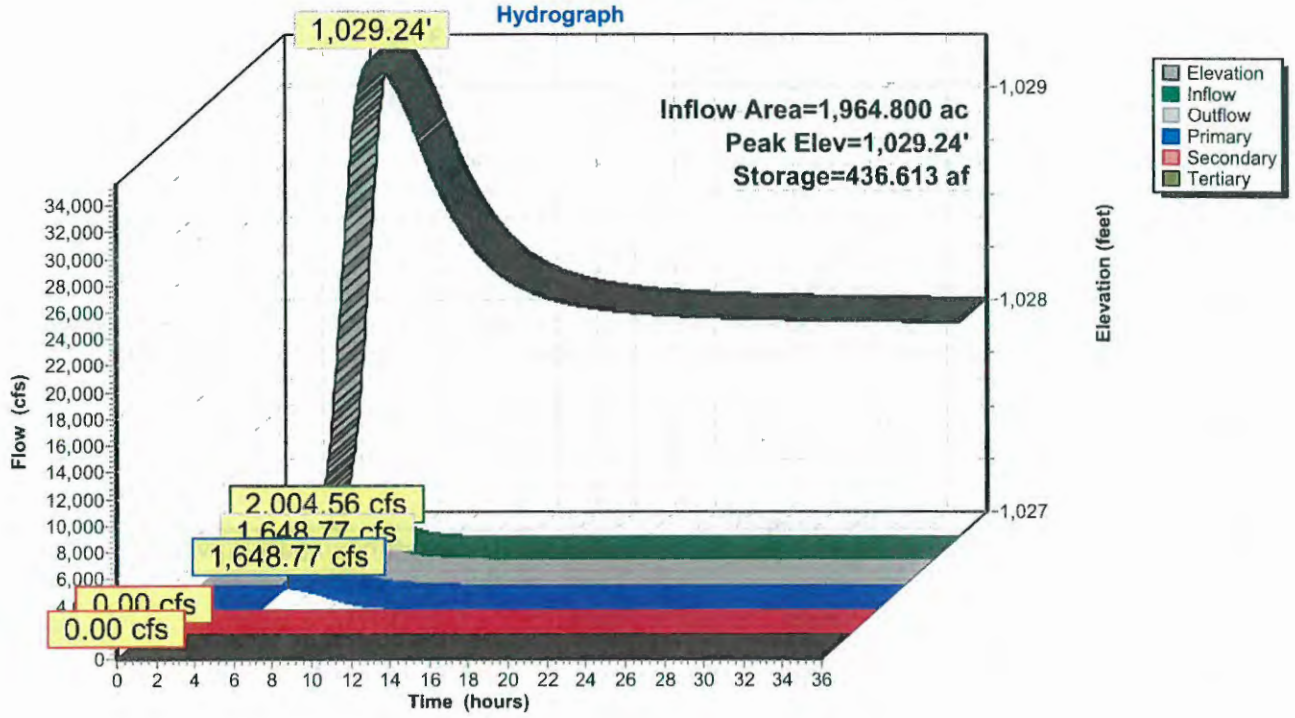
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#3	Secondary	1,029.30'	**30.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Tertiary	1,030.00'	**650.0' long x 50.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1,648.76 cfs @ 5.95 hrs HW=1,029.24' TW=1,023.08' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,091.83 cfs @ 2.94 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 556.93 cfs @ 2.28 fps)

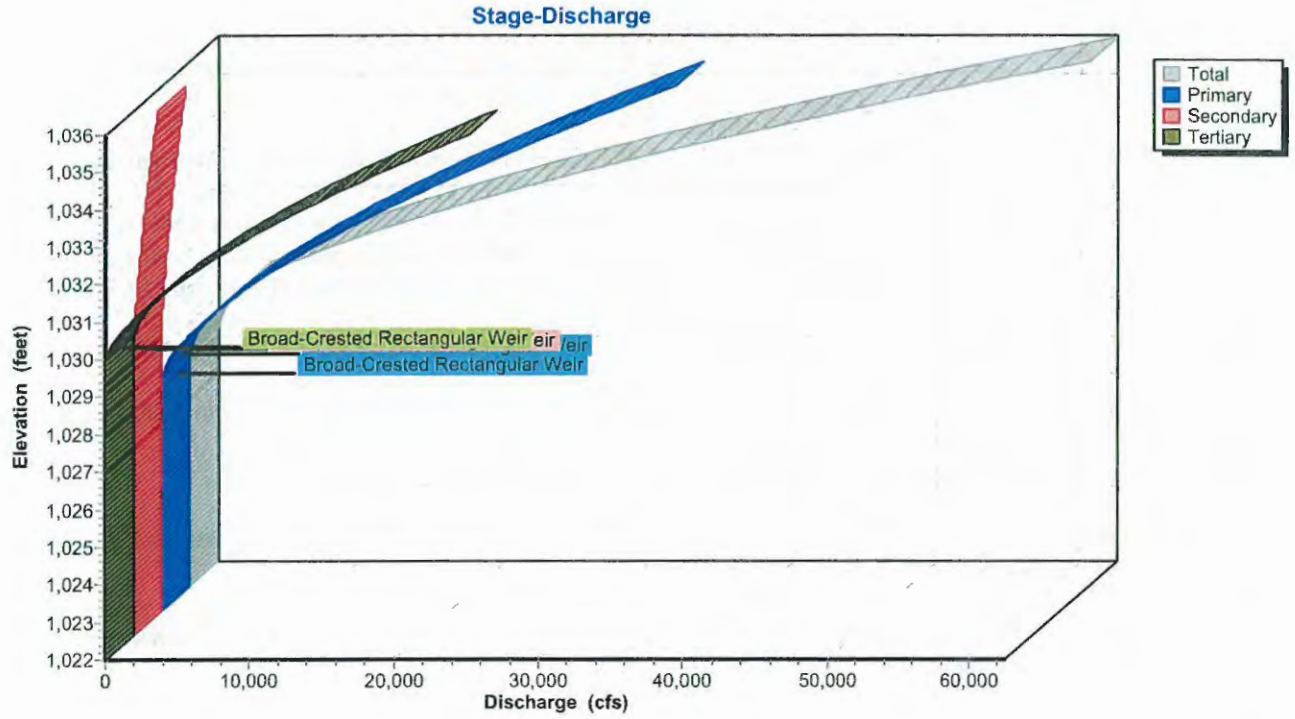
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

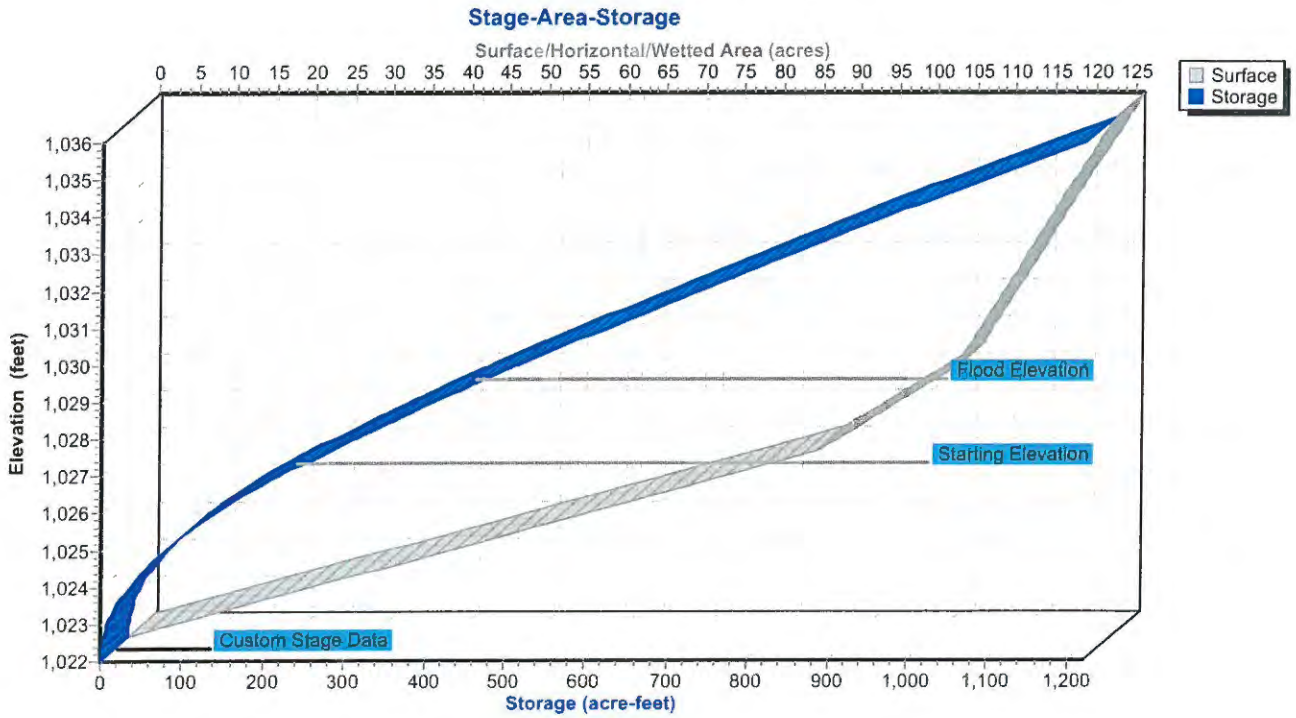
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

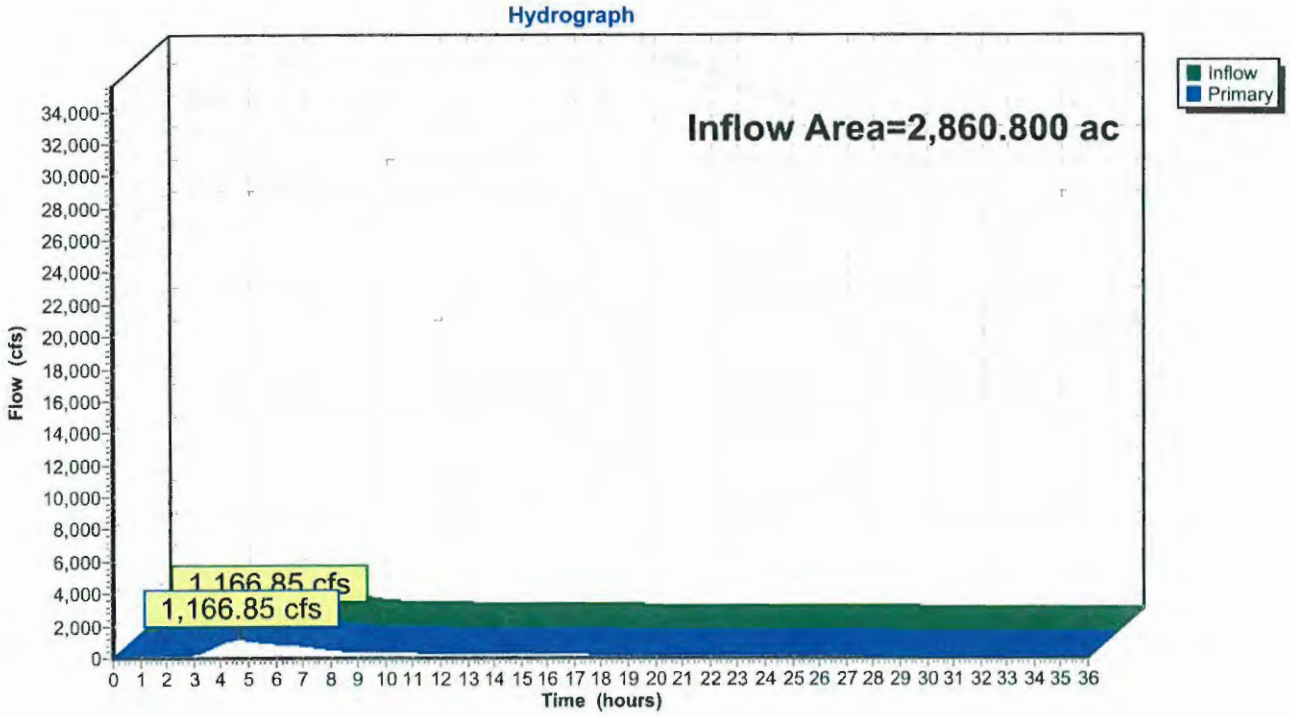


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 4.02" for 6-HR 0.25PMF event
Inflow = 1,166.85 cfs @ 4.69 hrs, Volume= 957.837 af
Primary = 1,166.85 cfs @ 4.70 hrs, Volume= 957.837 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed



Summary for Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.25" for 6-HR 0.25PMF event
Inflow = 3,731.59 cfs @ 6.21 hrs, Volume= 2,565.131 af
Outflow = 3,280.91 cfs @ 7.37 hrs, Volume= 2,563.787 af, Atten= 12%, Lag= 69.9 min
Primary = 3,280.91 cfs @ 7.37 hrs, Volume= 2,563.787 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,007.35' @ 7.37 hrs Surf.Area= 13.158 ac Storage= 188.322 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 21.7 min calculated for 2,563.075 af (100% of inflow)
Center-of-Mass det. time= 21.0 min (725.2 - 704.2)

Volume	Invert	Avail.Storage	Storage Description
#1	978.00'	371.368 af	**Stage Storage in Sippo Park (Irregular)** Listed below (Recalc)

