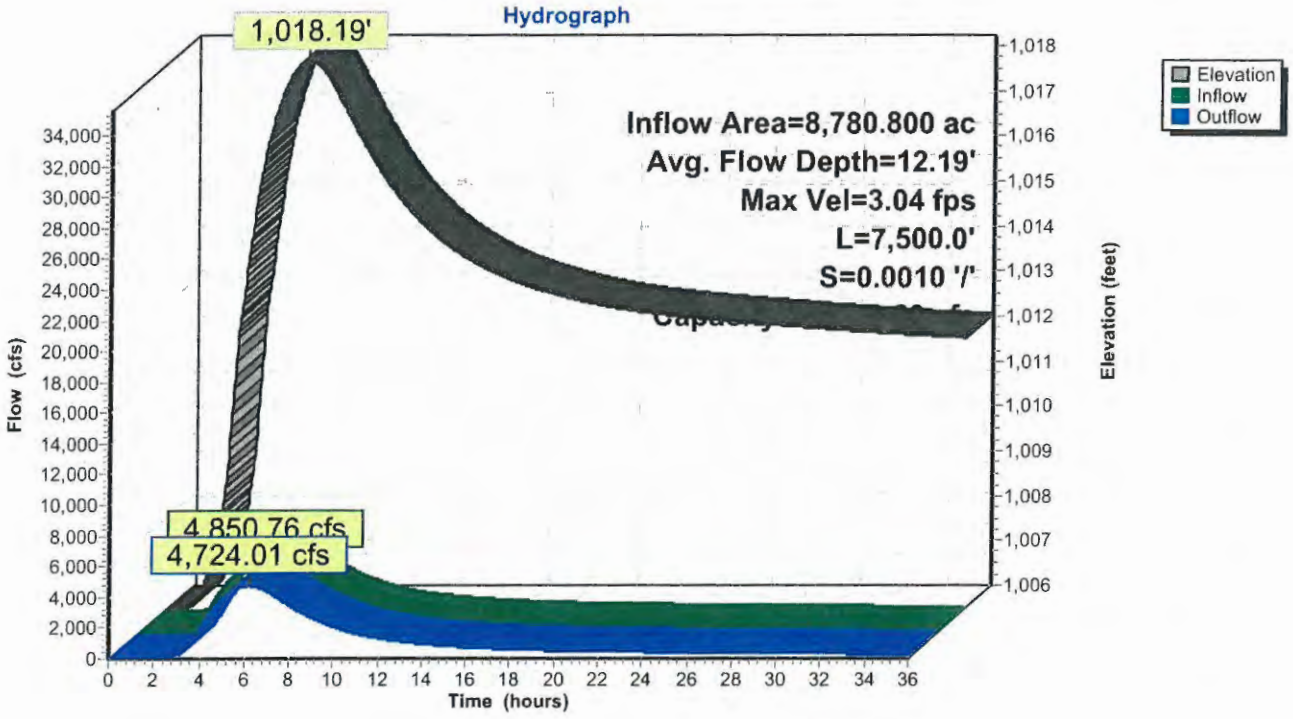
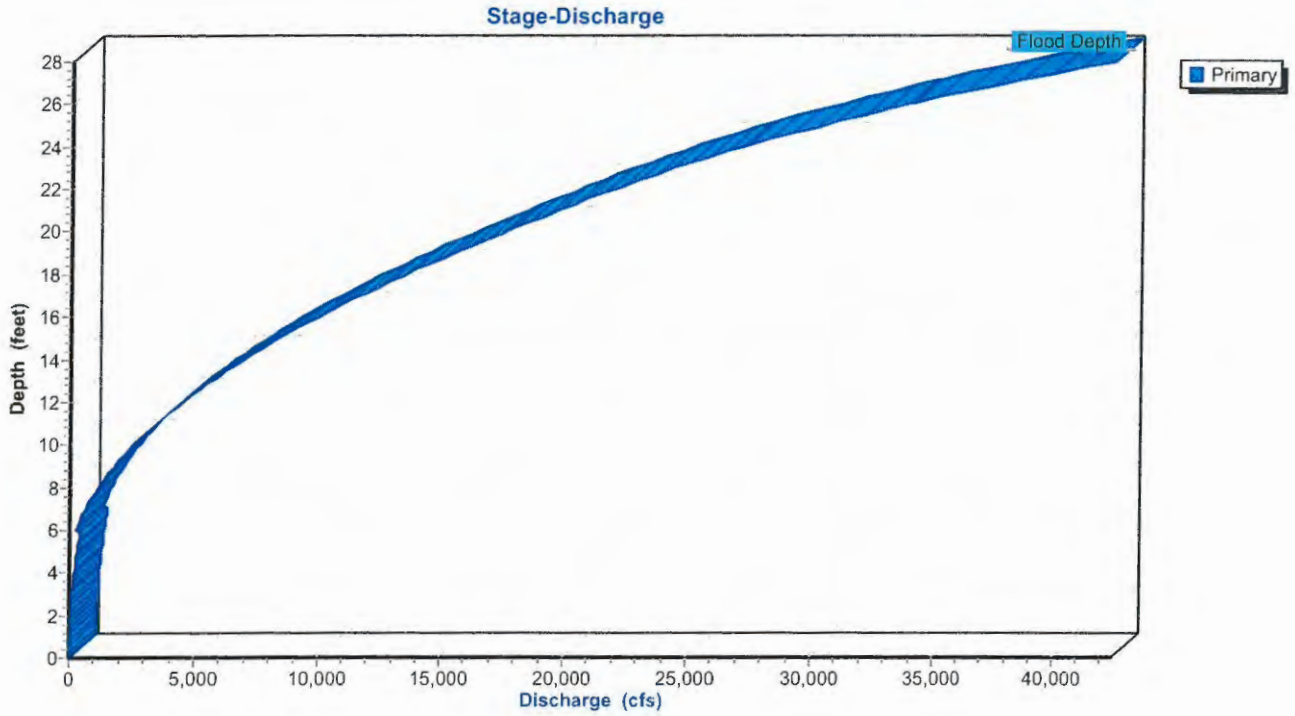
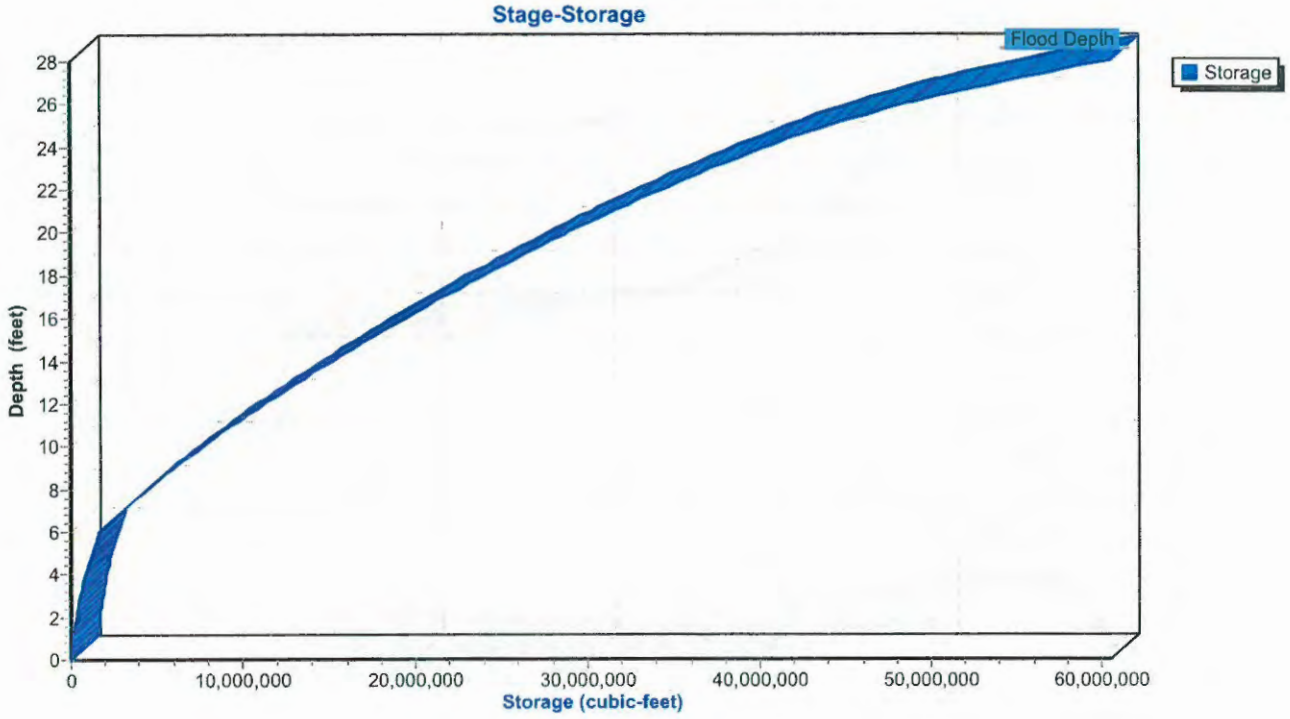
Reach 16R: Channel 16



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 > 4.30" for 6-HR 0.3PMF event
Inflow = 5,130.37 cfs @ 6.53 hrs, Volume= 3,387.226 af
Outflow = 5,130.36 cfs @ 6.54 hrs, Volume= 3,387.104 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= 10.01 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 8.84 fps, Avg. Travel Time= 0.8 min

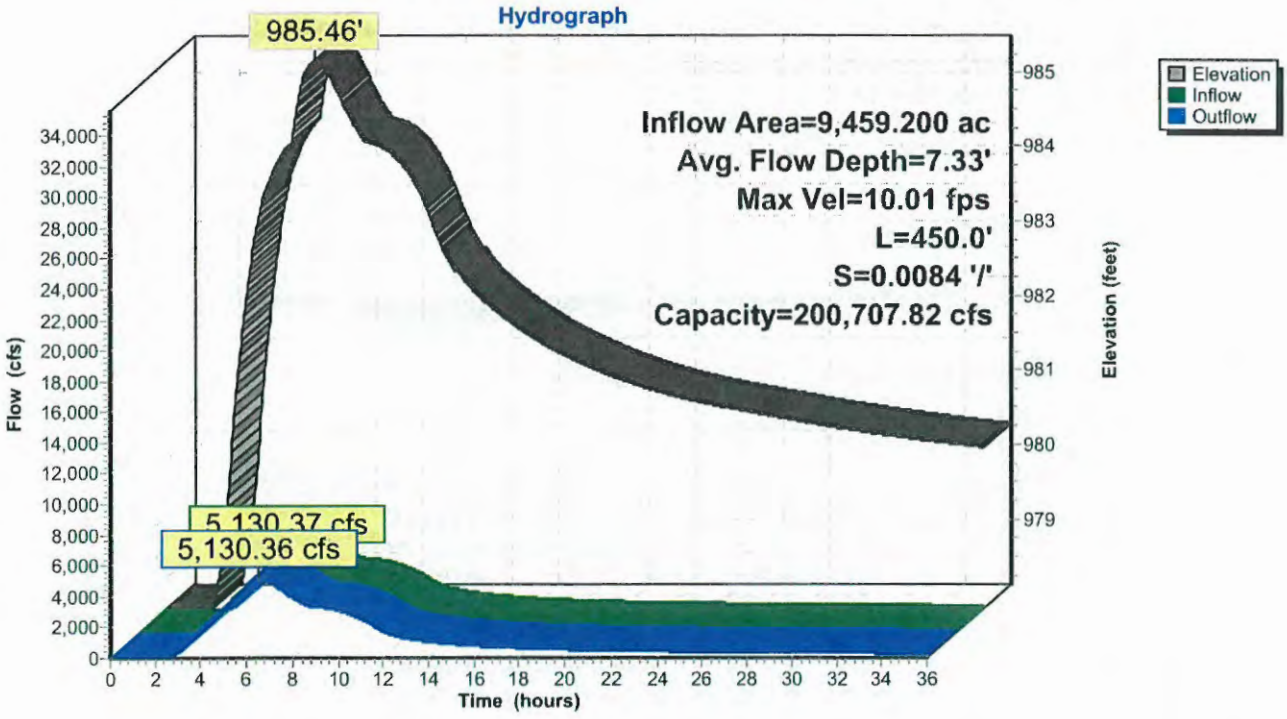
Peak Storage= 230,670 cf @ 6.54 hrs
Average Depth at Peak Storage= 7.33'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

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'

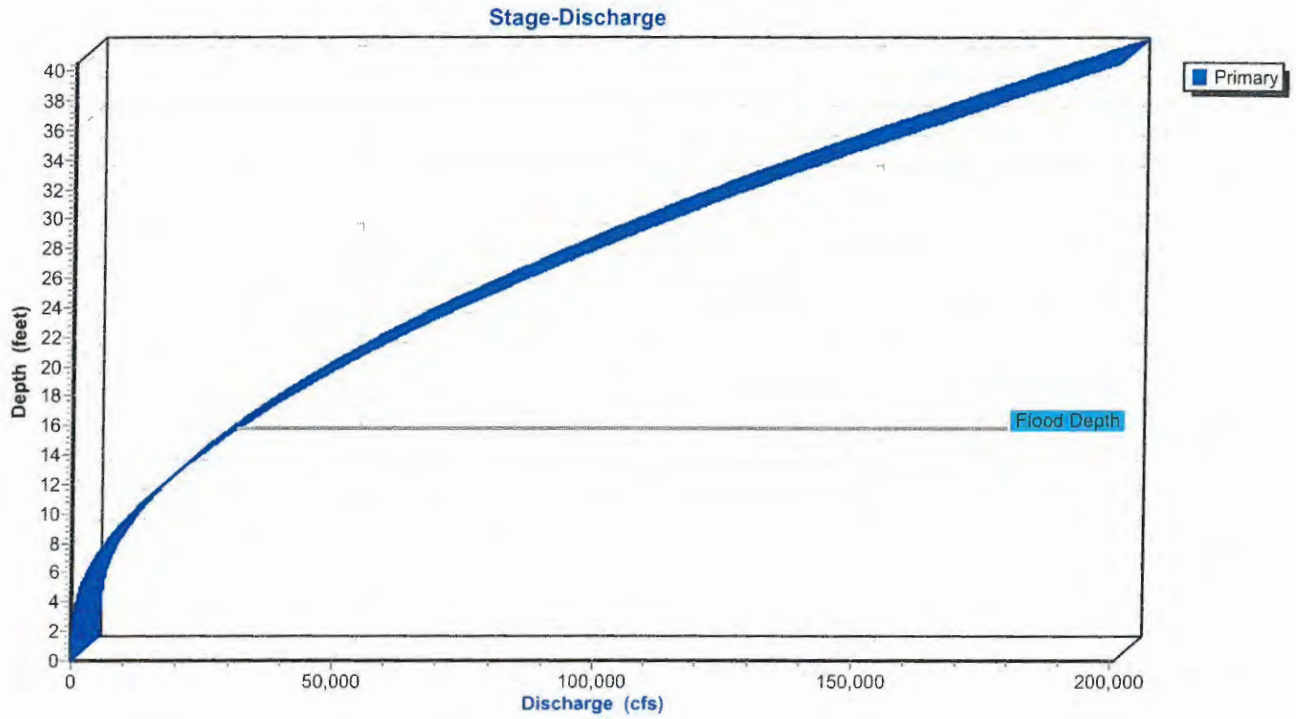
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, 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

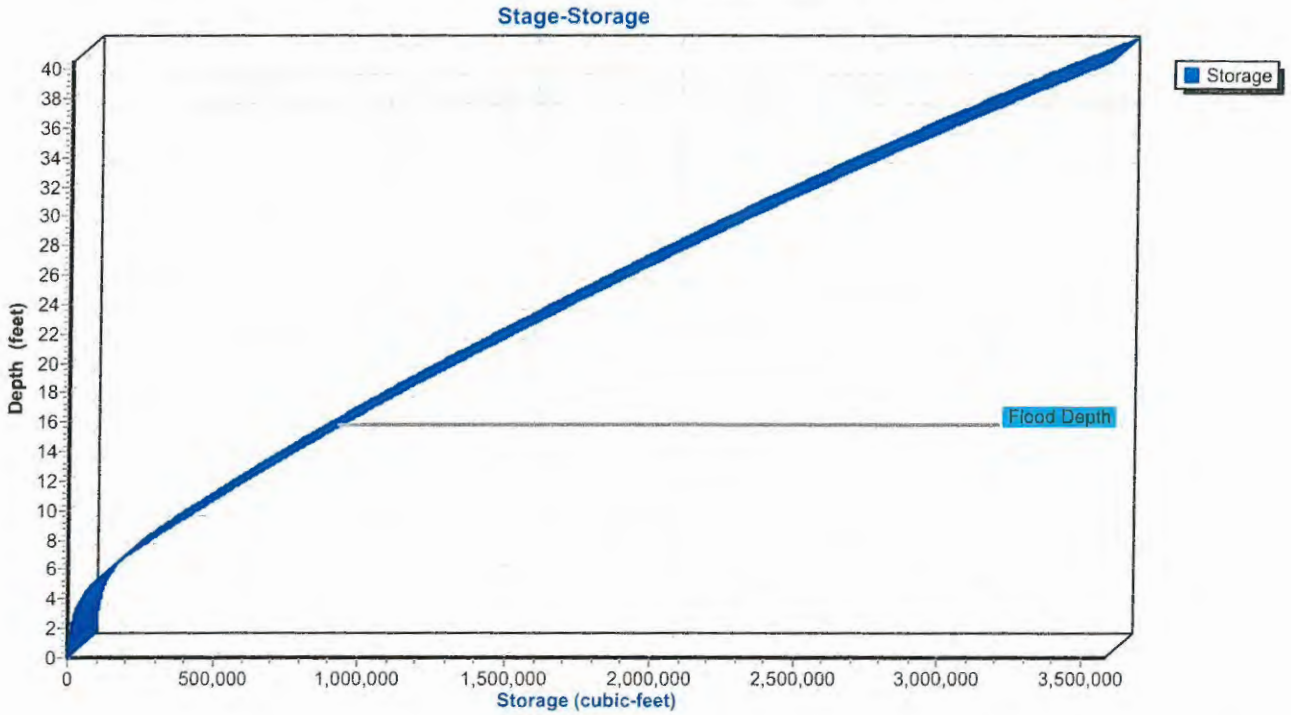
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

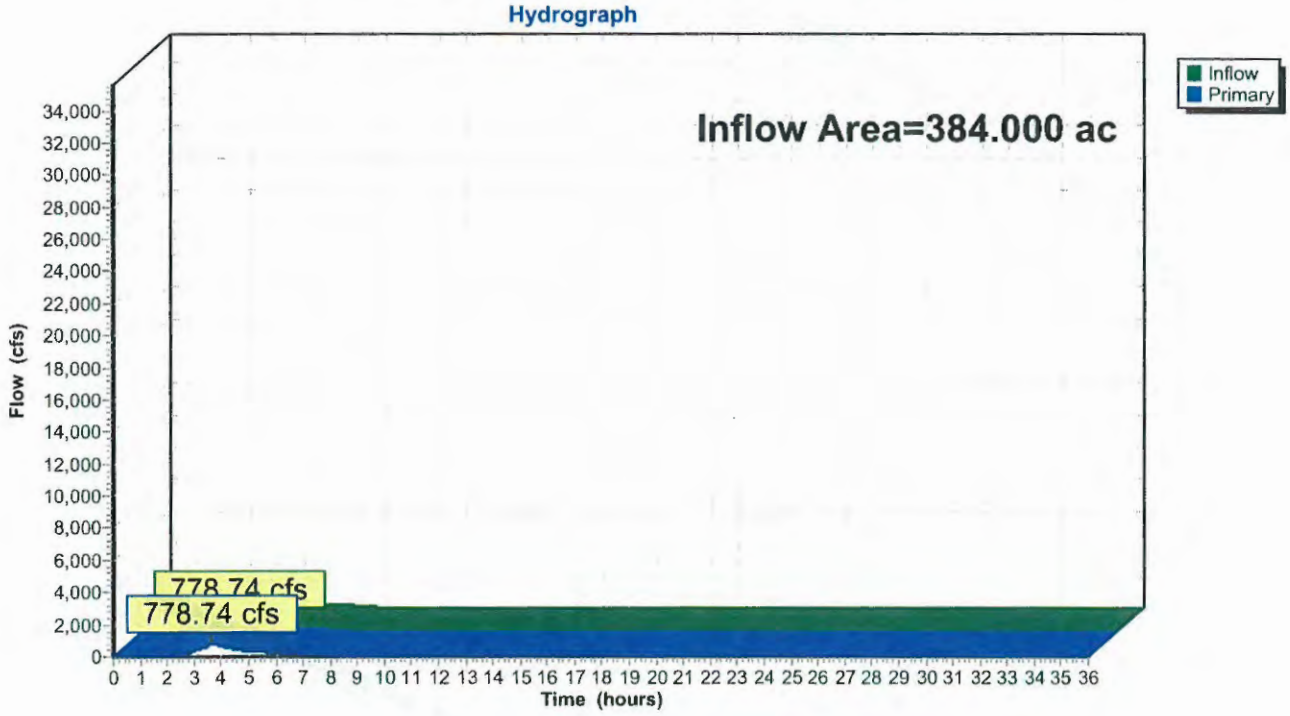


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 4.87" for 6-HR 0.3PMF event
Inflow = 778.74 cfs @ 3.63 hrs, Volume= 155.792 af
Primary = 778.74 cfs @ 3.64 hrs, Volume= 155.792 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 > 4.31" for 6-HR 0.3PMF event
Inflow = 5,227.19 cfs @ 6.14 hrs, Volume= 3,400.480 af
Outflow = 5,136.87 cfs @ 6.44 hrs, Volume= 3,388.495 af, Atten= 2%, Lag= 18.2 min
Primary = 2,577.41 cfs @ 4.79 hrs, Volume= 2,220.430 af
Secondary = 3,145.16 cfs @ 6.45 hrs, Volume= 1,120.857 af
Tertiary = 249.79 cfs @ 6.48 hrs, Volume= 47.208 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= 1,010.07' @ 6.50 hrs Surf.Area= 29.988 ac Storage= 196.431 af (135.469 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= 55.6 min calculated for 3,326.609 af (98% of inflow)
Center-of-Mass det. time= 16.0 min (671.8 - 655.7)

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

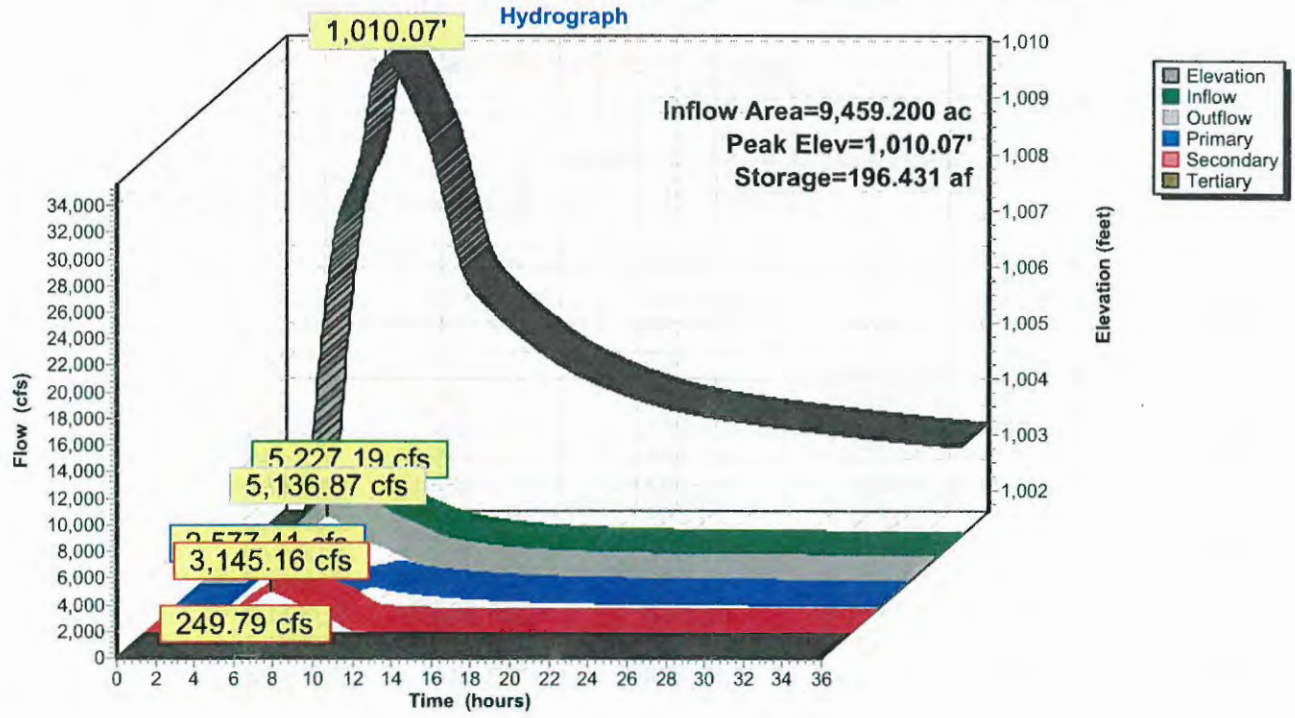
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	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=2,572.59 cfs @ 4.79 hrs HW=1,007.87' TW=1,001.89' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,572.59 cfs @ 8.26 fps)

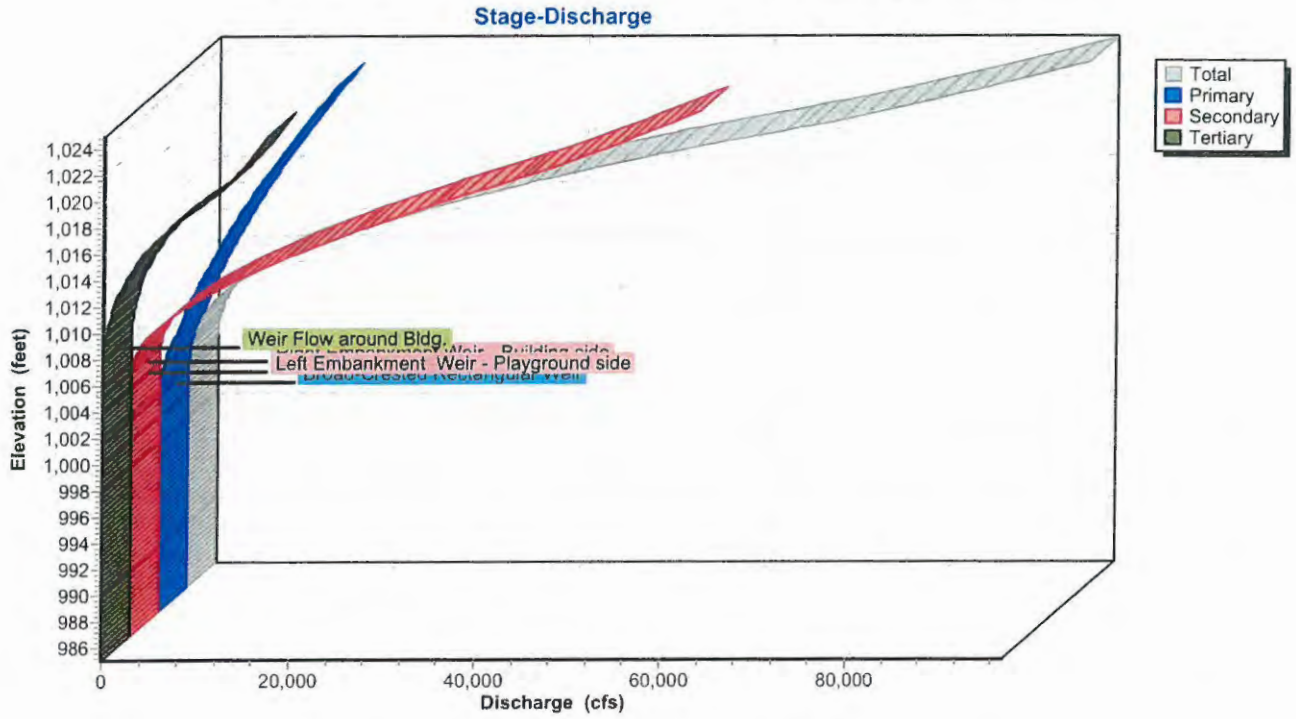
Secondary OutFlow Max=3,143.18 cfs @ 6.45 hrs HW=1,010.07' TW=1,009.43' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 1,176.73 cfs @ 3.71 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 1,966.46 cfs @ 3.64 fps)

Tertiary OutFlow Max=249.71 cfs @ 6.48 hrs HW=1,010.07' TW=1,009.43' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Weir Controls 249.71 cfs @ 1.71 fps)

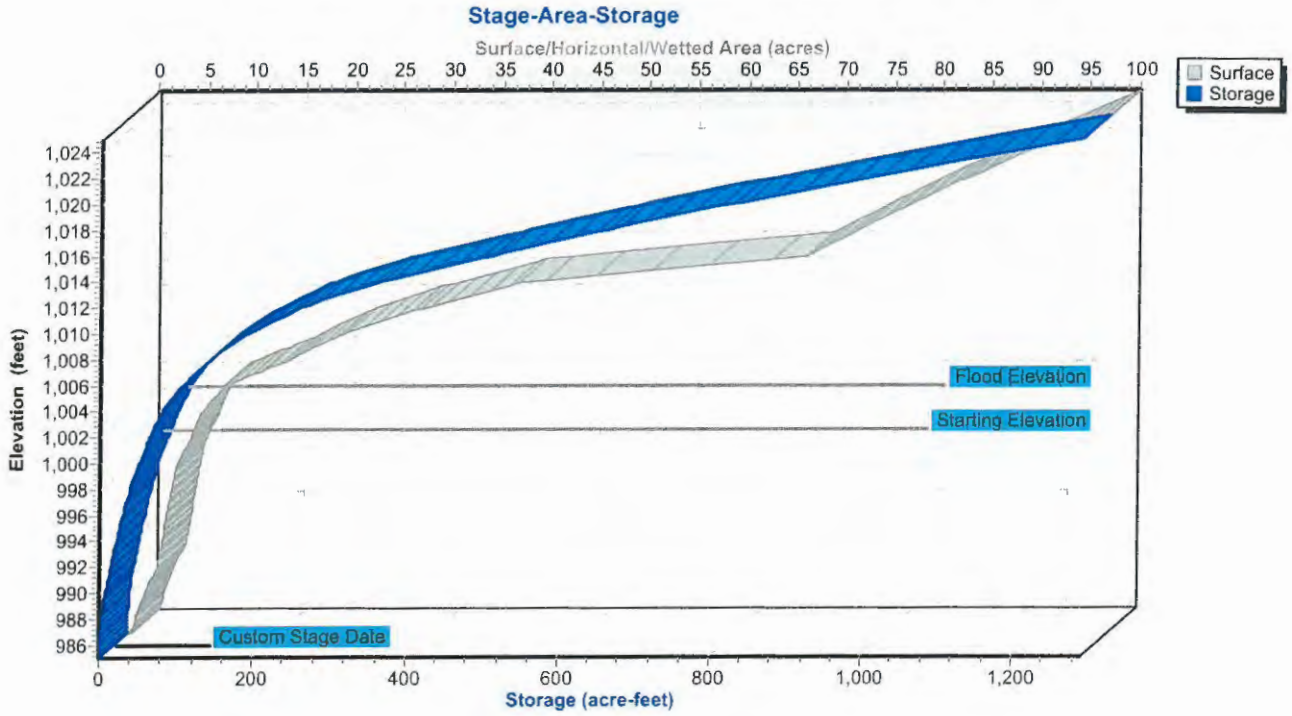
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

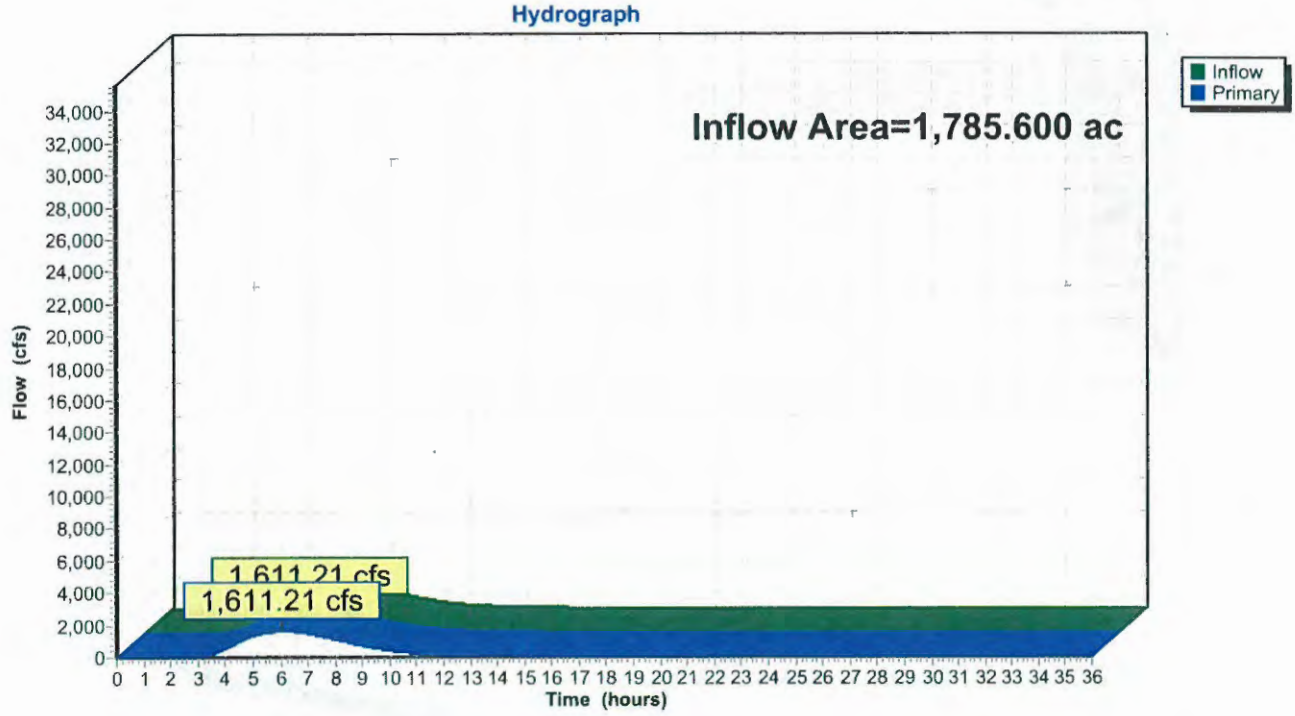


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 4.45" for 6-HR 0.3PMF event
Inflow = 1,611.21 cfs @ 6.03 hrs, Volume= 661.646 af
Primary = 1,611.21 cfs @ 6.04 hrs, Volume= 661.646 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 > 4.45" for 6-HR 0.3PMF event
Inflow = 1,611.21 cfs @ 6.04 hrs, Volume= 661.645 af
Outflow = 485.20 cfs @ 9.72 hrs, Volume= 821.634 af, Atten= 70%, Lag= 220.3 min
Primary = 485.20 cfs @ 9.72 hrs, Volume= 821.634 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= 1,098.76' @ 9.72 hrs Surf.Area= 269.382 ac Storage= 2,247.881 af (333.881 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= 502.7 min (948.6 - 445.8)

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

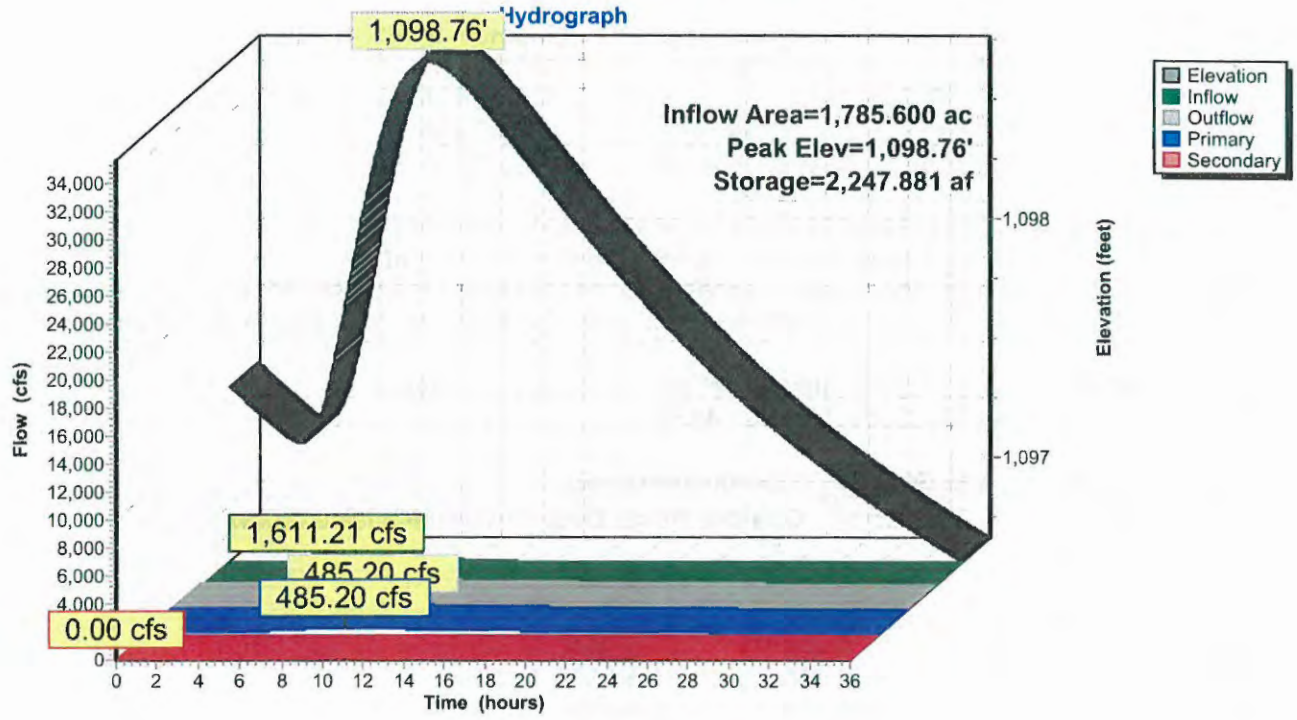
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

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

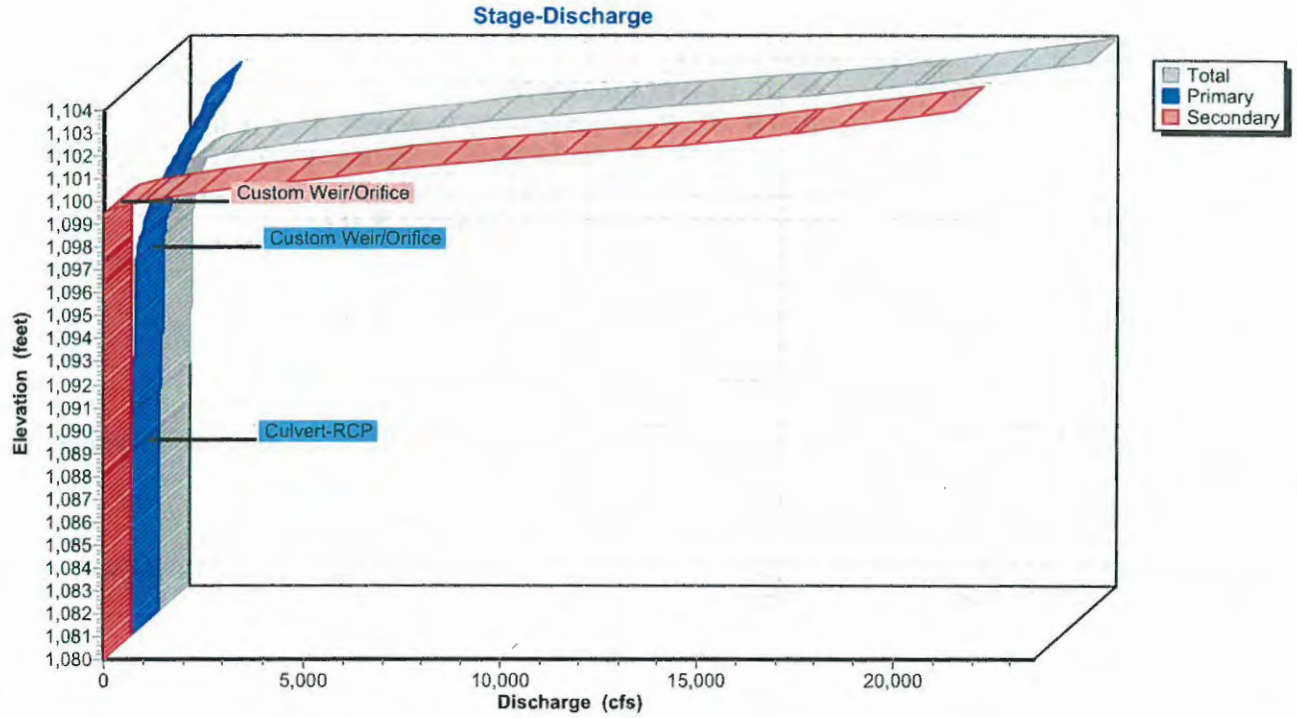
Primary OutFlow Max=485.19 cfs @ 9.72 hrs HW=1,098.76' TW=1,072.53' (Dynamic Tailwater)
↑—**1=Culvert-RCP** (Barrel Controls 127.97 cfs @ 18.10 fps)
└—**2=Custom Weir/Orifice** (Weir Controls 357.22 cfs @ 5.04 fps)

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)

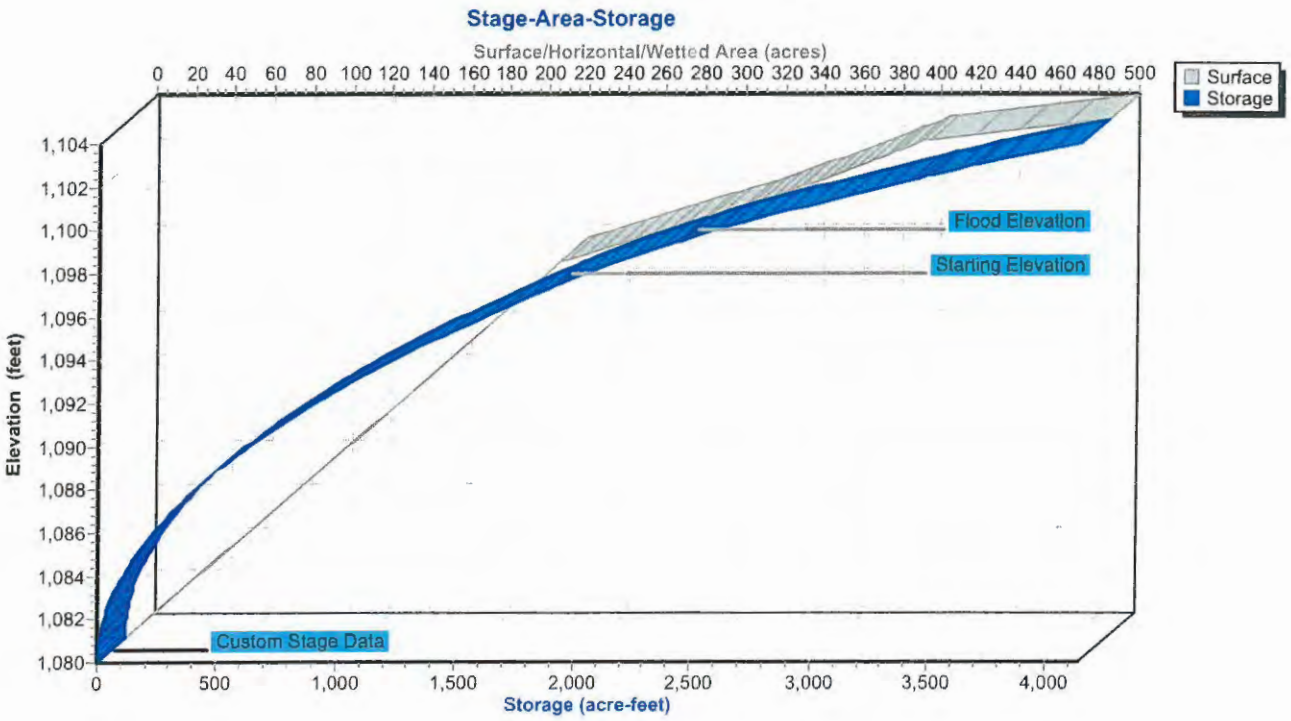
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

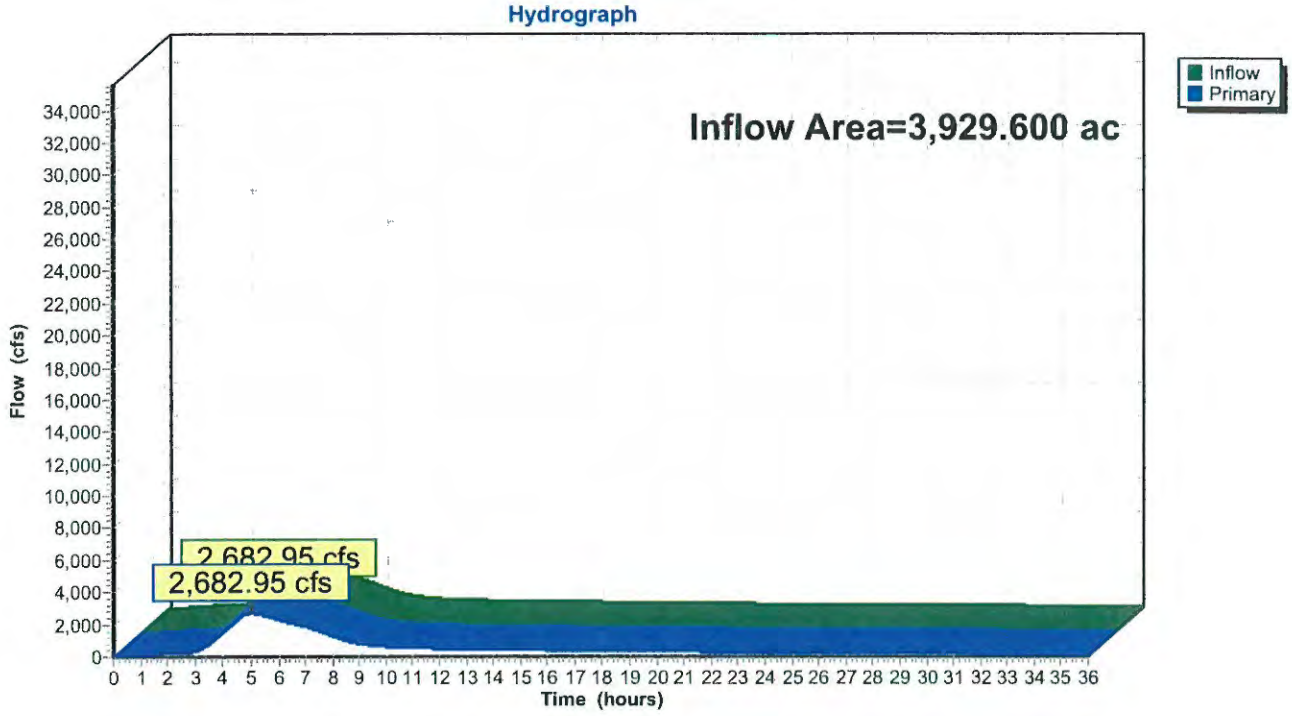


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 4.73" for 6-HR 0.3PMF event
Inflow = 2,682.95 cfs @ 5.00 hrs, Volume= 1,550.378 af
Primary = 2,682.95 cfs @ 5.01 hrs, Volume= 1,550.378 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 > 4.87" for 6-HR 0.3PMF event
Inflow = 778.74 cfs @ 3.64 hrs, Volume= 155.792 af
Outflow = 285.17 cfs @ 5.44 hrs, Volume= 155.242 af, Atten= 63%, Lag= 108.5 min
Primary = 285.17 cfs @ 5.44 hrs, Volume= 155.242 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= 1,108.61' @ 5.44 hrs Surf.Area= 29.904 ac Storage= 98.658 af (74.358 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= 329.5 min calculated for 130.942 af (84% of inflow)
Center-of-Mass det. time= 233.8 min (533.6 - 299.8)

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

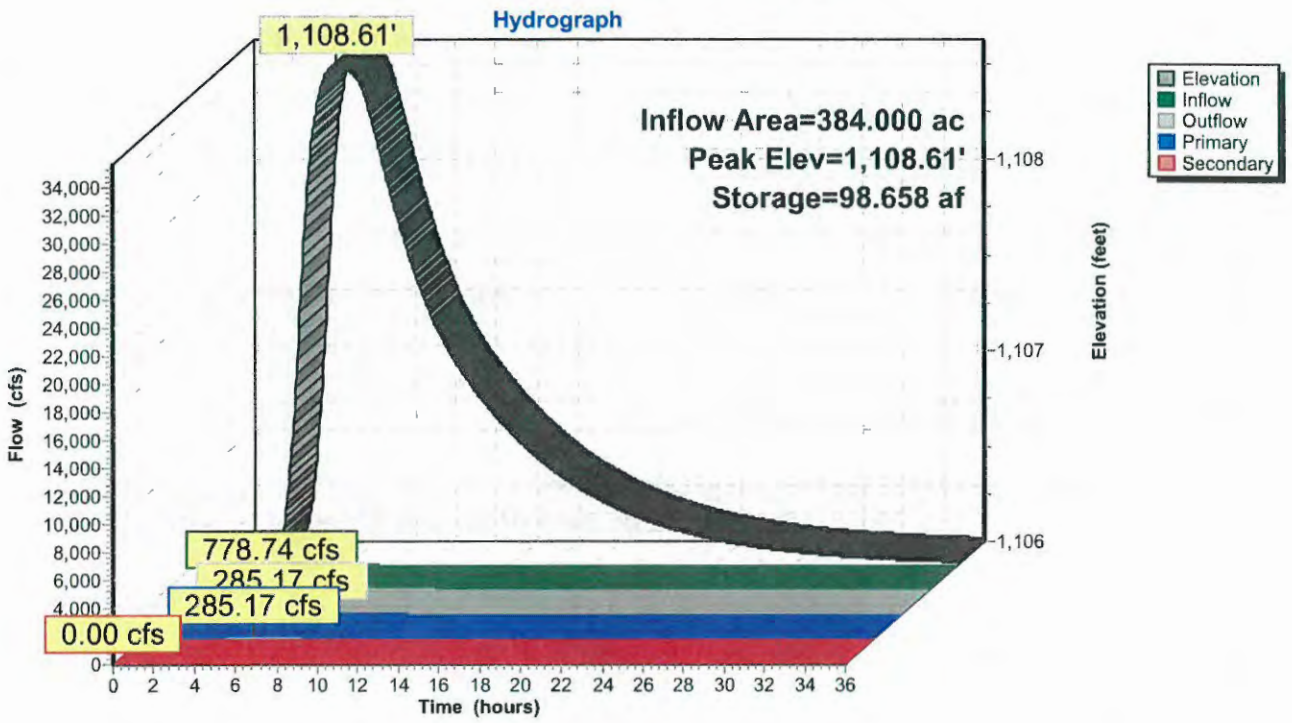
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

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

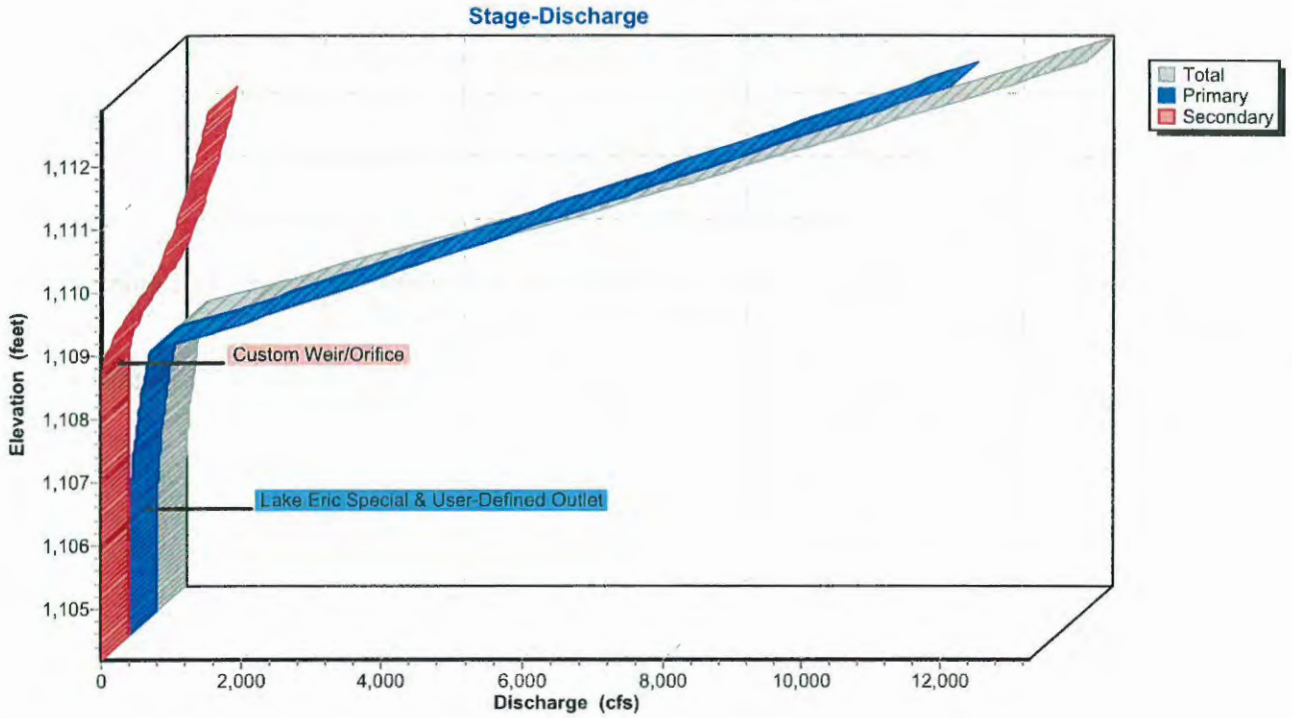
Primary OutFlow Max=285.17 cfs @ 5.44 hrs HW=1,108.61' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet** (Custom Controls 285.17 cfs)

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)

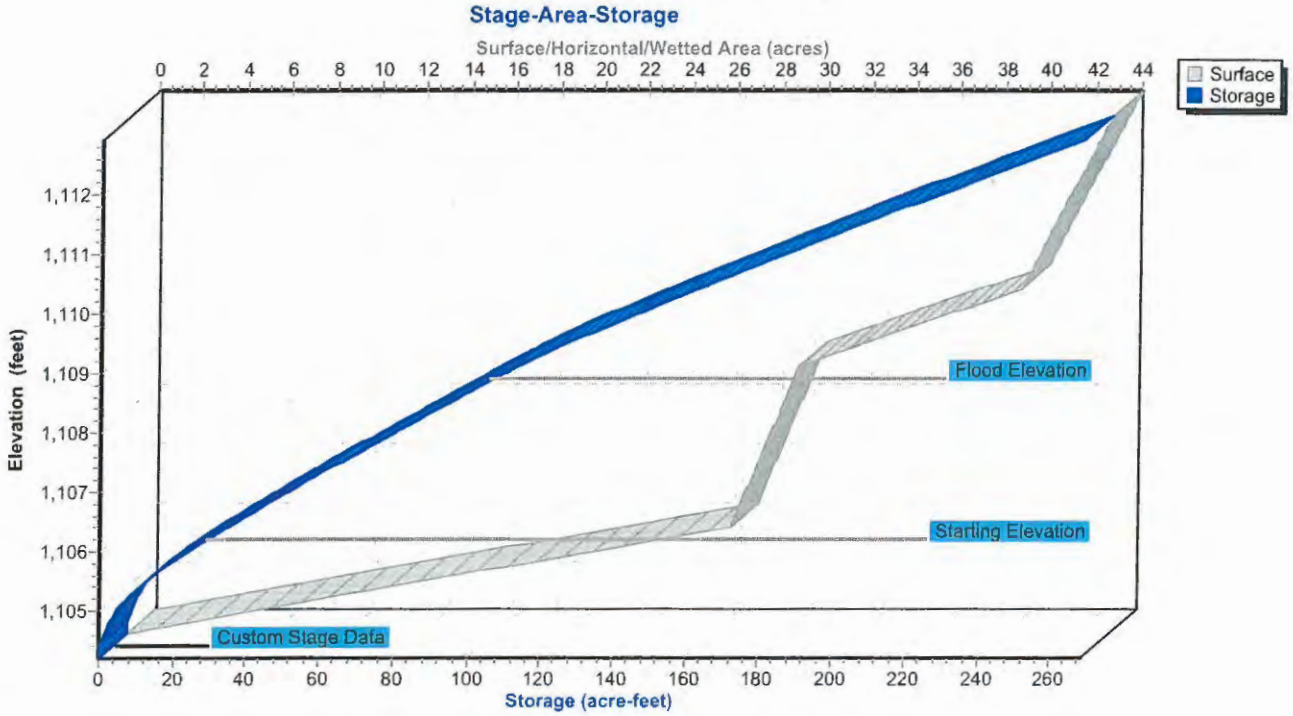
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

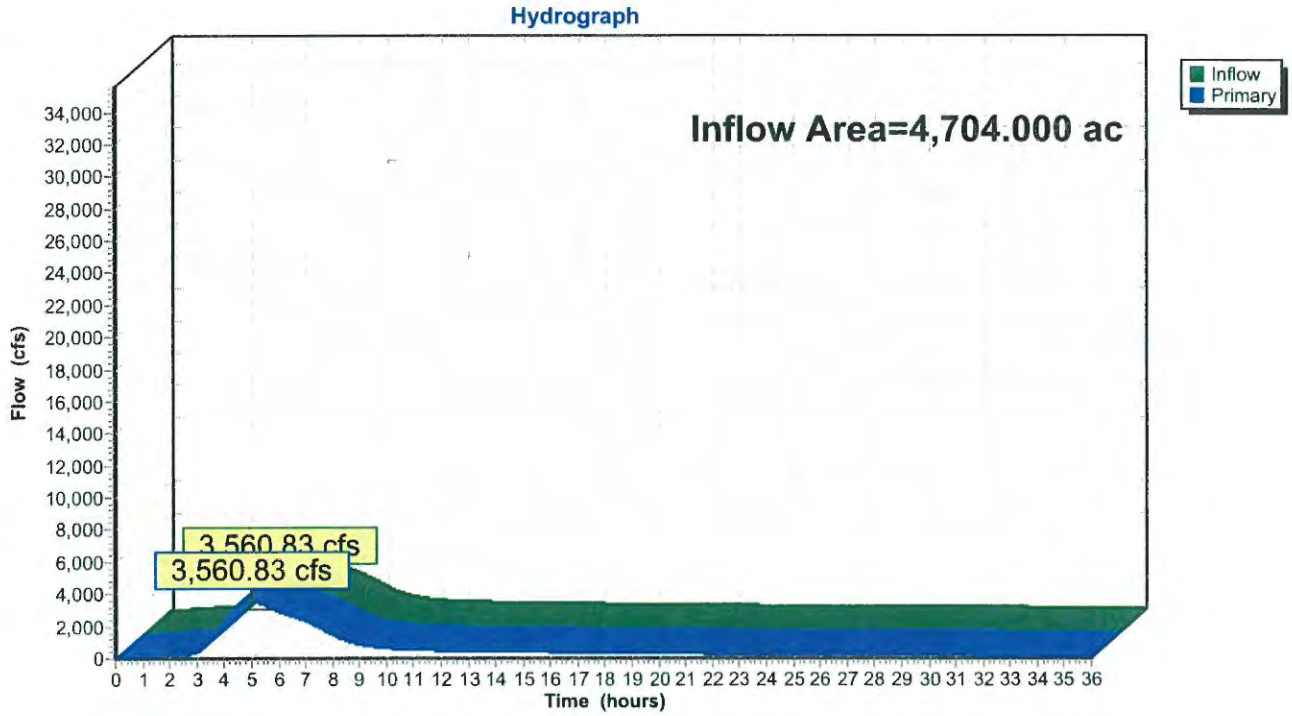


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 4.61" for 6-HR 0.3PMF event
Inflow = 3,560.83 cfs @ 4.97 hrs, Volume= 1,808.211 af
Primary = 3,560.83 cfs @ 4.98 hrs, Volume= 1,808.211 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 = 4.79" for 6-HR 0.3PMF event
Inflow = 255.72 cfs @ 3.28 hrs, Volume= 46.001 af
Outflow = 231.20 cfs @ 3.63 hrs, Volume= 45.886 af, Atten= 10%, Lag= 21.0 min
Primary = 187.13 cfs @ 3.63 hrs, Volume= 43.300 af
Secondary = 44.07 cfs @ 3.63 hrs, Volume= 2.586 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= 1,120.22' @ 3.63 hrs Surf.Area= 4.287 ac Storage= 28.434 af (14.744 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= 242.1 min calculated for 32.196 af (70% of inflow)
Center-of-Mass det. time= 136.1 min (382.1 - 246.0)

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

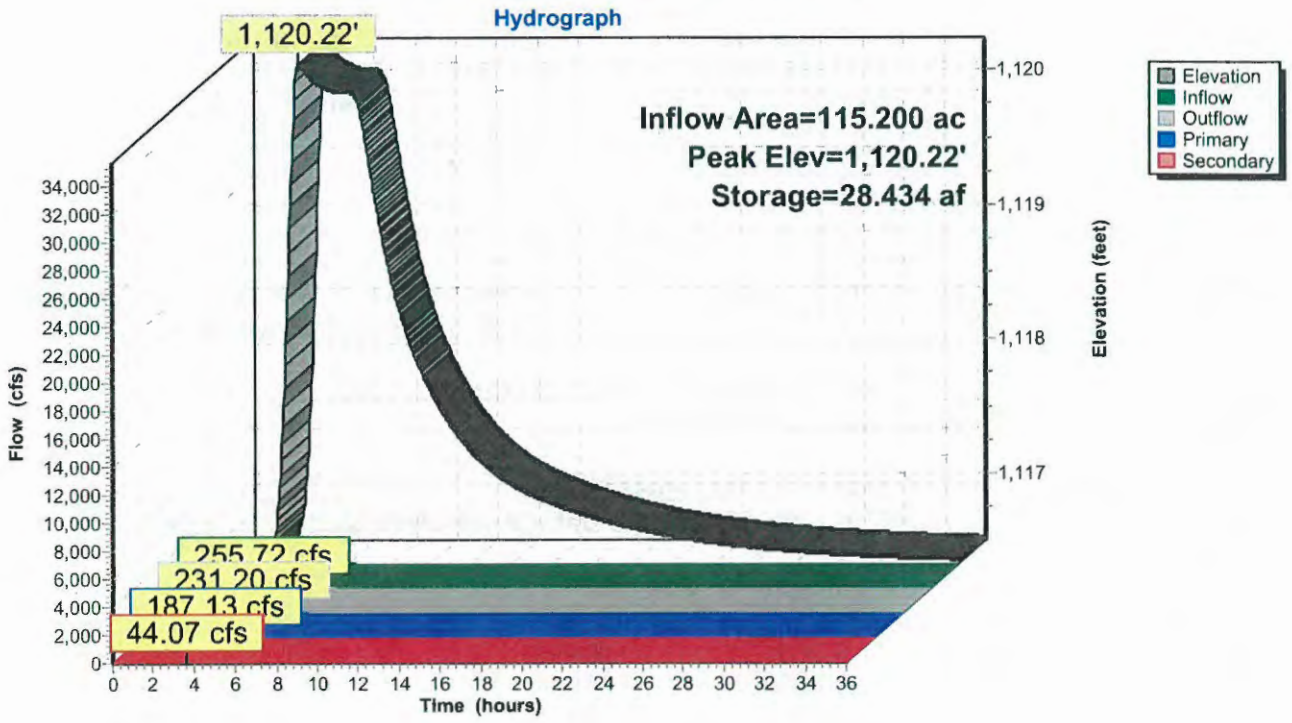
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

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

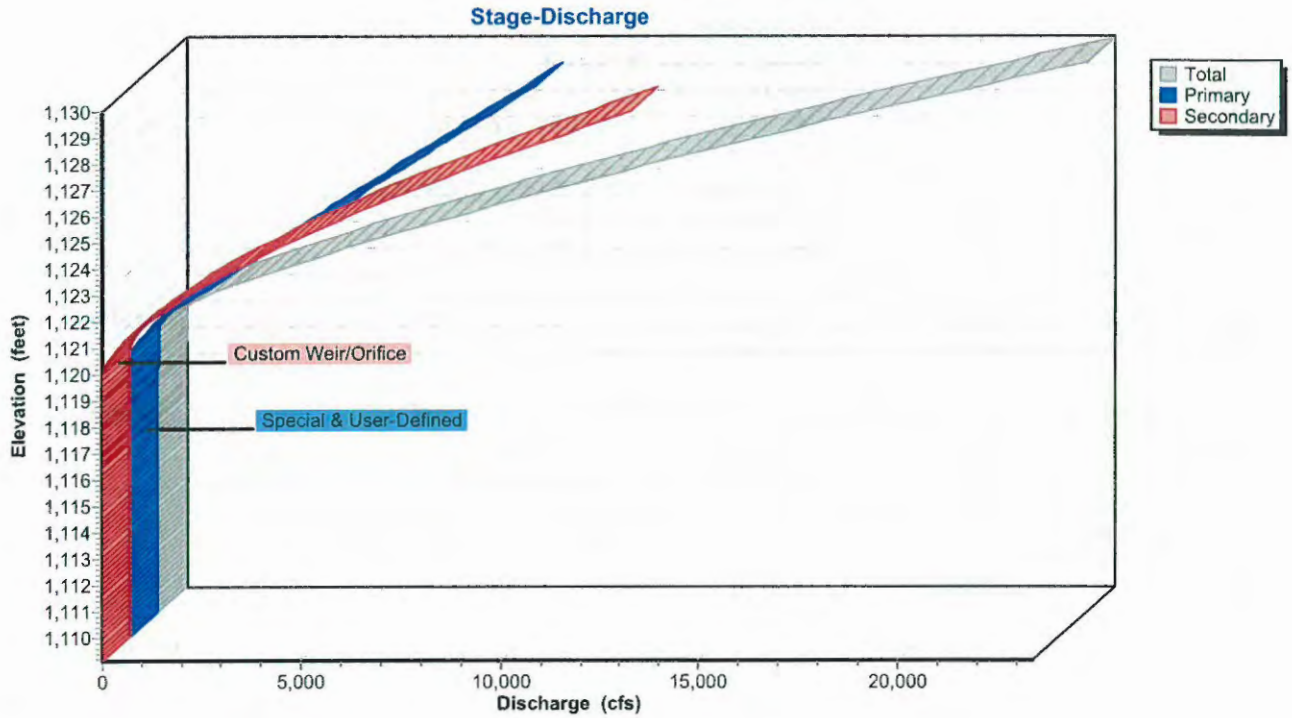
Primary OutFlow Max=187.11 cfs @ 3.63 hrs HW=1,120.22' TW=0.00' (Dynamic Tailwater)
↑**1=Special & User-Defined** (Custom Controls 187.11 cfs)

Secondary OutFlow Max=44.06 cfs @ 3.63 hrs HW=1,120.22' TW=0.00' (Dynamic Tailwater)
↑**2=Custom Weir/Orifice** (Weir Controls 44.06 cfs @ 1.32 fps)

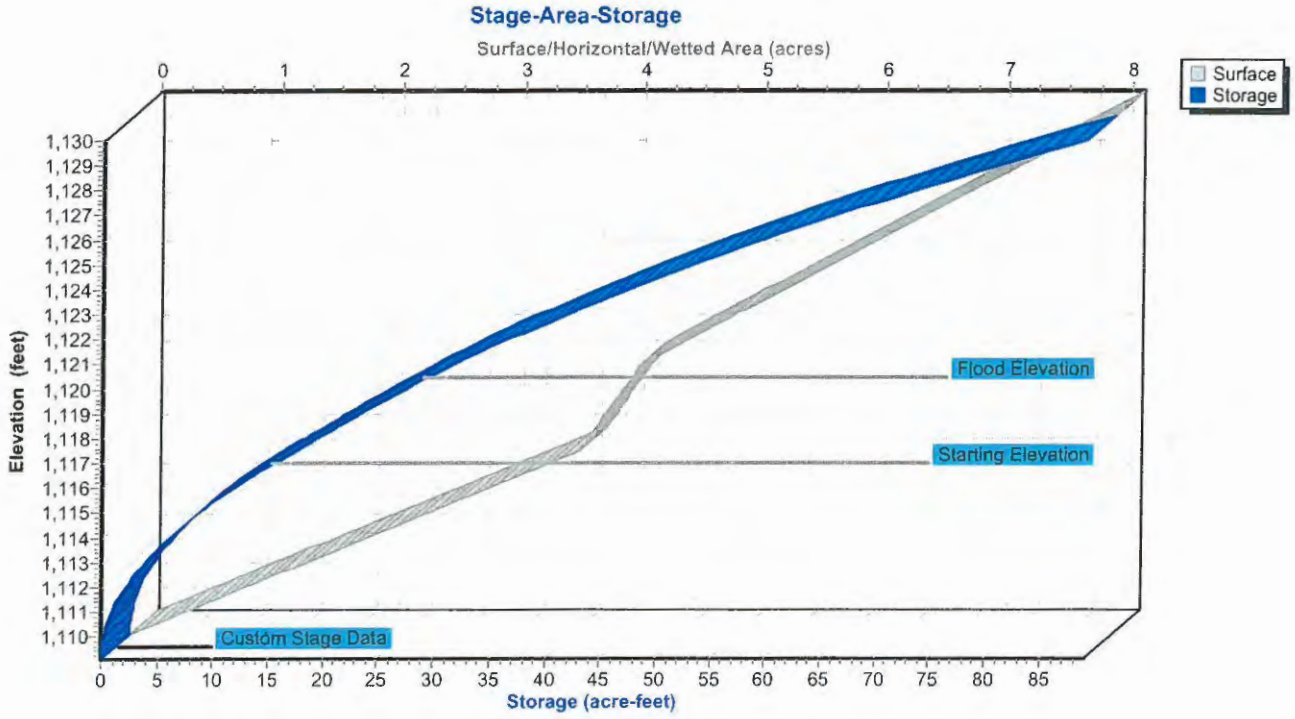
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

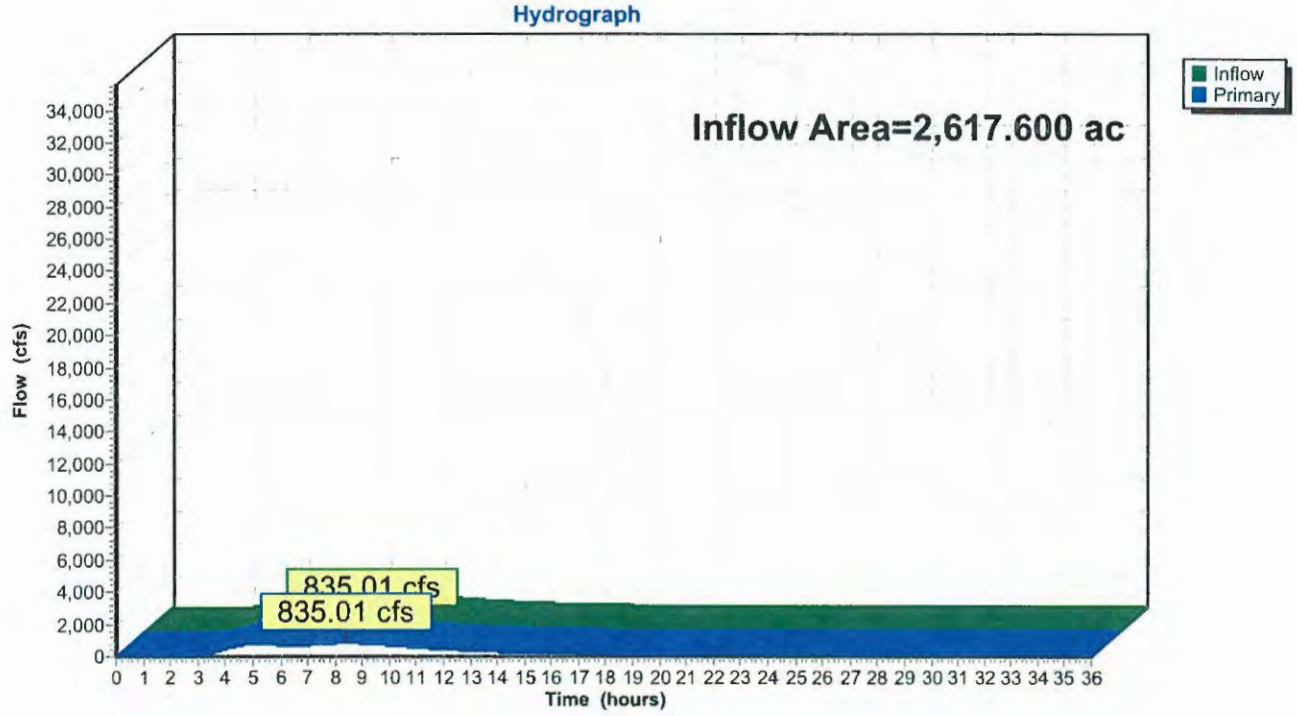


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 3.52" for 6-HR 0.3PMF event
Inflow = 835.01 cfs @ 8.35 hrs, Volume= 768.042 af
Primary = 835.01 cfs @ 8.36 hrs, Volume= 768.042 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

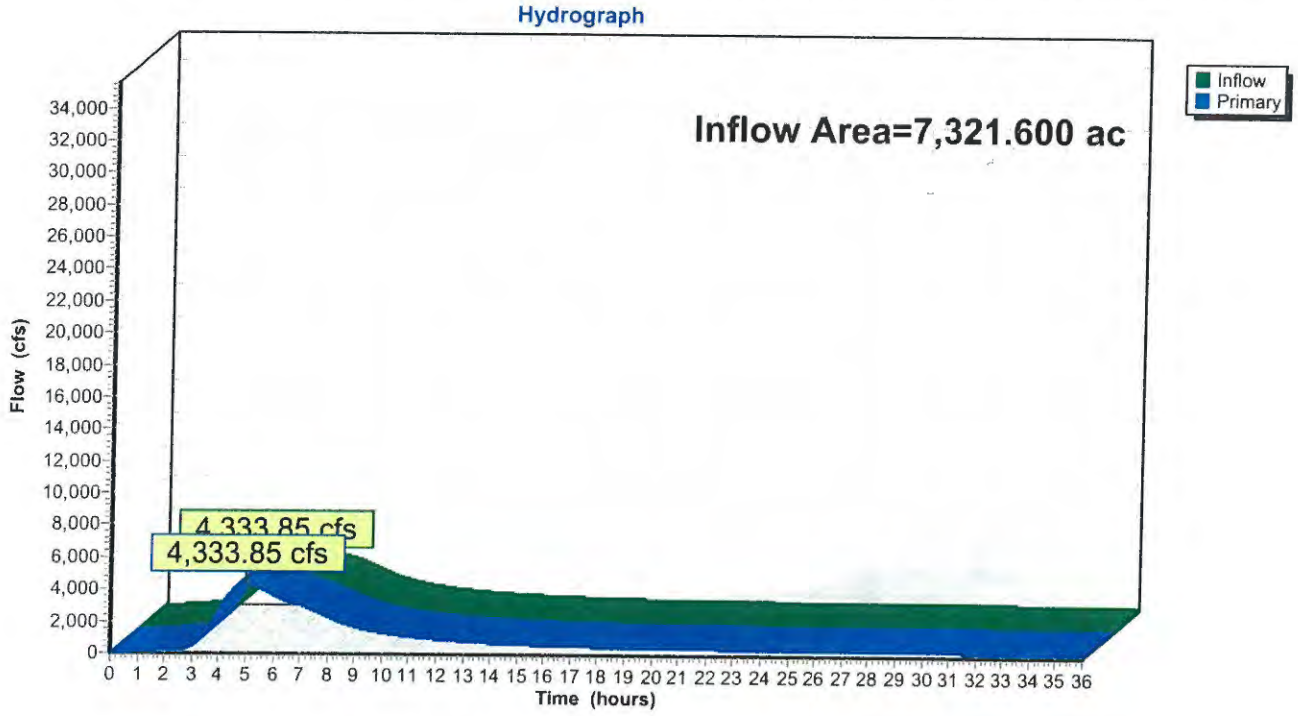


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 4.22" for 6-HR 0.3PMF event
Inflow = 4,333.85 cfs @ 5.01 hrs, Volume= 2,576.056 af
Primary = 4,333.85 cfs @ 5.02 hrs, Volume= 2,576.056 af, Atten= 0%, Lag= 0.6 min