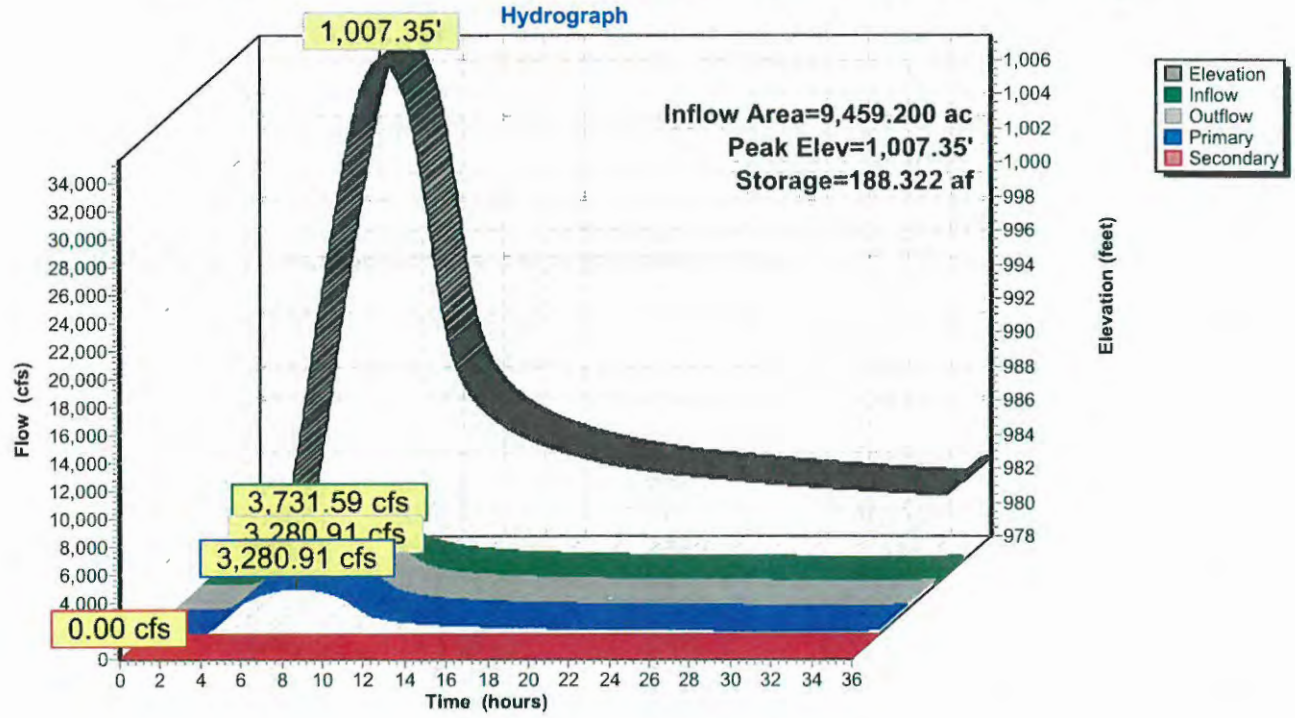
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
988.00	5.007	3,247.5	8.551	17.674	20.586
990.00	6.111	3,143.9	11.100	28.773	21.805
992.00	6.773	3,217.1	12.878	41.652	22.668
994.00	7.411	3,271.9	14.179	55.831	23.334
996.00	8.110	3,253.8	15.516	71.347	23.597
998.00	8.804	3,273.8	16.909	88.256	23.878
1,000.00	9.441	3,318.6	18.241	106.497	24.439
1,002.00	10.181	3,437.0	19.617	126.114	25.908
1,004.00	11.109	3,548.6	21.283	147.398	27.341
1,006.00	12.538	3,553.4	23.633	171.030	27.516
1,008.00	13.465	3,829.8	25.997	197.028	31.248
1,010.00	14.326	4,085.3	27.787	224.814	34.947
1,012.00	15.633	4,329.5	29.949	254.764	38.706
1,014.00	17.576	4,742.6	33.190	287.954	45.555
1,016.00	20.521	5,940.5	38.059	326.013	68.935
1,018.00	24.905	6,310.6	45.355	371.368	77.223

Device	Routing	Invert	Outlet Devices
#1	Primary	978.25'	**168.0" W x 98.0" H Box Box Culvert** L= 121.8' Box, 30-75° wingwalls, rounded crown, Ke= 0.200 Inlet / Outlet Invert= 978.25' / 978.13' S= 0.0010 '/' Cc= 0.900 n= 0.015 Brickwork
#2	Secondary	1,008.00'	**Linclon Way (172), Cv= 2.63 (C= 3.29)** Head (feet) 0.00 1.00 2.00 4.00 6.00 8.00 10.00 Width (feet) 233.00 373.00 475.00 630.00 790.00 940.00 1,090.00

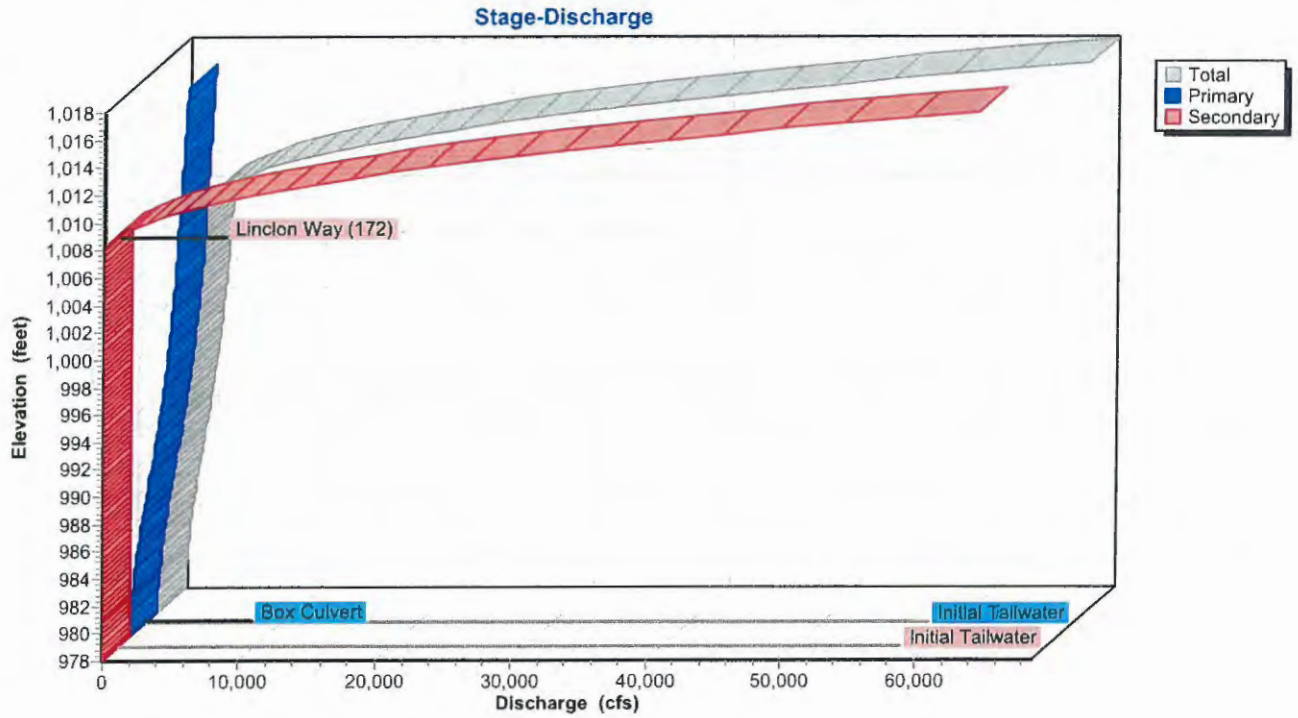
Primary OutFlow Max=3,280.90 cfs @ 7.37 hrs HW=1,007.35' TW=984.35' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 3,280.90 cfs @ 28.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=978.00' TW=978.13' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Controls 0.00 cfs)

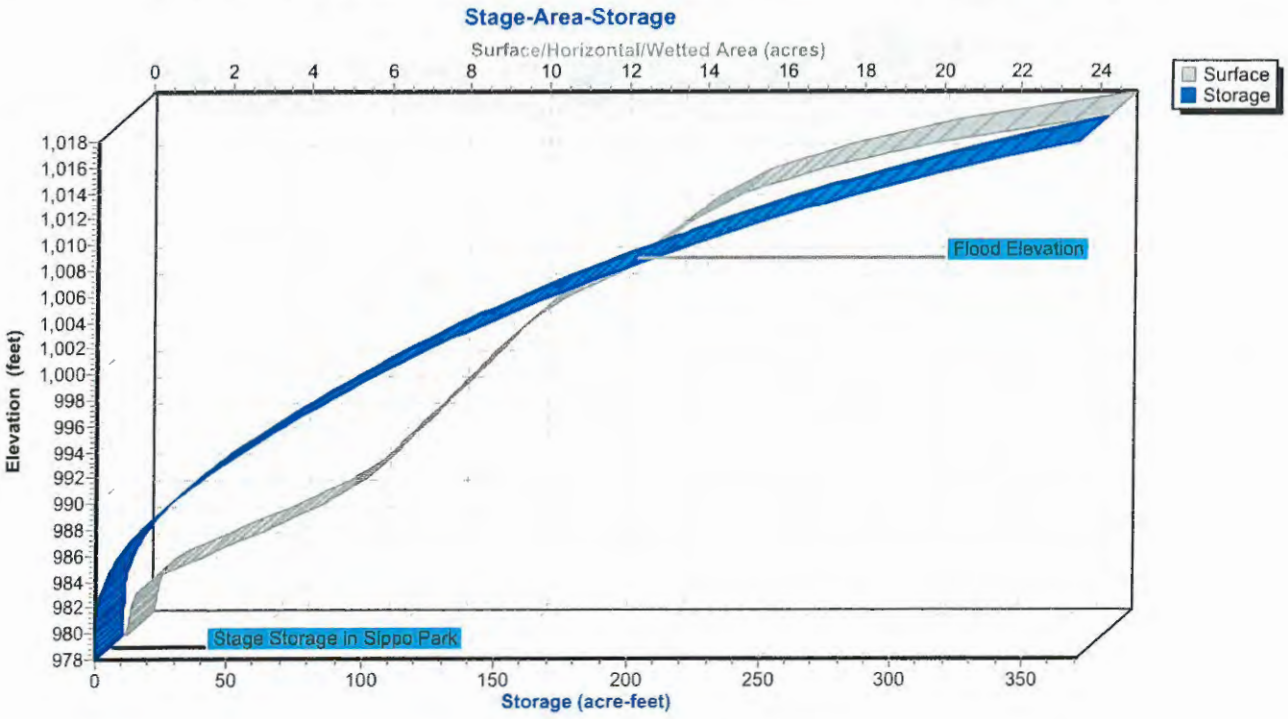
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-

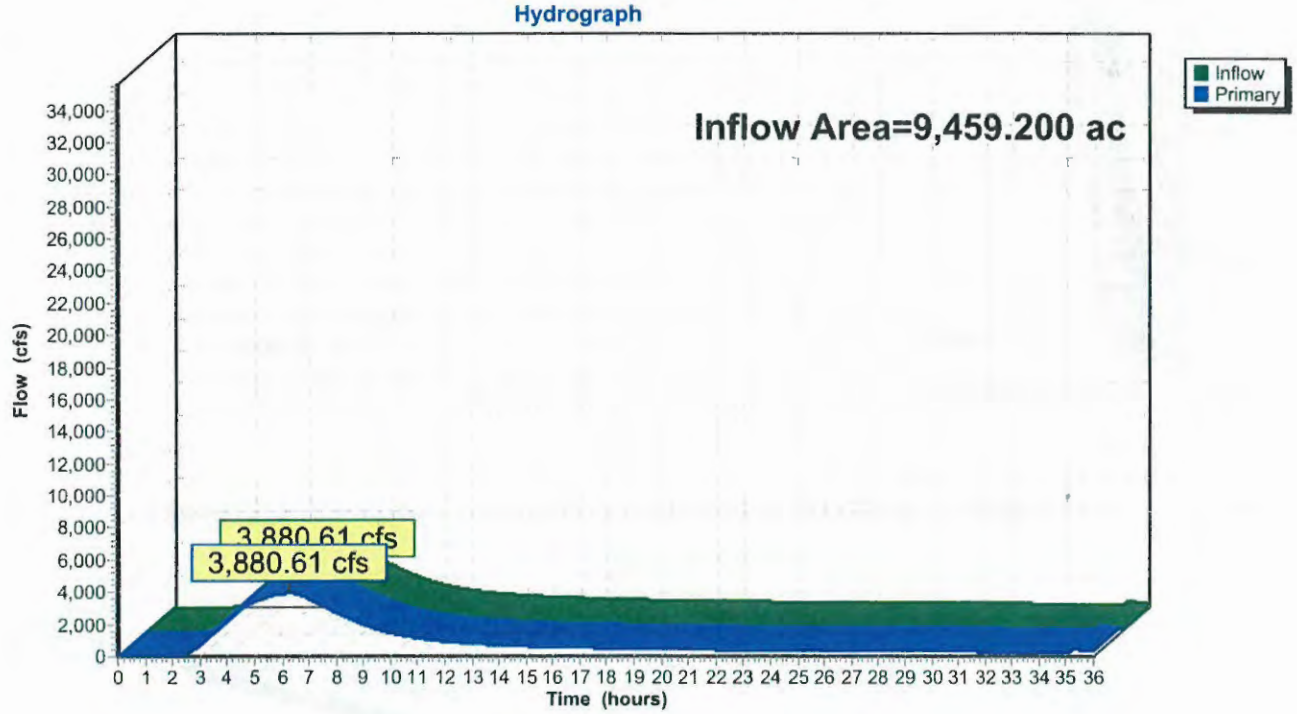


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 3.27" for 6-HR 0.25PMF event
Inflow = 3,880.61 cfs @ 6.28 hrs, Volume= 2,579.928 af
Primary = 3,880.61 cfs @ 6.29 hrs, Volume= 2,579.928 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Pond 19C: Confluence 19



Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment HYD 1: Lake Eric Drainage Runoff Area=115.200 ac 0.00% Impervious Runoff Depth=4.79"
Tc=44.0 min CN=74 Runoff=255.72 cfs 46.001 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=4.91"
Tc=65.0 min CN=75 Runoff=547.88 cfs 109.906 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=4.34"
Tc=226.0 min CN=70 Runoff=1,330.65 cfs 506.405 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=4.11"
Tc=128.0 min CN=68 Runoff=1,326.72 cfs 368.221 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=4.00"
Tc=129.0 min CN=67 Runoff=923.34 cfs 257.947 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=4.79"
Tc=110.0 min CN=74 Runoff=1,147.58 cfs 288.782 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=4.91"
Tc=72.0 min CN=75 Runoff=1,446.14 cfs 300.933 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=5.48"
Tc=78.0 min CN=80 Runoff=1,458.19 cfs 310.058 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=4.22"
Tc=155.0 min CN=69 Runoff=1,227.82 cfs 376.080 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=4.91"
Tc=156.0 min CN=75 Runoff=2,637.72 cfs 803.362 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=4.00"
Tc=151.0 min CN=67 Runoff=714.70 cfs 217.443 af