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

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

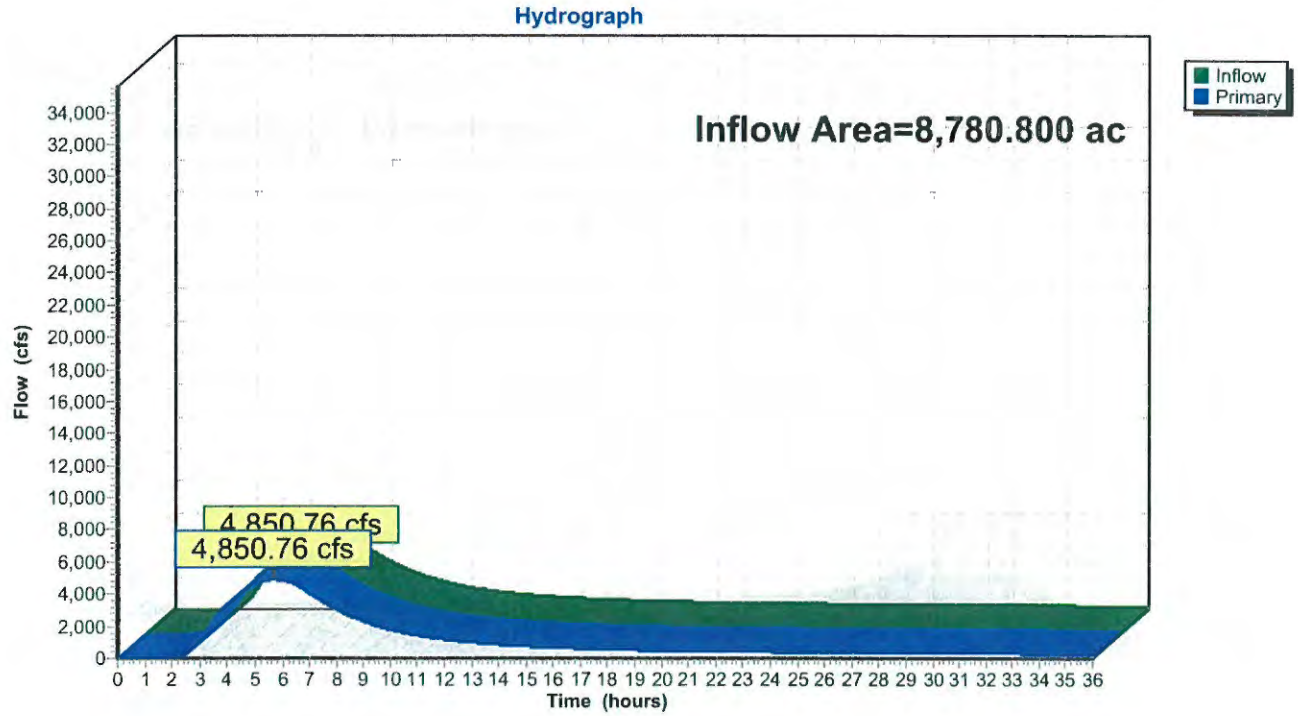


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 4.28" for 6-HR 0.3PMF event
Inflow = 4,850.76 cfs @ 5.68 hrs, Volume= 3,129.942 af
Primary = 4,850.76 cfs @ 5.69 hrs, Volume= 3,129.942 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 > 4.34" for 6-HR 0.3PMF event
Inflow = 2,291.87 cfs @ 5.70 hrs, Volume= 710.504 af
Outflow = 719.13 cfs @ 8.87 hrs, Volume= 551.538 af, Atten= 69%, Lag= 190.3 min
Primary = 127.72 cfs @ 6.64 hrs, Volume= 286.933 af
Secondary = 625.18 cfs @ 8.88 hrs, Volume= 264.604 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,026.15' @ 8.88 hrs Surf.Area= 178.706 ac Storage= 487.763 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 567.3 min calculated for 551.538 af (78% of inflow)
Center-of-Mass det. time= 509.4 min (943.6 - 434.2)

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

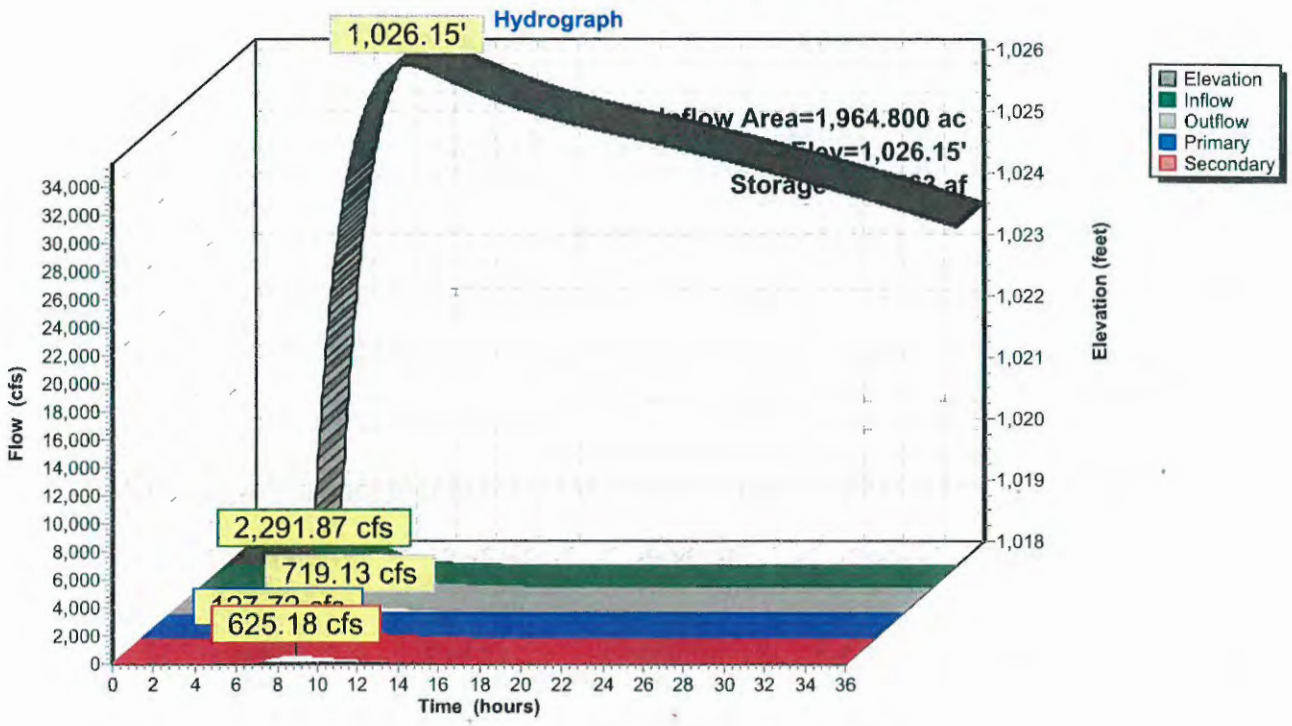
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	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

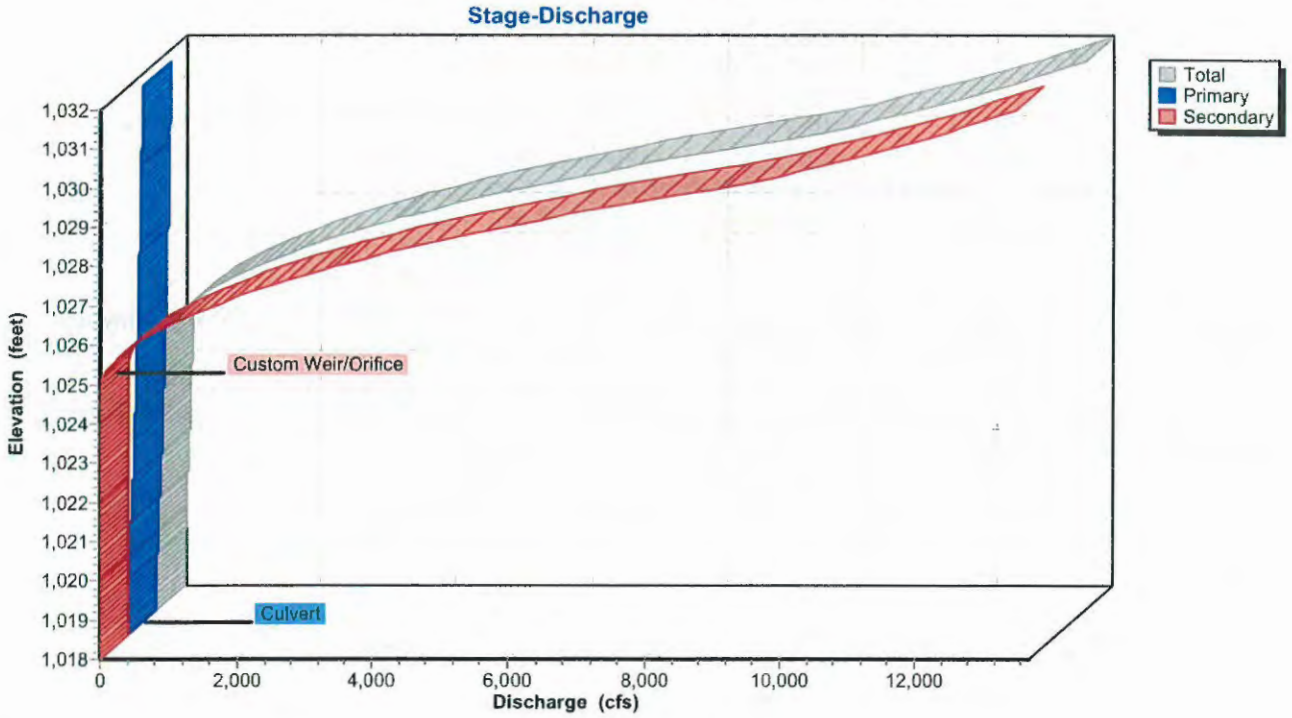
Primary OutFlow Max=127.36 cfs @ 6.64 hrs HW=1,025.17' TW=1,020.74' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 127.36 cfs @ 10.13 fps)

Secondary OutFlow Max=625.18 cfs @ 8.88 hrs HW=1,026.15' TW=1,023.74' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 625.18 cfs @ 3.34 fps)

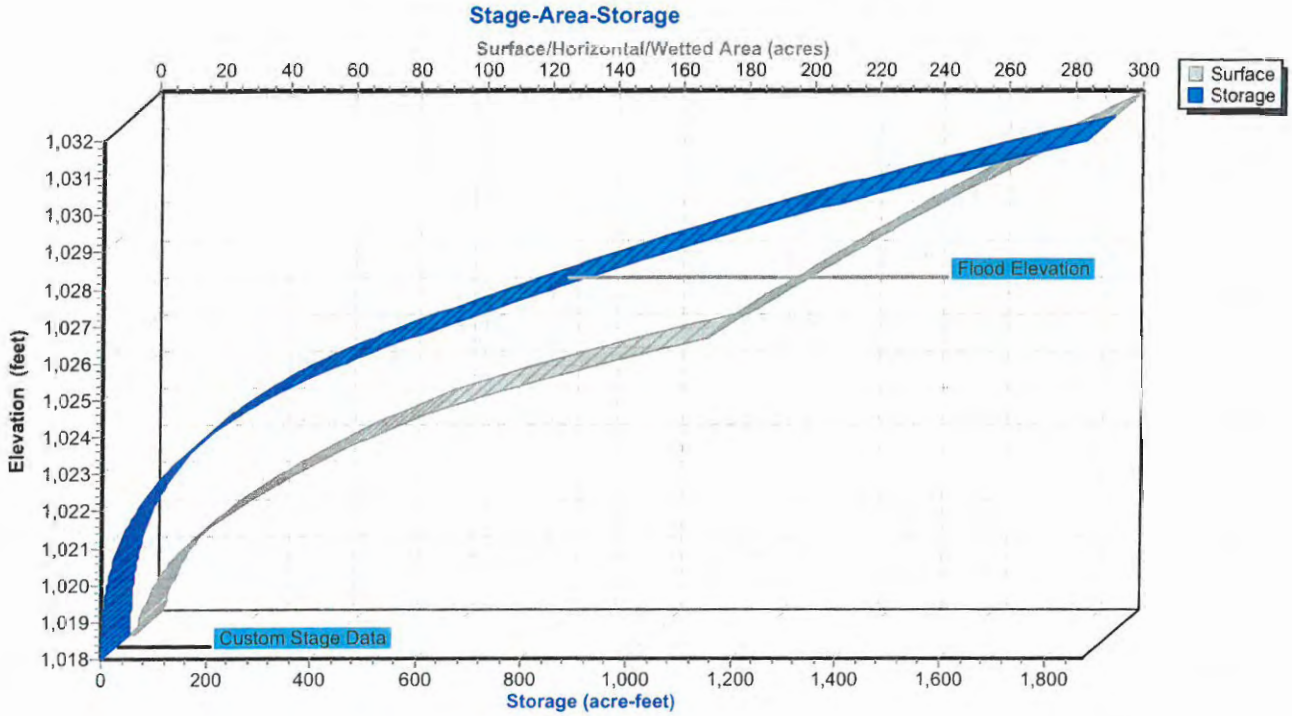
Pond 8P: Storage Area Genoa Rd



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 = 4.91" for 6-HR 0.3PMF event
Inflow = 2,637.72 cfs @ 5.02 hrs, Volume= 803.362 af
Outflow = 2,291.87 cfs @ 5.70 hrs, Volume= 710.505 af, Atten= 13%, Lag= 41.0 min
Primary = 2,283.97 cfs @ 5.70 hrs, Volume= 709.810 af
Secondary = 7.91 cfs @ 5.70 hrs, Volume= 0.695 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= 1,029.49' @ 5.70 hrs Surf.Area= 106.557 ac Storage= 462.933 af (242.933 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= 199.7 min calculated for 490.505 af (61% of inflow)
Center-of-Mass det. time= 85.2 min (434.2 - 349.0)

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

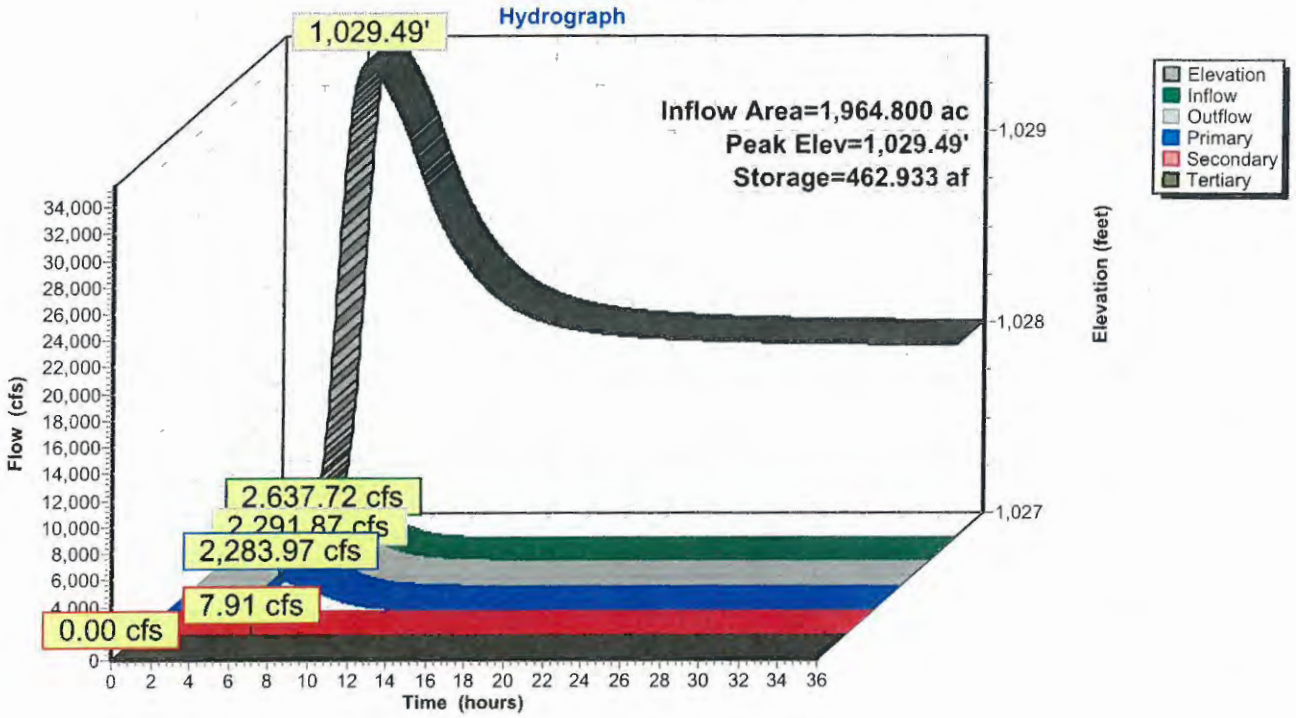
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular 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=2,283.96 cfs @ 5.70 hrs HW=1,029.49' TW=1,023.70' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,433.21 cfs @ 3.21 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 850.75 cfs @ 2.61 fps)

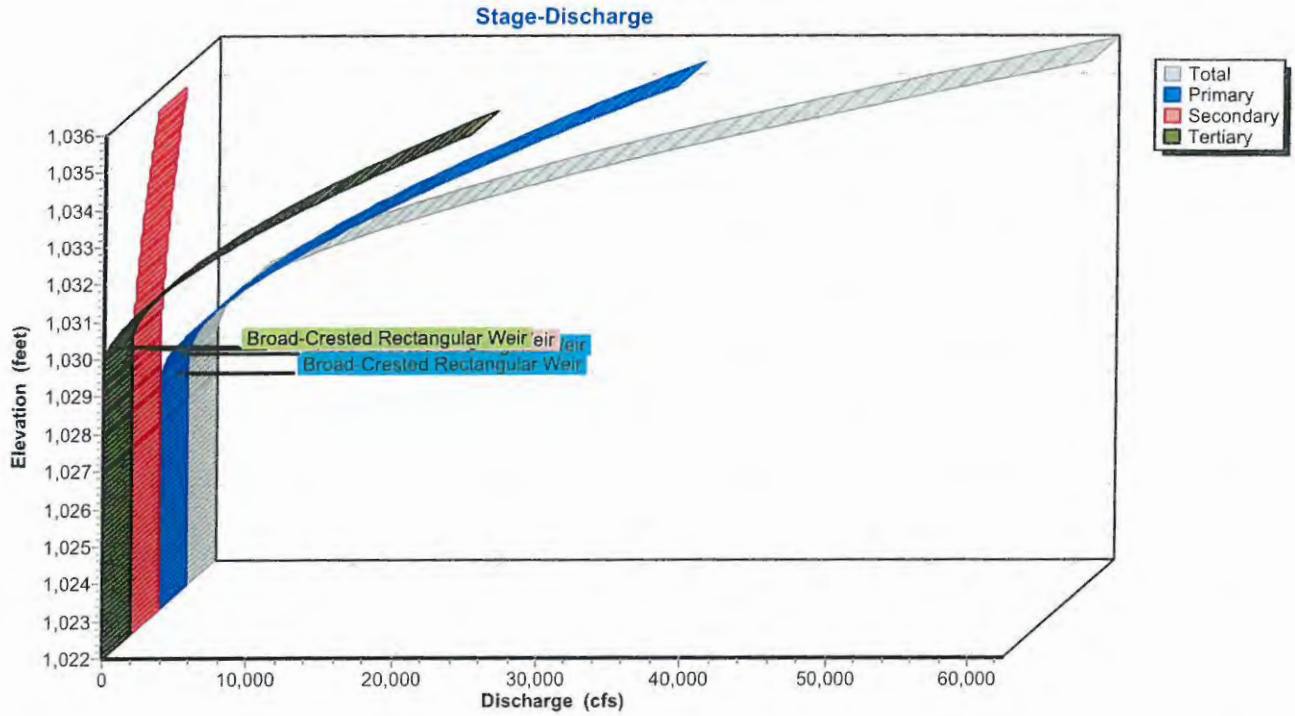
Secondary OutFlow Max=7.91 cfs @ 5.70 hrs HW=1,029.49' TW=1,023.70' (Dynamic Tailwater)
└─**3=Sharp-Crested Rectangular Weir** (Weir Controls 7.91 cfs @ 1.41 fps)

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)

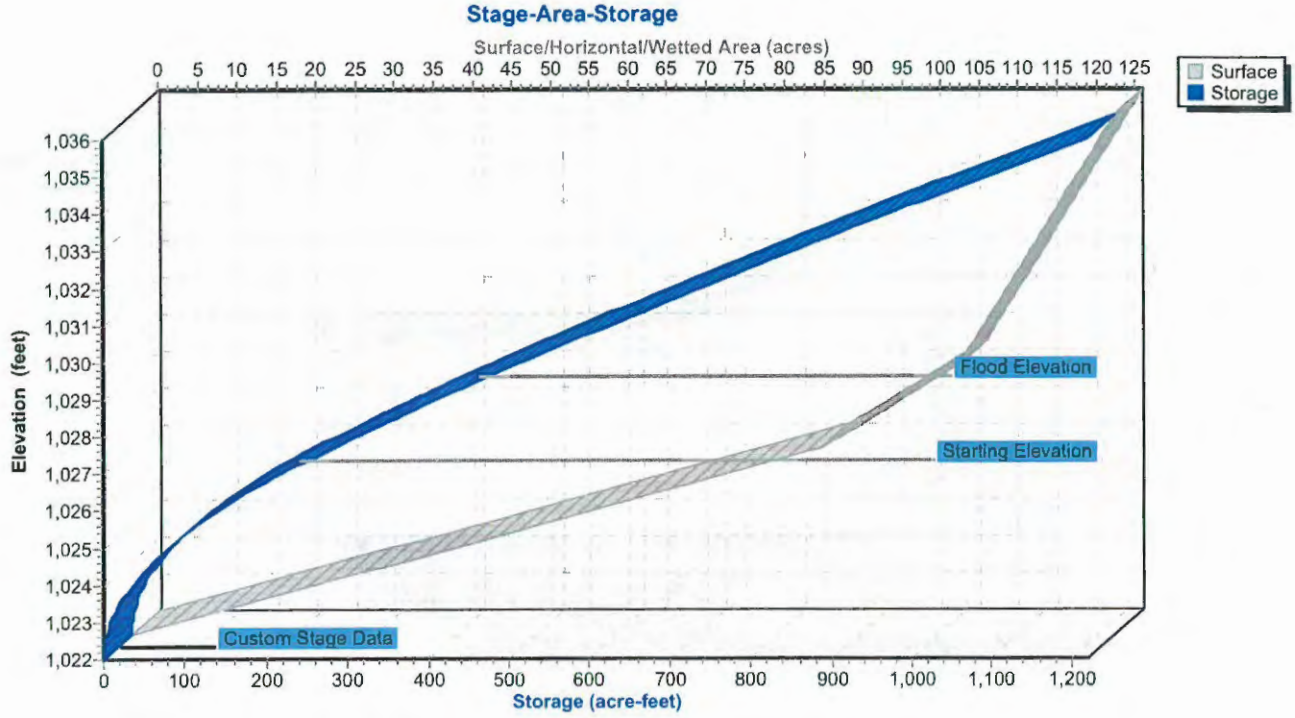
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

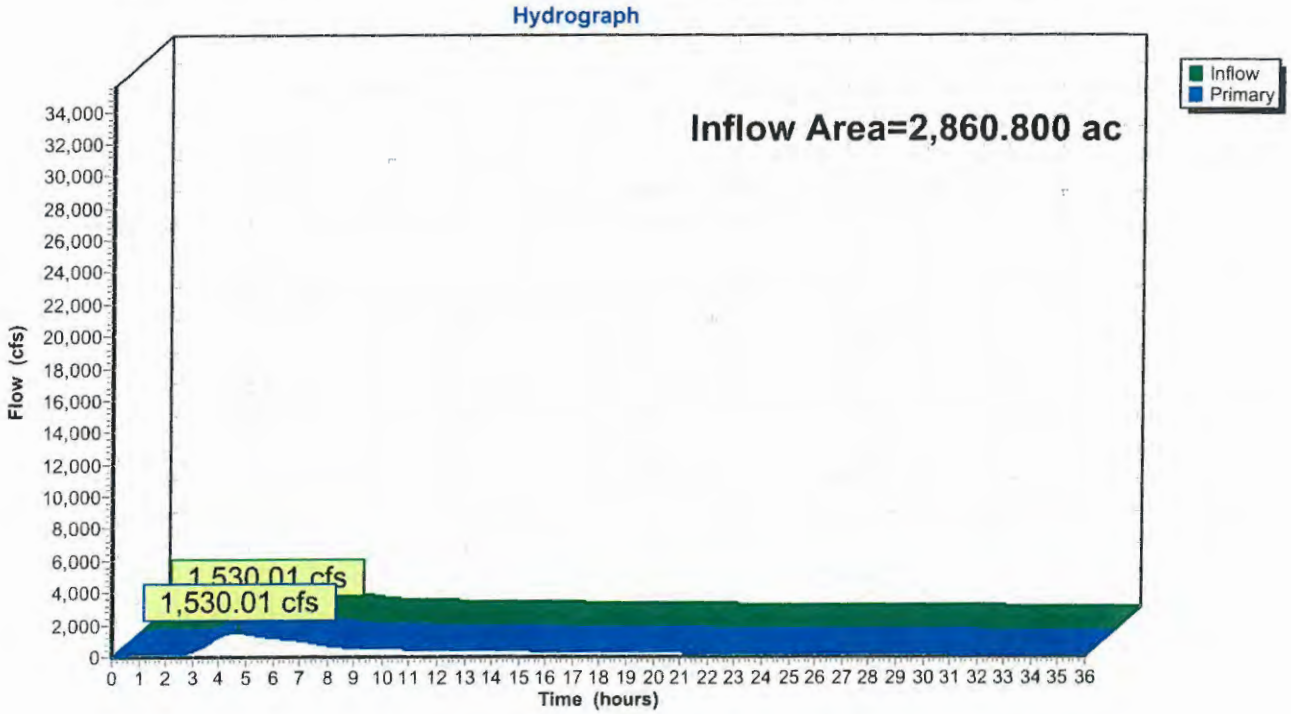


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 4.97" for 6-HR 0.3PMF event
Inflow = 1,530.01 cfs @ 4.69 hrs, Volume= 1,183.920 af
Primary = 1,530.01 cfs @ 4.70 hrs, Volume= 1,183.920 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 > 4.30" for 6-HR 0.3PMF event
Inflow = 5,136.87 cfs @ 6.44 hrs, Volume= 3,388.276 af
Outflow = 5,130.37 cfs @ 6.53 hrs, Volume= 3,387.445 af, Atten= 0%, Lag= 5.1 min
Primary = 3,366.34 cfs @ 6.06 hrs, Volume= 3,120.006 af
Secondary = 1,764.77 cfs @ 6.53 hrs, Volume= 267.440 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,009.44' @ 6.53 hrs Surf.Area= 14.080 ac Storage= 216.791 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 24.8 min calculated for 3,386.505 af (100% of inflow)
Center-of-Mass det. time= 24.4 min (696.1 - 671.7)

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

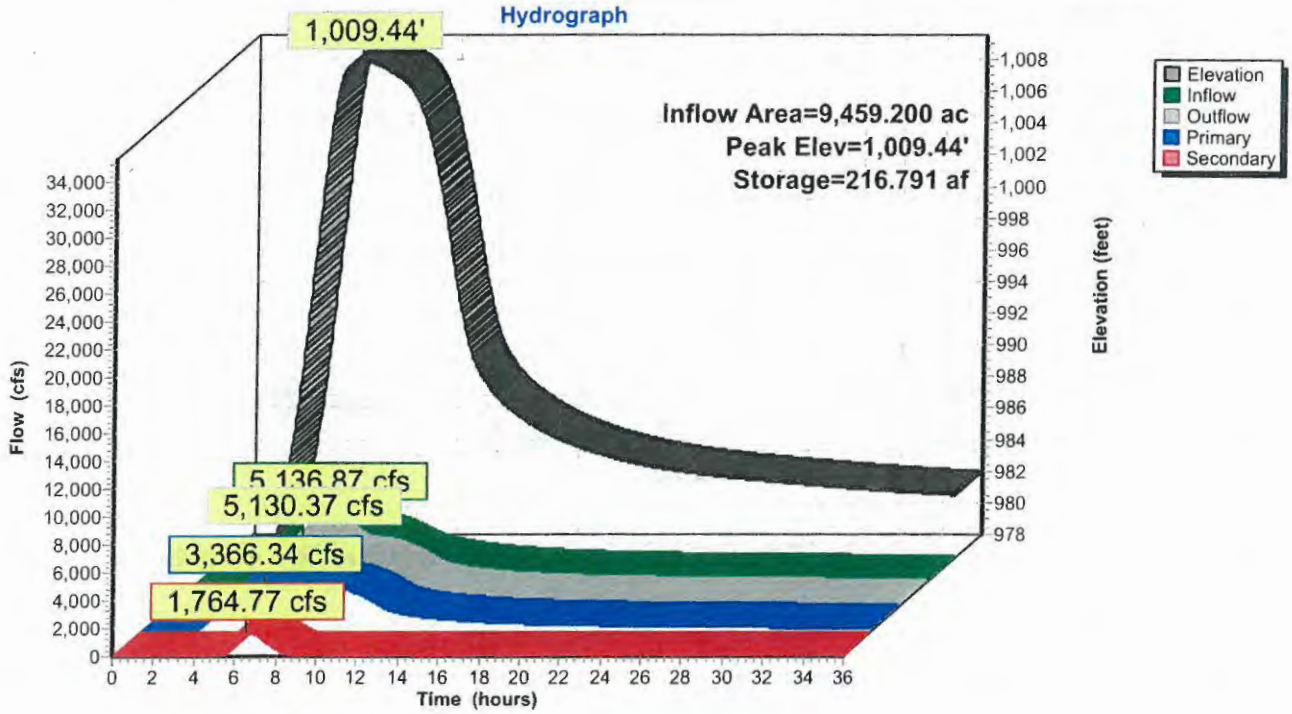
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
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

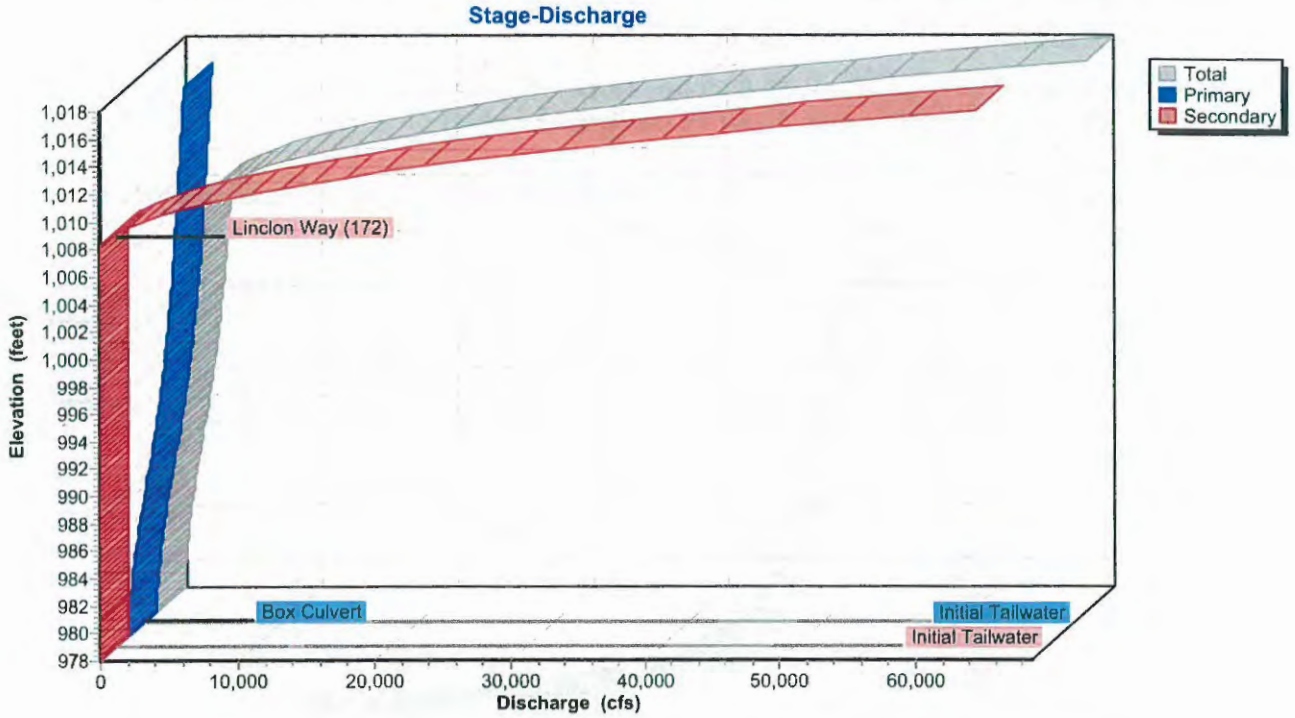
Primary OutFlow Max=3,365.82 cfs @ 6.06 hrs HW=1,009.29' TW=985.29' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 3,365.82 cfs @ 29.44 fps)

Secondary OutFlow Max=1,764.75 cfs @ 6.53 hrs HW=1,009.44' TW=985.46' (Dynamic Tailwater)
└─**2=Linclon Way (172)** (Weir Controls 1,764.75 cfs @ 3.72 fps)

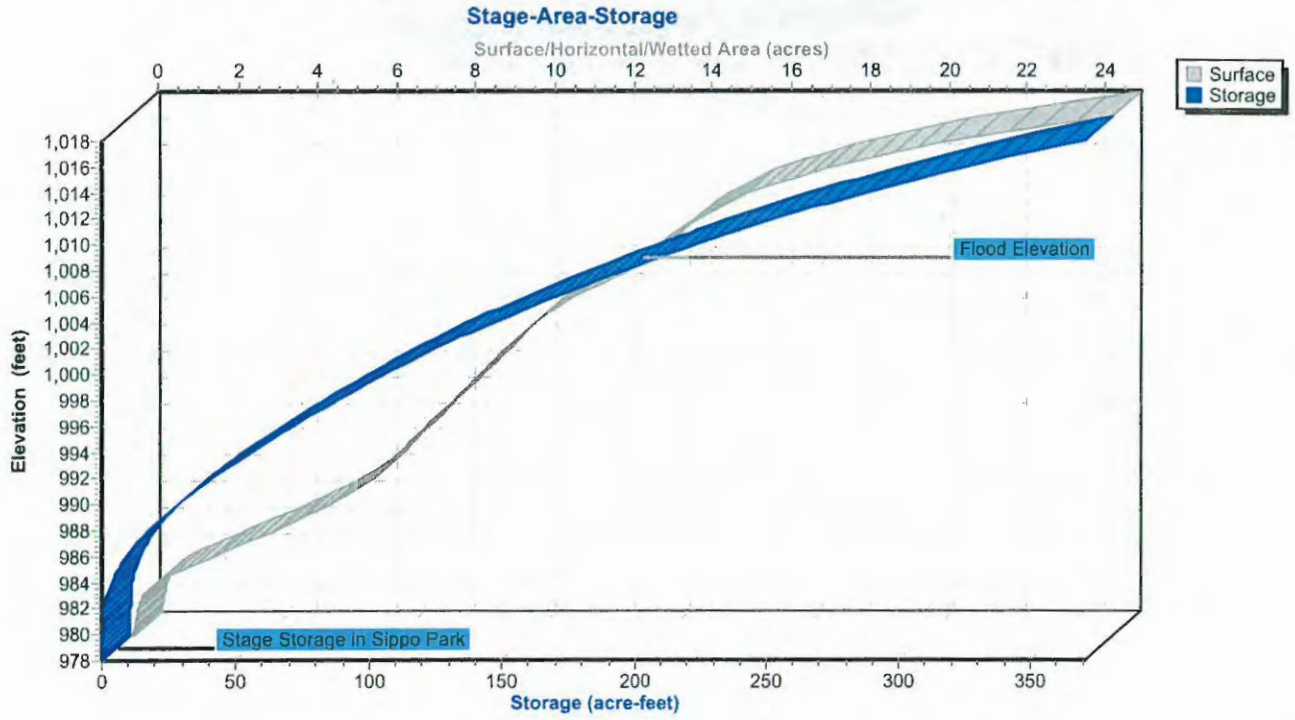
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



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



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

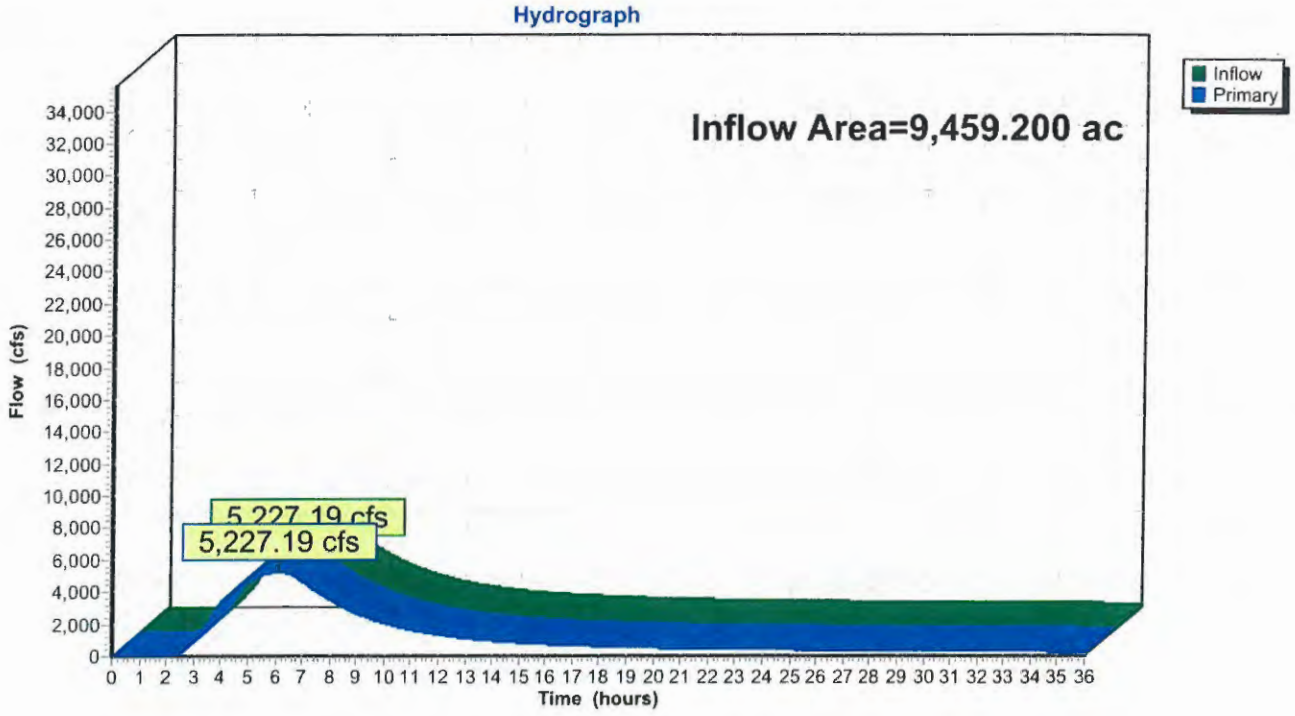


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 4.31" for 6-HR 0.3PMF event
Inflow = 5,227.19 cfs @ 6.13 hrs, Volume= 3,400.696 af
Primary = 5,227.19 cfs @ 6.14 hrs, Volume= 3,400.696 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=7.19"
Tc=44.0 min CN=74 Runoff=387.37 cfs 69.049 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=7.33"
Tc=65.0 min CN=75 Runoff=825.16 cfs 164.084 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=6.66"
Tc=226.0 min CN=70 Runoff=2,052.98 cfs 777.622 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=6.39"
Tc=128.0 min CN=68 Runoff=2,094.15 cfs 572.327 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=6.25"
Tc=129.0 min CN=67 Runoff=1,466.80 cfs 403.453 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=7.19"
Tc=110.0 min CN=74 Runoff=1,736.15 cfs 433.474 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=7.33"
Tc=72.0 min CN=75 Runoff=2,176.44 cfs 449.277 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=7.98"
Tc=78.0 min CN=80 Runoff=2,130.29 cfs 451.181 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=6.52"
Tc=155.0 min CN=69 Runoff=1,915.88 cfs 580.970 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=7.33"
Tc=156.0 min CN=75 Runoff=3,967.55 cfs 1,199.374 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=6.25"
Tc=151.0 min CN=67 Runoff=1,136.52 cfs 340.101 af

Reach 5R: Channel 5 Avg. Flow Depth=4.40' Max Vel=7.49 fps Inflow=816.42 cfs 1,114.890 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=810.05 cfs 1,108.416 af

Reach 7R: Channel 7 Avg. Flow Depth=11.73' Max Vel=3.87 fps Inflow=2,324.80 cfs 1,680.477 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=2,228.29 cfs 1,669.742 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=7.17' Max Vel=3.28 fps Inflow=1,693.09 cfs 939.577 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=1,690.66 cfs 938.793 af

Reach 15R: Channel 15 Avg. Flow Depth=11.50' Max Vel=2.67 fps Inflow=6,766.35 cfs 3,932.261 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=5,850.09 cfs 3,892.095 af

Reach 16R: Channel 16 Avg. Flow Depth=14.35' Max Vel=3.52 fps Inflow=7,700.34 cfs 4,774.377 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=7,487.70 cfs 4,731.783 af

Reach 18R: Sippo Creek Avg. Flow Depth=8.78' Max Vel=10.74 fps Inflow=8,186.84 cfs 5,167.753 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=8,186.84 cfs 5,167.628 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=1,192.99 cfs 233.016 af
Primary=1,192.99 cfs 233.016 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,011.43' Storage=241.775 af Inflow=8,226.27 cfs 5,182.474 af
s 2,692.793 af Secondary=5,258.27 cfs 2,295.802 af Tertiary=587.13 cfs 180.712 af Outflow=8,188.71 cfs 5,169.307 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=2,423.39 cfs 1,010.067 af
Primary=2,423.39 cfs 1,010.067 af

Pond 3P: Lake Cable Peak Elev=1,099.62' Storage=2,491.901 af Inflow=2,423.39 cfs 1,010.066 af
Primary=698.66 cfs 1,098.485 af Secondary=117.76 cfs 16.536 af Outflow=816.42 cfs 1,115.021 af

Pond 4C: Confluence 4 Inflow=4,143.54 cfs 2,250.576 af
Primary=4,143.54 cfs 2,250.576 af

Pond 4P: Lake O'Springs Peak Elev=1,108.89' Storage=106.991 af Inflow=1,192.99 cfs 233.016 af
Primary=885.62 cfs 230.180 af Secondary=33.94 cfs 2.266 af Outflow=919.55 cfs 232.447 af

Pond 5C: Confluence 5 Inflow=5,542.73 cfs 2,653.892 af
Primary=5,542.73 cfs 2,653.892 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.39' Storage=29.177 af Inflow=387.37 cfs 69.049 af
Primary=278.48 cfs 59.951 af Secondary=104.07 cfs 8.981 af Outflow=382.55 cfs 68.932 af

Pond 6C: Confluence 6 Inflow=2,088.07 cfs 1,278.810 af
Primary=2,088.07 cfs 1,278.810 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=6,766.35 cfs 3,932.481 af
Primary=6,766.35 cfs 3,932.481 af

Pond 8C: Confluence 8 Inflow=7,700.34 cfs 4,774.612 af
Primary=7,700.34 cfs 4,774.612 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,026.97' Storage=641.583 af Inflow=3,641.74 cfs 1,106.494 af
Primary=128.44 cfs 286.604 af Secondary=1,601.20 cfs 653.057 af Outflow=1,693.09 cfs 939.661 af

Pond 9P: Sippo Lake Peak Elev=1,029.93' Storage=510.088 af Inflow=3,967.55 cfs 1,199.374 af
=3,593.10 cfs 1,099.328 af Secondary=48.64 cfs 7.167 af Tertiary=0.00 cfs 0.000 af Outflow=3,641.74 cfs 1,106.495 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Inflow=2,324.80 cfs 1,680.610 af
Primary=2,324.80 cfs 1,680.610 af

Pond 16P: Lincoln Way Box Peak Elev=1,010.54' Storage=232.652 af Inflow=8,188.71 cfs 5,169.058 af
Primary=3,370.92 cfs 3,803.343 af Secondary=4,841.70 cfs 1,364.660 af Outflow=8,186.84 cfs 5,168.002 af

Pond 19C: Confluence 19 Inflow=8,226.27 cfs 5,182.719 af
Primary=8,226.27 cfs 5,182.719 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 5,440.912 af Average Runoff Depth = 6.90"
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

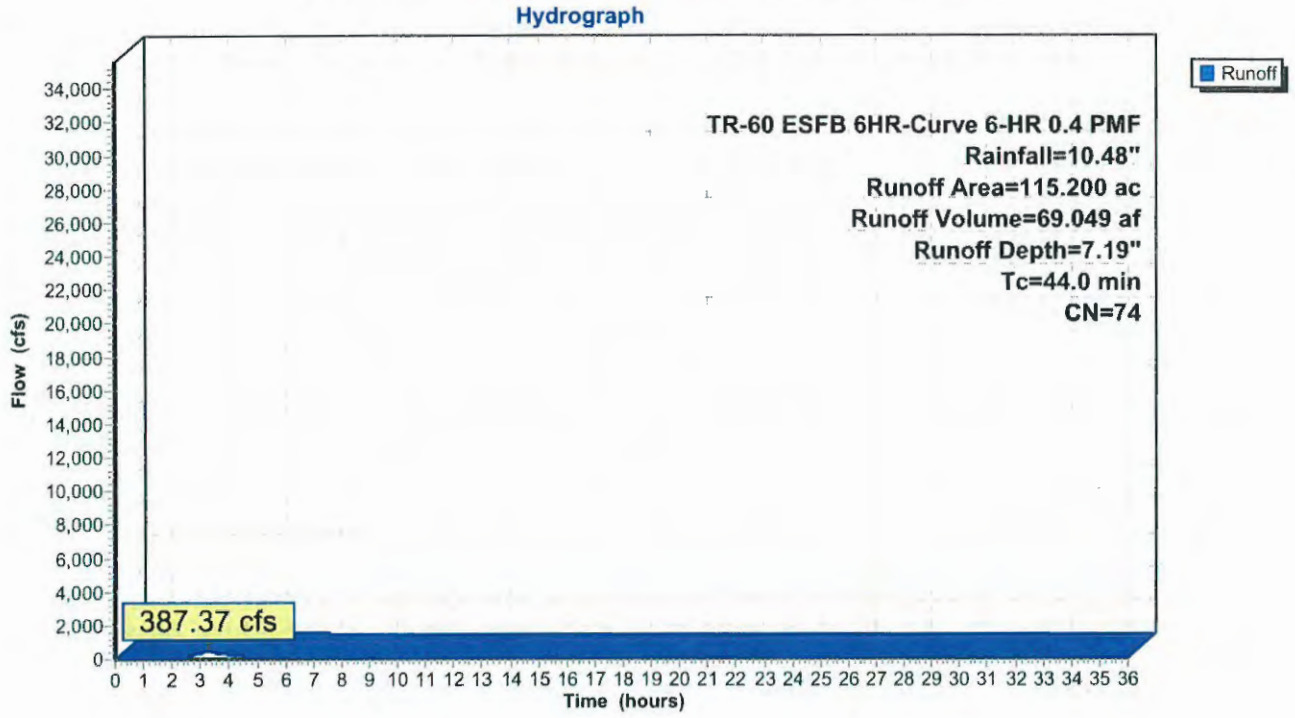
Runoff = 387.37 cfs @ 3.27 hrs, Volume= 69.049 af, Depth= 7.19"

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 0.4 PMF Rainfall=10.48"

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

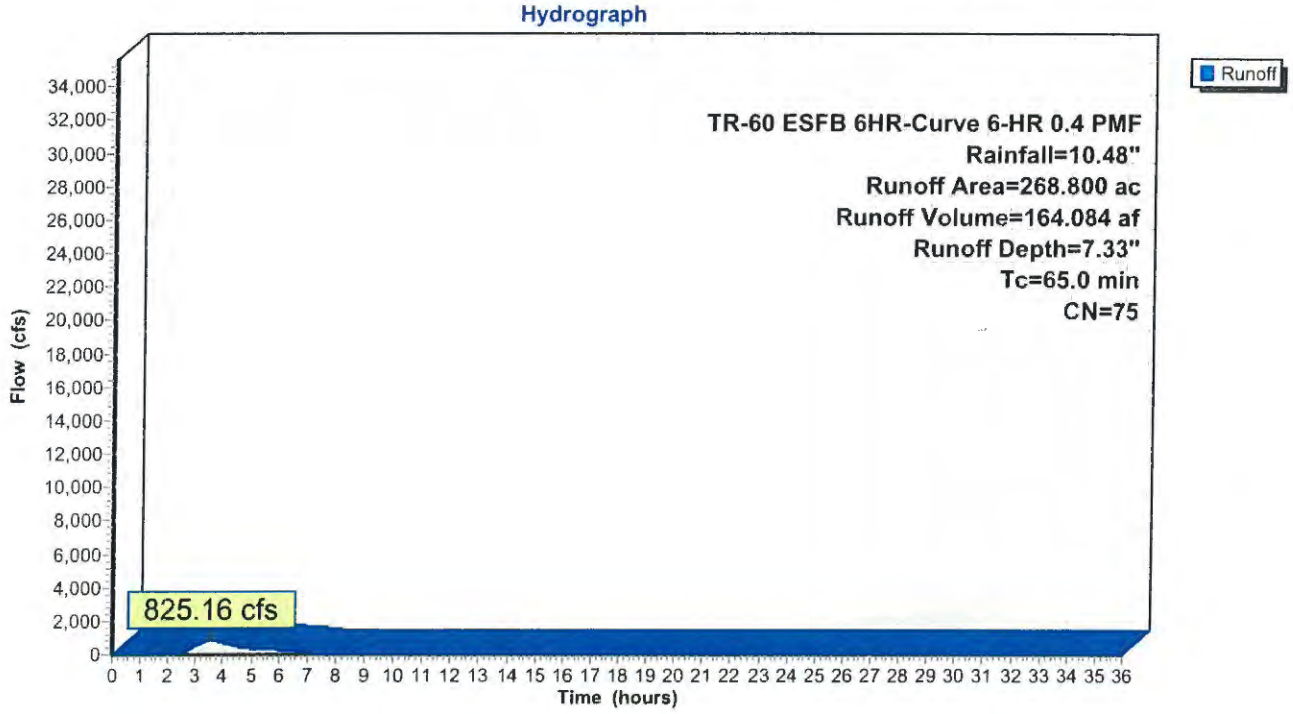
Runoff = 825.16 cfs @ 3.54 hrs, Volume= 164.084 af, Depth= 7.33"

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 0.4 PMF Rainfall=10.48"

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

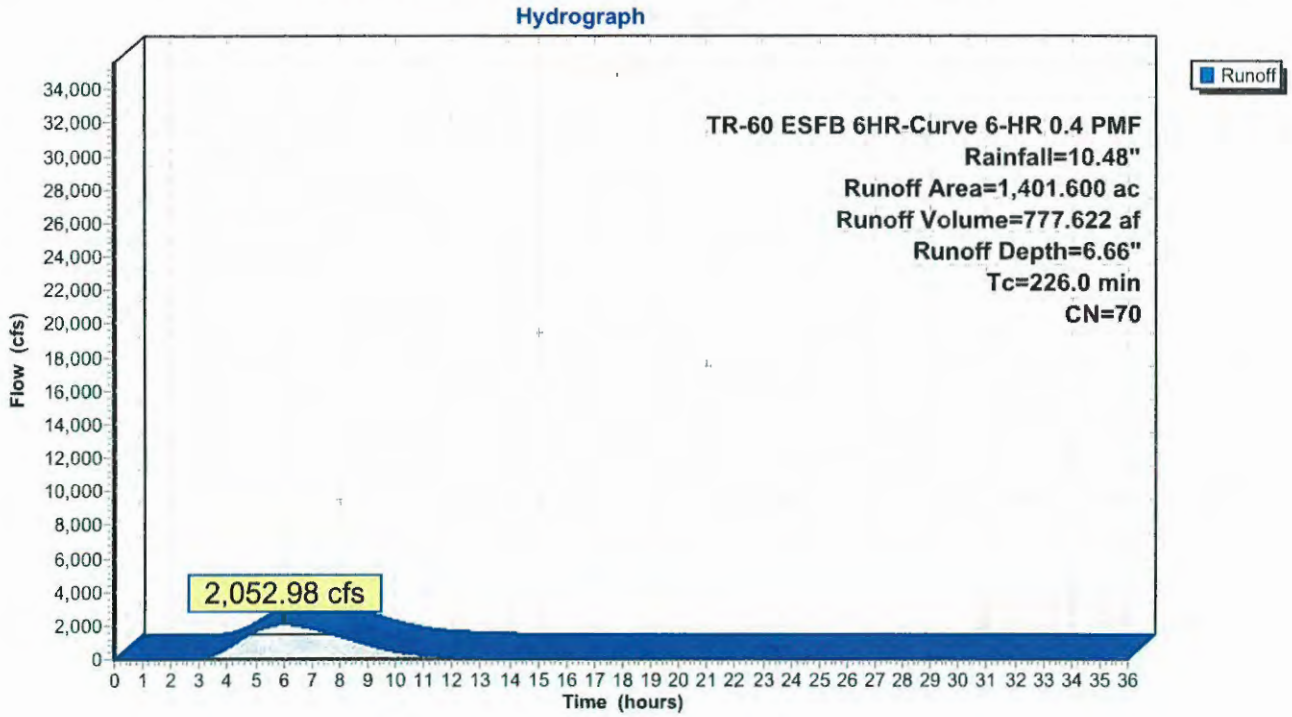
Runoff = 2,052.98 cfs @ 6.03 hrs, Volume= 777.622 af, Depth= 6.66"

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 0.4 PMF Rainfall=10.48"

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

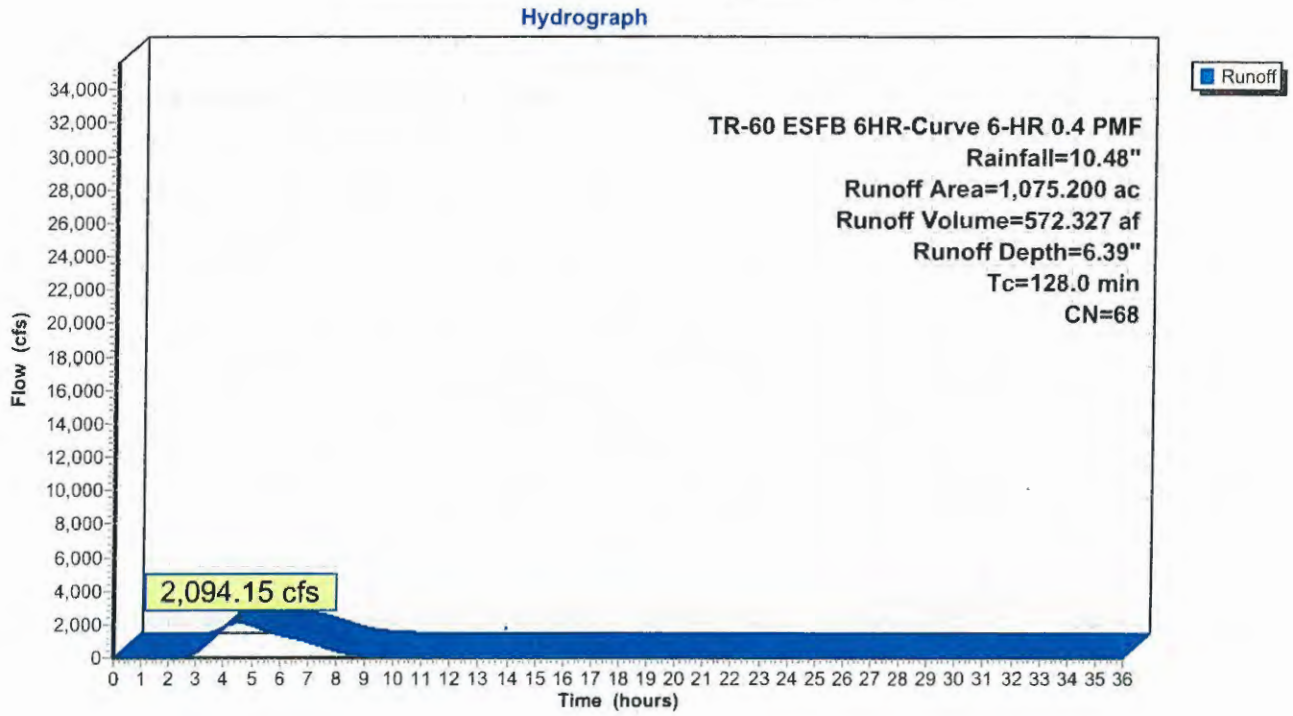
Runoff = 2,094.15 cfs @ 4.55 hrs, Volume= 572.327 af, Depth= 6.39"

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 0.4 PMF Rainfall=10.48"

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

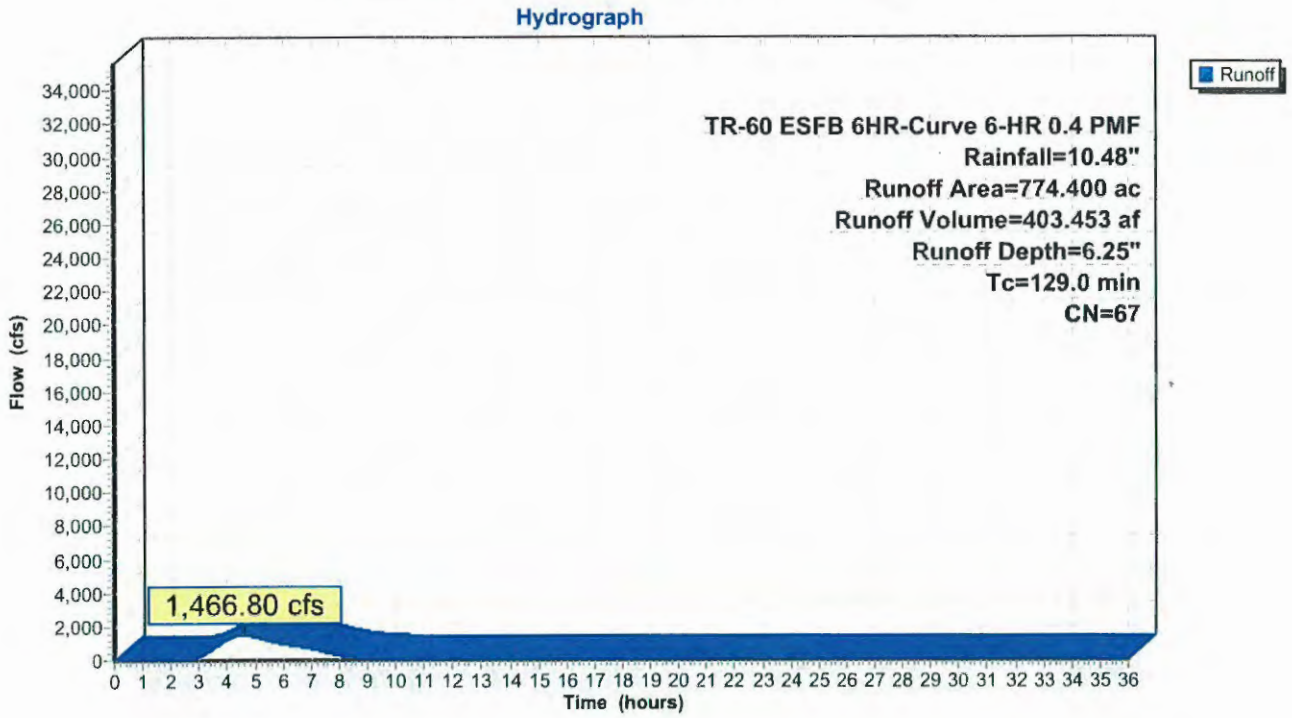
Runoff = 1,466.80 cfs @ 4.58 hrs, Volume= 403.453 af, Depth= 6.25"

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 0.4 PMF Rainfall=10.48"

	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

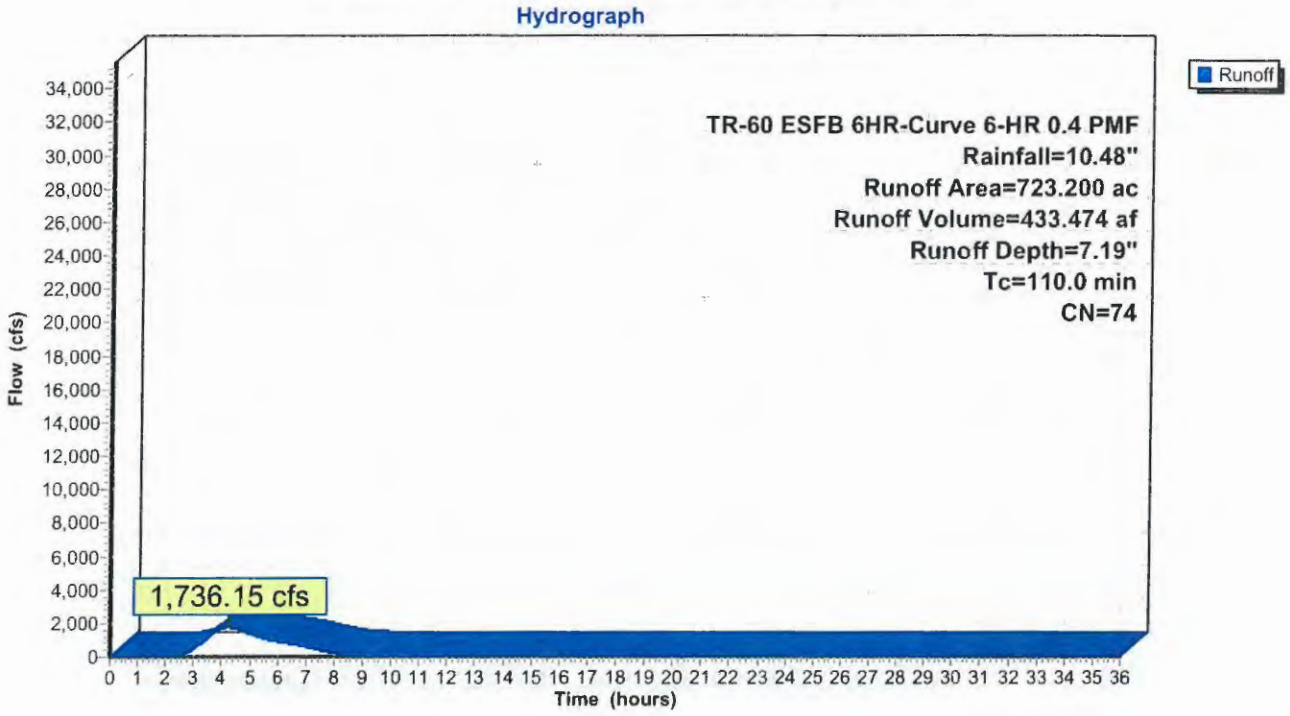
Runoff = 1,736.15 cfs @ 4.27 hrs, Volume= 433.474 af, Depth= 7.19"

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 0.4 PMF Rainfall=10.48"

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

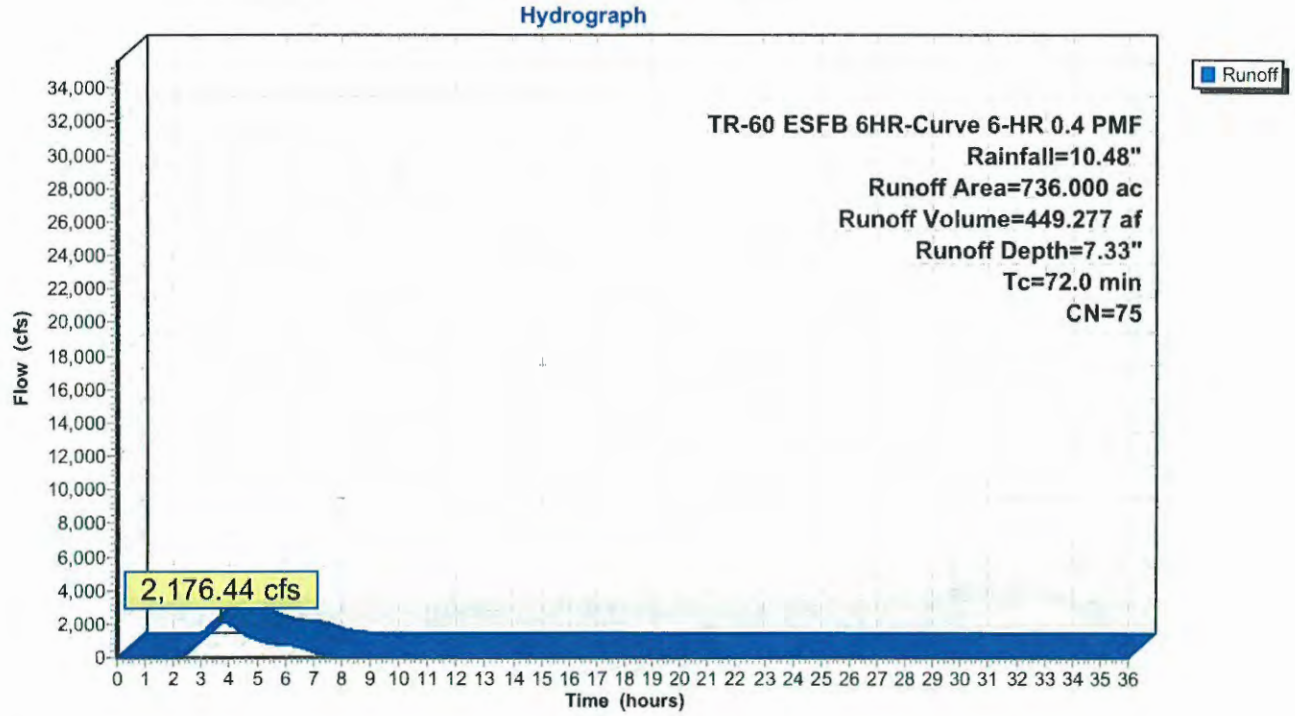
Runoff = 2,176.44 cfs @ 3.68 hrs, Volume= 449.277 af, Depth= 7.33"

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 0.4 PMF Rainfall=10.48"

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

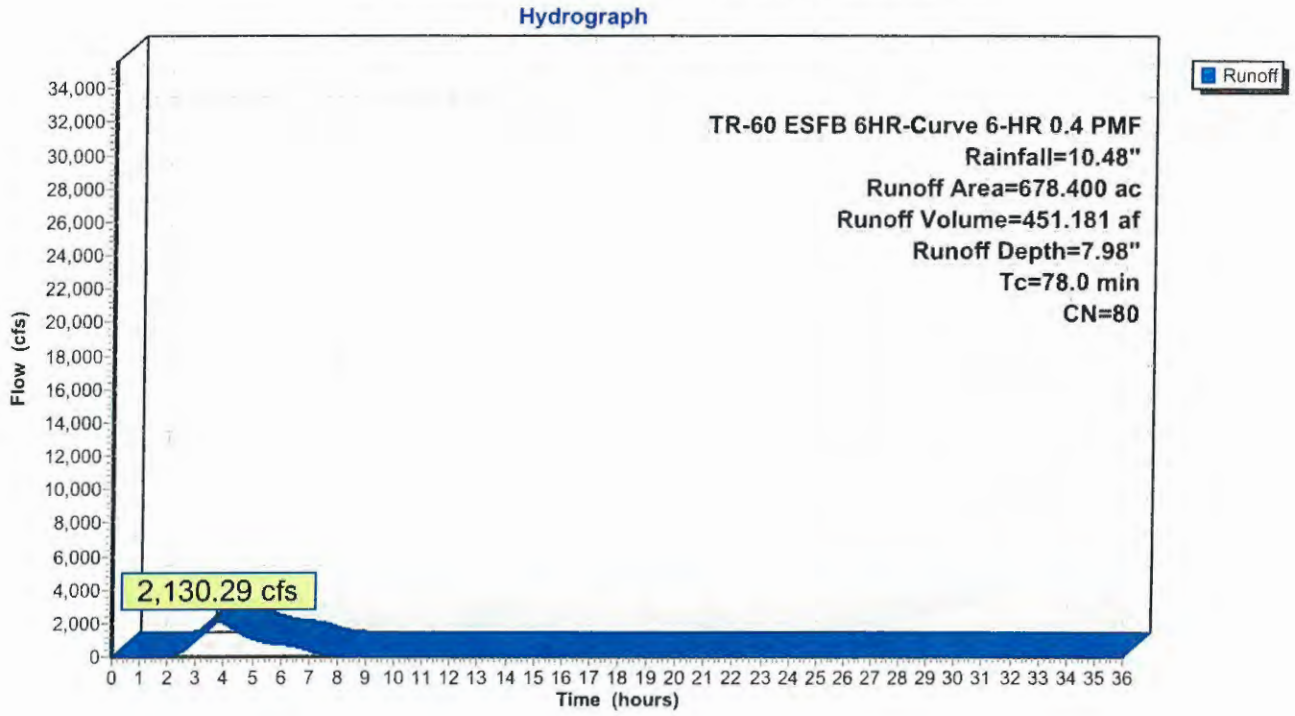
Runoff = 2,130.29 cfs @ 3.73 hrs, Volume= 451.181 af, Depth= 7.98"

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 0.4 PMF Rainfall=10.48"

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

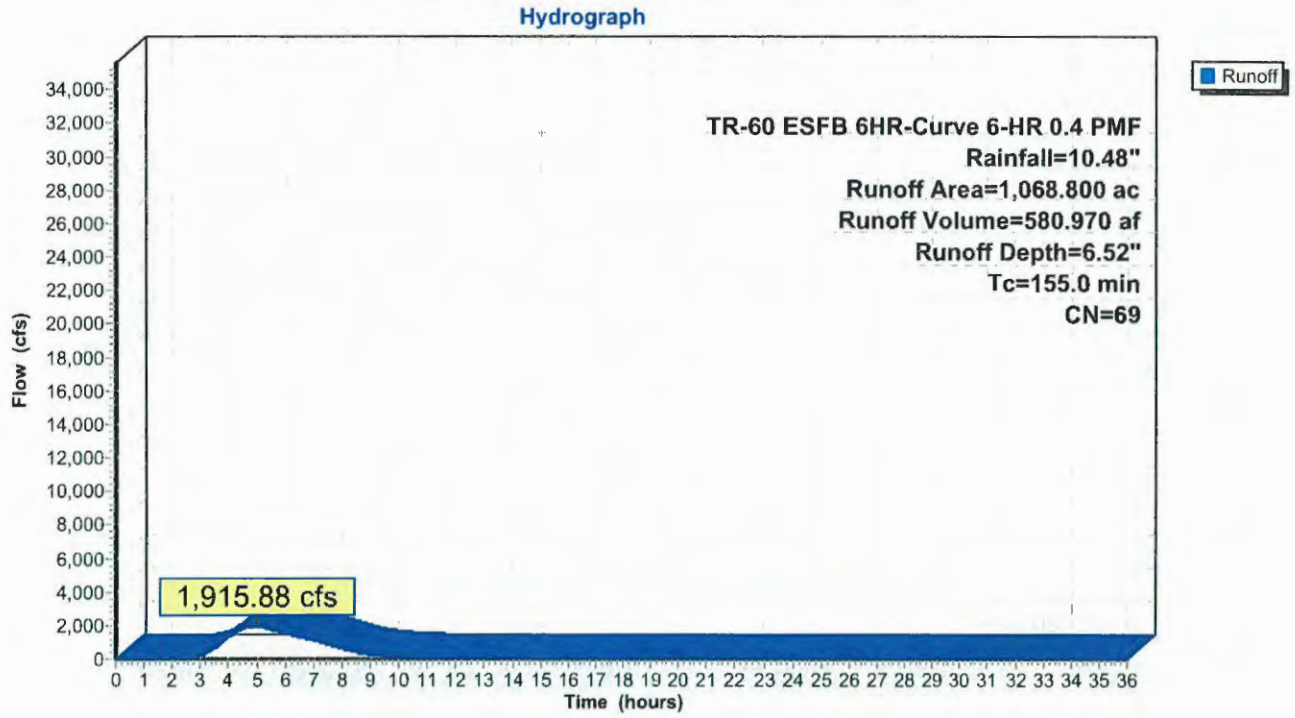
Runoff = 1,915.88 cfs @ 4.99 hrs, Volume= 580.970 af, Depth= 6.52"

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 0.4 PMF Rainfall=10.48"