Reach 5R: Channel 5 Avg. Flow Depth=3.53' Max Vel=6.56 fps Inflow=485.20 cfs 821.523 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=484.41 cfs 815.811 af

Reach 7R: Channel 7 Avg. Flow Depth=9.79' Max Vel=3.49 fps Inflow=1,530.01 cfs 1,183.808 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=1,456.60 cfs 1,174.412 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=6.24' Max Vel=3.28 fps Inflow=719.13 cfs 551.456 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=716.72 cfs 550.681 af

Reach 15R: Channel 15 Avg. Flow Depth=9.88' Max Vel=2.36 fps Inflow=4,333.85 cfs 2,575.859 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=3,661.26 cfs 2,540.433 af

Reach 16R: Channel 16 Avg. Flow Depth=12.19' Max Vel=3.04 fps Inflow=4,850.76 cfs 3,129.734 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=4,724.01 cfs 3,090.854 af

Reach 18R: Sippo Creek Avg. Flow Depth=7.33' Max Vel=10.01 fps Inflow=5,130.37 cfs 3,387.226 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=5,130.36 cfs 3,387.104 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=778.74 cfs 155.792 af
Primary=778.74 cfs 155.792 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,010.07' Storage=196.431 af Inflow=5,227.19 cfs 3,400.480 af
cfs 2,220.430 af Secondary=3,145.16 cfs 1,120.857 af Tertiary=249.79 cfs 47.208 af Outflow=5,136.87 cfs 3,388.495 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=1,611.21 cfs 661.646 af
Primary=1,611.21 cfs 661.646 af

Pond 3P: Lake Cable Peak Elev=1,098.76' Storage=2,247.881 af Inflow=1,611.21 cfs 661.645 af
Primary=485.20 cfs 821.634 af Secondary=0.00 cfs 0.000 af Outflow=485.20 cfs 821.634 af

Pond 4C: Confluence 4 Inflow=2,682.95 cfs 1,550.378 af
Primary=2,682.95 cfs 1,550.378 af

Pond 4P: Lake O'Springs Peak Elev=1,108.61' Storage=98.658 af Inflow=778.74 cfs 155.792 af
Primary=285.17 cfs 155.242 af Secondary=0.00 cfs 0.000 af Outflow=285.17 cfs 155.242 af

Pond 5C: Confluence 5 Inflow=3,560.83 cfs 1,808.211 af
Primary=3,560.83 cfs 1,808.211 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.22' Storage=28.434 af Inflow=255.72 cfs 46.001 af
Primary=187.13 cfs 43.300 af Secondary=44.07 cfs 2.586 af Outflow=231.20 cfs 45.886 af

Pond 6C: Confluence 6 Inflow=835.01 cfs 768.042 af
Primary=835.01 cfs 768.042 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=4,333.85 cfs 2,576.056 af
Primary=4,333.85 cfs 2,576.056 af

Pond 8C: Confluence 8 Inflow=4,850.76 cfs 3,129.942 af
Primary=4,850.76 cfs 3,129.942 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,026.15' Storage=487.763 af Inflow=2,291.87 cfs 710.504 af
Primary=127.72 cfs 286.933 af Secondary=625.18 cfs 264.604 af Outflow=719.13 cfs 551.538 af

Pond 9P: Sippo Lake Peak Elev=1,029.49' Storage=462.933 af Inflow=2,637.72 cfs 803.362 af
mary=2,283.97 cfs 709.810 af Secondary=7.91 cfs 0.695 af Tertiary=0.00 cfs 0.000 af Outflow=2,291.87 cfs 710.505 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Inflow=1,530.01 cfs 1,183.920 af
Primary=1,530.01 cfs 1,183.920 af

Pond 16P: Lincoln Way Box Peak Elev=1,009.44' Storage=216.791 af Inflow=5,136.87 cfs 3,388.276 af
Primary=3,366.34 cfs 3,120.006 af Secondary=1,764.77 cfs 267.440 af Outflow=5,130.37 cfs 3,387.445 af

Pond 19C: Confluence 19 Inflow=5,227.19 cfs 3,400.696 af
Primary=5,227.19 cfs 3,400.696 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 3,585.138 af Average Runoff Depth = 4.55"
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

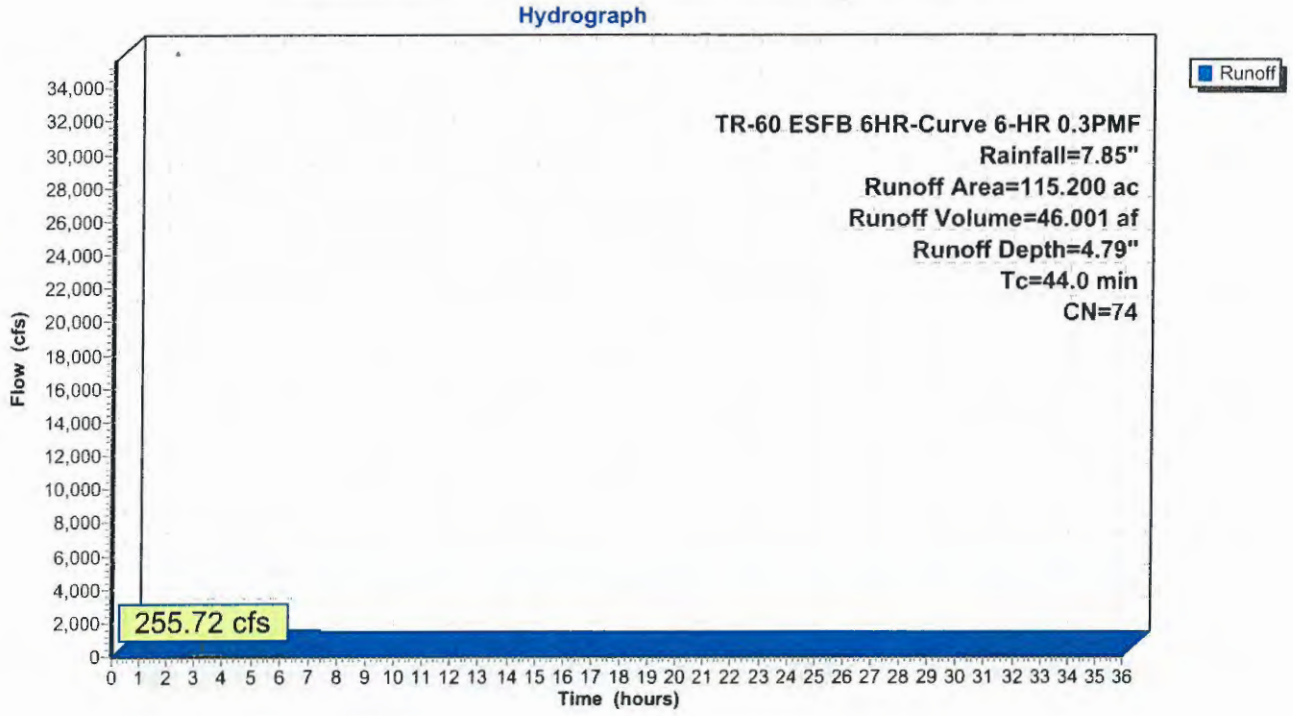
Runoff = 255.72 cfs @ 3.28 hrs, Volume= 46.001 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
115.200	74	>75% Grass cover, Good, HSG C
115.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0					**Direct Entry, HEC-1 Lag Time = 0.44 hr**

Subcatchment HYD 1: Lake Eric Drainage Area



Summary for Subcatchment HYD 2: Lake O'Springs Watershed

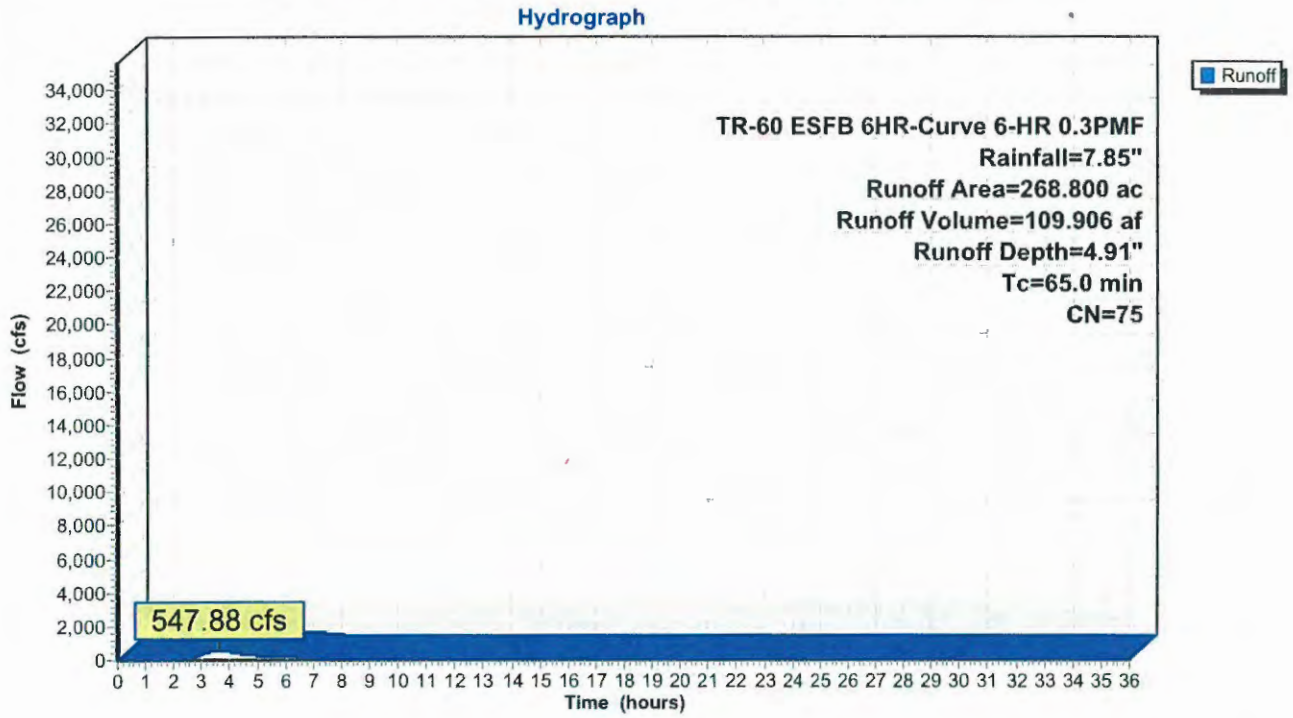
Runoff = 547.88 cfs @ 3.61 hrs, Volume= 109.906 af, Depth= 4.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
268.800	75	1/4 acre lots, 38% imp, HSG B
166.656		62.00% Pervious Area
102.144		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0					**Direct Entry, HEC-1 Lag Time = 0.65 hours**

Subcatchment HYD 2: Lake O'Springs Watershed



Summary for Subcatchment HYD 3: Lake Cable Watershed

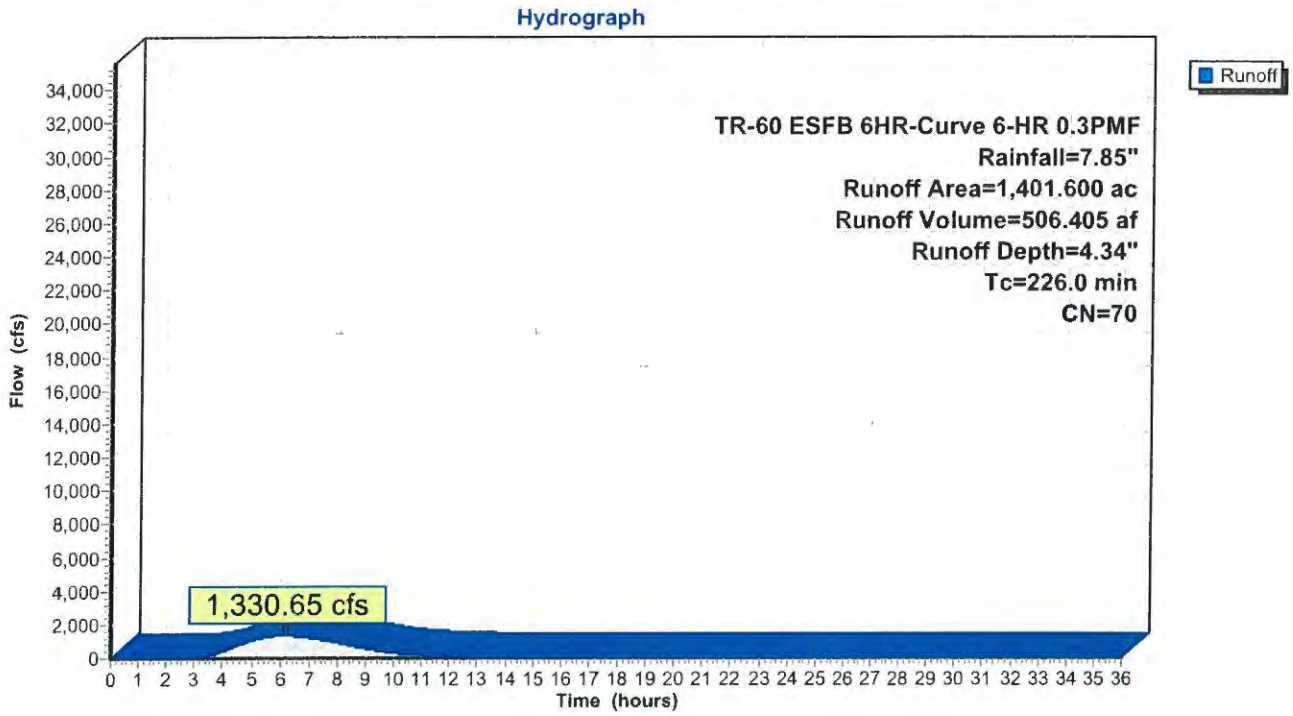
Runoff = 1,330.65 cfs @ 6.27 hrs, Volume= 506.405 af, Depth= 4.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
1,401.600	70	1/2 acre lots, 25% imp, HSG B
1,051.200		75.00% Pervious Area
350.400		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
226.0					**Direct Entry, HEC-1 Lag time 2.26hr**