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

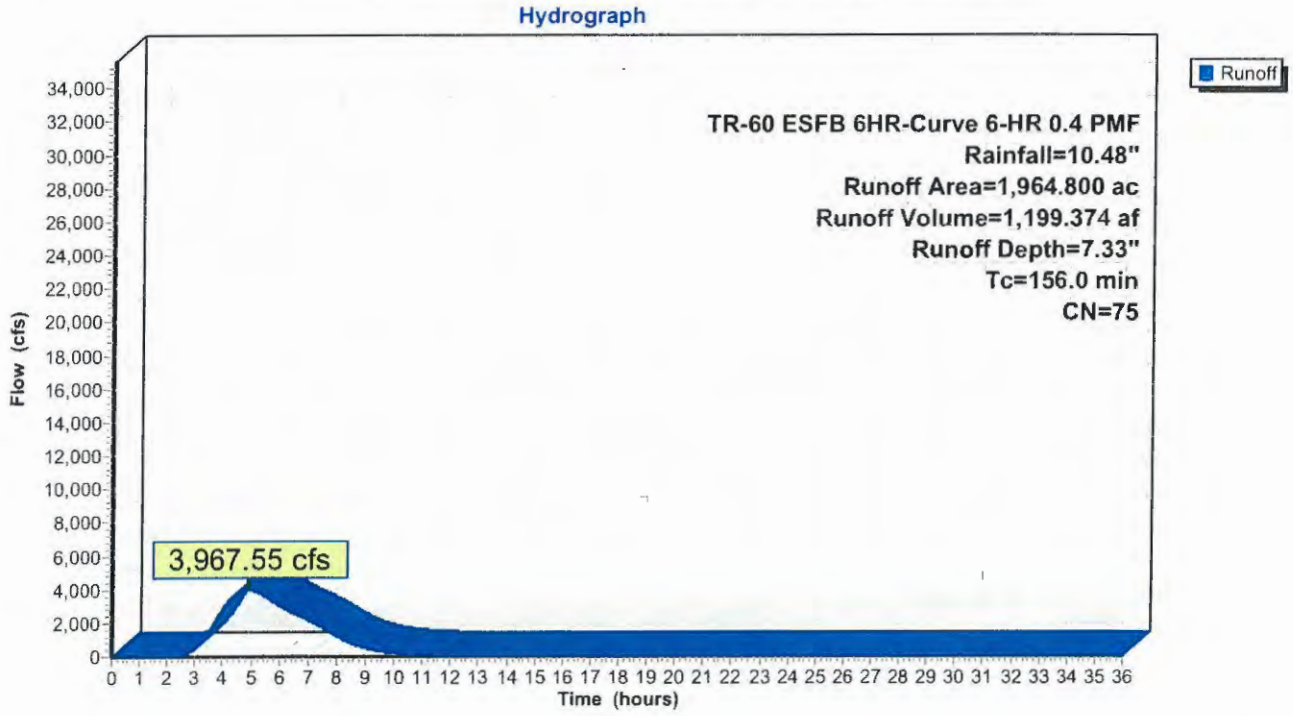
Runoff = 3,967.55 cfs @ 4.86 hrs, Volume= 1,199.374 af, Depth= 7.33"

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 0.4 PMF Rainfall=10.48"

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

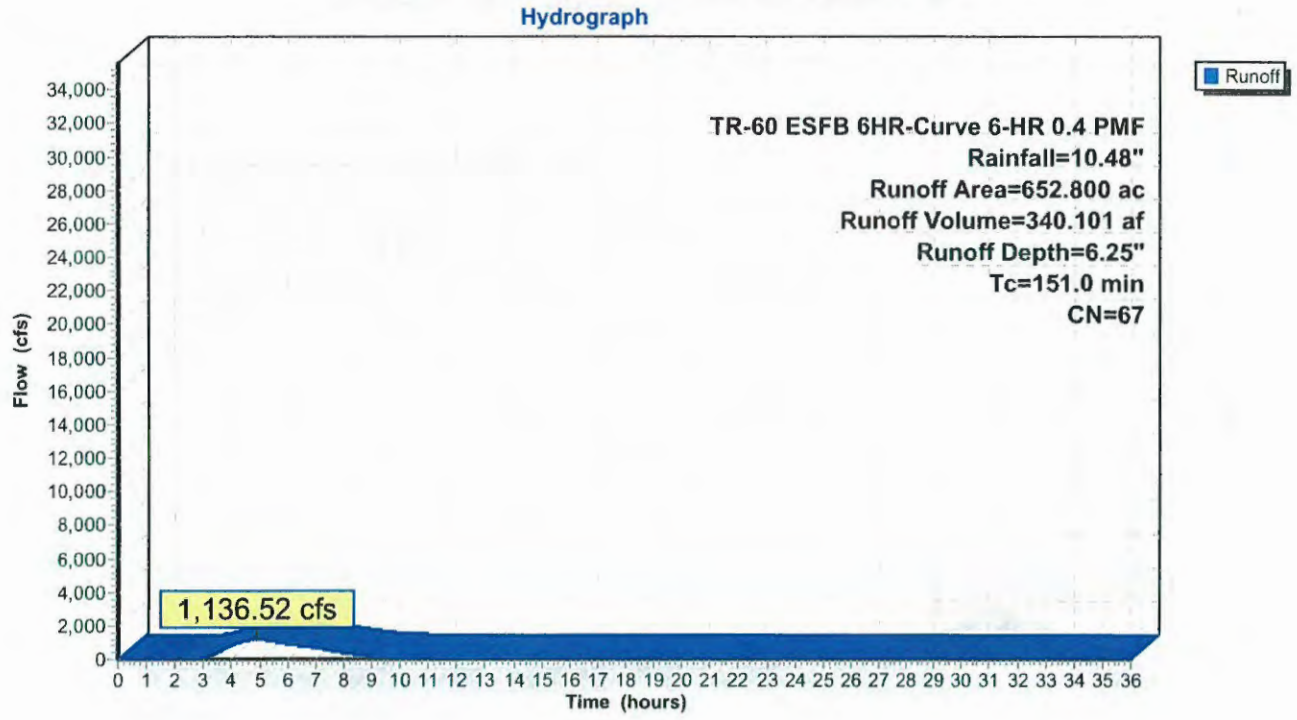
Runoff = 1,136.52 cfs @ 4.87 hrs, Volume= 340.101 af, Depth= 6.25"

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 0.4 PMF Rainfall=10.48"

	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



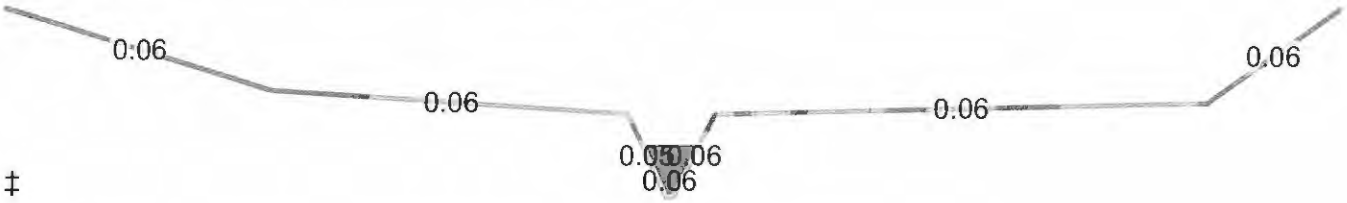
Summary for Reach 5R: Channel 5

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 7.49" for 6-HR 0.4 PMF event
Inflow = 816.42 cfs @ 9.37 hrs, Volume= 1,114.890 af
Outflow = 810.05 cfs @ 9.62 hrs, Volume= 1,108.416 af, Atten= 1%, Lag= 15.4 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.49 fps, Min. Travel Time= 19.6 min
Avg. Velocity = 5.98 fps, Avg. Travel Time= 24.5 min

Peak Storage= 951,808 cf @ 9.62 hrs
Average Depth at Peak Storage= 4.40'
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

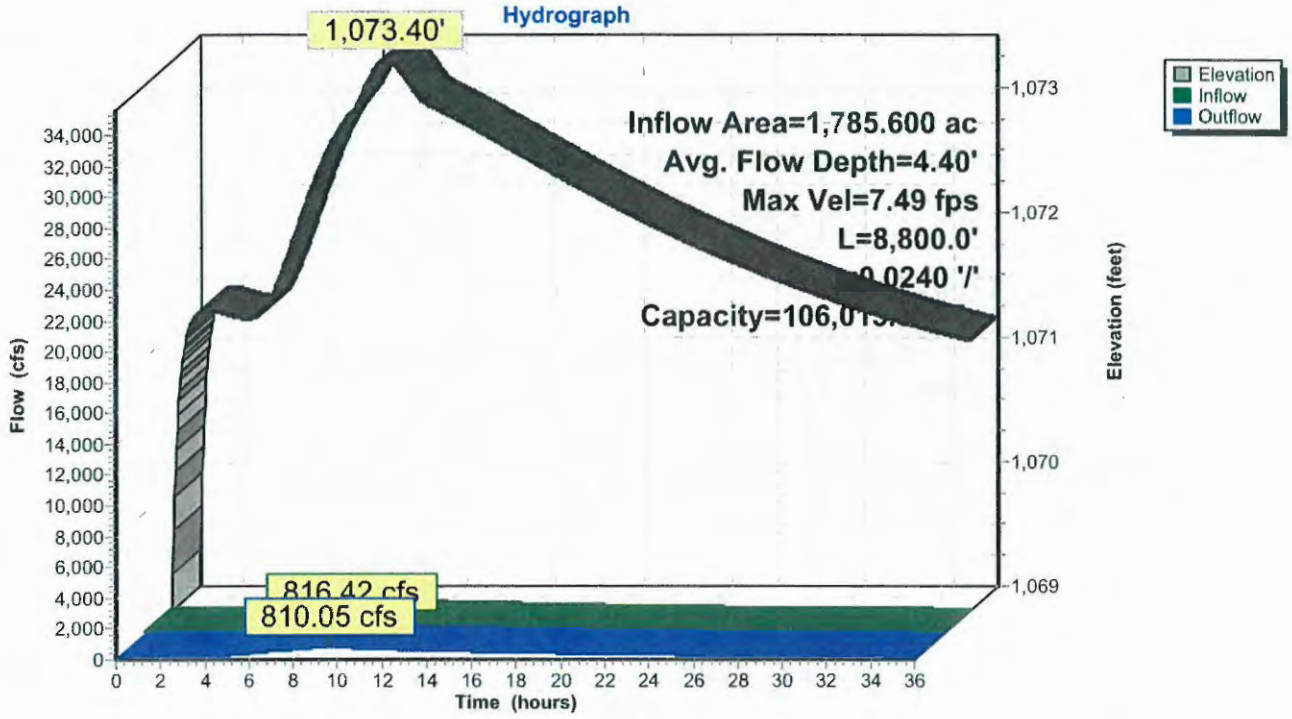
Custom cross-section, Length= 8,800.0' Slope= 0.0240 '/' (102 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,069.00', Outlet Invert= 857.80'



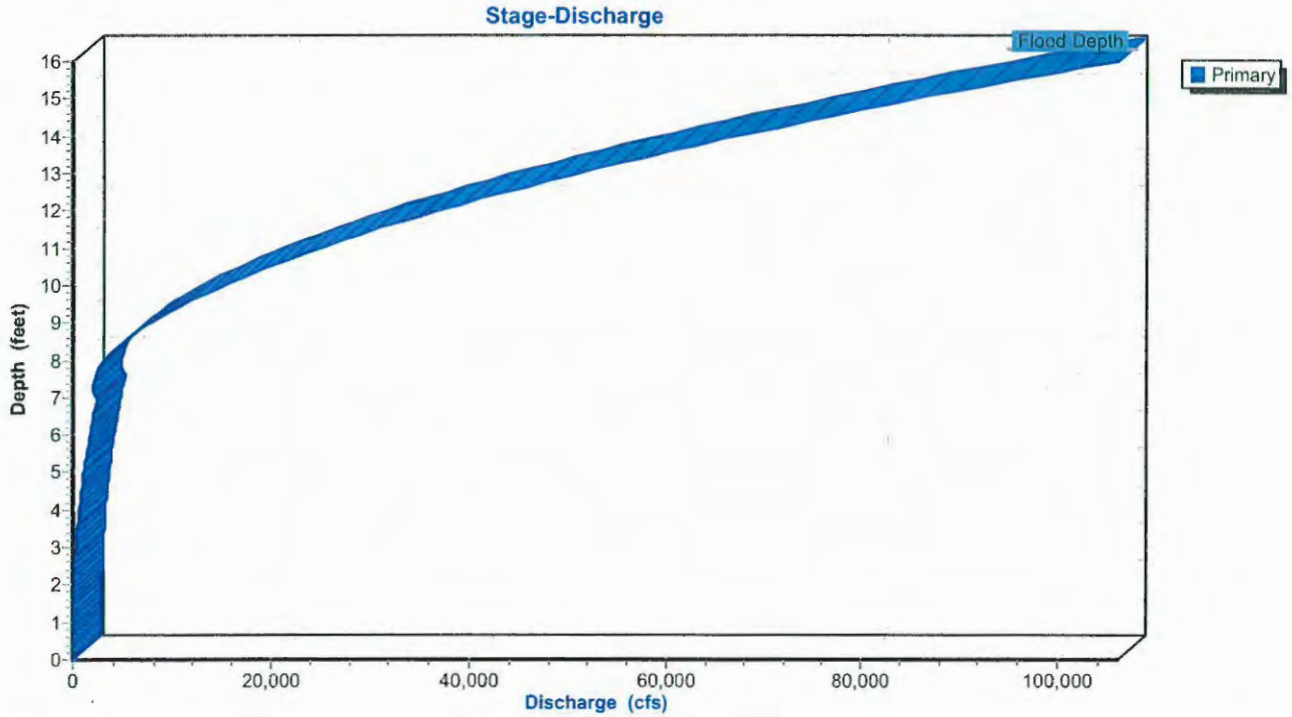
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

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

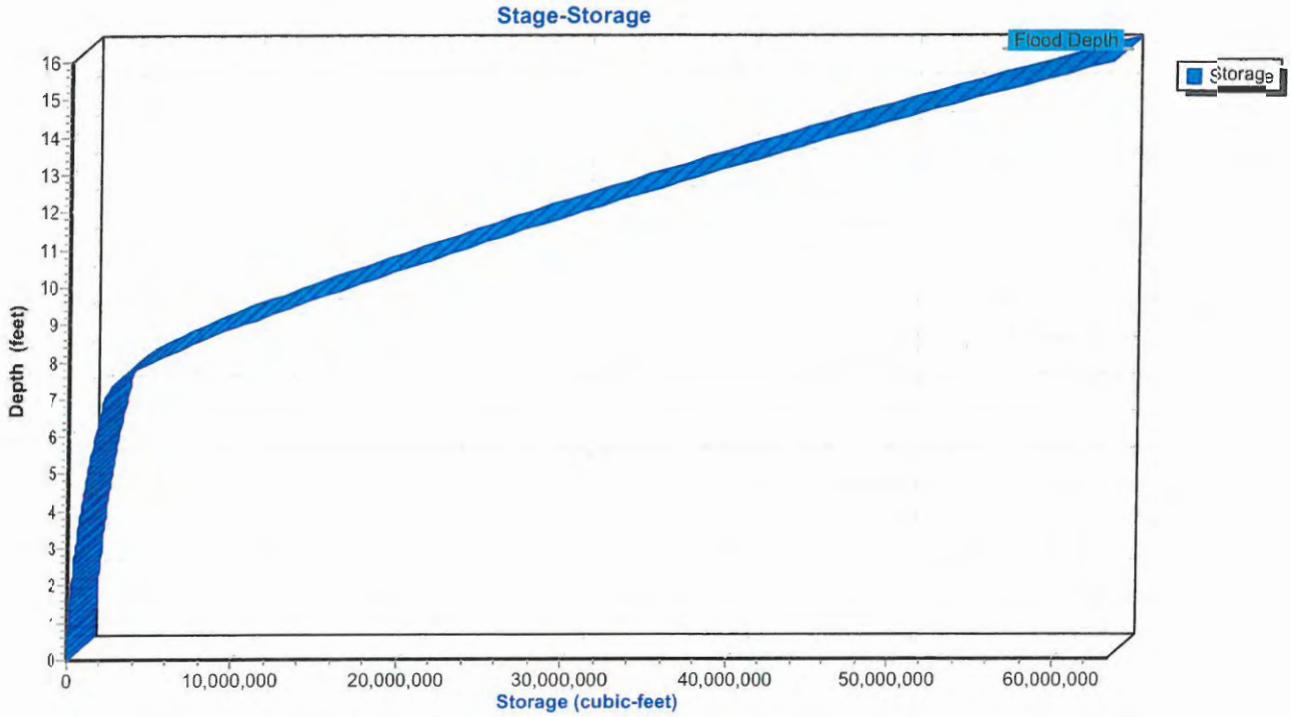
Reach 5R: Channel 5



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 > 7.05" for 6-HR 0.4 PMF event
Inflow = 2,324.80 cfs @ 4.56 hrs, Volume= 1,680.477 af
Outflow = 2,228.29 cfs @ 4.96 hrs, Volume= 1,669.742 af, Atten= 4%, Lag= 23.5 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.87 fps, Min. Travel Time= 25.4 min
Avg. Velocity = 2.60 fps, Avg. Travel Time= 37.8 min

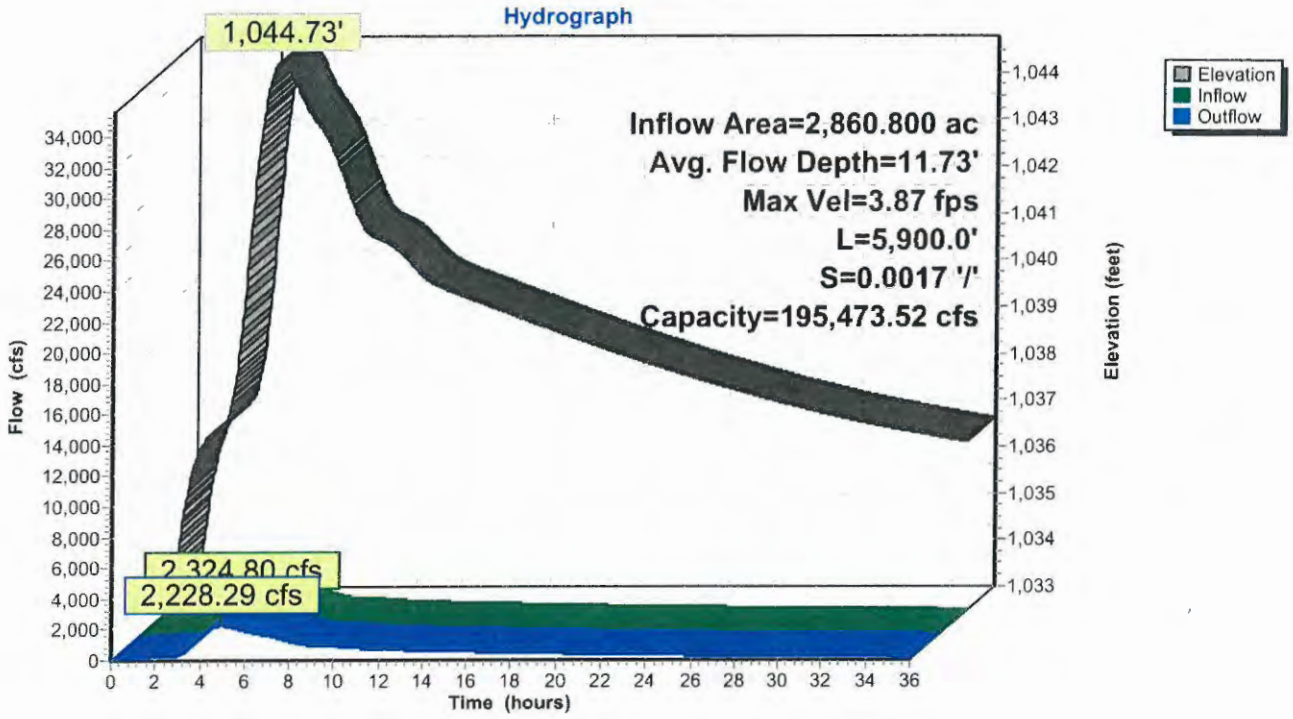
Peak Storage= 3,400,593 cf @ 4.96 hrs
Average Depth at Peak Storage= 11.73'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

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'

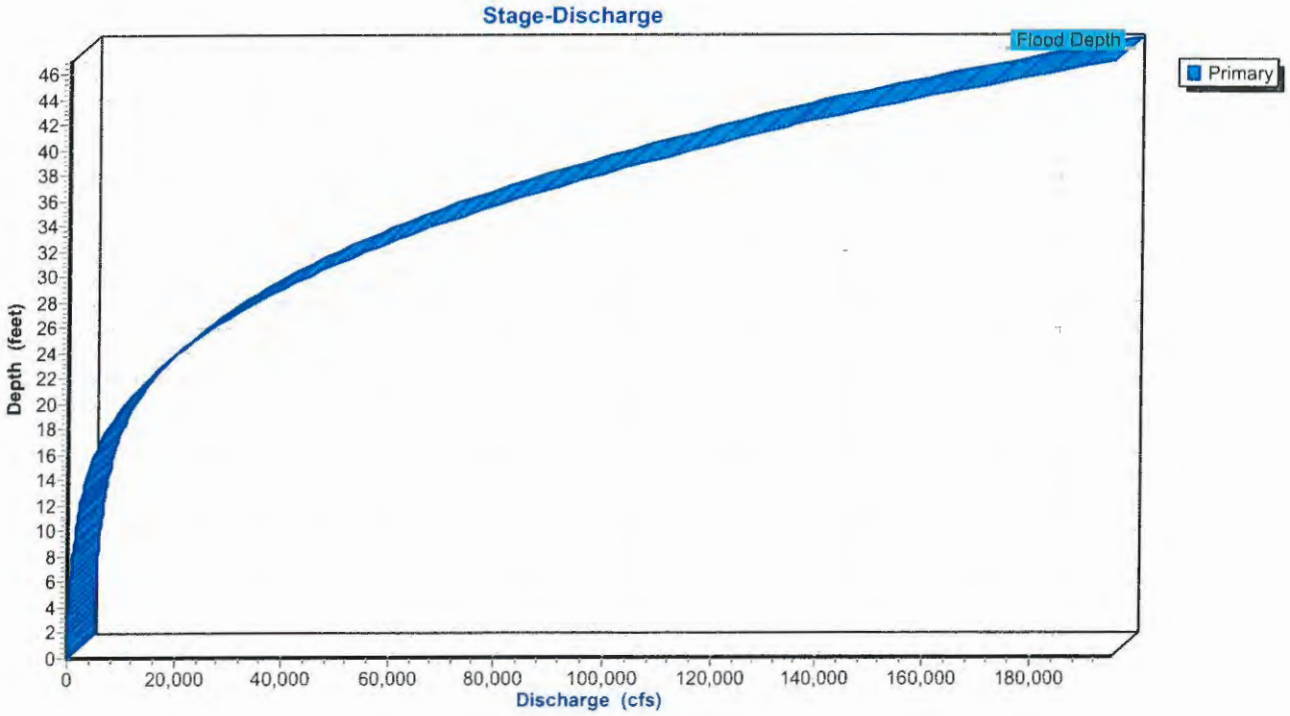
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00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

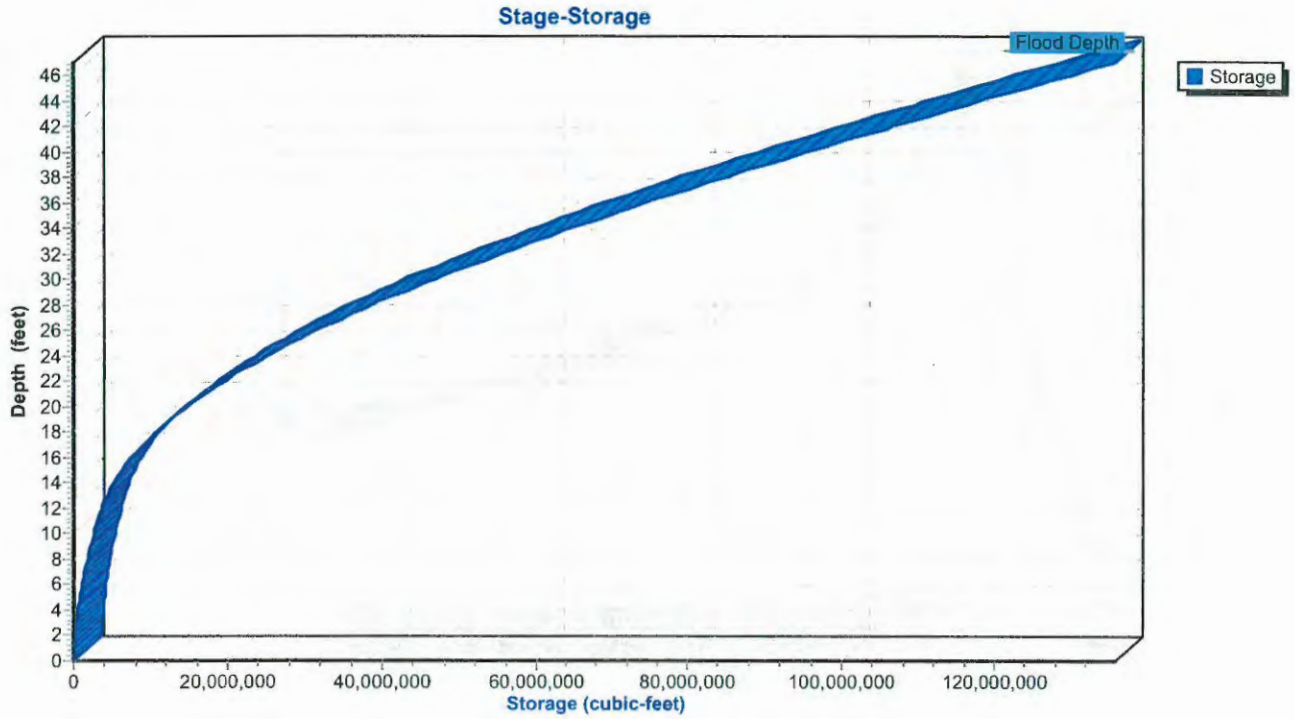
Reach 7R: Channel 7



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 > 5.74" for 6-HR 0.4 PMF event
Inflow = 1,693.09 cfs @ 7.99 hrs, Volume= 939.577 af
Outflow = 1,690.66 cfs @ 8.09 hrs, Volume= 938.793 af, Atten= 0%, Lag= 6.1 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 = 2.41 fps, Avg. Travel Time= 6.2 min

Peak Storage= 779,388 cf @ 8.09 hrs
Average Depth at Peak Storage= 7.17'
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

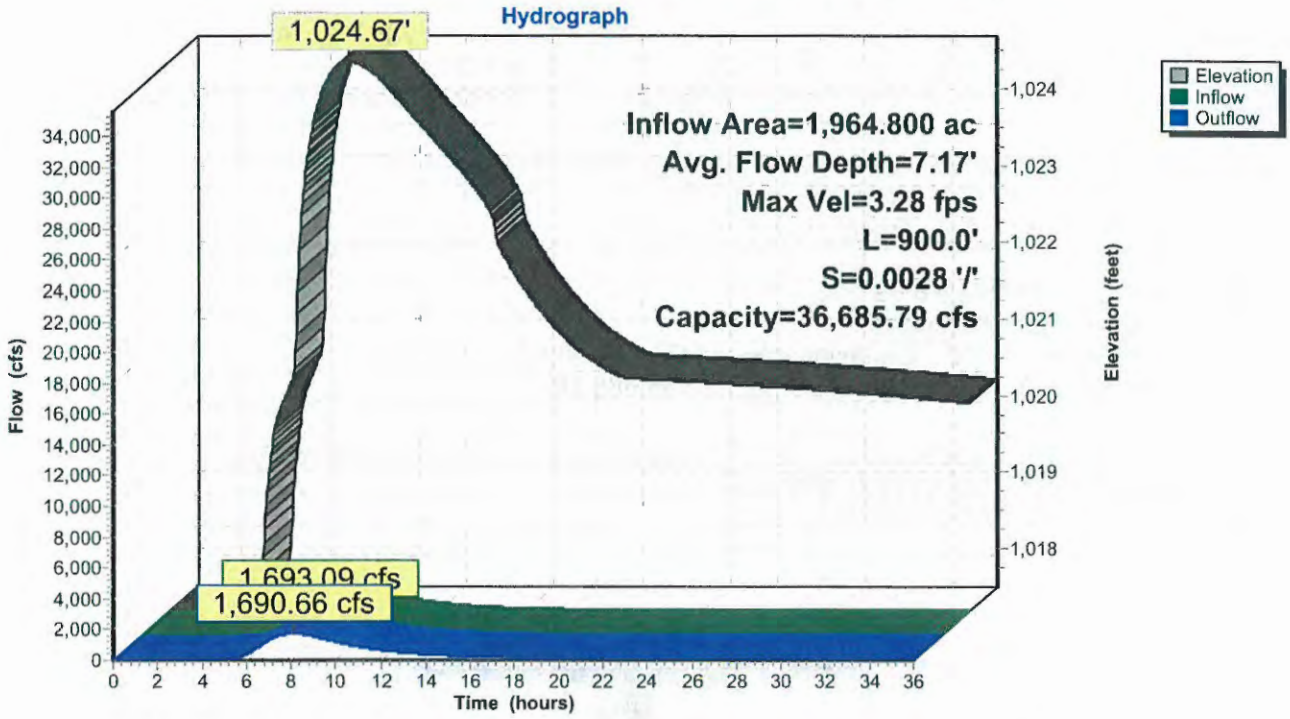
Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

‡

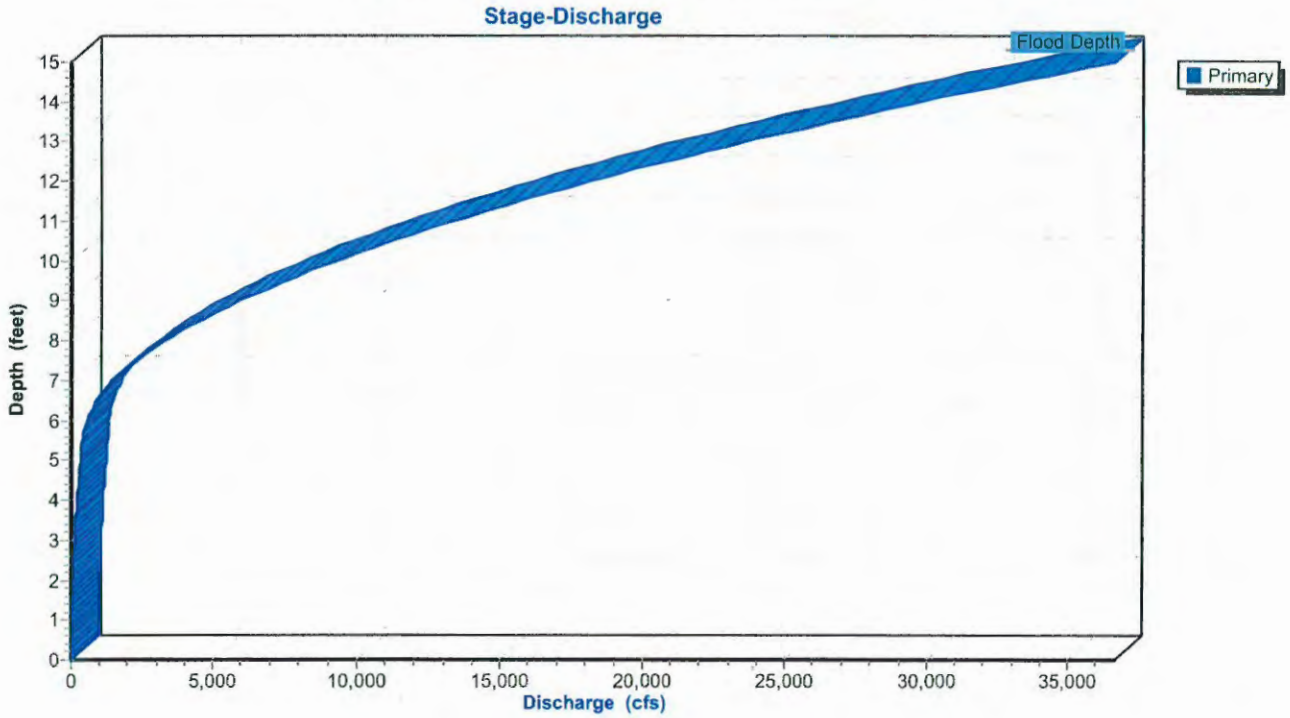
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00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

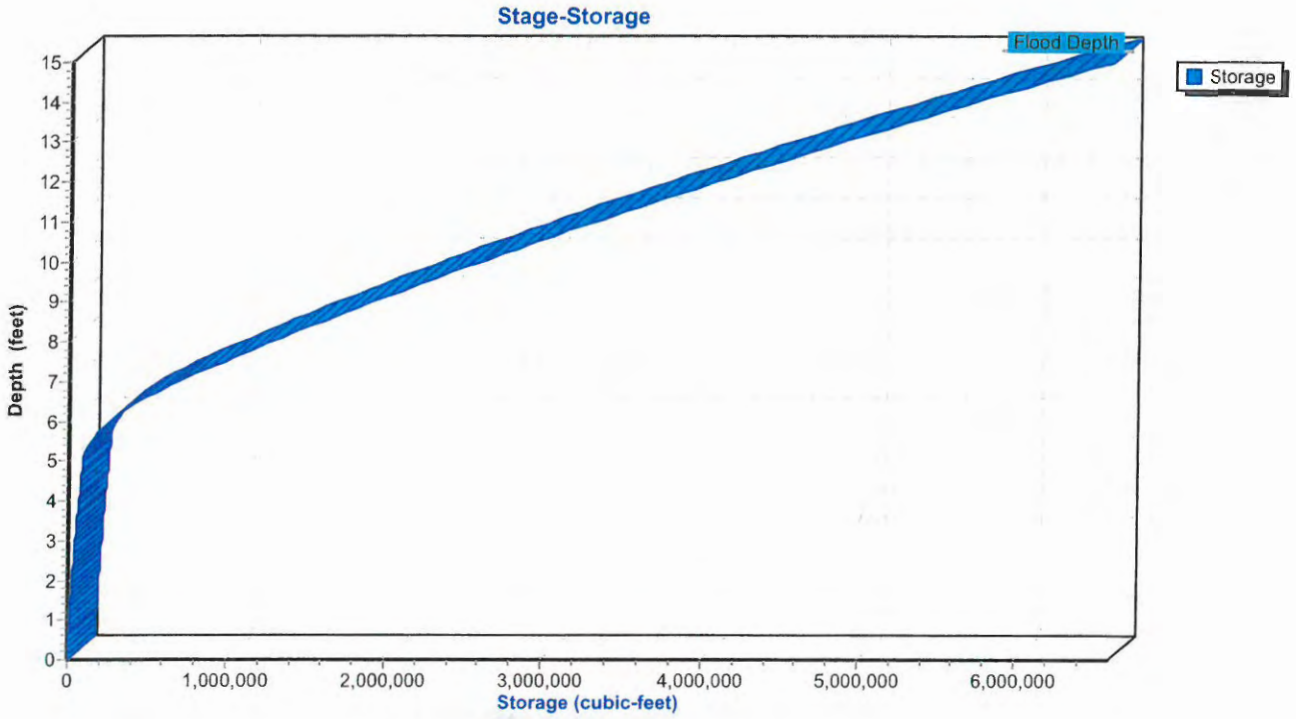
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



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



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



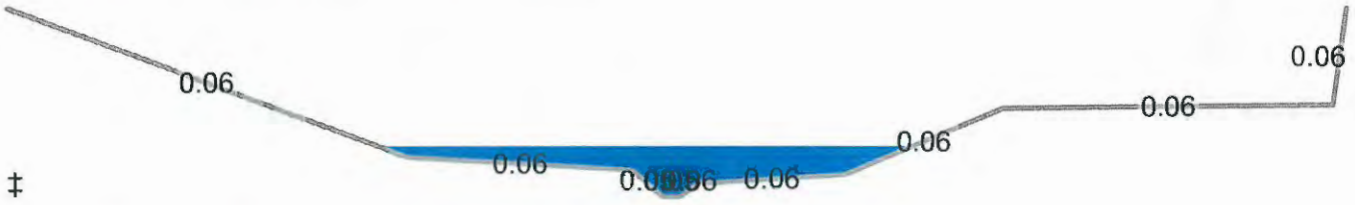
Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 6.44" for 6-HR 0.4 PMF event
Inflow = 6,766.35 cfs @ 4.88 hrs, Volume= 3,932.261 af
Outflow = 5,850.09 cfs @ 5.73 hrs, Volume= 3,892.095 af, Atten= 14%, Lag= 50.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.67 fps, Min. Travel Time= 54.9 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 85.8 min

Peak Storage= 19,256,845 cf @ 5.73 hrs
Average Depth at Peak Storage= 11.50'
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

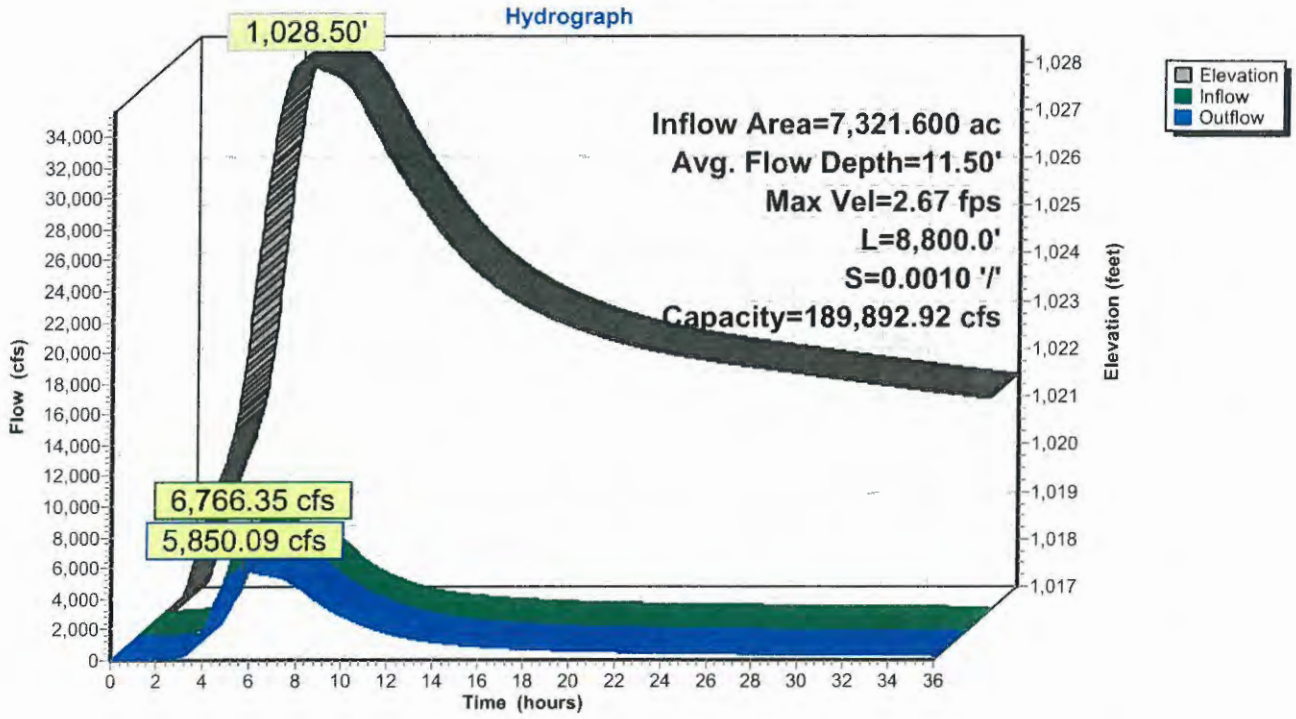
Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'