Subcatchment HYD 3: Lake Cable Watershed



Summary for Subcatchment HYD 4: Hyd 4 Watershed

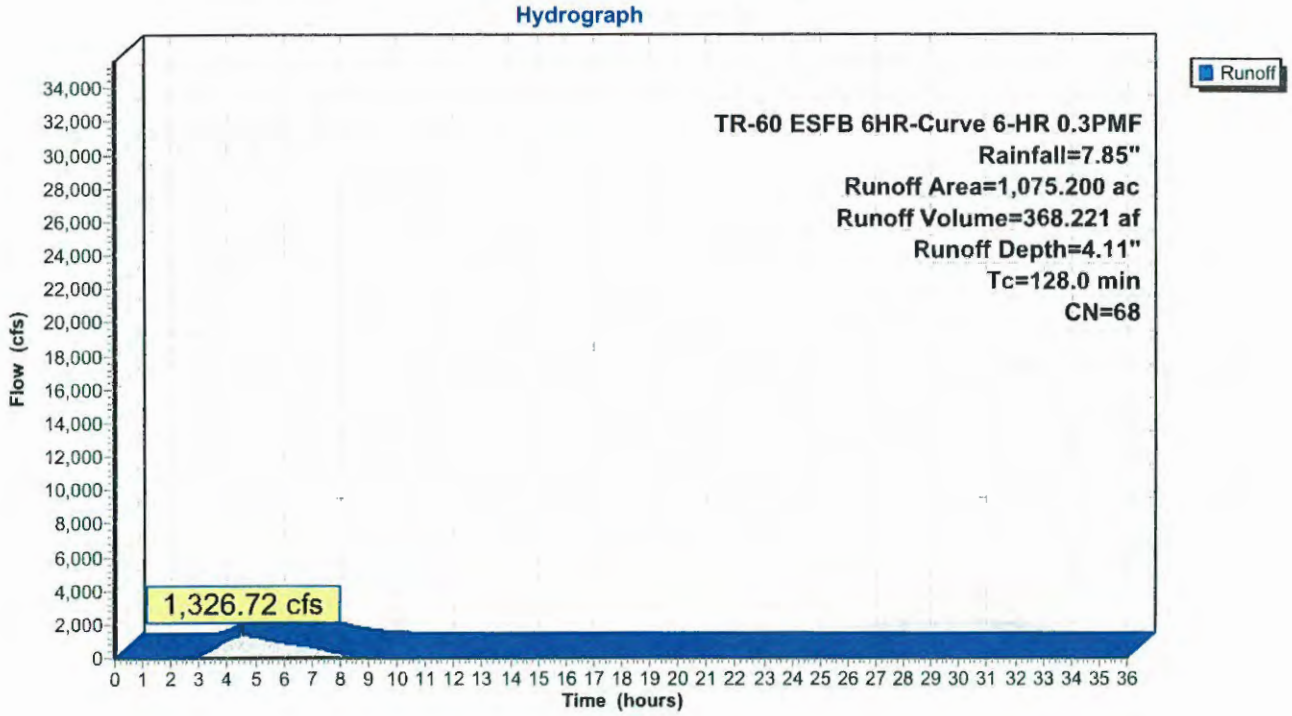
Runoff = 1,326.72 cfs @ 4.56 hrs, Volume= 368.221 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
1,075.200	68	1 acre lots, 20% imp, HSG B
860.160		80.00% Pervious Area
215.040		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
128.0					**Direct Entry, HEC-1 Lag Time = 1.28 hr**

Subcatchment HYD 4: Hyd 4 Watershed



Summary for Subcatchment HYD11: HYD11 Watershed

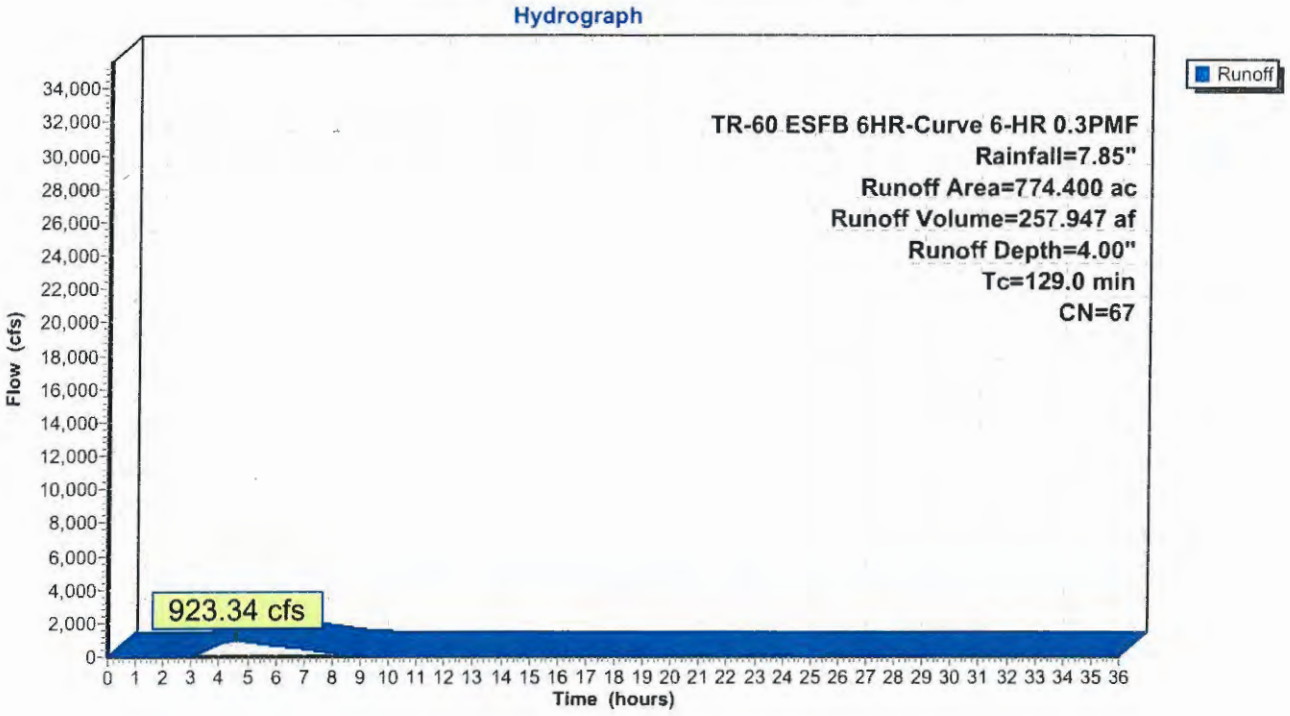
Runoff = 923.34 cfs @ 4.59 hrs, Volume= 257.947 af, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

	Area (ac)	CN	Description
*	774.400	67	
	774.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
129.0					**Direct Entry, HEC-1 Lag Time = 1.29 hr**

Subcatchment HYD11: HYD11 Watershed



Summary for Subcatchment HYD12: HYD12 Watershed

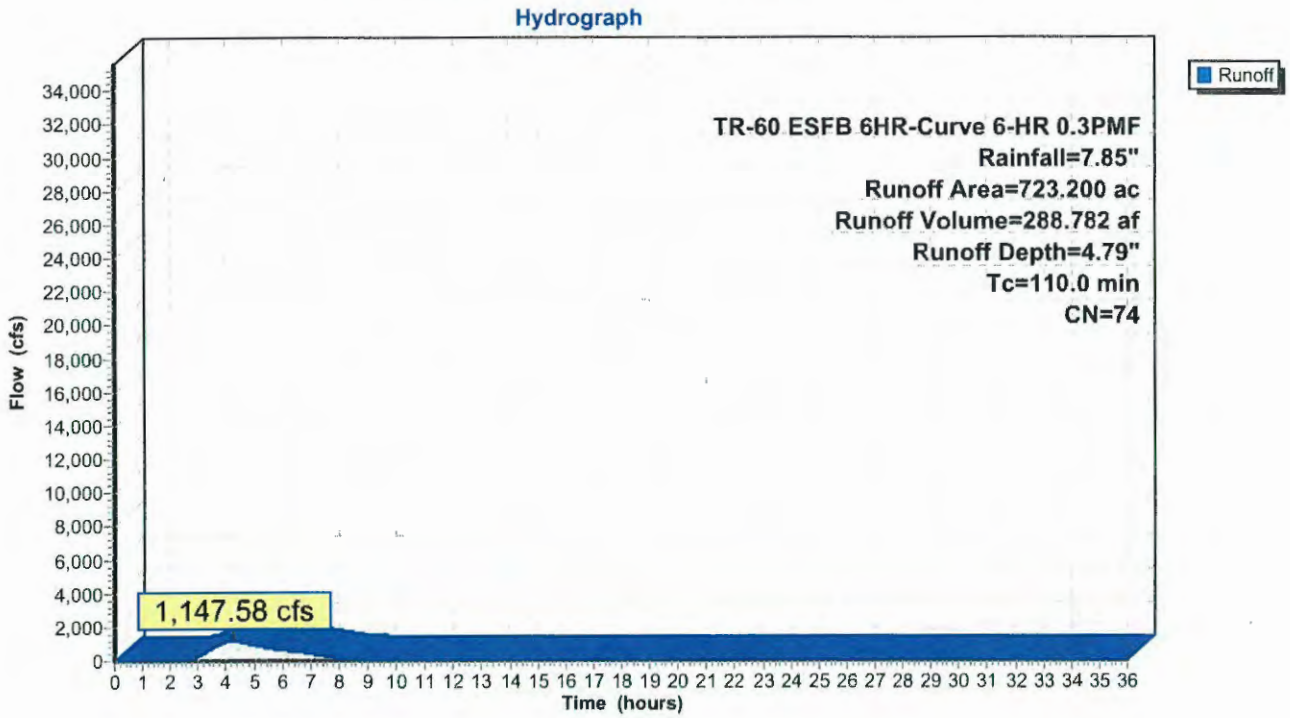
Runoff = 1,147.58 cfs @ 4.28 hrs, Volume= 288.782 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
723.200	74	>75% Grass cover, Good, HSG C
723.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
110.0					**Direct Entry, HEC-1 Lag Time = 1.10 hr**

Subcatchment HYD12: HYD12 Watershed



Summary for Subcatchment HYD13: HYD13 Watershed

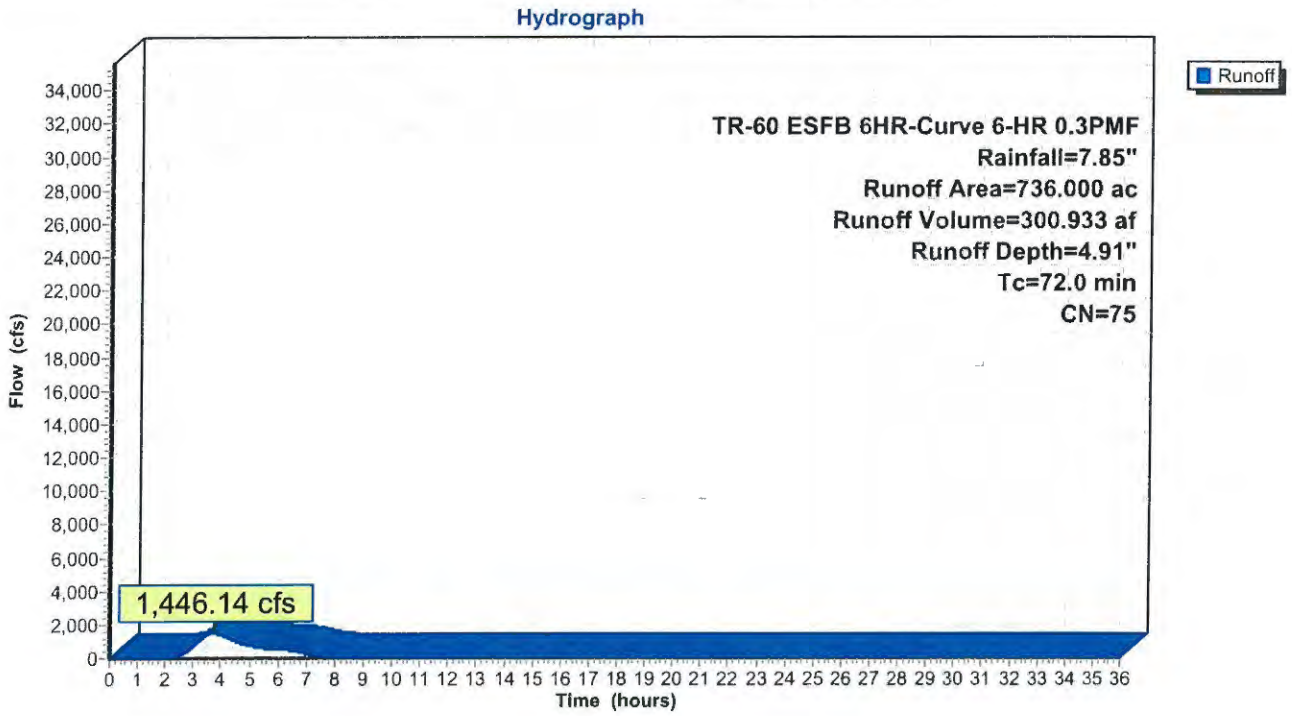
Runoff = 1,446.14 cfs @ 3.75 hrs, Volume= 300.933 af, Depth= 4.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
736.000	75	1/4 acre lots, 38% imp, HSG B
456.320		62.00% Pervious Area
279.680		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
72.0					**Direct Entry, HEC-1 Lag Time = 0.72 hr**

Subcatchment HYD13: HYD13 Watershed



Summary for Subcatchment HYD14: HYD14 Watershed

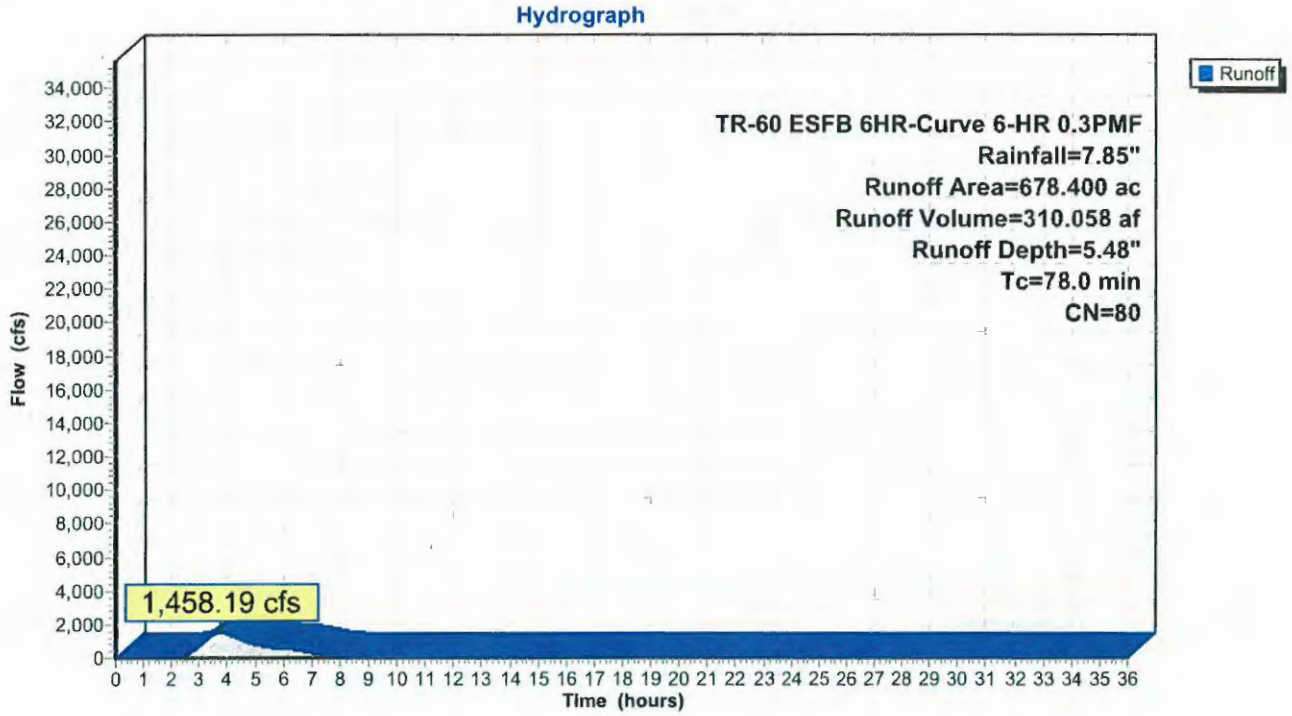
Runoff = 1,458.19 cfs @ 3.73 hrs, Volume= 310.058 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
678.400	80	1/2 acre lots, 25% imp, HSG C
508.800		75.00% Pervious Area
169.600		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
78.0					**Direct Entry, HEC-1 Lag Time = 0.78 hr**

Subcatchment HYD14: HYD14 Watershed



Summary for Subcatchment HYD6: HYD6 Watershed

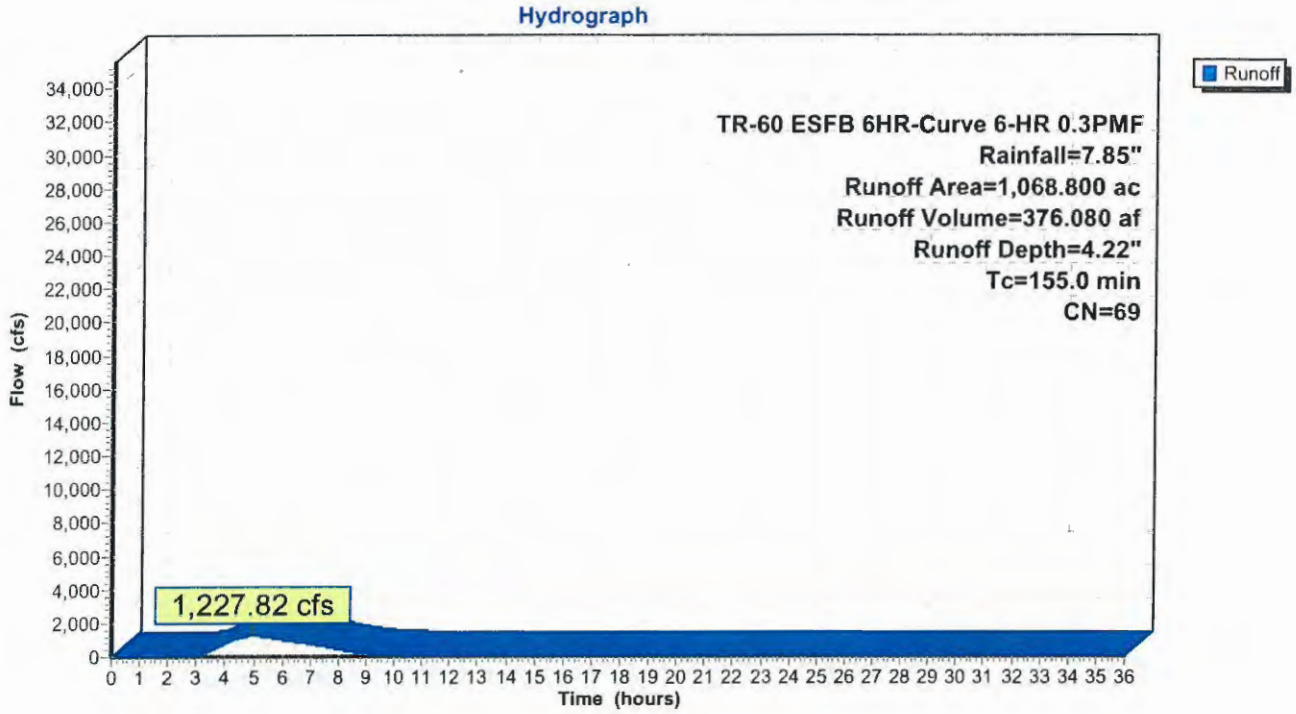
Runoff = 1,227.82 cfs @ 4.99 hrs, Volume= 376.080 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
1,068.800	69	Pasture/grassland/range, Fair, HSG B
1,068.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
155.0					**Direct Entry, HEC-1 Lag Time = 1.55 hr**

Subcatchment HYD6: HYD6 Watershed



Summary for Subcatchment HYD8: Sippo Lake Watershed

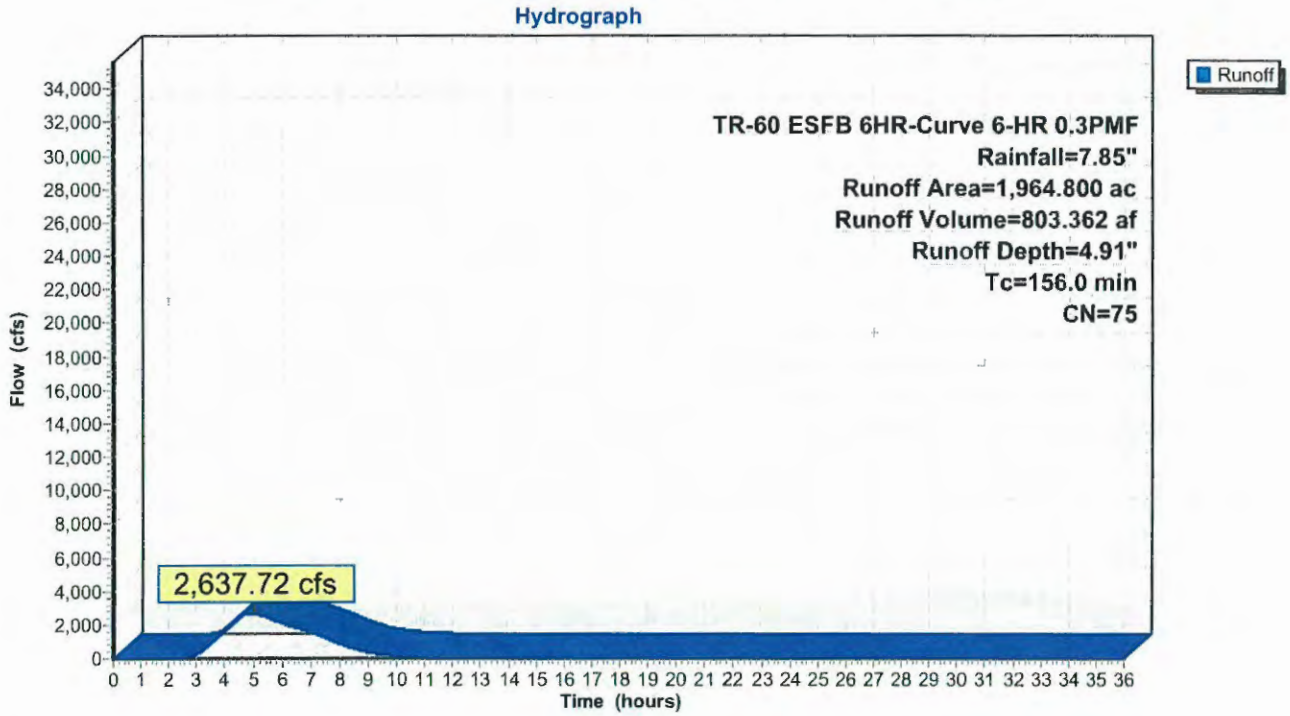
Runoff = 2,637.72 cfs @ 5.02 hrs, Volume= 803.362 af, Depth= 4.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

Area (ac)	CN	Description
1,964.800	75	1/4 acre lots, 38% imp, HSG B
1,218.176		62.00% Pervious Area
746.624		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
156.0					**Direct Entry, HEC-1 Lag Time = 1.56hr**

Subcatchment HYD8: Sippo Lake Watershed



Summary for Subcatchment HYD9: HYD9 Watershed

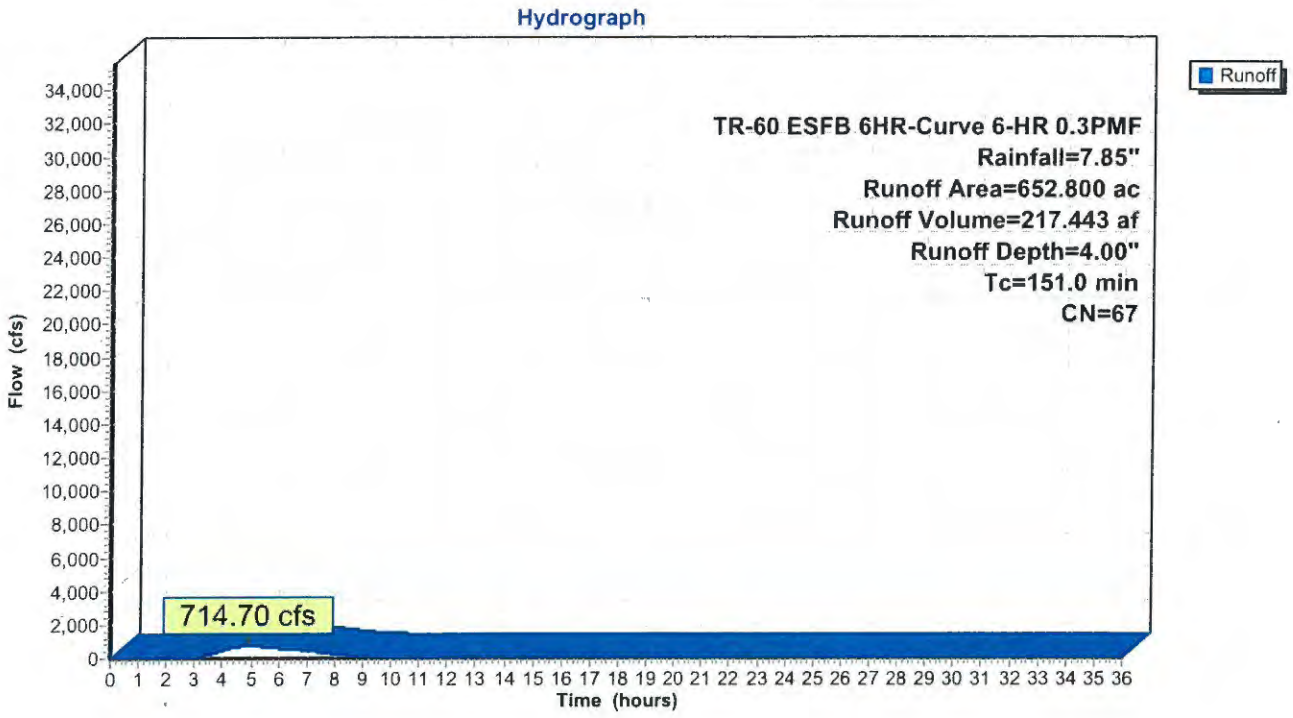
Runoff = 714.70 cfs @ 4.87 hrs, Volume= 217.443 af, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
TR-60 ESFB 6HR-Curve 6-HR 0.3PMF Rainfall=7.85"

	Area (ac)	CN	Description
*	652.800	67	
	652.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
151.0					**Direct Entry, HEC-1 Lag Time = 1.51hr**

Subcatchment HYD9: HYD9 Watershed



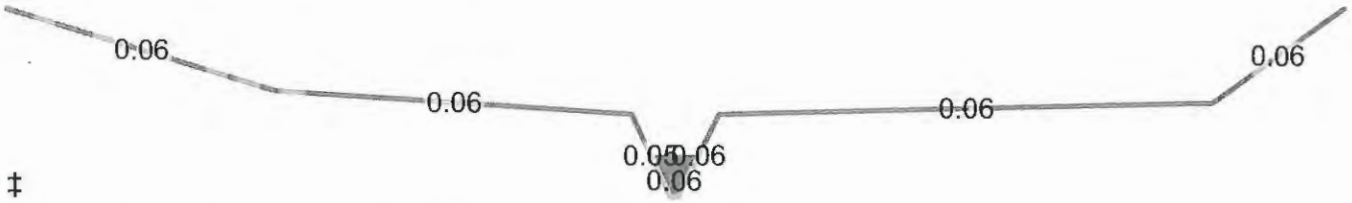
Summary for Reach 5R: Channel 5

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 5.52" for 6-HR 0.3PMF event
Inflow = 485.20 cfs @ 9.72 hrs, Volume= 821.523 af
Outflow = 484.41 cfs @ 10.01 hrs, Volume= 815.811 af, Atten= 0%, Lag= 17.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.56 fps, Min. Travel Time= 22.4 min
Avg. Velocity = 5.56 fps, Avg. Travel Time= 26.4 min