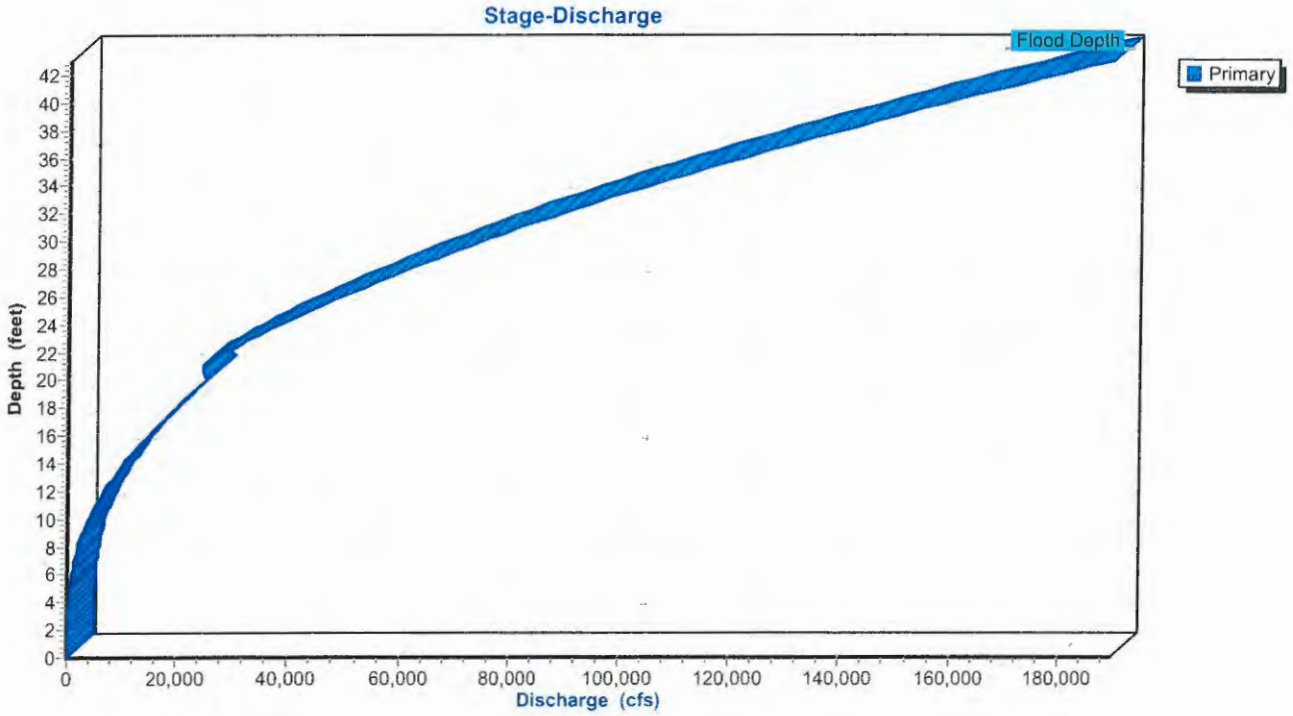
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00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

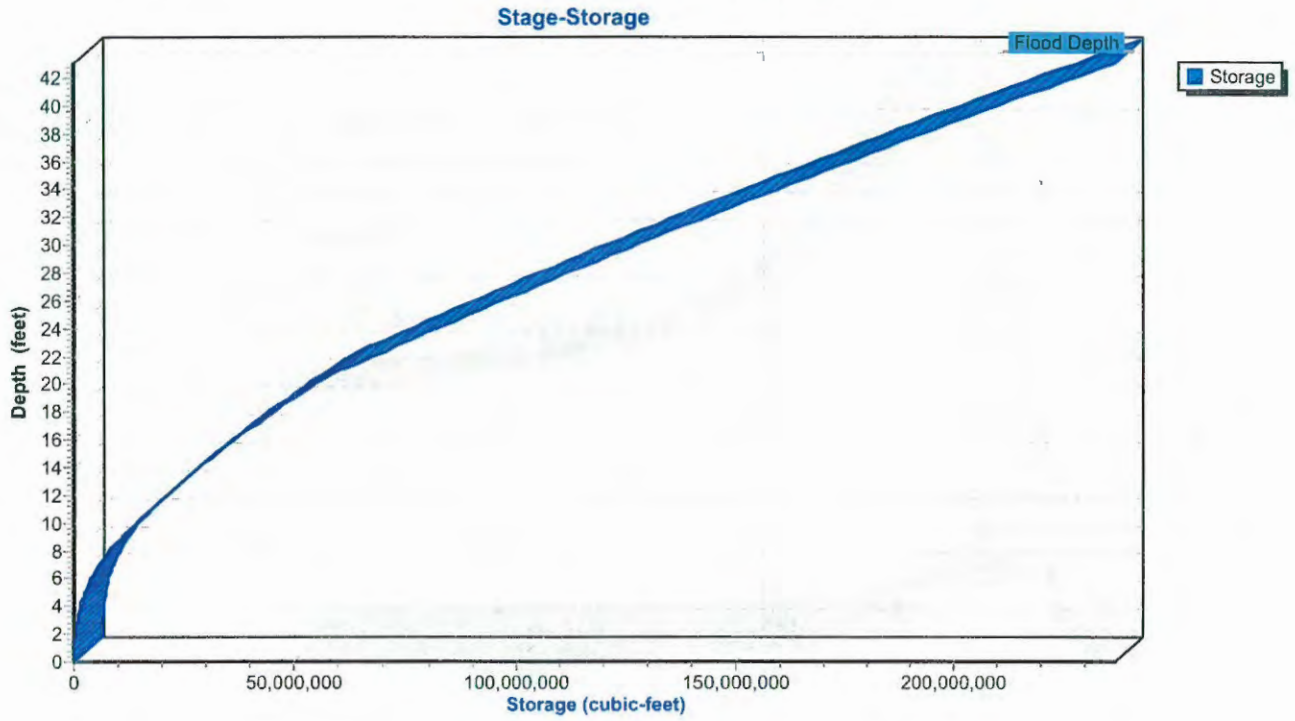
Reach 15R: Channel 15



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 > 6.52" for 6-HR 0.4 PMF event
Inflow = 7,700.34 cfs @ 5.42 hrs, Volume= 4,774.377 af
Outflow = 7,487.70 cfs @ 5.91 hrs, Volume= 4,731.783 af, Atten= 3%, Lag= 29.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.52 fps, Min. Travel Time= 35.5 min
Avg. Velocity = 1.80 fps, Avg. Travel Time= 69.6 min

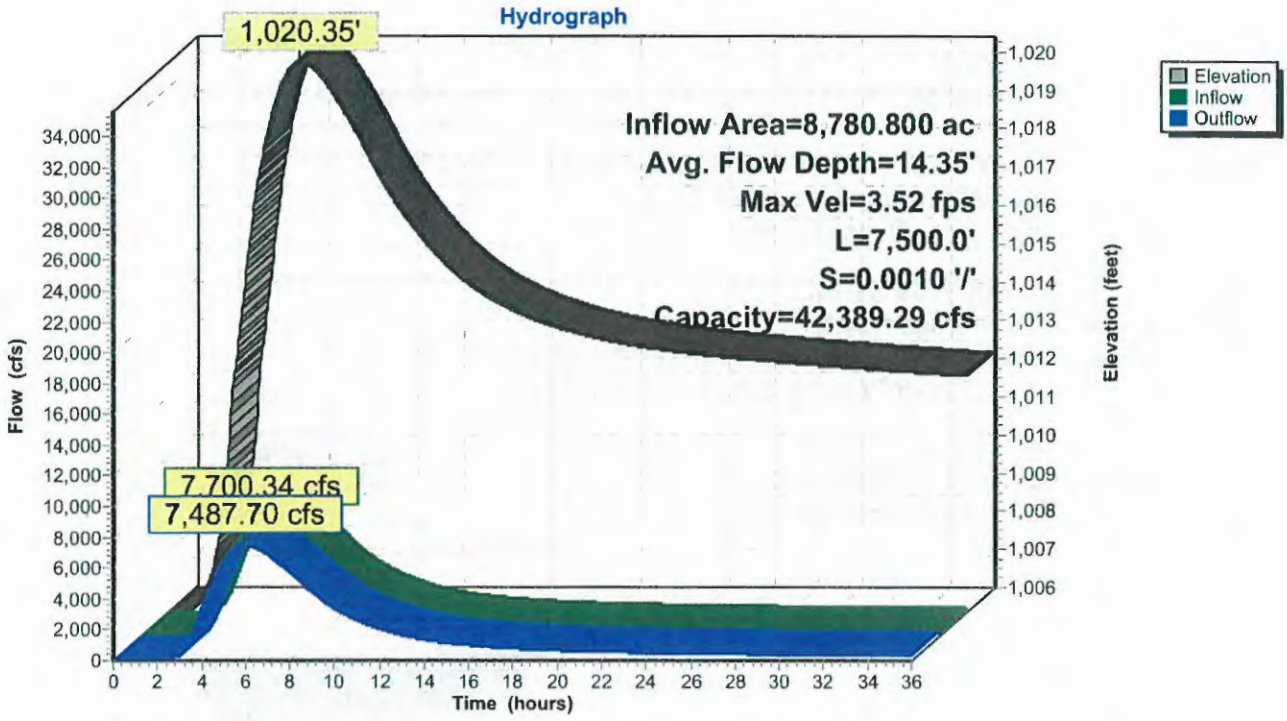
Peak Storage= 15,944,862 cf @ 5.91 hrs
Average Depth at Peak Storage= 14.35'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

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'

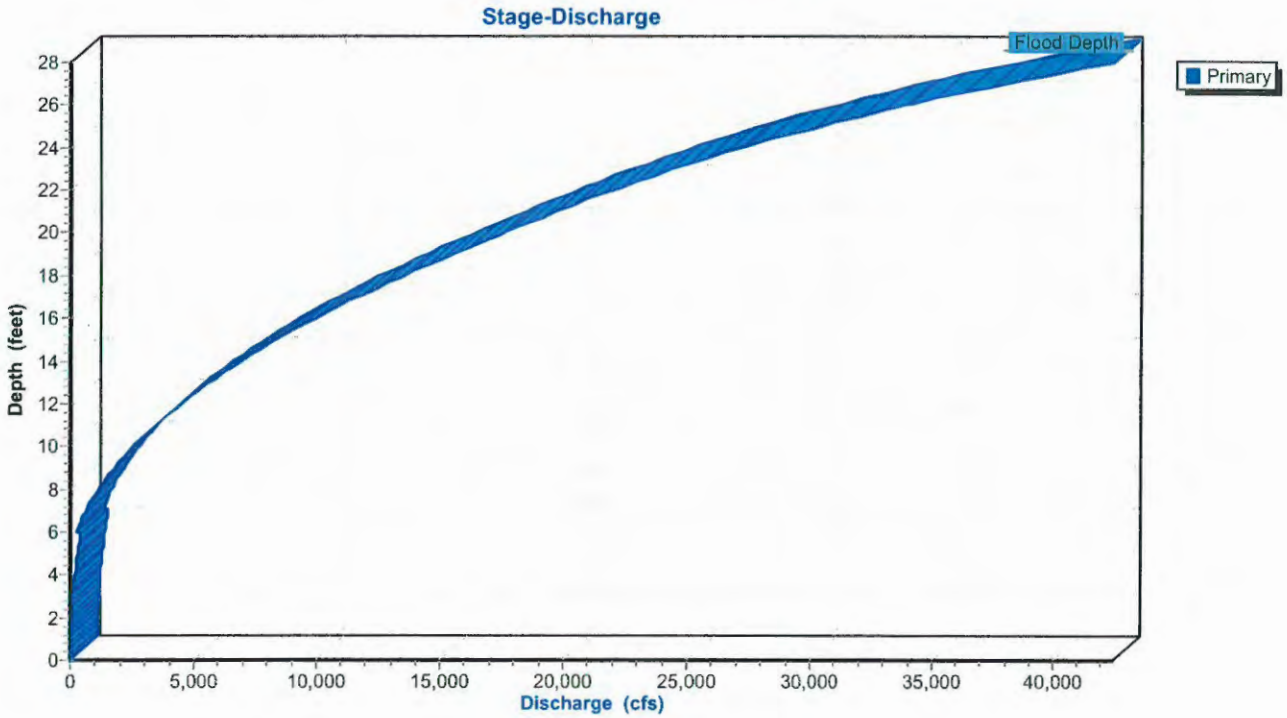
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00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

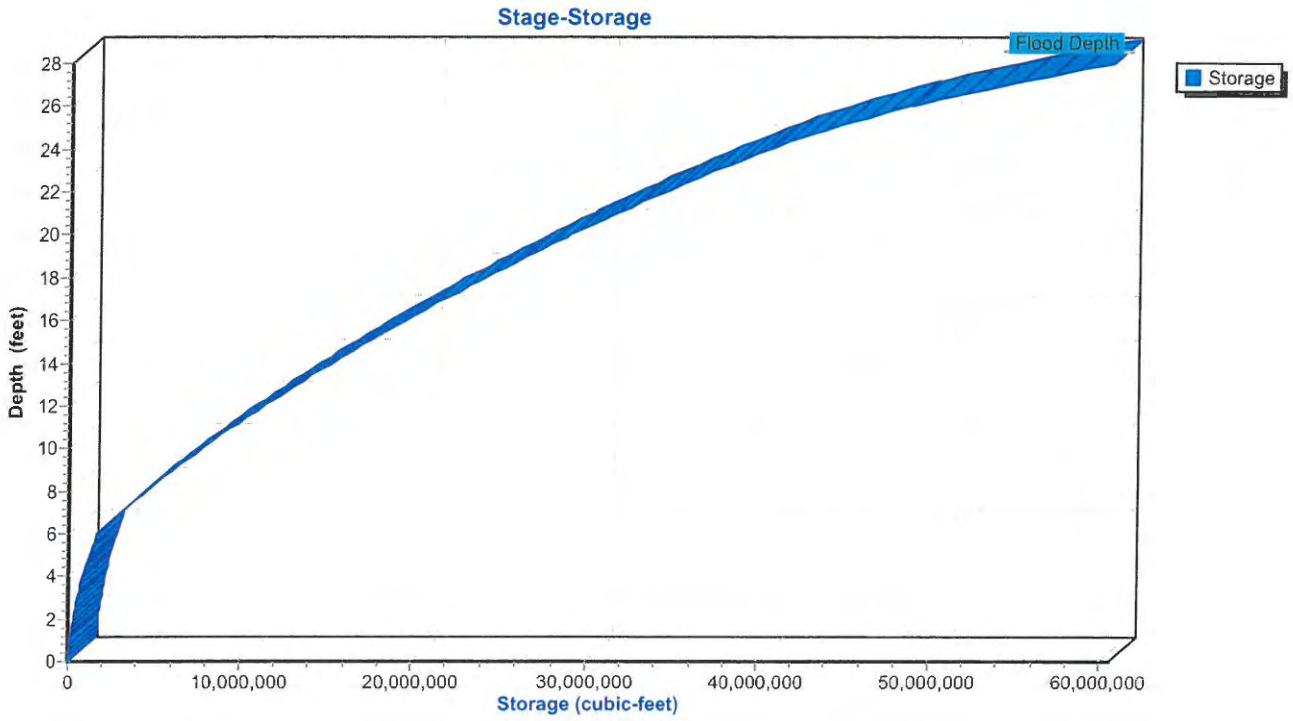
Reach 16R: Channel 16



Reach 16R: Channel 16



Reach 16R: Channel 16



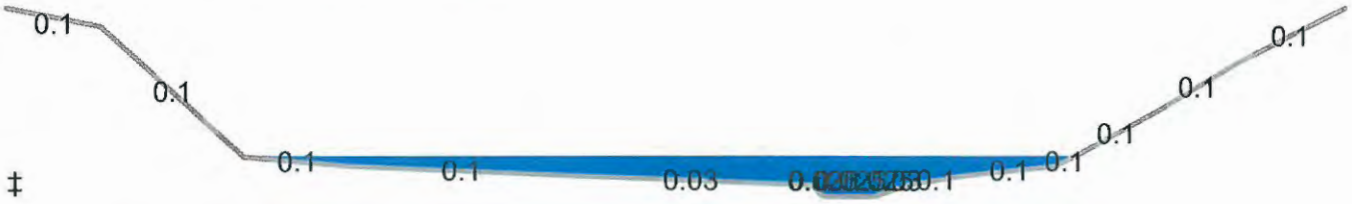
Summary for Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 6.56" for 6-HR 0.4 PMF event
Inflow = 8,186.84 cfs @ 6.07 hrs, Volume= 5,167.753 af
Outflow = 8,186.84 cfs @ 6.08 hrs, Volume= 5,167.628 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.74 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 9.09 fps, Avg. Travel Time= 0.8 min

Peak Storage= 343,177 cf @ 6.08 hrs
Average Depth at Peak Storage= 8.78'
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

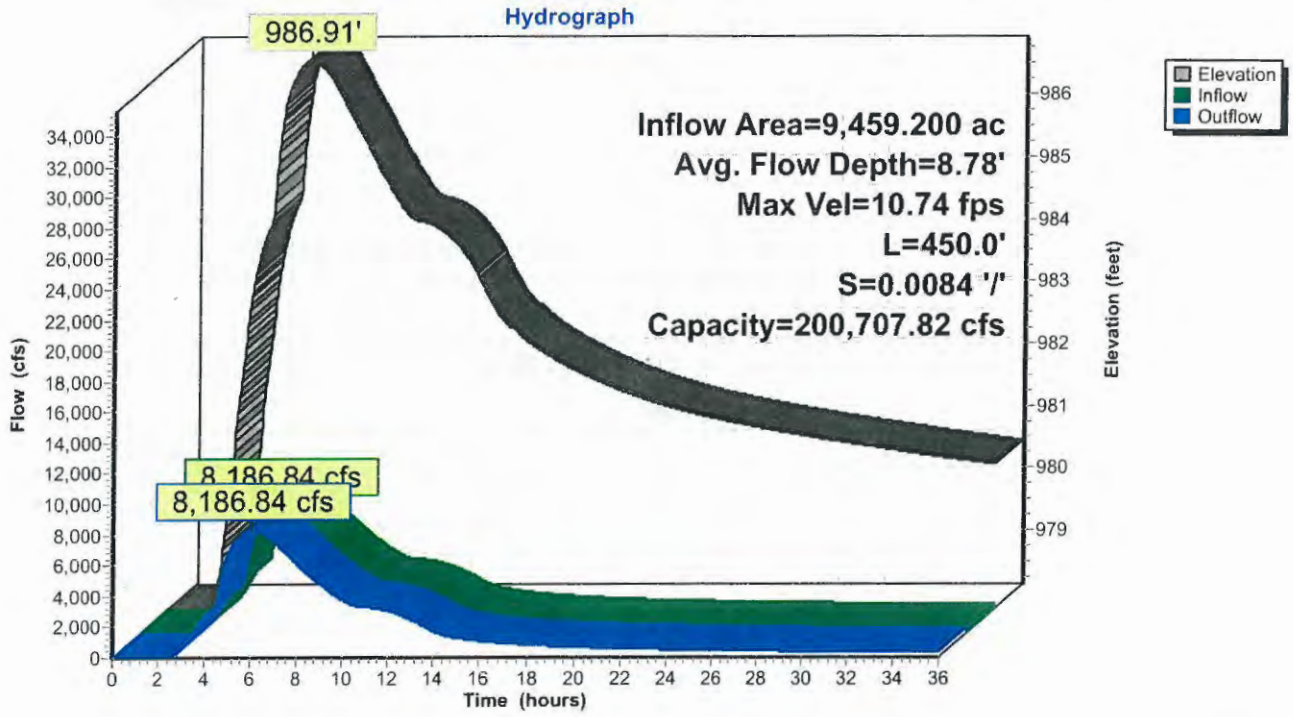
Custom cross-section, Length= 450.0' Slope= 0.0084 '/' (1006 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 978.13', Outlet Invert= 974.35'



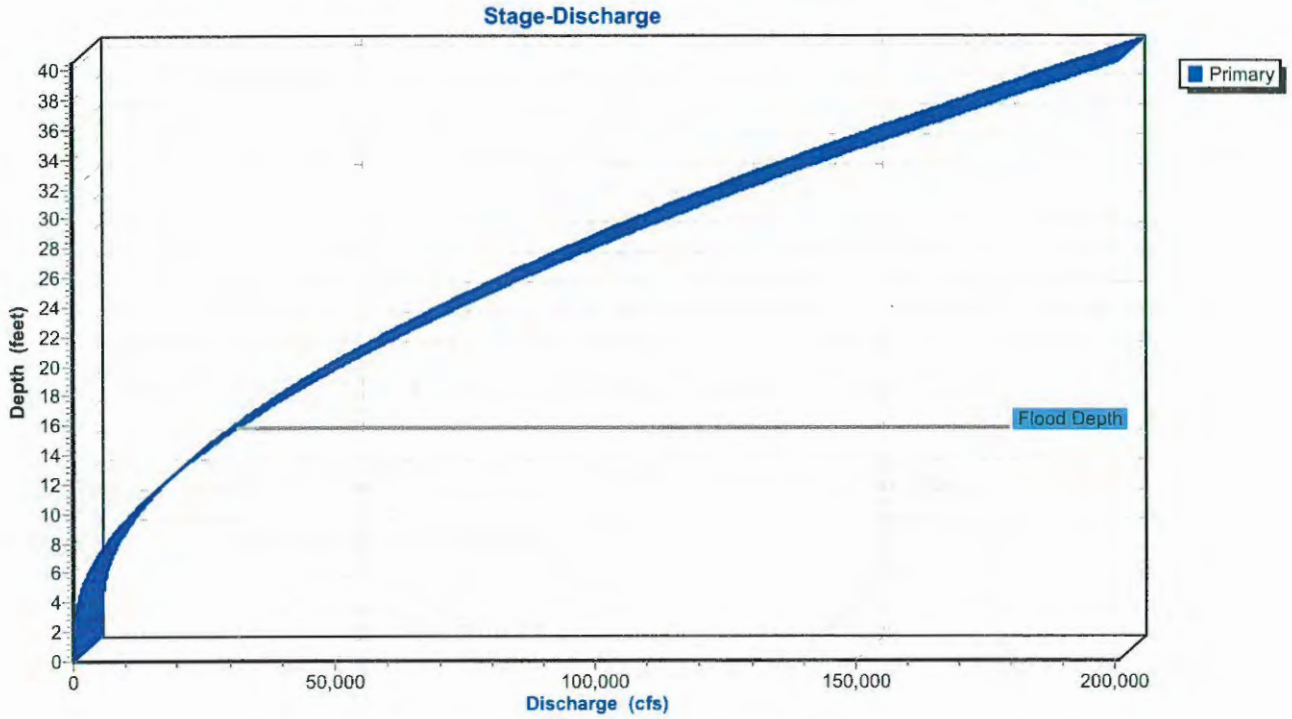
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, 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

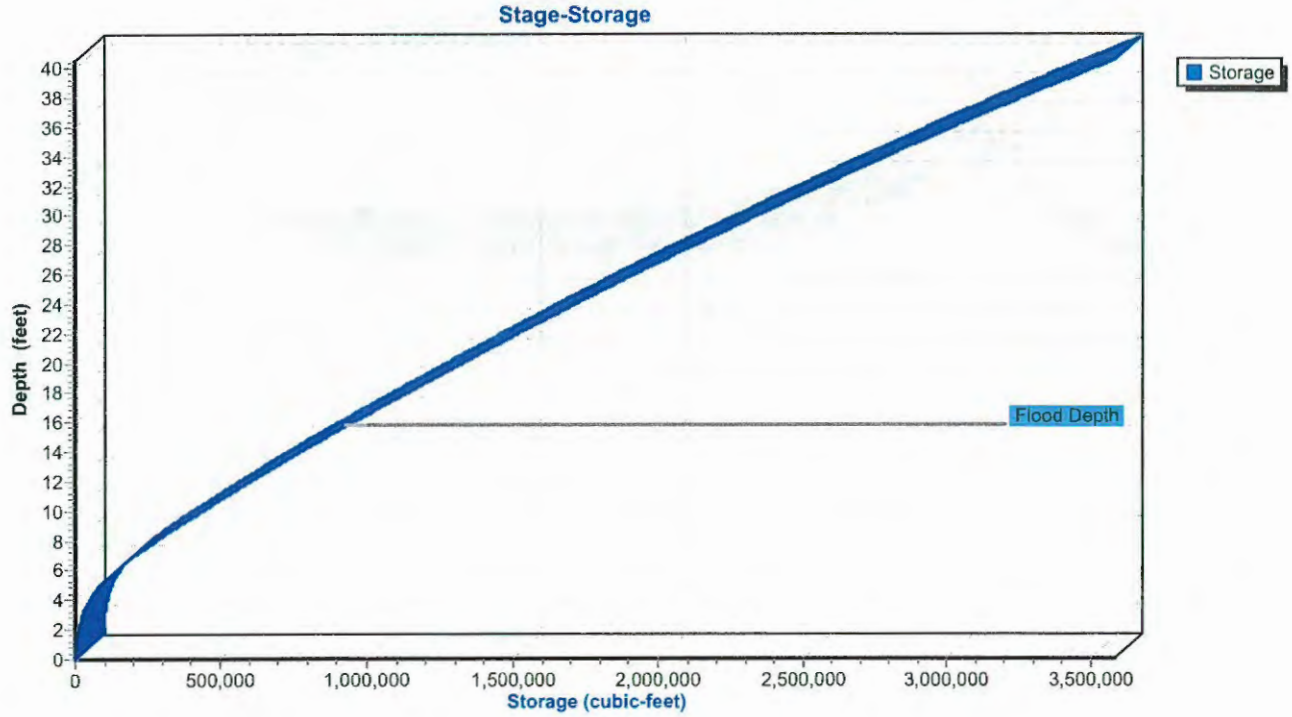
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

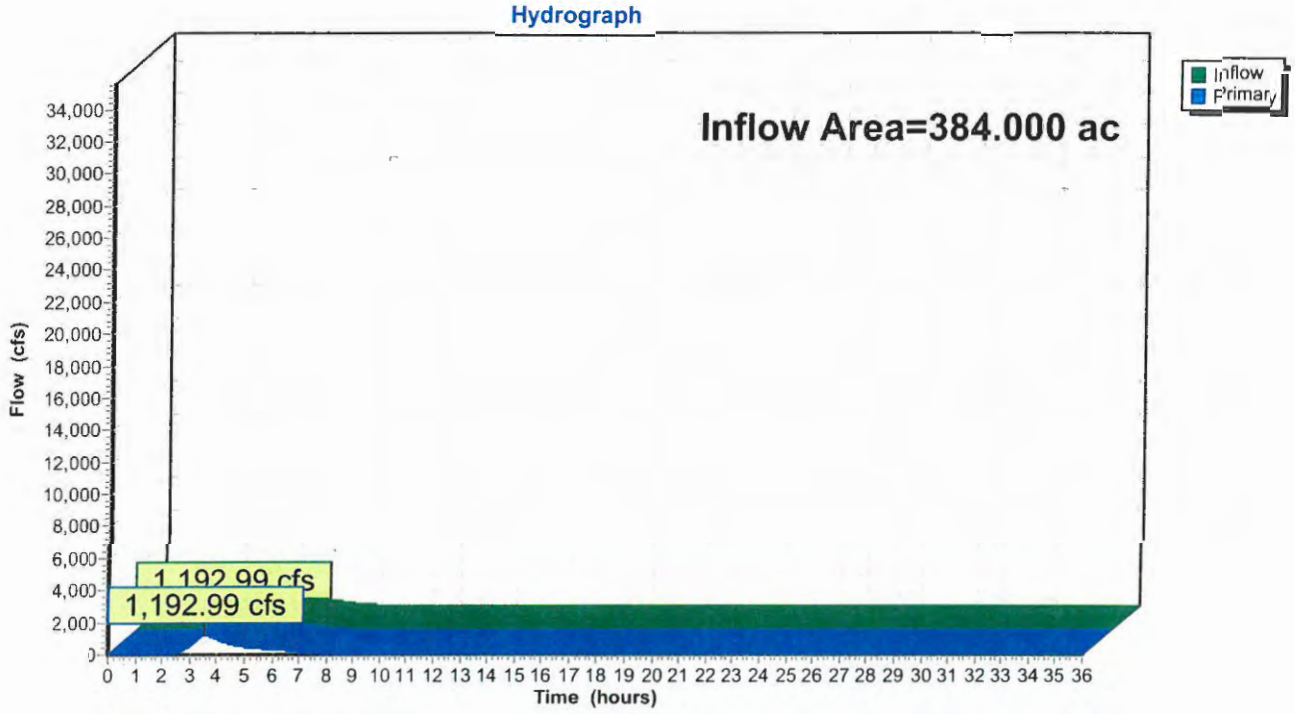


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 7.28" for 6-HR 0.4 PMF event
Inflow = 1,192.99 cfs @ 3.51 hrs, Volume= 233.016 af
Primary = 1,192.99 cfs @ 3.52 hrs, Volume= 233.016 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 > 6.57" for 6-HR 0.4 PMF event
Inflow = 8,226.27 cfs @ 5.81 hrs, Volume= 5,182.474 af
Outflow = 8,188.71 cfs @ 6.02 hrs, Volume= 5,169.307 af, Atten= 0%, Lag= 12.3 min
Primary = 2,929.13 cfs @ 4.12 hrs, Volume= 2,692.793 af
Secondary = 5,258.27 cfs @ 6.02 hrs, Volume= 2,295.802 af
Tertiary = 587.13 cfs @ 6.03 hrs, Volume= 180.712 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= 1,011.43' @ 6.05 hrs Surf.Area= 36.597 ac Storage= 241.775 af (180.813 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= 42.0 min calculated for 5,106.926 af (99% of inflow)
Center-of-Mass det. time= 15.5 min (628.2 - 612.6)

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

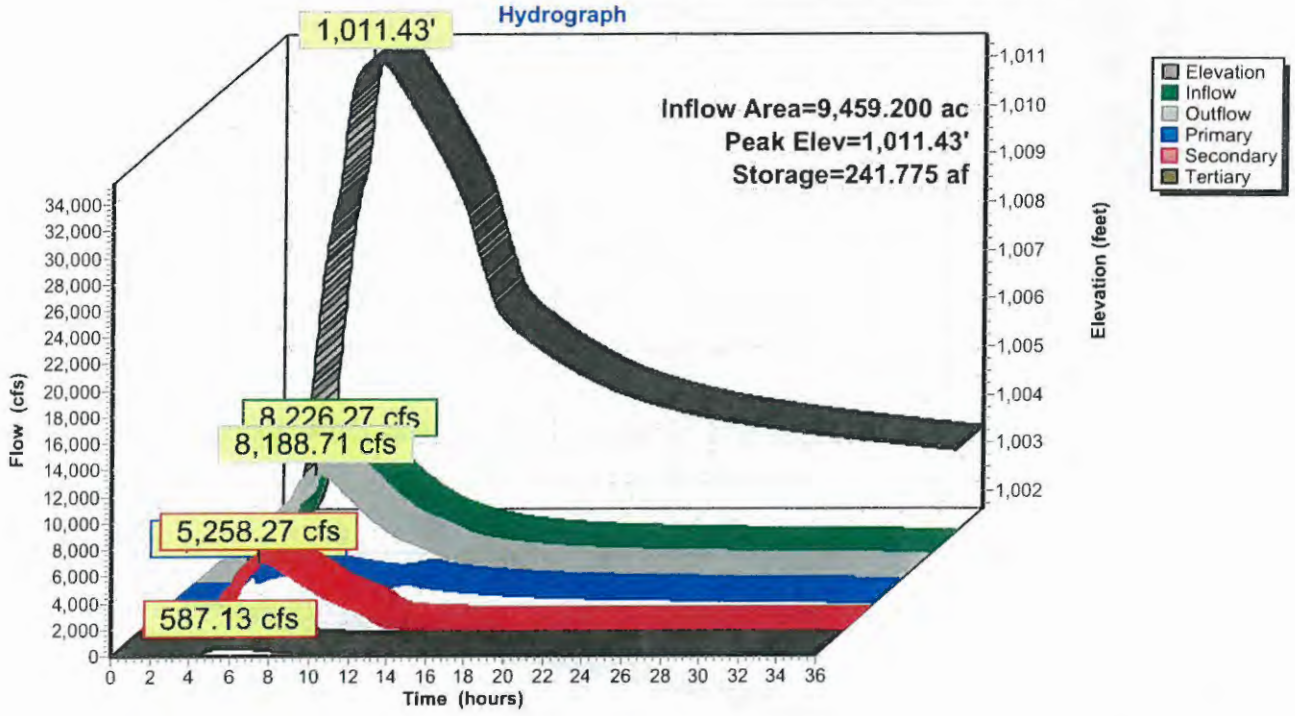
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	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=2,917.64 cfs @ 4.12 hrs HW=1,008.43' TW=1,002.09' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,917.64 cfs @ 8.59 fps)

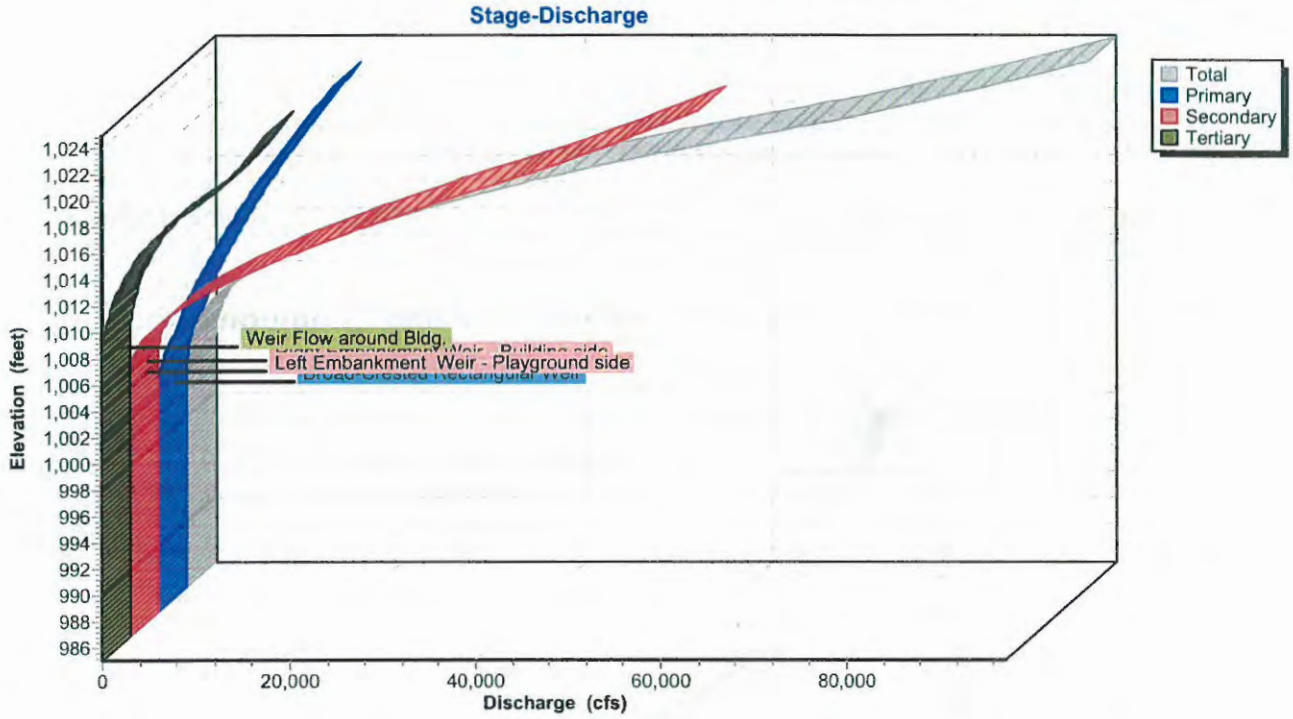
Secondary OutFlow Max=5,257.55 cfs @ 6.02 hrs HW=1,011.43' TW=1,010.54' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 1,852.44 cfs @ 4.39 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 3,405.11 cfs @ 4.32 fps)

Tertiary OutFlow Max=587.08 cfs @ 6.03 hrs HW=1,011.43' TW=1,010.54' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Weir Controls 587.08 cfs @ 2.06 fps)

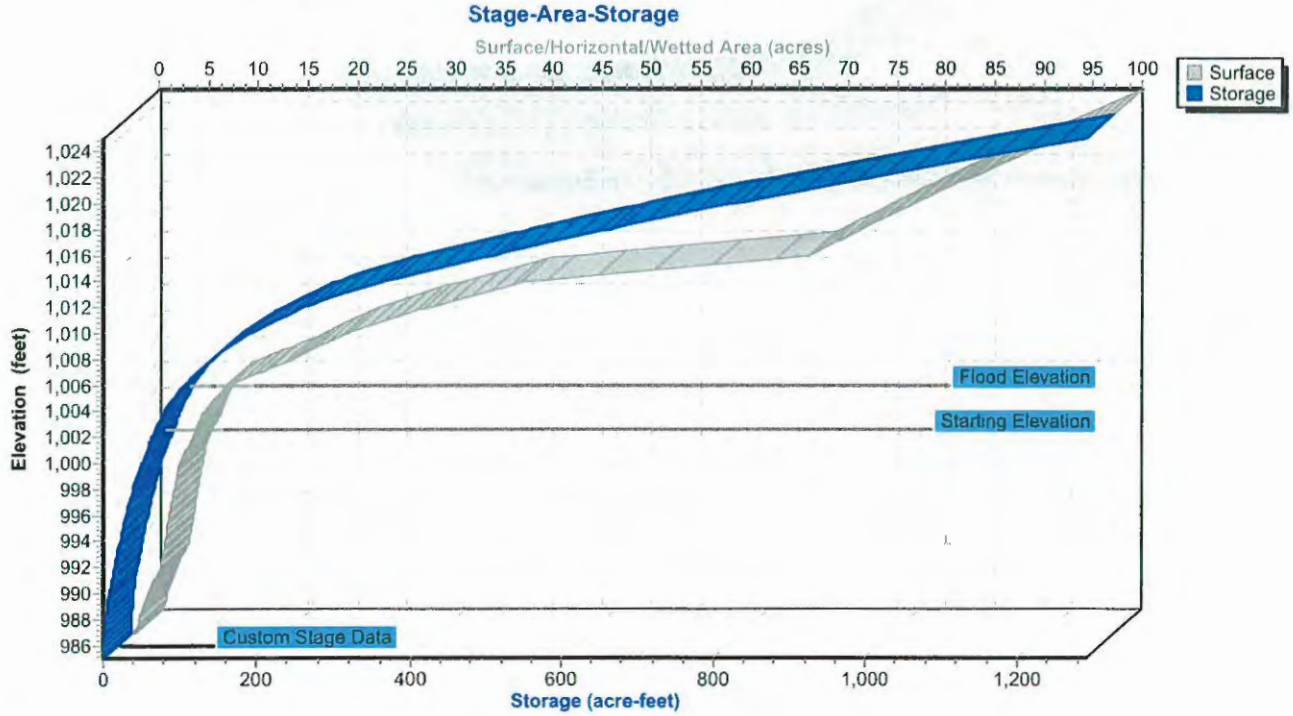
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

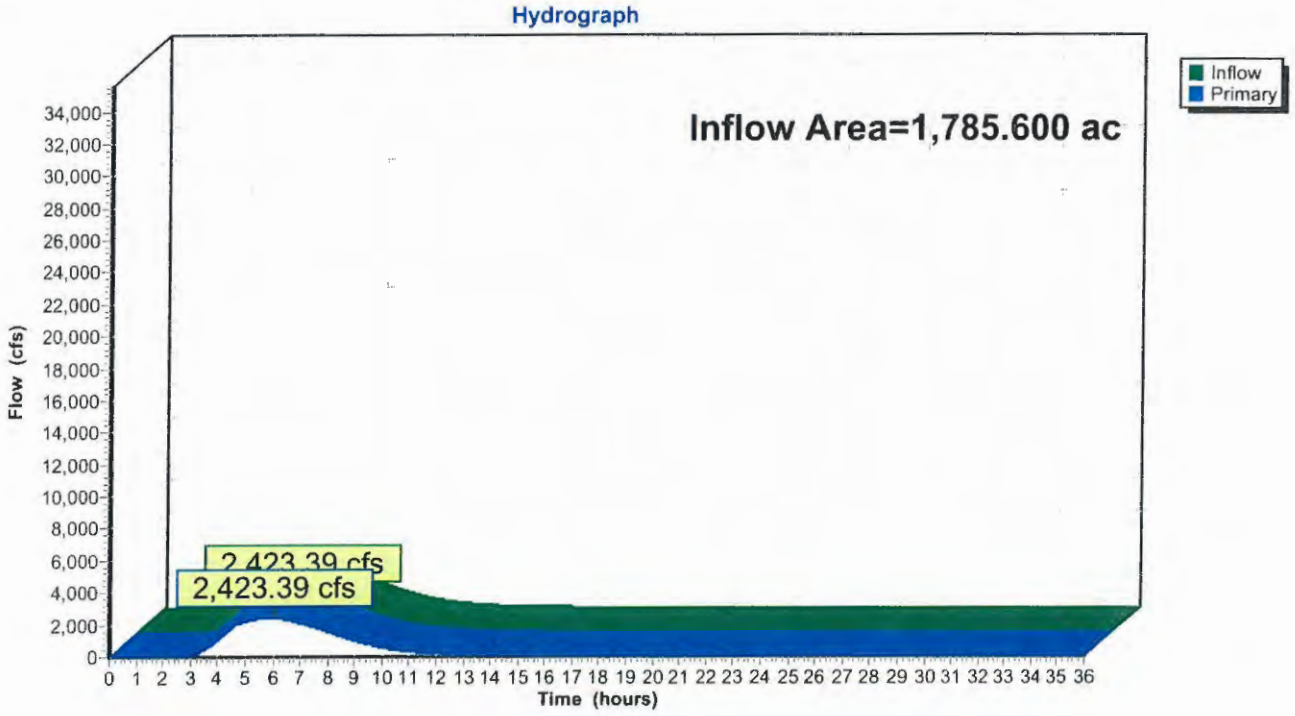


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 6.79" for 6-HR 0.4 PMF event
Inflow = 2,423.39 cfs @ 6.02 hrs, Volume= 1,010.067 af
Primary = 2,423.39 cfs @ 6.03 hrs, Volume= 1,010.067 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 > 6.79" for 6-HR 0.4 PMF event
Inflow = 2,423.39 cfs @ 6.03 hrs, Volume= 1,010.066 af
Outflow = 816.42 cfs @ 9.37 hrs, Volume= 1,115.021 af, Atten= 66%, Lag= 200.3 min
Primary = 698.66 cfs @ 9.37 hrs, Volume= 1,098.485 af
Secondary = 117.76 cfs @ 9.37 hrs, Volume= 16.536 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= 1,099.62' @ 9.37 hrs Surf.Area= 301.007 ac Storage= 2,491.901 af (577.901 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= 516.7 min (940.7 - 423.9)

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

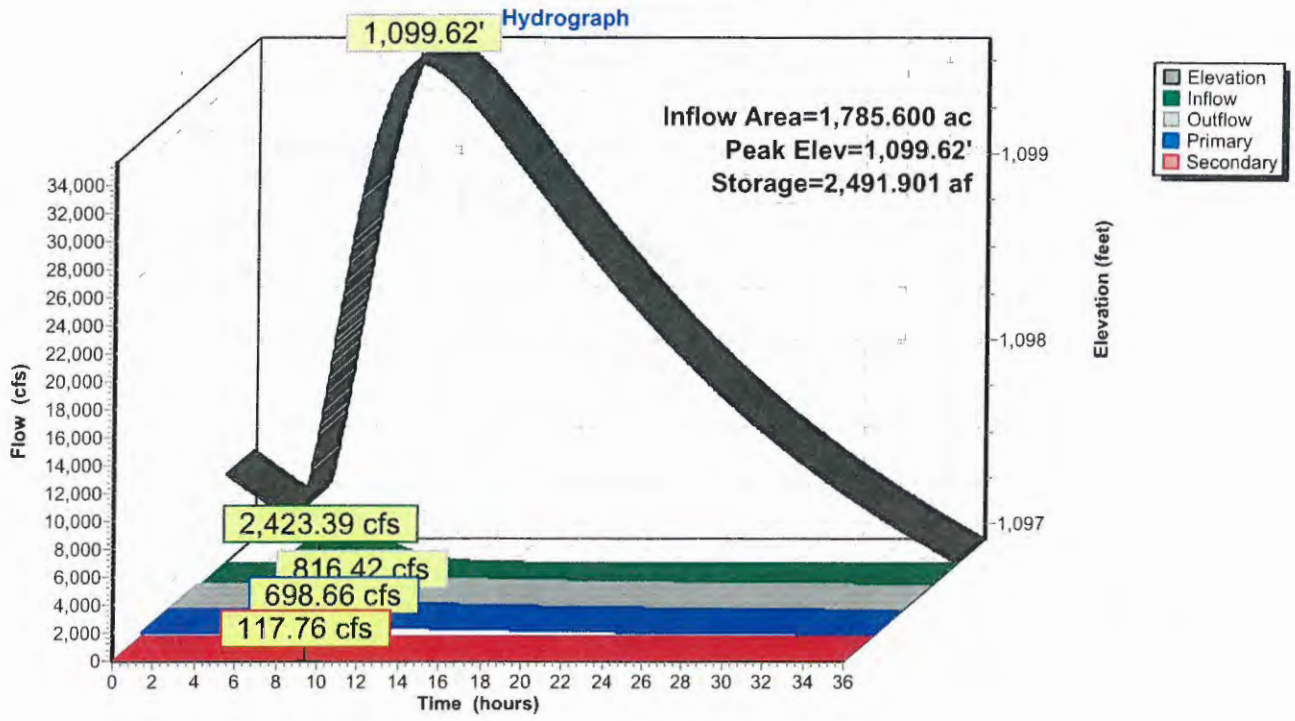
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

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

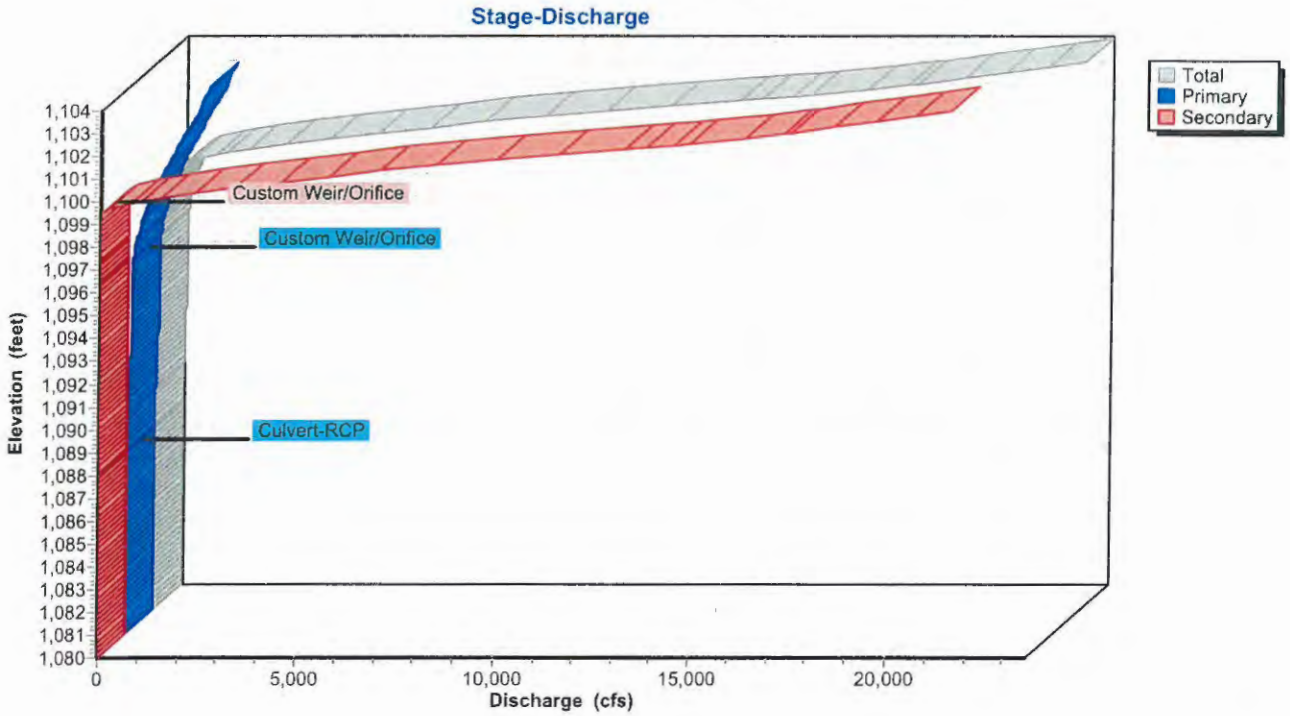
Primary OutFlow Max=698.66 cfs @ 9.37 hrs HW=1,099.62' TW=1,073.39' (Dynamic Tailwater)
└─**1=Culvert-RCP** (Barrel Controls 130.71 cfs @ 18.49 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 567.95 cfs @ 5.88 fps)

Secondary OutFlow Max=117.76 cfs @ 9.37 hrs HW=1,099.62' TW=1,073.39' (Dynamic Tailwater)
└─**3=Custom Weir/Orifice** (Weir Controls 117.76 cfs @ 0.97 fps)

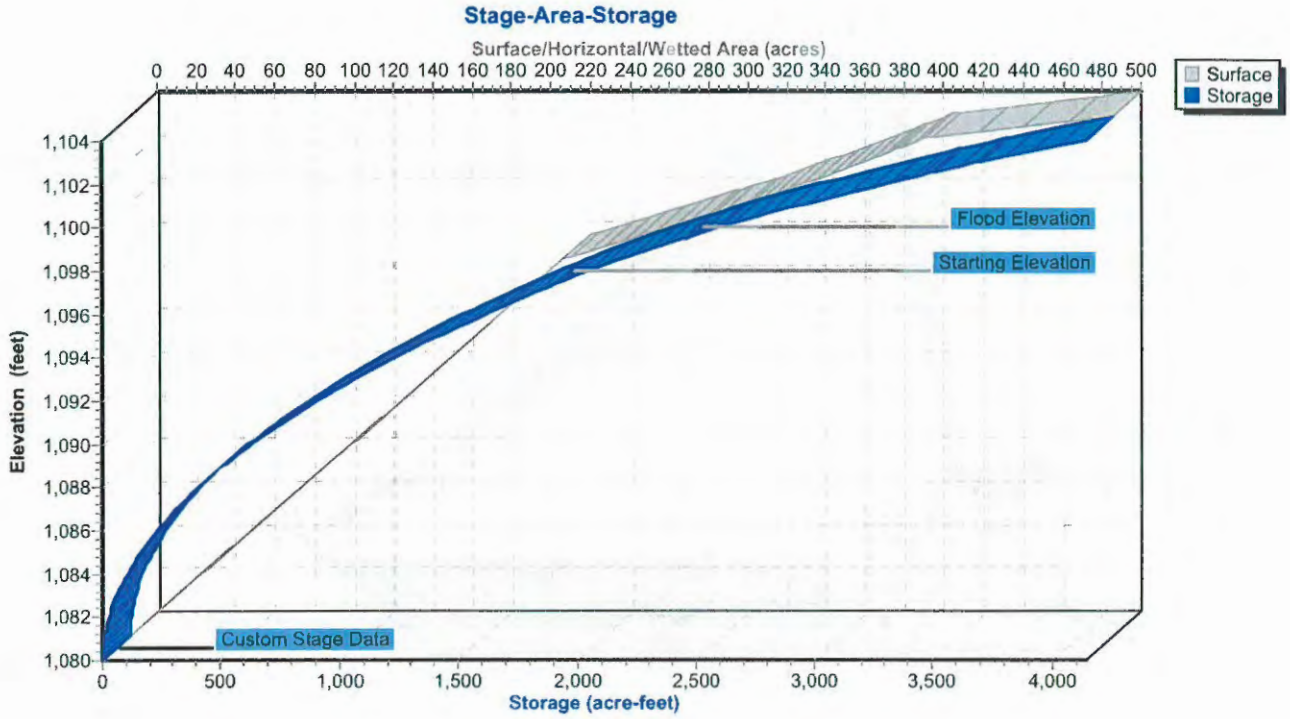
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

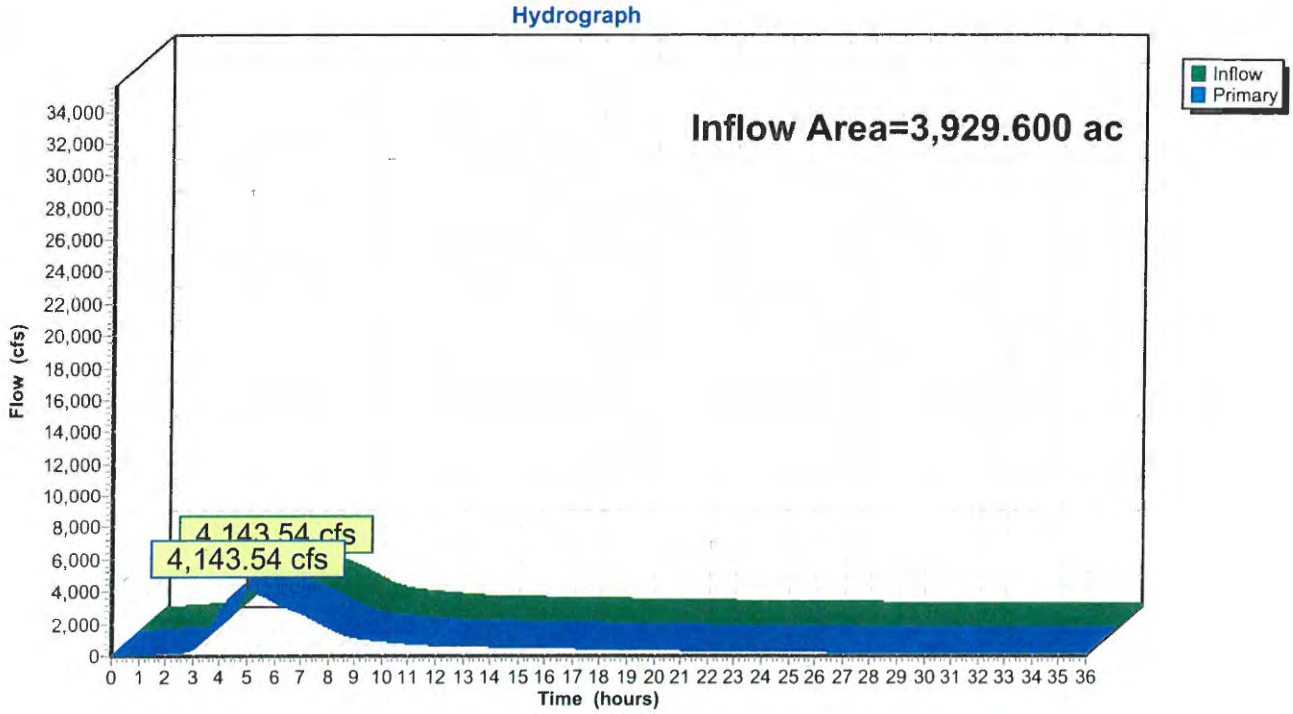


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 6.87" for 6-HR 0.4 PMF event
Inflow = 4,143.54 cfs @ 4.99 hrs, Volume= 2,250.576 af
Primary = 4,143.54 cfs @ 5.00 hrs, Volume= 2,250.576 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 > 7.28" for 6-HR 0.4 PMF event
Inflow = 1,192.99 cfs @ 3.52 hrs, Volume= 233.016 af
Outflow = 919.55 cfs @ 4.08 hrs, Volume= 232.447 af, Atten= 23%, Lag= 33.9 min
Primary = 885.62 cfs @ 4.08 hrs, Volume= 230.180 af
Secondary = 33.94 cfs @ 4.08 hrs, Volume= 2.266 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= 1,108.89' @ 4.08 hrs Surf.Area= 31.438 ac Storage= 106.991 af (82.691 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= 231.1 min calculated for 208.089 af (89% of inflow)
Center-of-Mass det. time= 173.8 min (457.5 - 283.6)

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

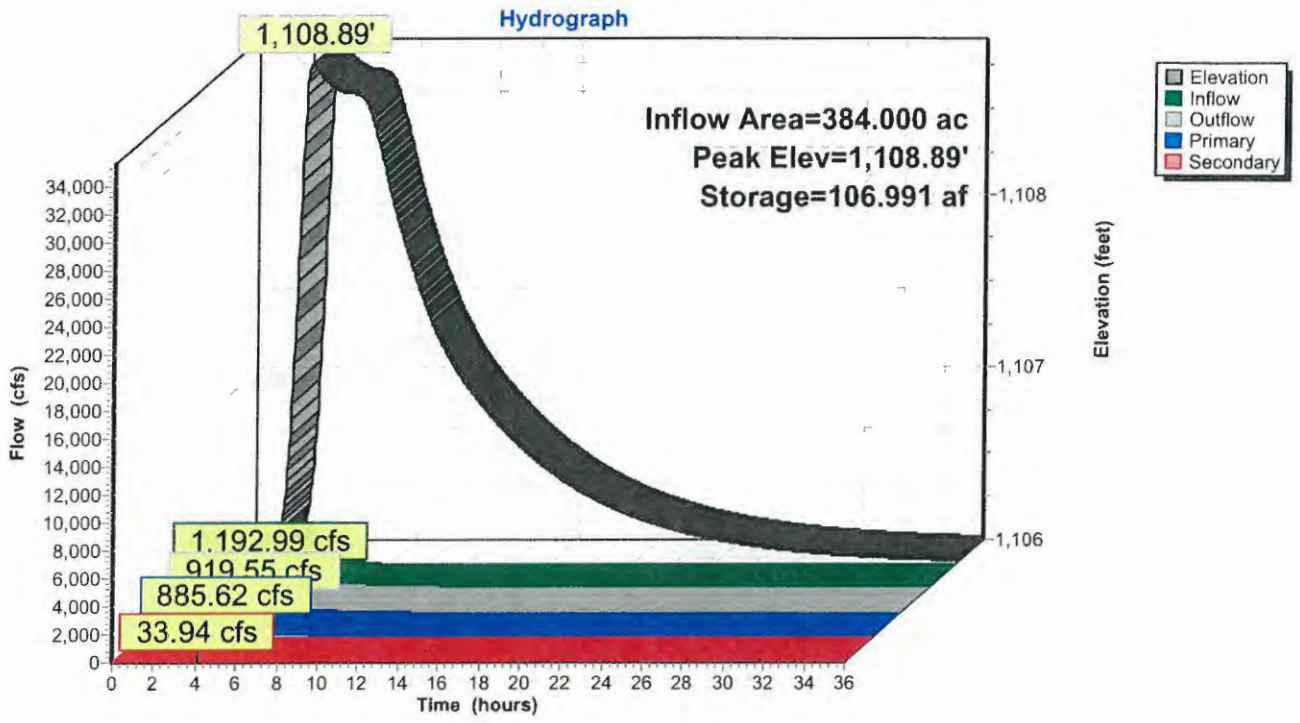
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

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

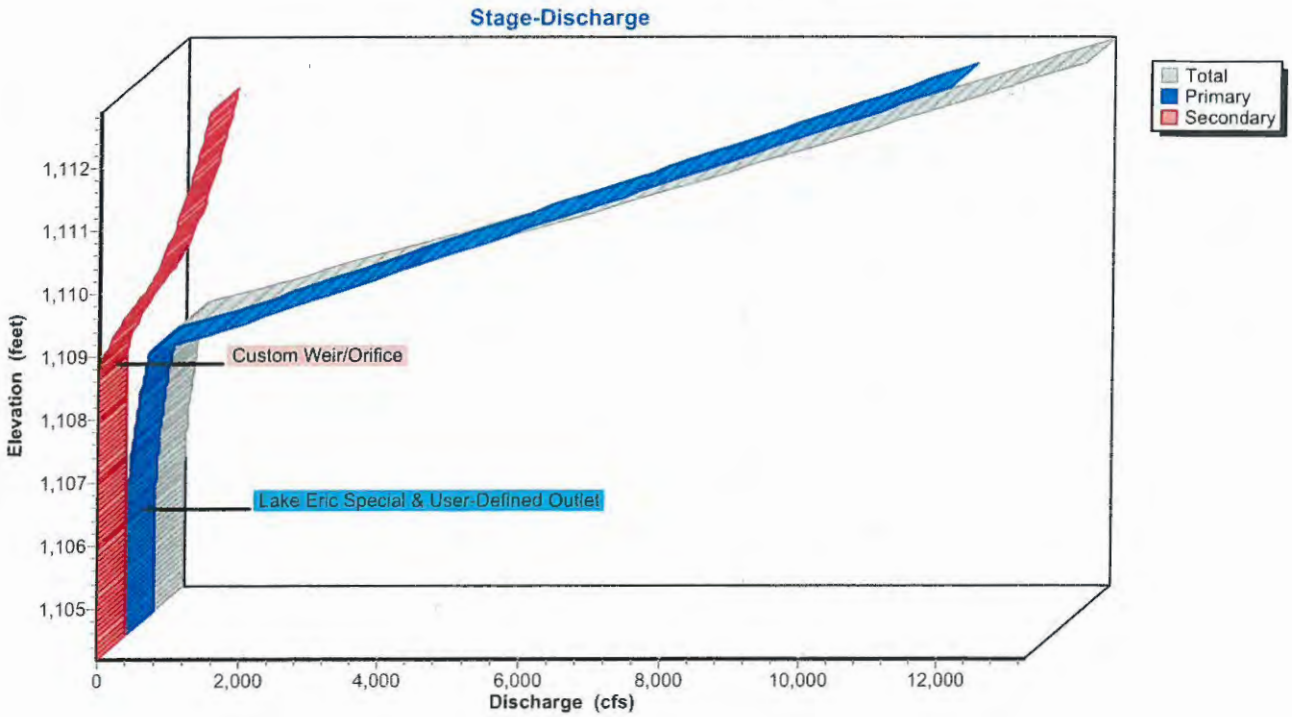
Primary OutFlow Max=885.58 cfs @ 4.08 hrs HW=1,108.89' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet** (Custom Controls 885.58 cfs)

Secondary OutFlow Max=33.93 cfs @ 4.08 hrs HW=1,108.89' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 33.93 cfs @ 1.21 fps)

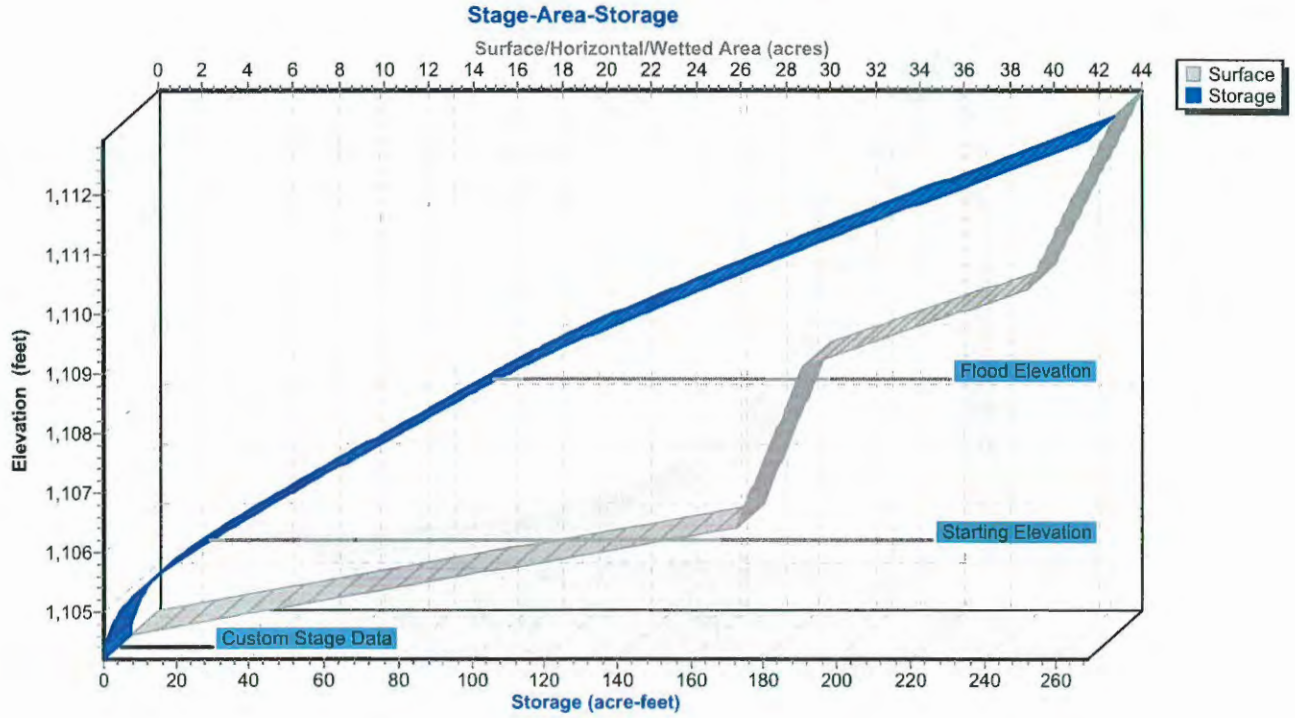
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

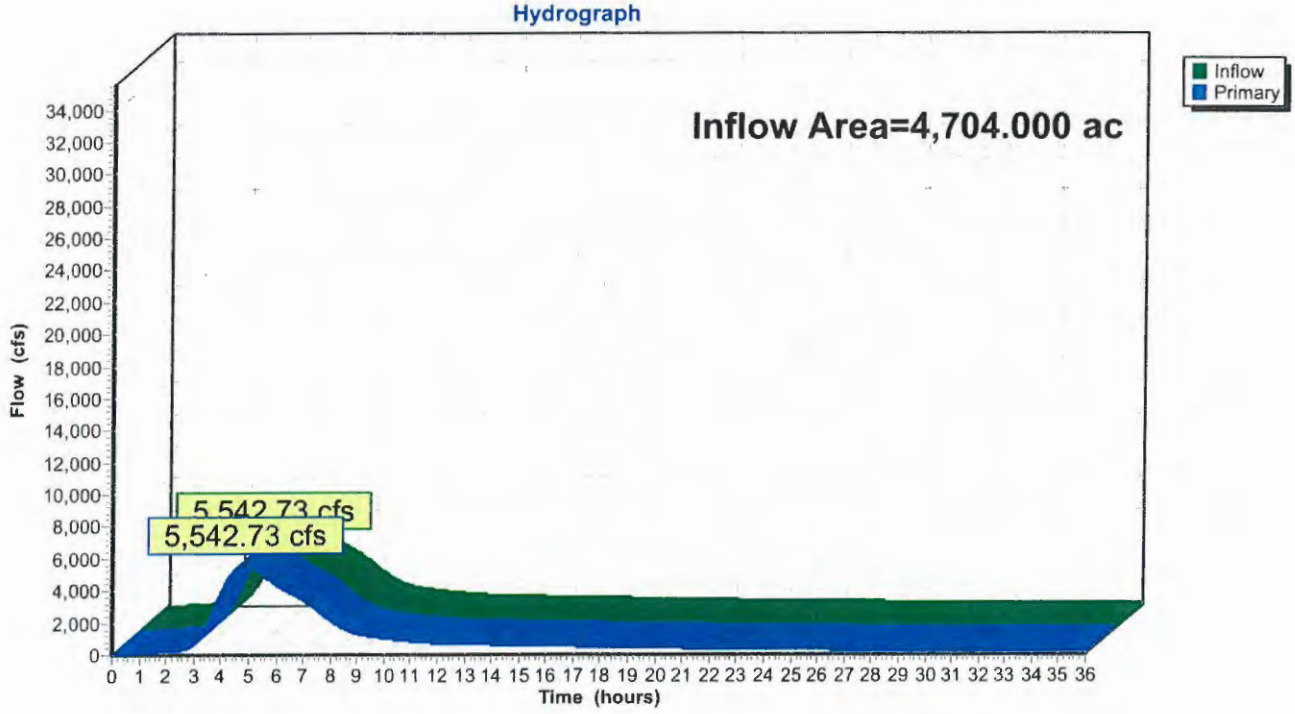


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 6.77" for 6-HR 0.4 PMF event
Inflow = 5,542.73 cfs @ 4.83 hrs, Volume= 2,653.892 af
Primary = 5,542.73 cfs @ 4.84 hrs, Volume= 2,653.892 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 = 7.19" for 6-HR 0.4 PMF event
Inflow = 387.37 cfs @ 3.27 hrs, Volume= 69.049 af
Outflow = 382.55 cfs @ 3.37 hrs, Volume= 68.932 af, Atten= 1%, Lag= 6.1 min
Primary = 278.48 cfs @ 3.37 hrs, Volume= 59.951 af
Secondary = 104.07 cfs @ 3.37 hrs, Volume= 8.981 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= 1,120.39' @ 3.37 hrs Surf.Area= 4.354 ac Storage= 29.177 af (15.487 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= 158.1 min calculated for 55.227 af (80% of inflow)
Center-of-Mass det. time= 96.0 min (337.5 - 241.5)

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

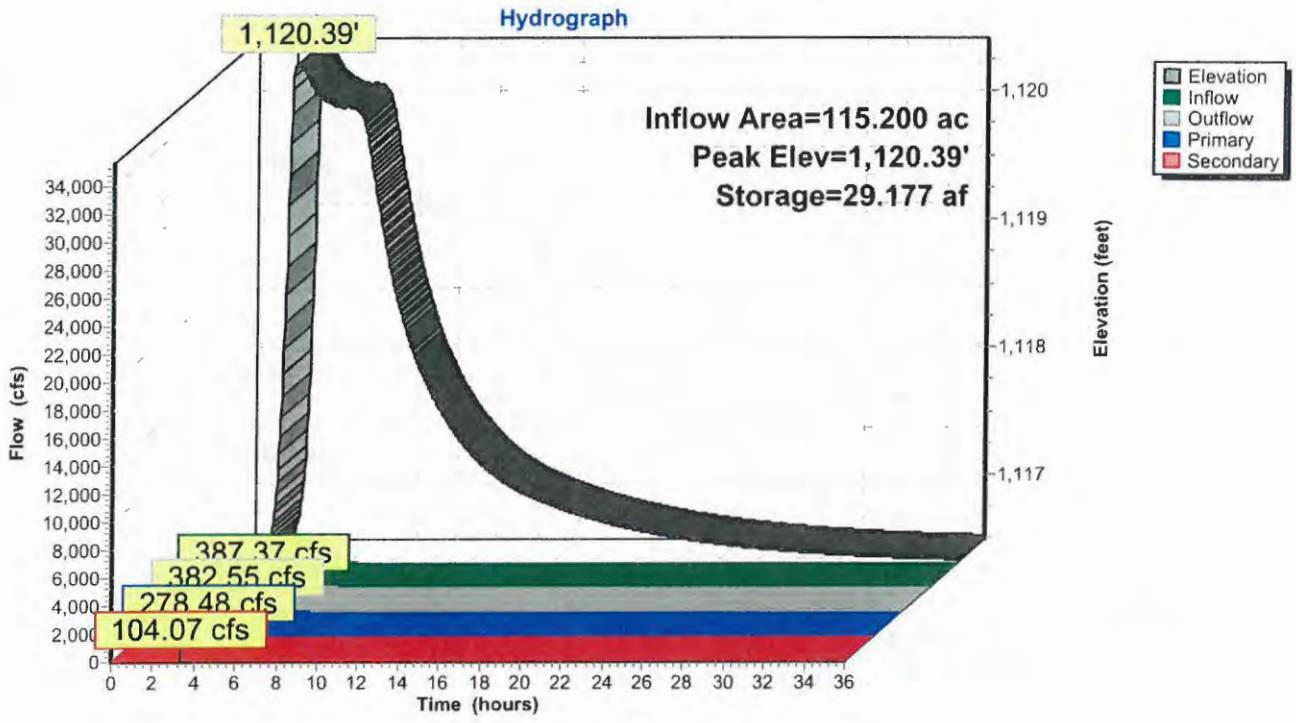
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

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

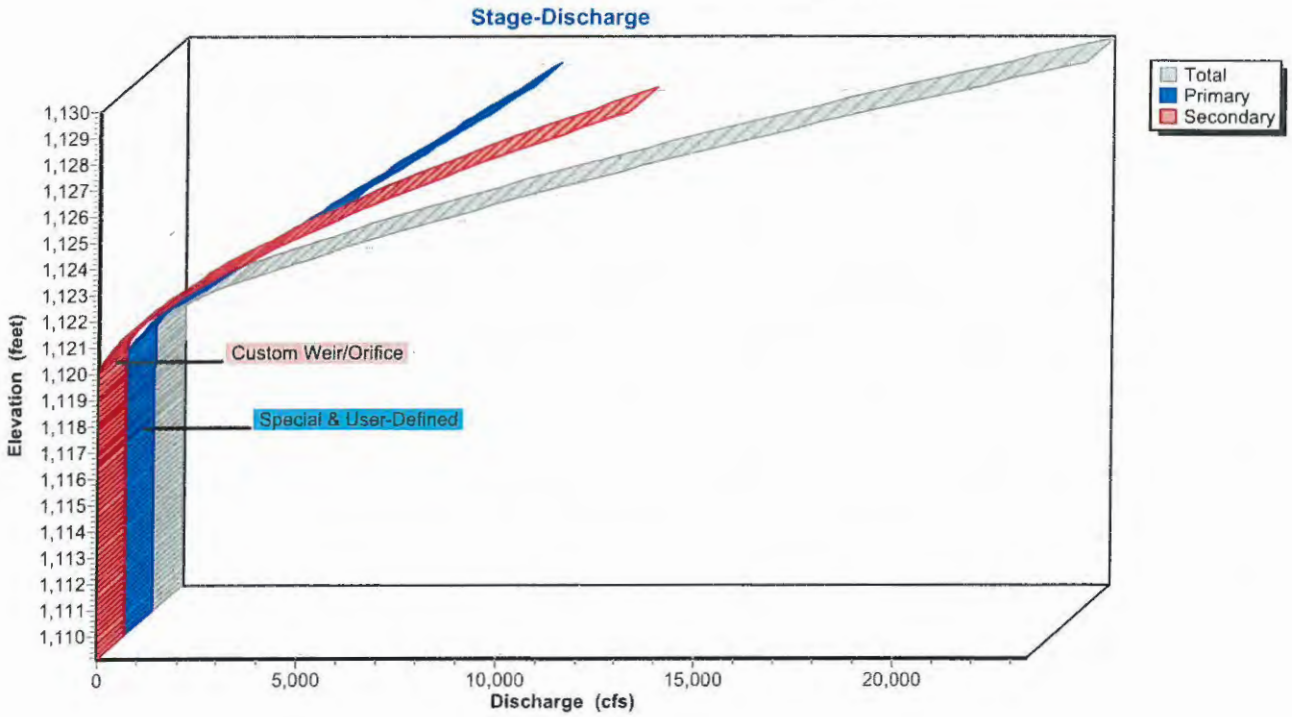
Primary OutFlow Max=278.47 cfs @ 3.37 hrs HW=1,120.39' TW=0.00' (Dynamic Tailwater)
↑—**1=Special & User-Defined** (Custom Controls 278.47 cfs)