Peak Storage= 649,694 cf @ 10.01 hrs
Average Depth at Peak Storage= 3.53'
Defined Flood Depth= 16.00', Capacity at Flood Depth= 106,015.62 cfs
Bank-Full Depth= 16.00', Capacity at Bank-Full= 106,015.62 cfs

Custom cross-section, Length= 8,800.0' Slope= 0.0240 '/' (102 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,069.00', Outlet Invert= 857.80'

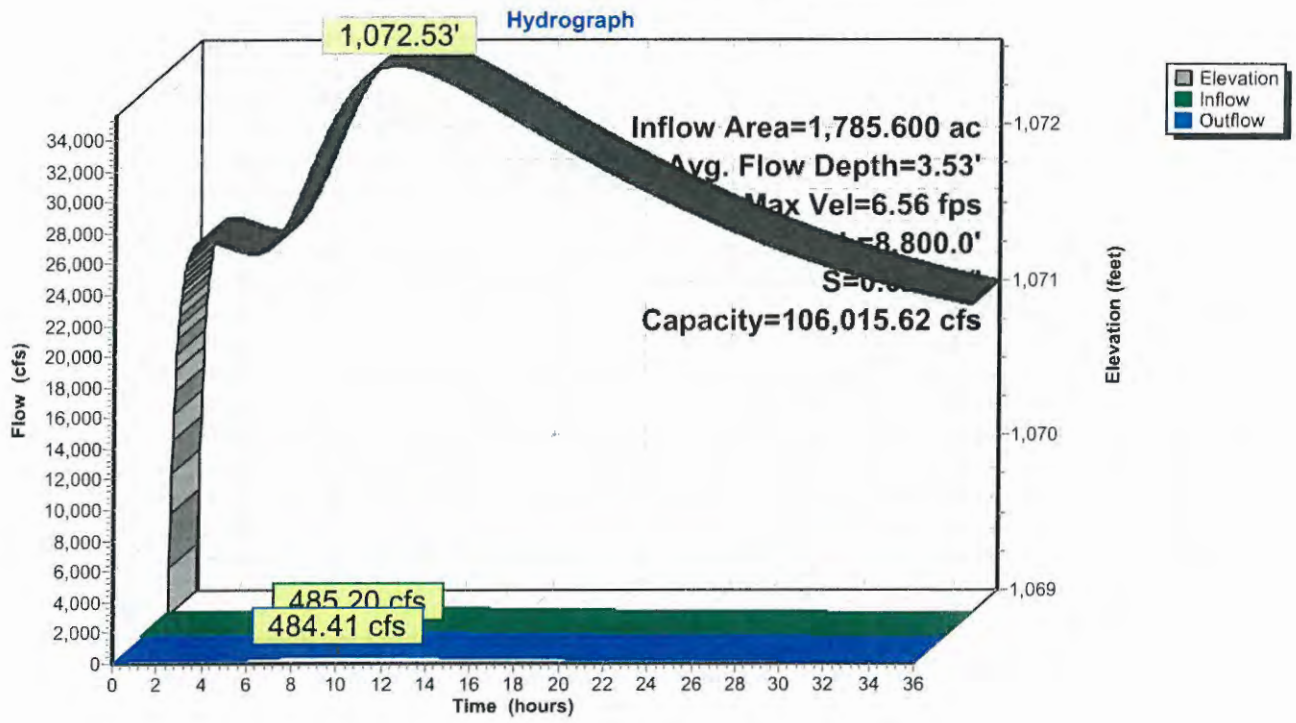


‡

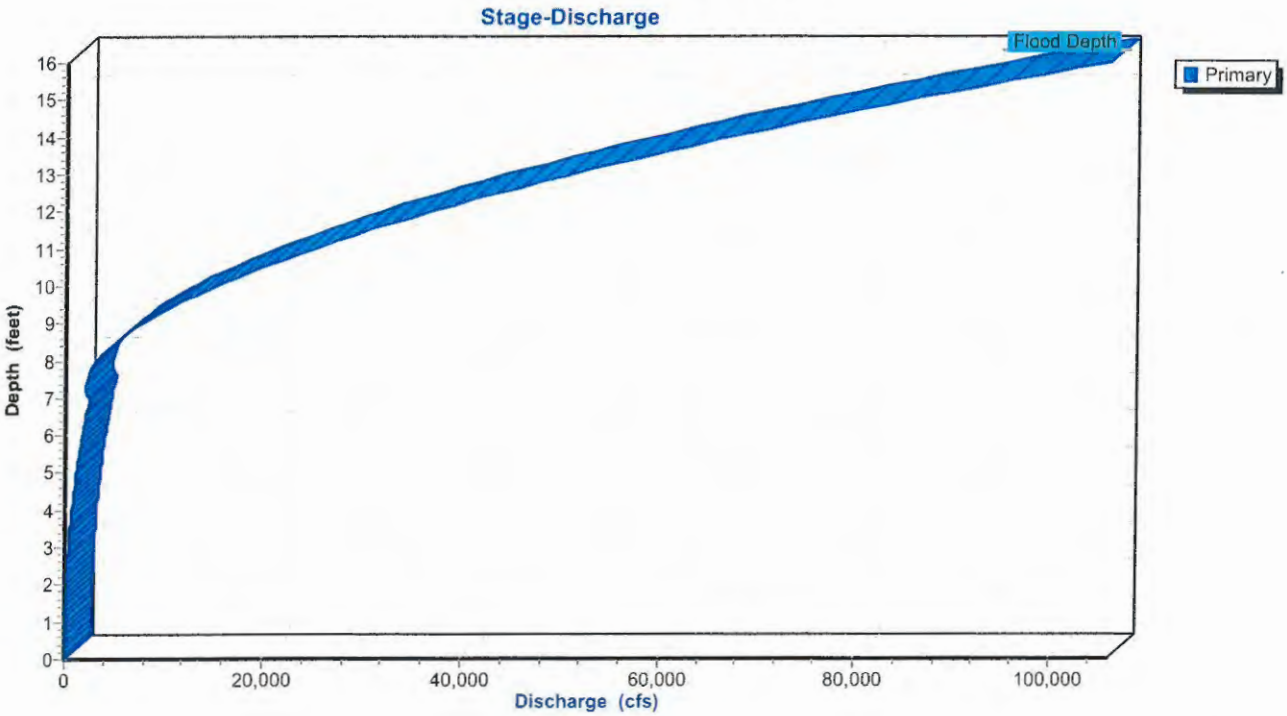
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	6.0	0	0.00
7.00	248.5	66.6	2,186,800	2,476.94
8.00	564.8	569.1	4,969,800	3,087.89
9.00	1,204.8	714.2	10,601,800	7,790.91
16.00	7,198.5	1,002.1	63,346,800	106,015.62

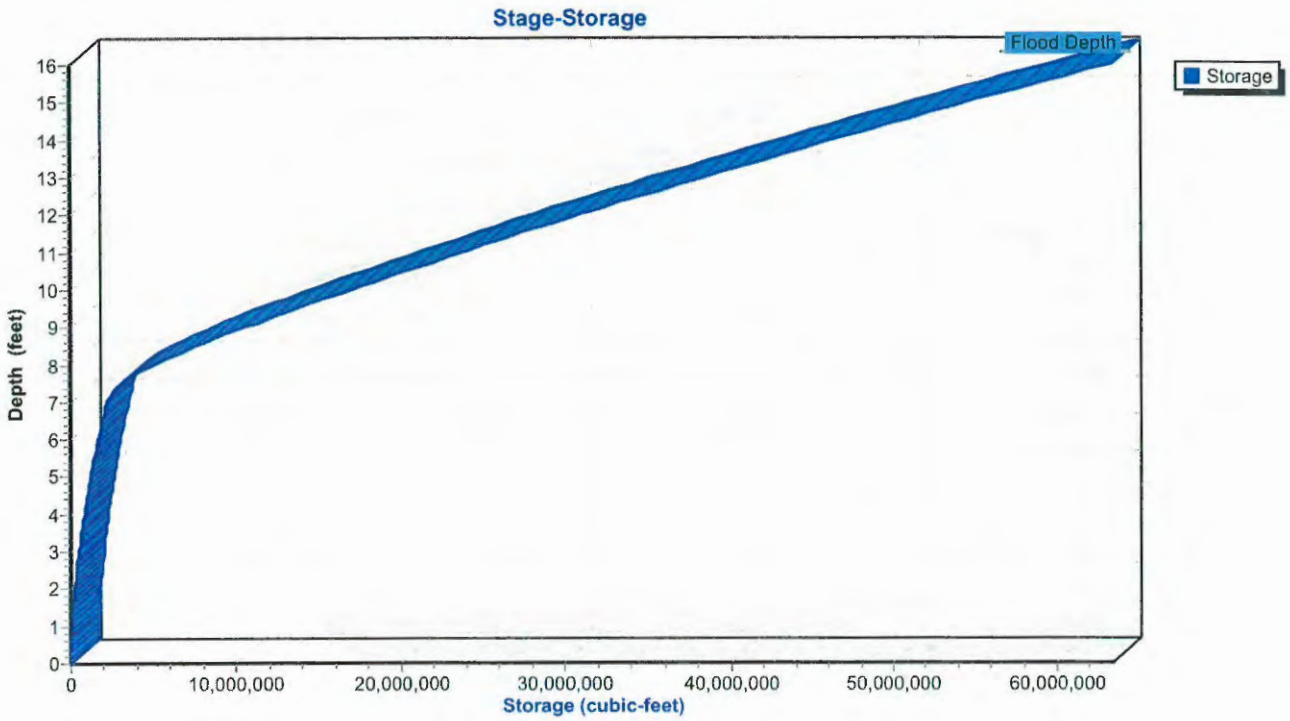
Reach 5R: Channel 5



Reach 5R: Channel 5



Reach 5R: Channel 5



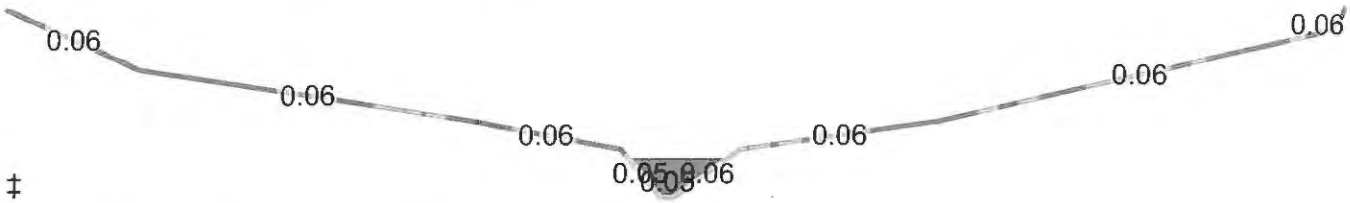
Summary for Reach 7R: Channel 7

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 4.97" for 6-HR 0.3PMF event
Inflow = 1,530.01 cfs @ 4.70 hrs, Volume= 1,183.808 af
Outflow = 1,456.60 cfs @ 5.05 hrs, Volume= 1,174.412 af, Atten= 5%, Lag= 21.4 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.49 fps, Min. Travel Time= 28.2 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 40.7 min

Peak Storage= 2,463,171 cf @ 5.05 hrs
Average Depth at Peak Storage= 9.79'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'

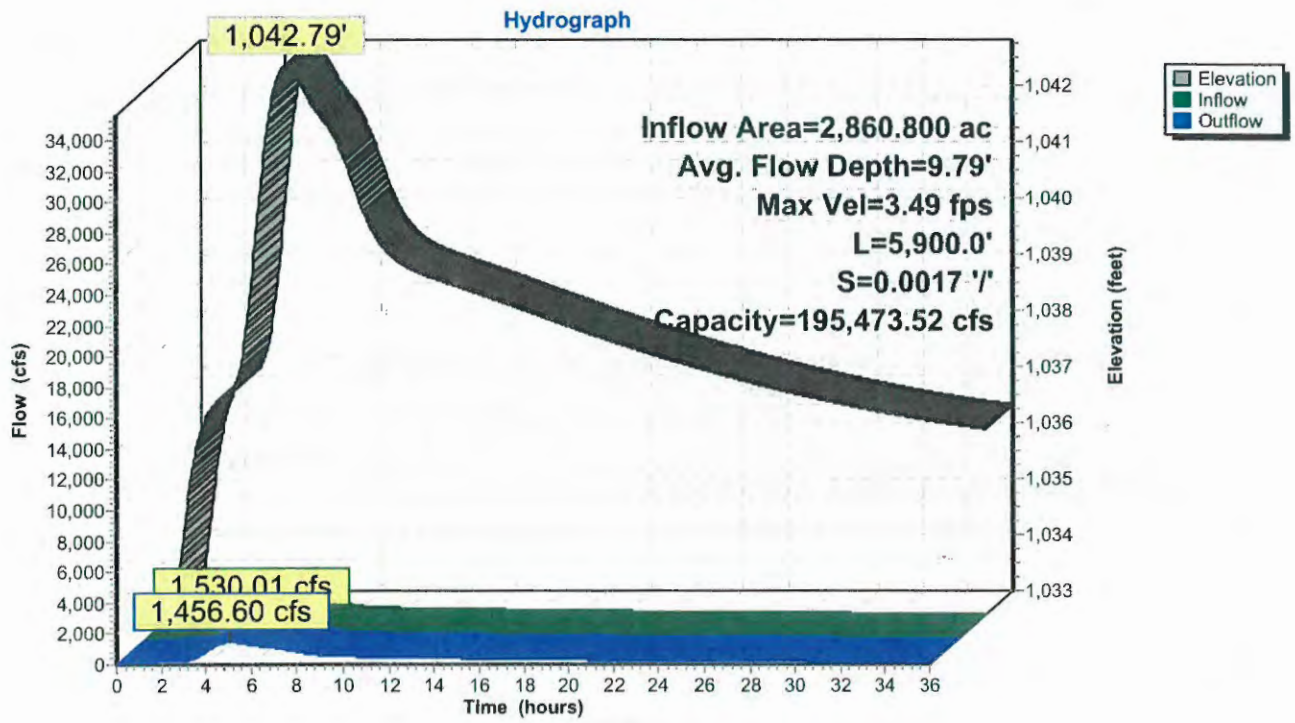


‡

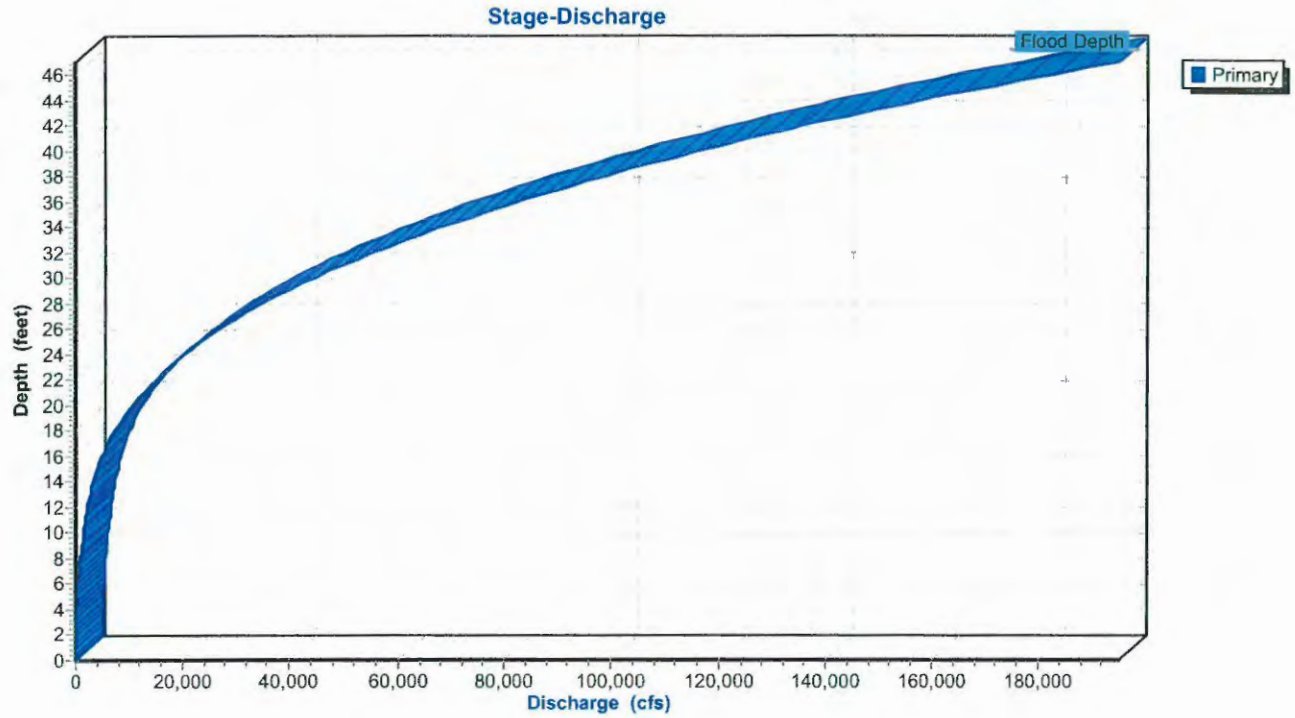
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00	5.00	0.060	
1,005.00	1,080.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
12.00	600.0	93.7	3,540,000	2,349.60
19.00	2,140.0	354.1	12,626,000	8,862.05
32.00	9,417.2	774.5	55,561,326	55,339.93
42.00	18,098.3	972.7	106,780,167	135,620.34
47.00	23,027.5	1,013.5	135,862,250	195,473.52

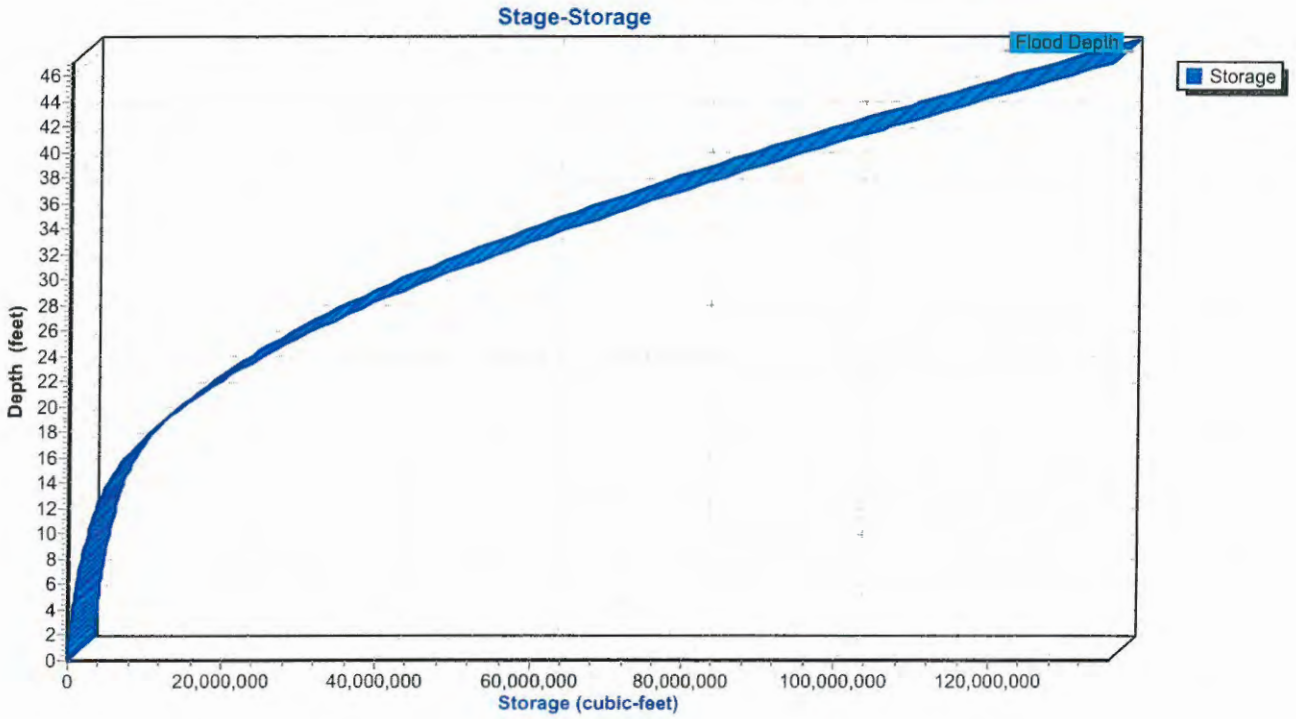
Reach 7R: Channel 7



Reach 7R: Channel 7



Reach 7R: Channel 7



Summary for Reach 10Ra: Channel 10 (Reach West of Genoa Rd)

Inflow Area = 1,964.800 ac, 38.00% Impervious, Inflow Depth > 3.37" for 6-HR 0.3PMF event
Inflow = 719.13 cfs @ 8.87 hrs, Volume= 551.456 af
Outflow = 716.72 cfs @ 9.04 hrs, Volume= 550.681 af, Atten= 0%, Lag= 10.0 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 2.47 fps, Avg. Travel Time= 6.1 min

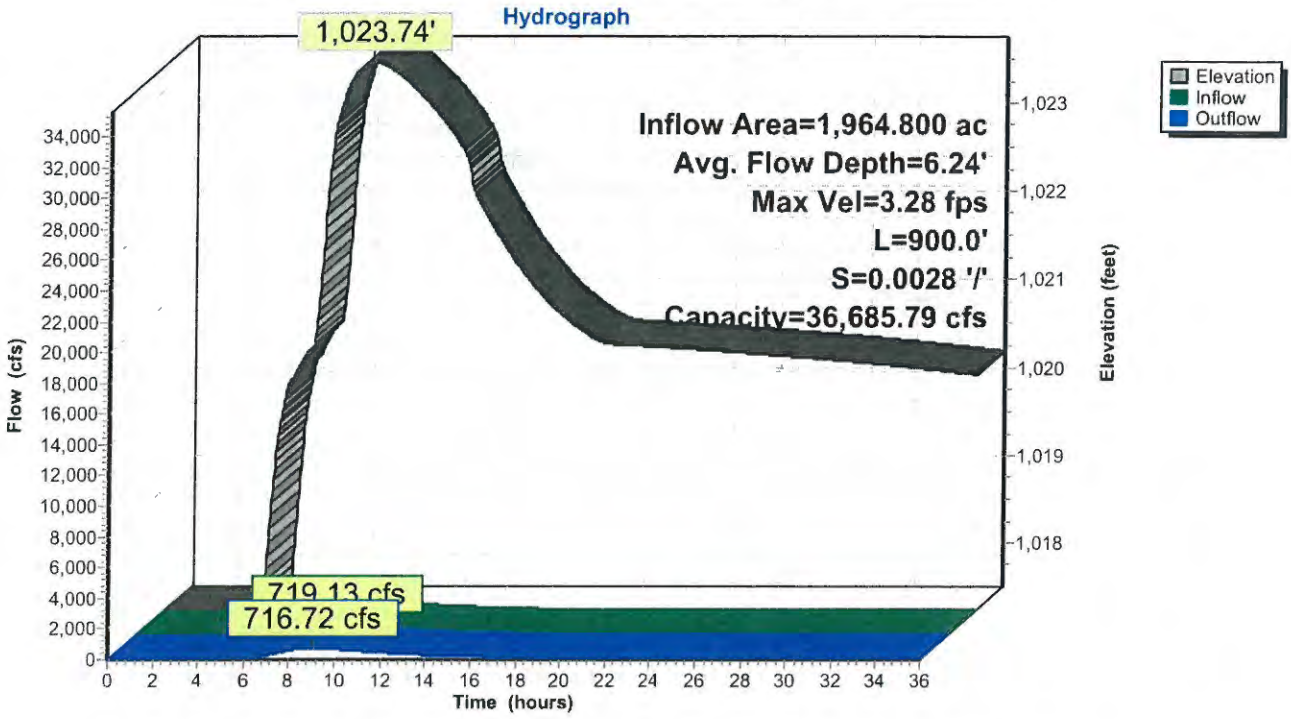
Peak Storage= 331,697 cf @ 9.04 hrs
Average Depth at Peak Storage= 6.24'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 36,685.79 cfs
Bank-Full Depth= 15.00', Capacity at Bank-Full= 36,685.79 cfs

Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

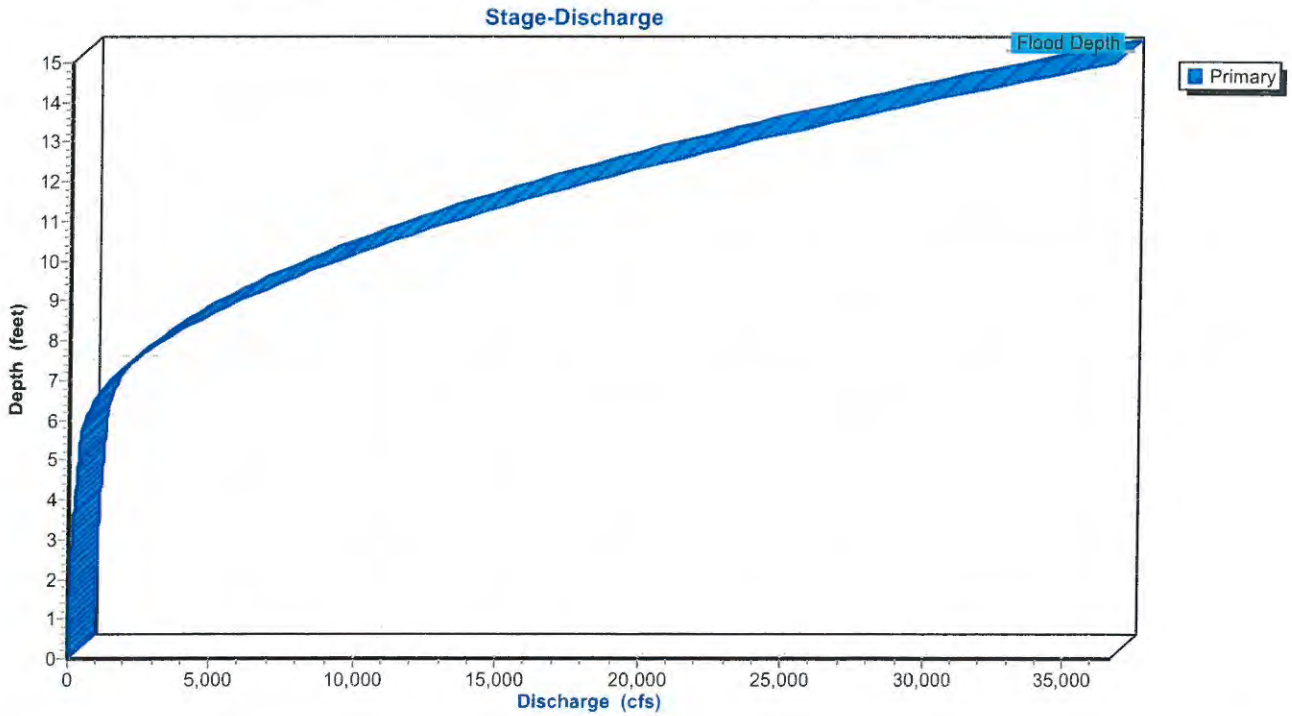
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	10.0	0	0.00
5.00	100.0	32.4	90,000	328.73
7.00	760.0	632.4	684,000	1,430.41
10.00	2,876.9	783.7	2,589,188	9,317.36
15.00	7,330.0	1,002.7	6,597,000	36,685.79

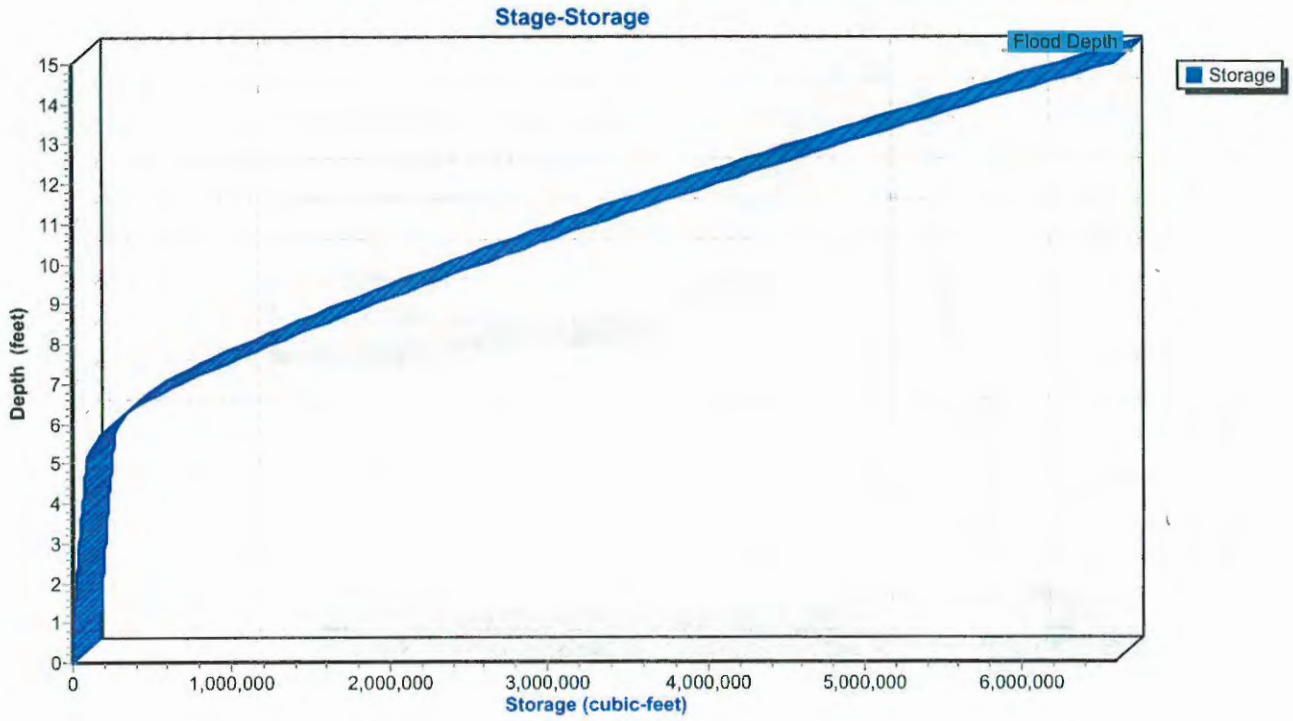
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



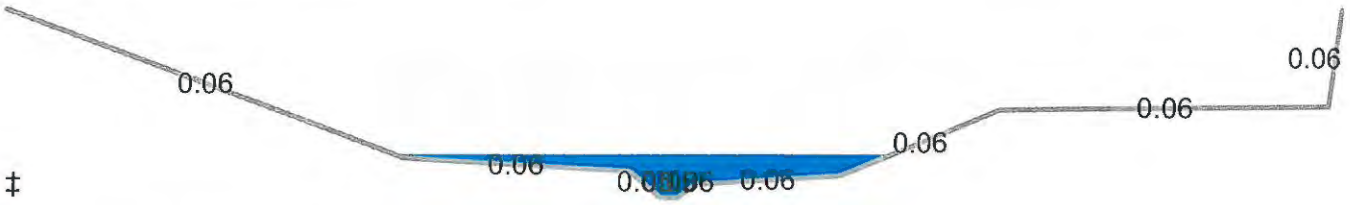
Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 4.22" for 6-HR 0.3PMF event
Inflow = 4,333.85 cfs @ 5.02 hrs, Volume= 2,575.859 af
Outflow = 3,661.26 cfs @ 5.97 hrs, Volume= 2,540.433 af, Atten= 16%, Lag= 56.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.36 fps, Min. Travel Time= 62.3 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 91.4 min

Peak Storage= 13,678,534 cf @ 5.97 hrs
Average Depth at Peak Storage= 9.88'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

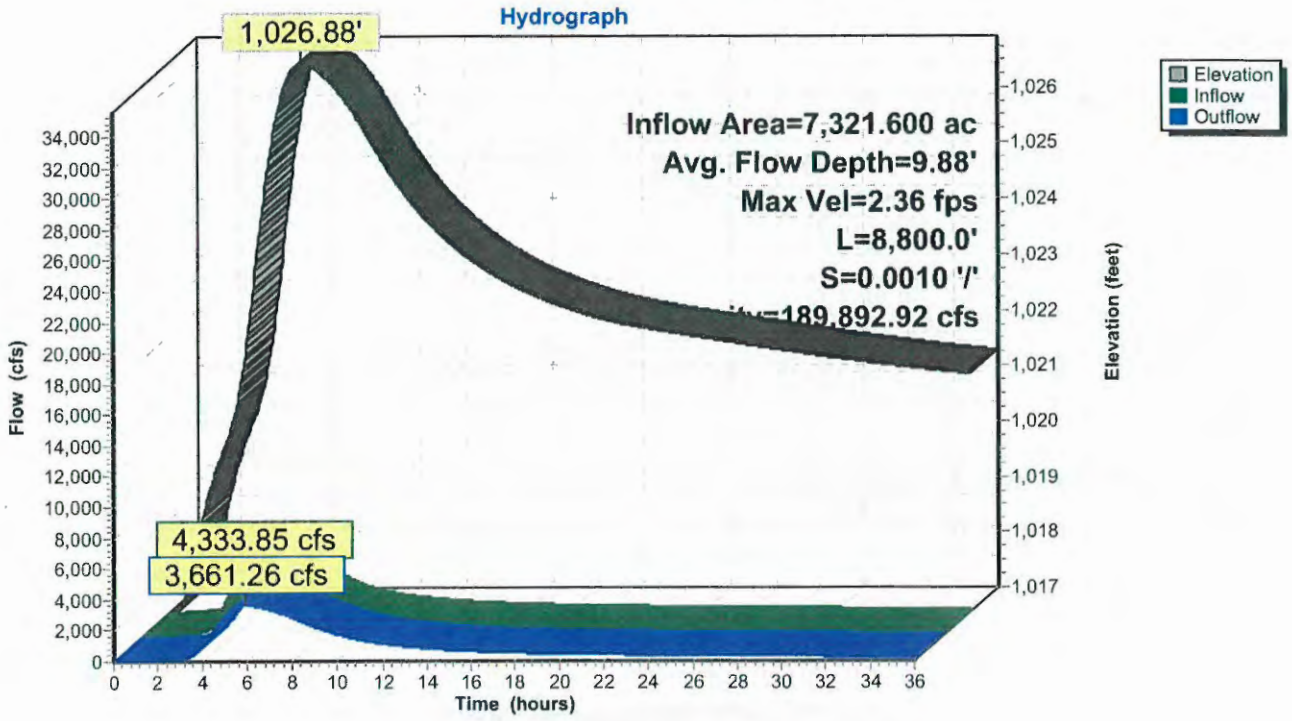
Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'



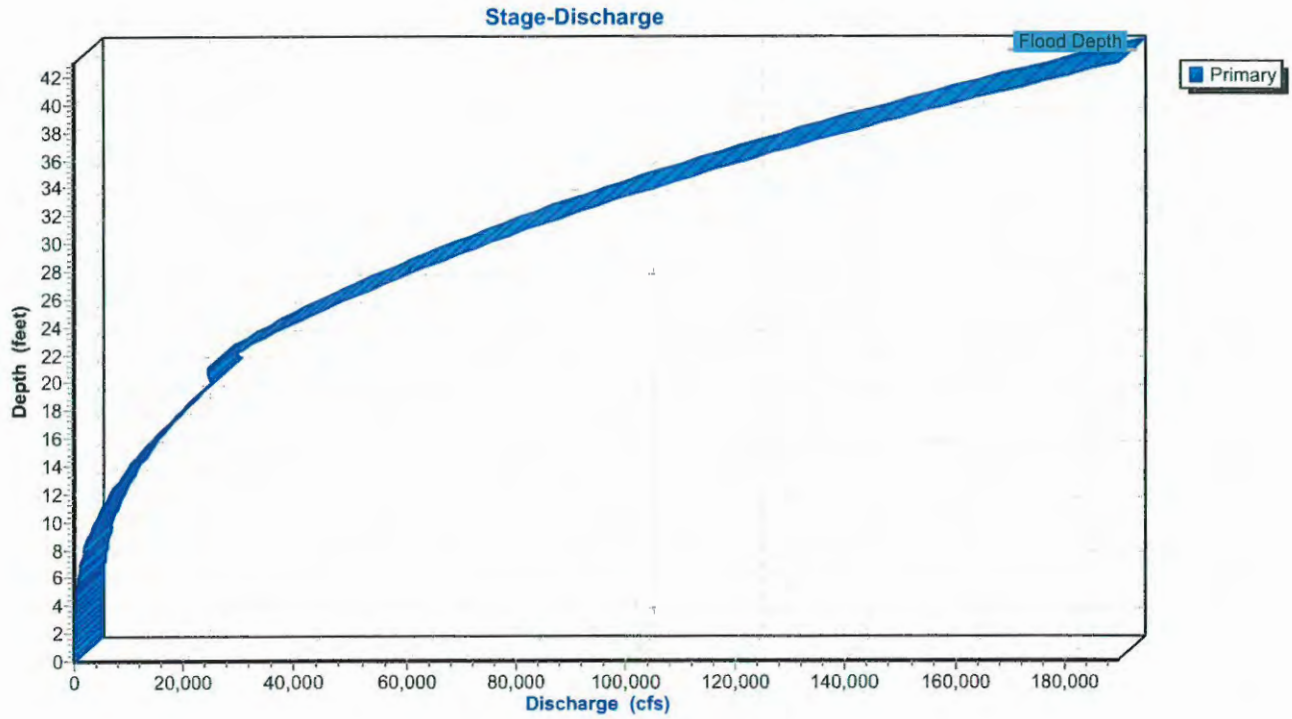
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00	22.00	0.060	
1,010.00	1,060.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	14.0	0	0.00
3.00	78.8	39.2	693,000	116.39
5.00	273.4	157.2	2,406,067	396.99
6.00	435.5	169.2	3,832,400	733.92
9.00	1,230.5	363.4	10,828,400	2,703.81
20.00	6,230.3	549.8	54,826,847	25,737.78
21.00	6,906.8	808.7	60,779,788	24,784.16
43.00	26,881.5	1,028.2	236,557,200	189,892.92

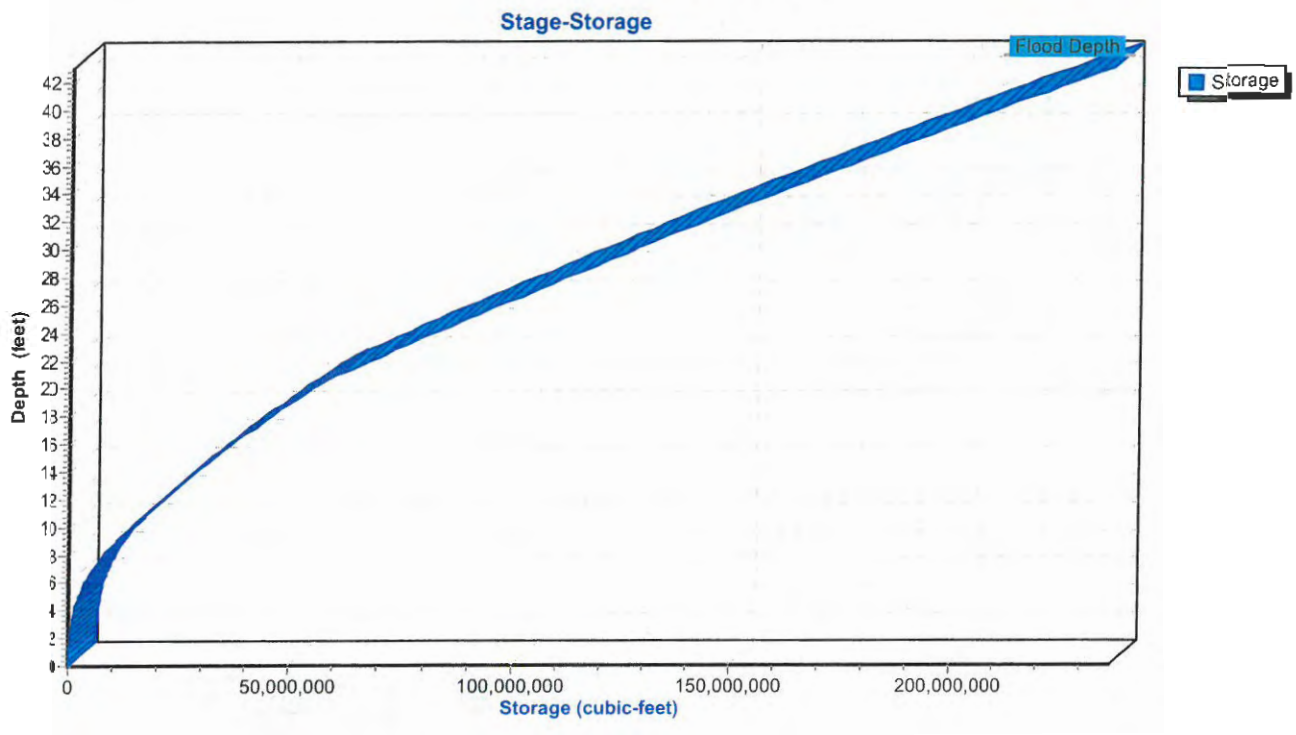
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 4.28" for 6-HR 0.3PMF event
Inflow = 4,850.76 cfs @ 5.69 hrs, Volume= 3,129.734 af
Outflow = 4,724.01 cfs @ 6.21 hrs, Volume= 3,090.854 af, Atten= 3%, Lag= 31.2 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.04 fps, Min. Travel Time= 41.1 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 77.8 min

Peak Storage= 11,657,657 cf @ 6.21 hrs
Average Depth at Peak Storage= 12.19'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

Custom cross-section, Length= 7,500.0' Slope= 0.0010 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,006.00', Outlet Invert= 998.50'

Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00	0.060	

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	12.0	0	0.00
6.00	217.5	182.0	1,631,250	246.41
20.00	3,868.8	345.2	29,015,833	17,663.27
24.00	5,401.0	429.5	40,507,500	27,141.14
26.00	6,498.5	677.1	48,738,750	33,993.67
28.00	8,071.0	904.6	60,532,500	42,389.29