Secondary OutFlow Max=104.06 cfs @ 3.37 hrs HW=1,120.39' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 104.06 cfs @ 1.76 fps)

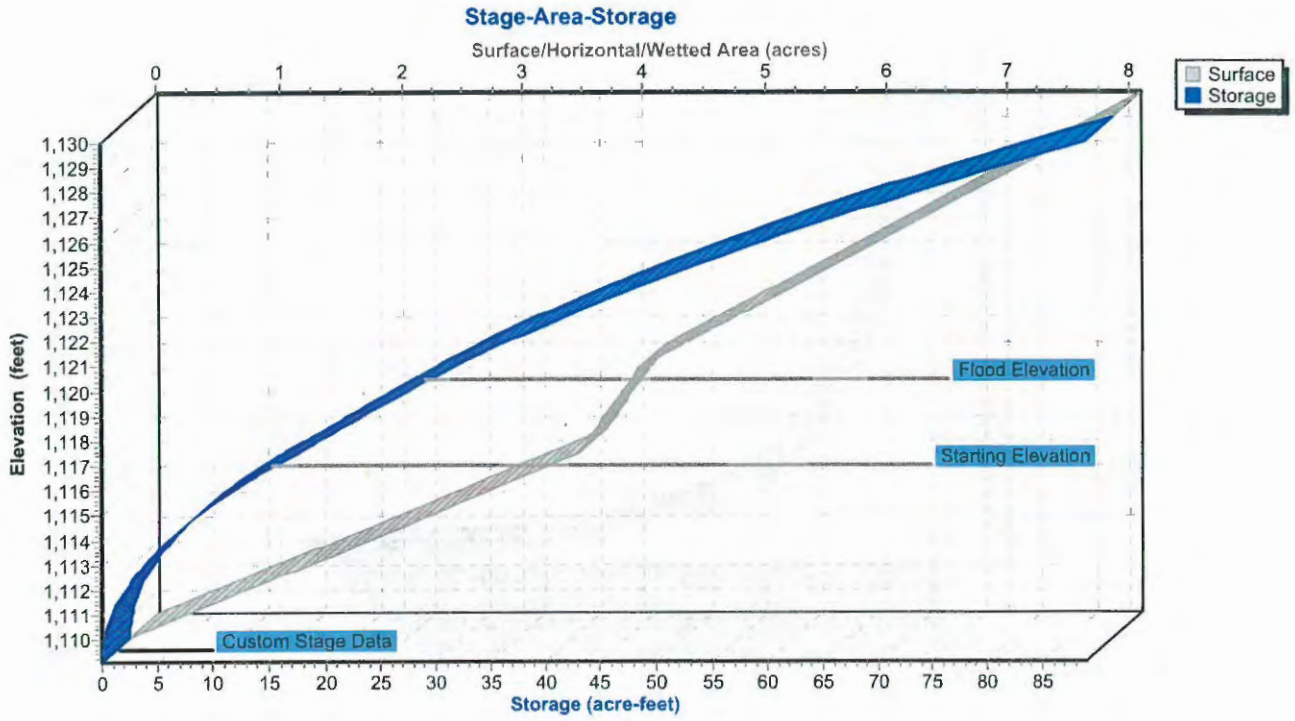
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

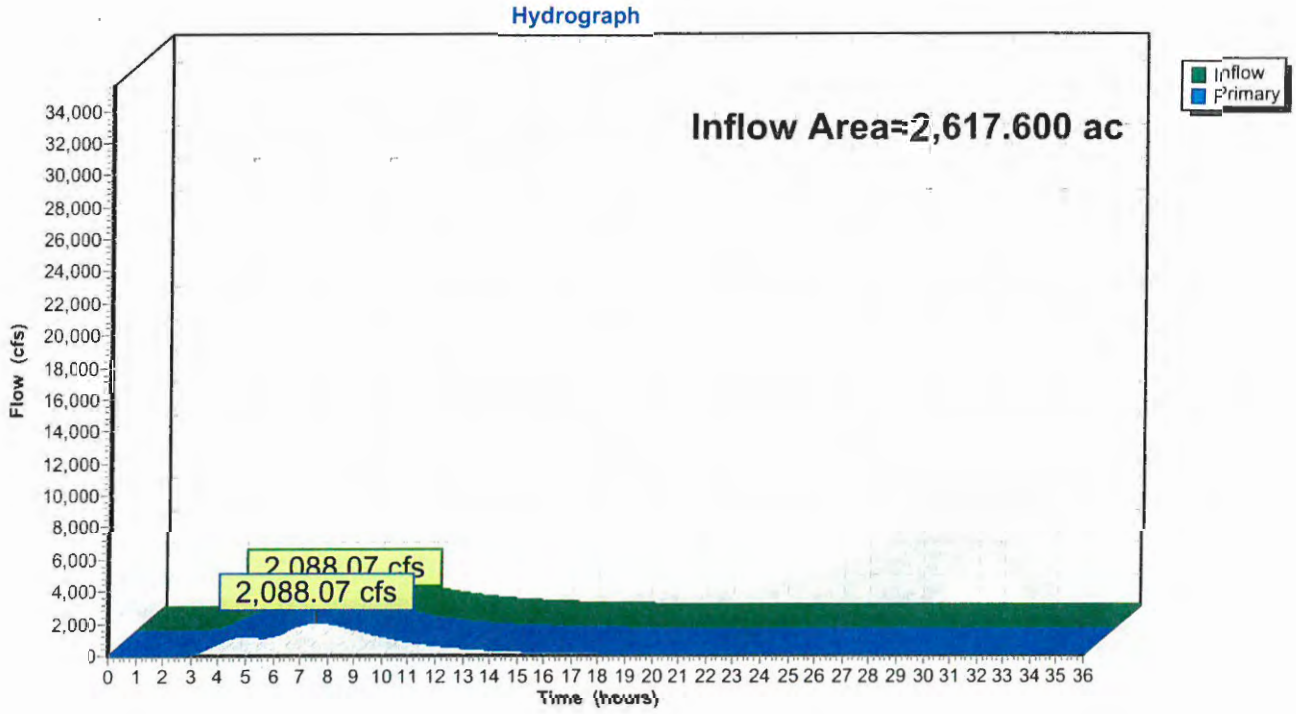


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 5.86" for 6-HR 0.4 PMF event
Inflow = 2,088.07 cfs @ 7.60 hrs, Volume= 1,278.810 af
Primary = 2,088.07 cfs @ 7.61 hrs, Volume= 1,278.810 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

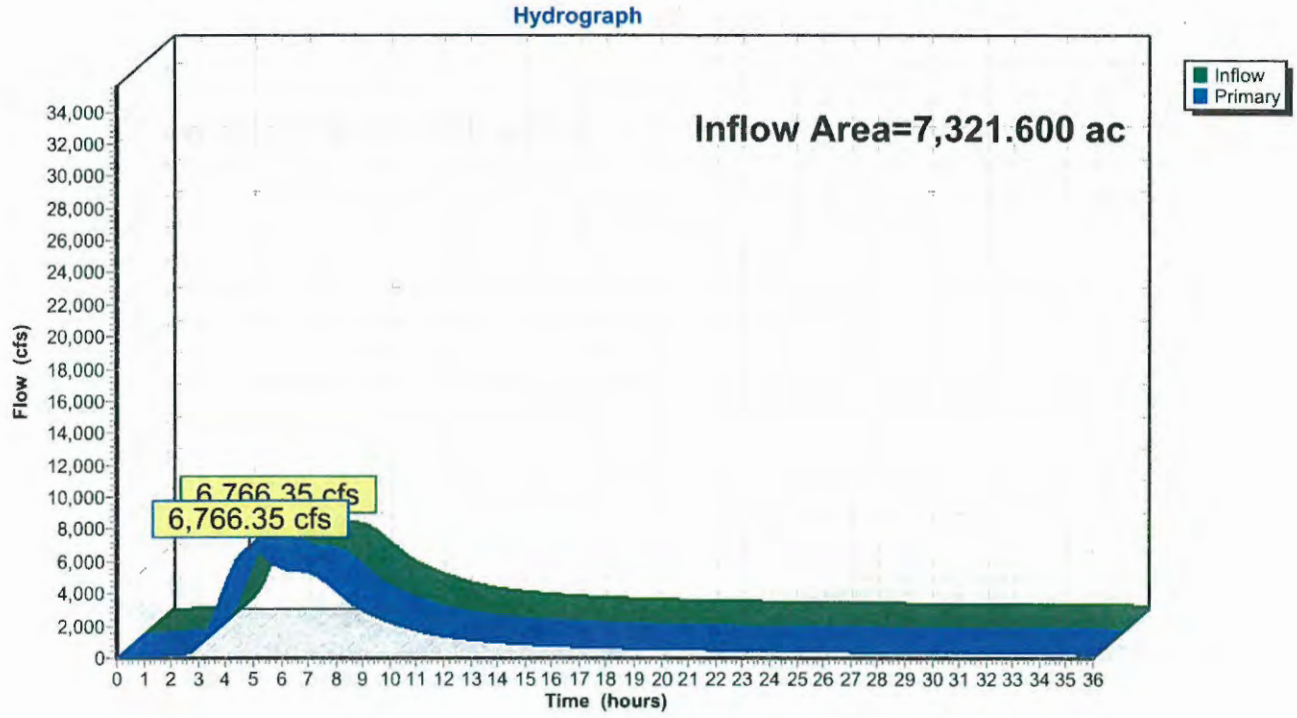


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 6.45" for 6-HR 0.4 PMF event
Inflow = 6,766.35 cfs @ 4.87 hrs, Volume= 3,932.481 af
Primary = 6,766.35 cfs @ 4.88 hrs, Volume= 3,932.481 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

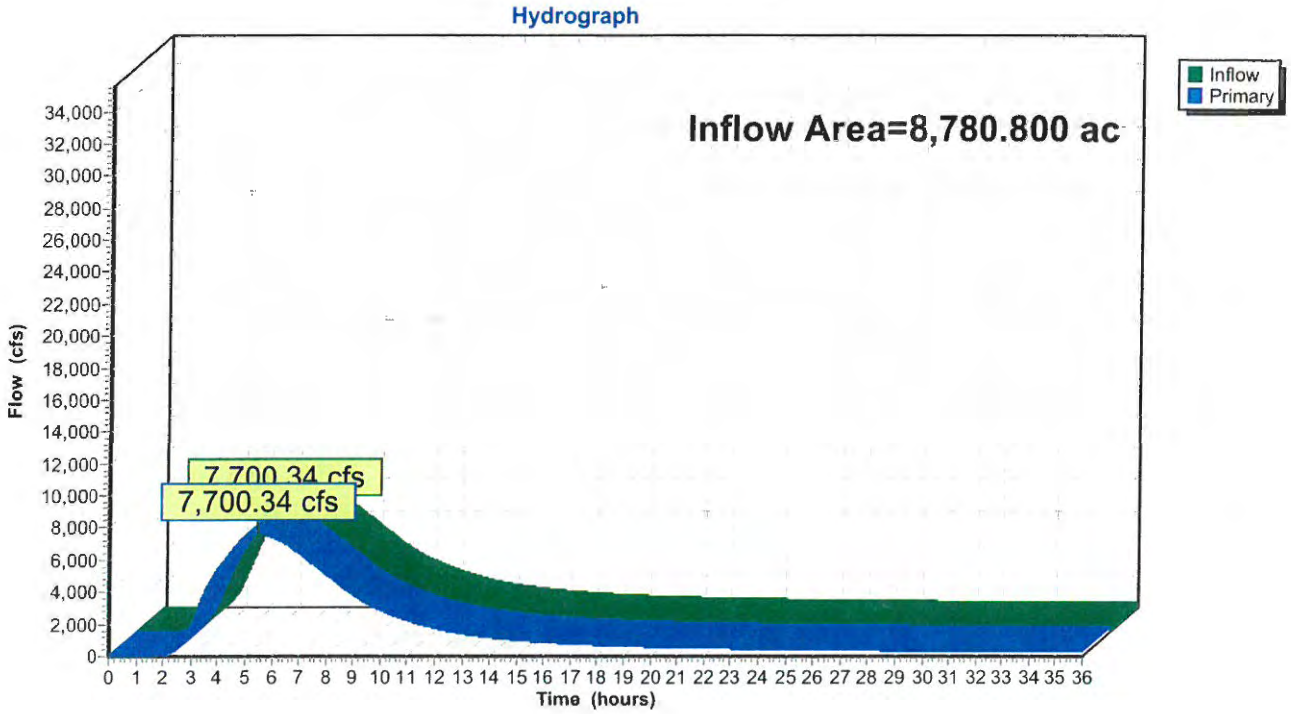


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 6.53" for 6-HR 0.4 PMF event
Inflow = 7,700.34 cfs @ 5.41 hrs, Volume= 4,774.612 af
Primary = 7,700.34 cfs @ 5.42 hrs, Volume= 4,774.612 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 > 6.76" for 6-HR 0.4 PMF event
Inflow = 3,641.74 cfs @ 5.43 hrs, Volume= 1,106.494 af
Outflow = 1,693.09 cfs @ 7.99 hrs, Volume= 939.661 af, Atten= 54%, Lag= 153.4 min
Primary = 128.44 cfs @ 5.64 hrs, Volume= 286.604 af
Secondary = 1,601.20 cfs @ 7.99 hrs, Volume= 653.057 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,026.97' @ 7.99 hrs Surf.Area= 193.923 ac Storage= 641.583 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 405.1 min calculated for 939.400 af (85% of inflow)
Center-of-Mass det. time= 363.1 min (775.4 - 412.3)

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

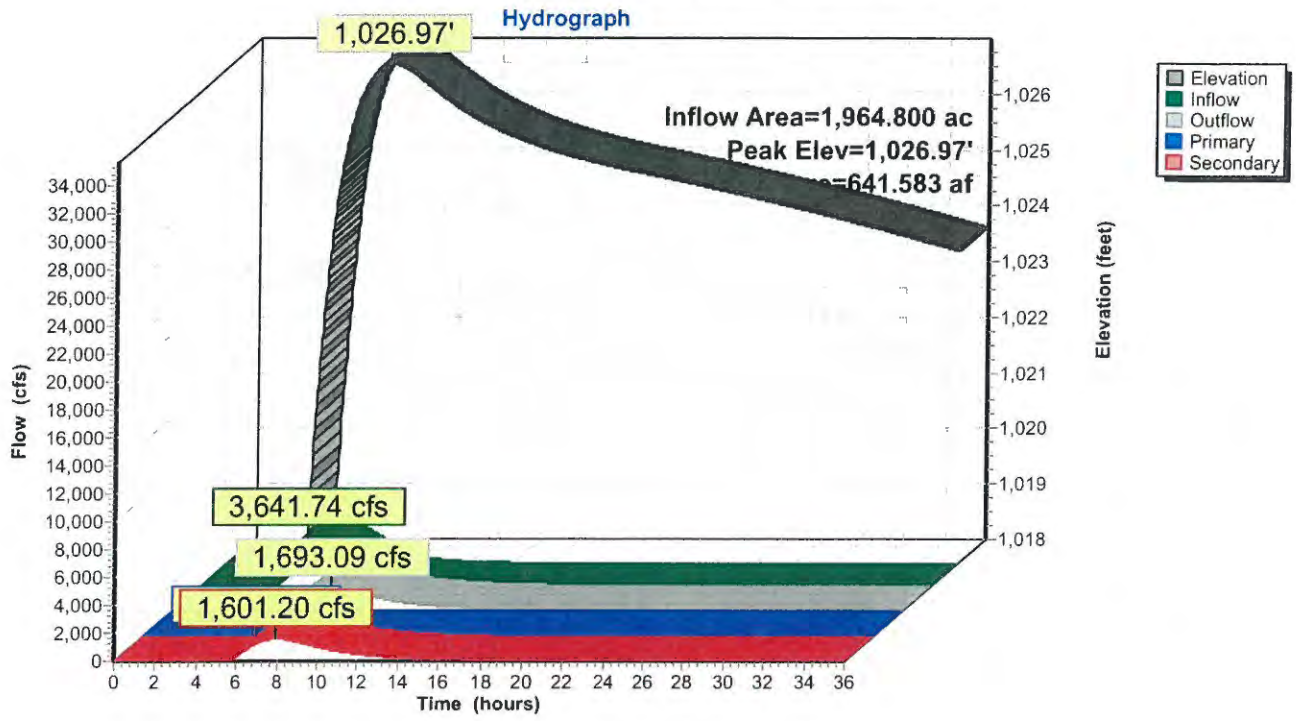
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	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

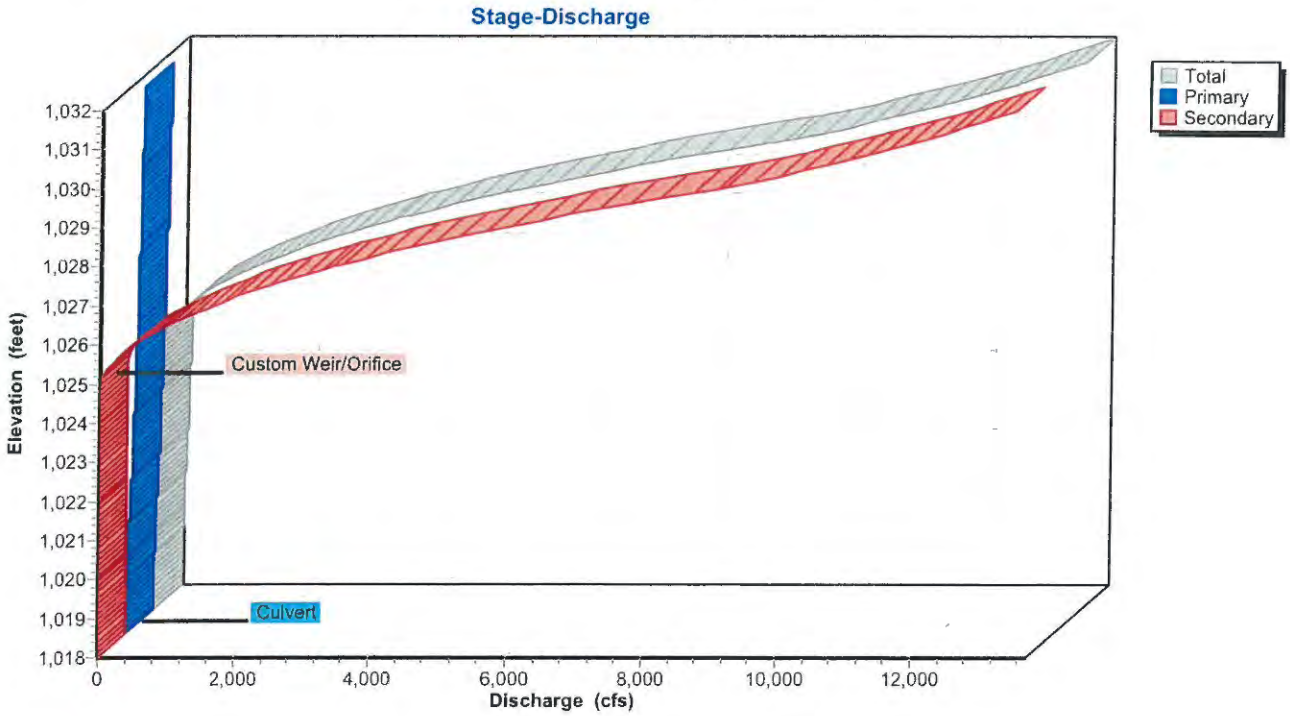
Primary OutFlow Max=127.80 cfs @ 5.64 hrs HW=1,025.21' TW=1,020.75' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 127.80 cfs @ 10.17 fps)

Secondary OutFlow Max=1,601.19 cfs @ 7.99 hrs HW=1,026.97' TW=1,024.67' (Dynamic Tailwater)
↑**2=Custom Weir/Orifice** (Weir Controls 1,601.19 cfs @ 4.30 fps)

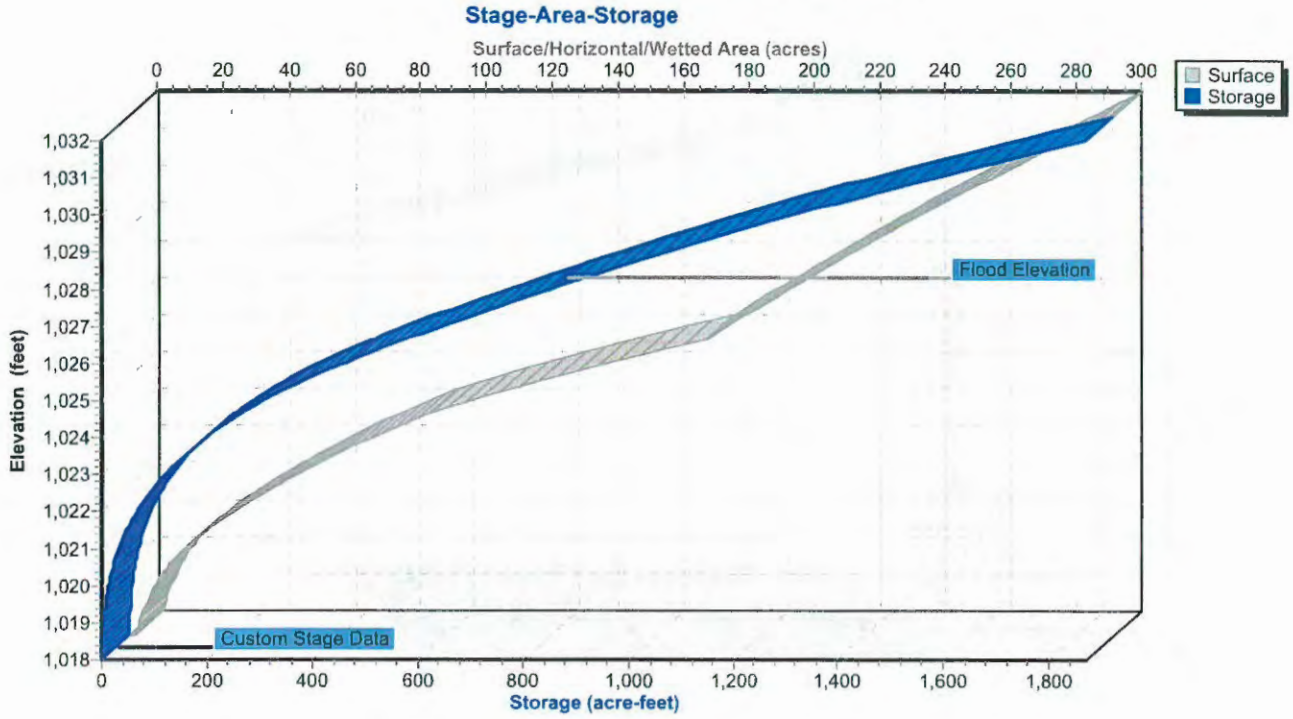
Pond 8P: Storage Area Genoa Rd



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 = 7.33" for 6-HR 0.4 PMF event
Inflow = 3,967.55 cfs @ 4.86 hrs, Volume= 1,199.374 af
Outflow = 3,641.74 cfs @ 5.43 hrs, Volume= 1,106.495 af, Atten= 8%, Lag= 34.7 min
Primary = 3,593.10 cfs @ 5.43 hrs, Volume= 1,099.328 af
Secondary = 48.64 cfs @ 5.43 hrs, Volume= 7.167 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= 1,029.93' @ 5.43 hrs Surf.Area= 107.870 ac Storage= 510.088 af (290.088 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= 143.9 min calculated for 886.249 af (74% of inflow)
Center-of-Mass det. time= 67.8 min (412.3 - 344.6)

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

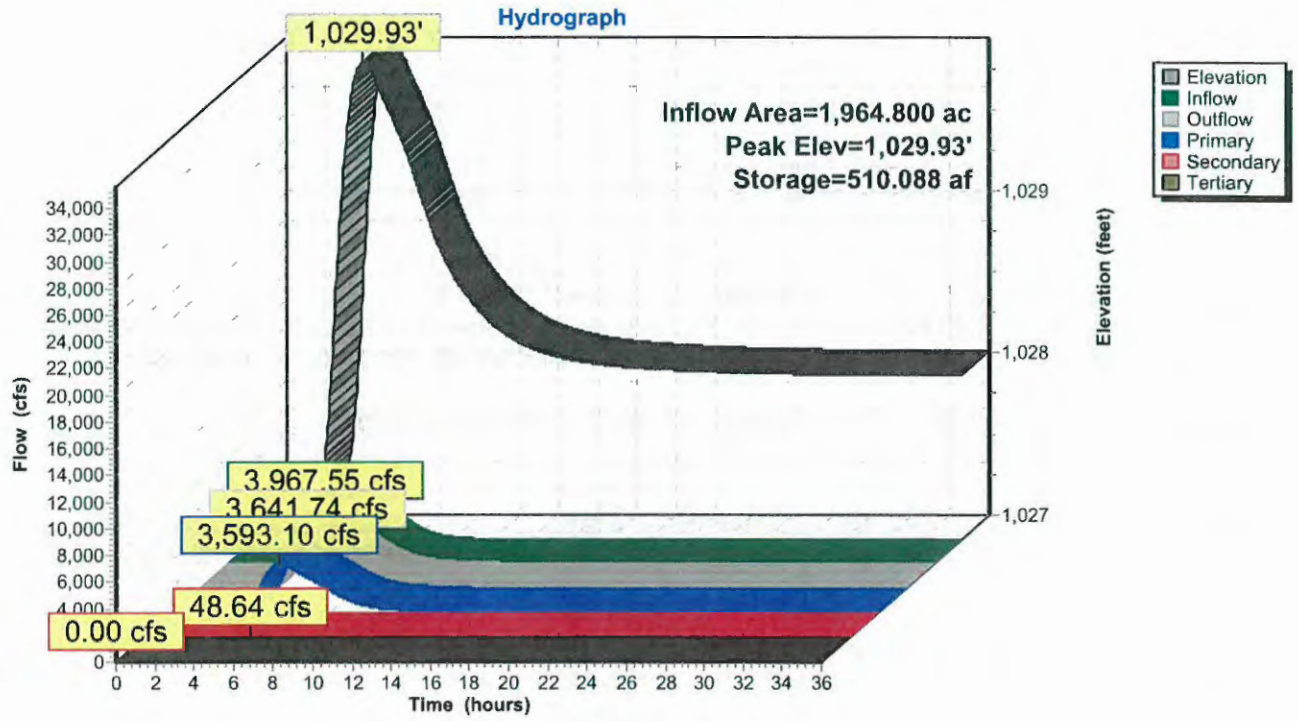
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular 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=3,593.07 cfs @ 5.43 hrs HW=1,029.93' TW=1,024.76' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2,109.62 cfs @ 3.65 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1,483.45 cfs @ 3.15 fps)

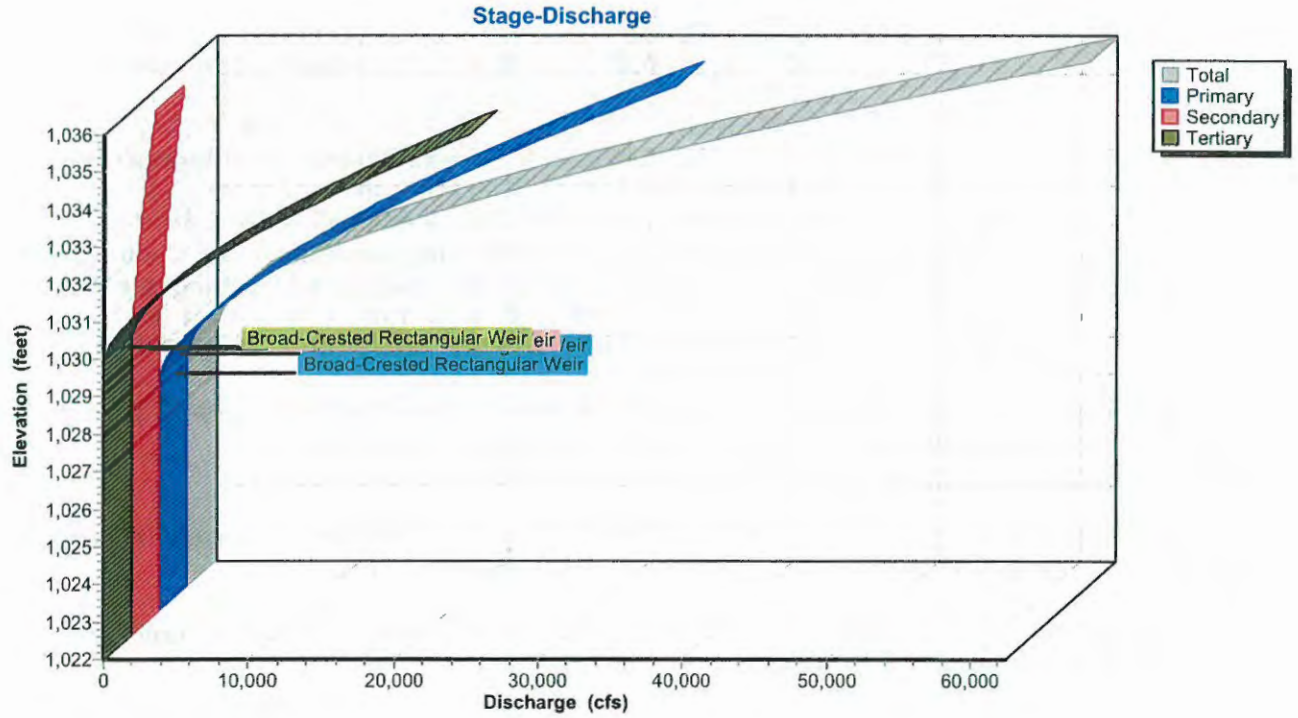
Secondary OutFlow Max=48.64 cfs @ 5.43 hrs HW=1,029.93' TW=1,024.76' (Dynamic Tailwater)
└─**3=Sharp-Crested Rectangular Weir** (Weir Controls 48.64 cfs @ 2.59 fps)

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)

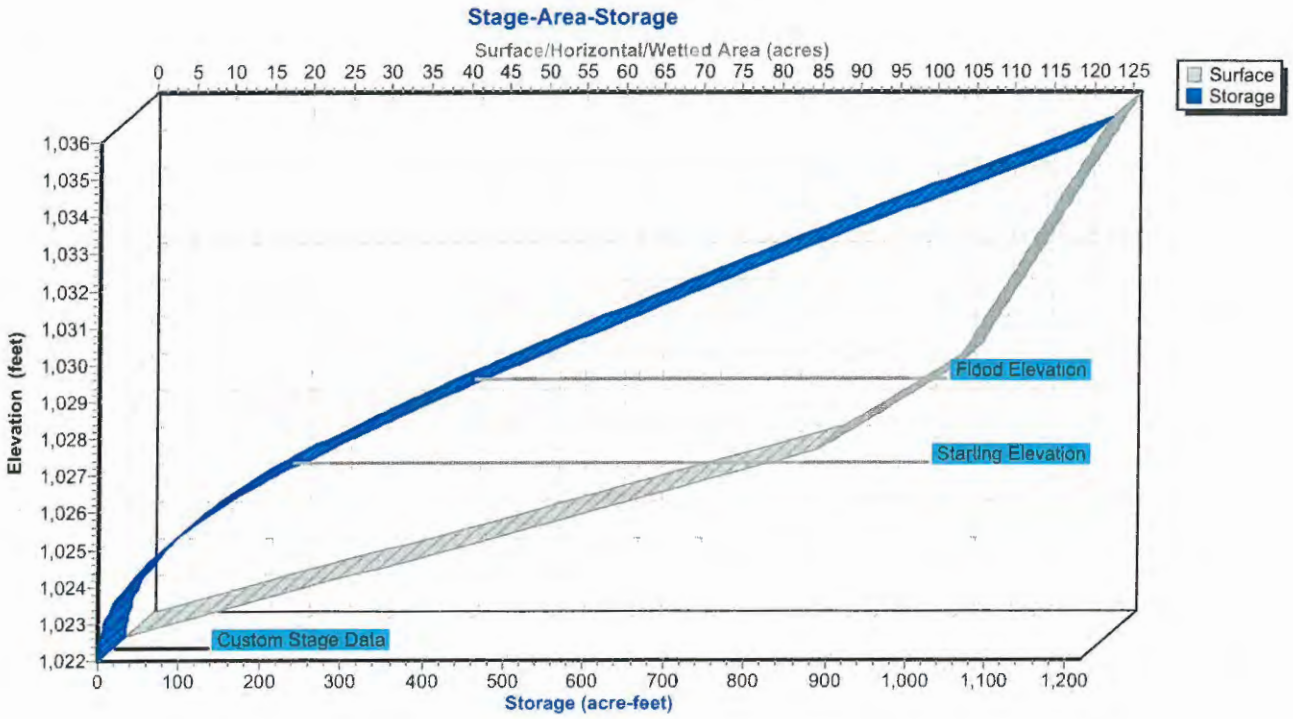
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

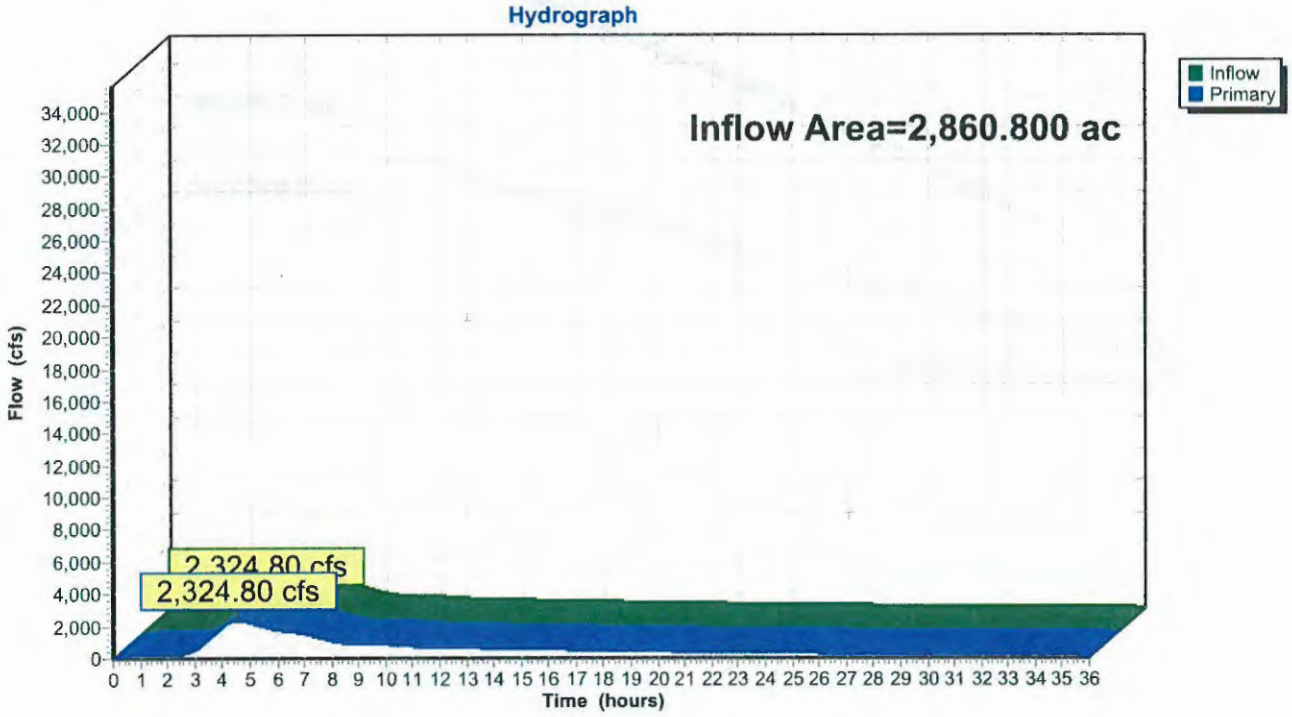


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 7.05" for 6-HR 0.4 PMF event
Inflow = 2,324.80 cfs @ 4.55 hrs, Volume= 1,680.610 af
Primary = 2,324.80 cfs @ 4.56 hrs, Volume= 1,680.610 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 > 6.56" for 6-HR 0.4 PMF event
Inflow = 8,188.71 cfs @ 6.02 hrs, Volume= 5,169.058 af
Outflow = 8,186.84 cfs @ 6.07 hrs, Volume= 5,168.002 af, Atten= 0%, Lag= 3.2 min
Primary = 3,370.92 cfs @ 4.66 hrs, Volume= 3,803.343 af
Secondary = 4,841.70 cfs @ 6.07 hrs, Volume= 1,364.660 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,010.54' @ 6.07 hrs Surf.Area= 14.674 ac Storage= 232.652 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 23.3 min calculated for 5,166.567 af (100% of inflow)
Center-of-Mass det. time= 23.0 min (651.1 - 628.1)

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

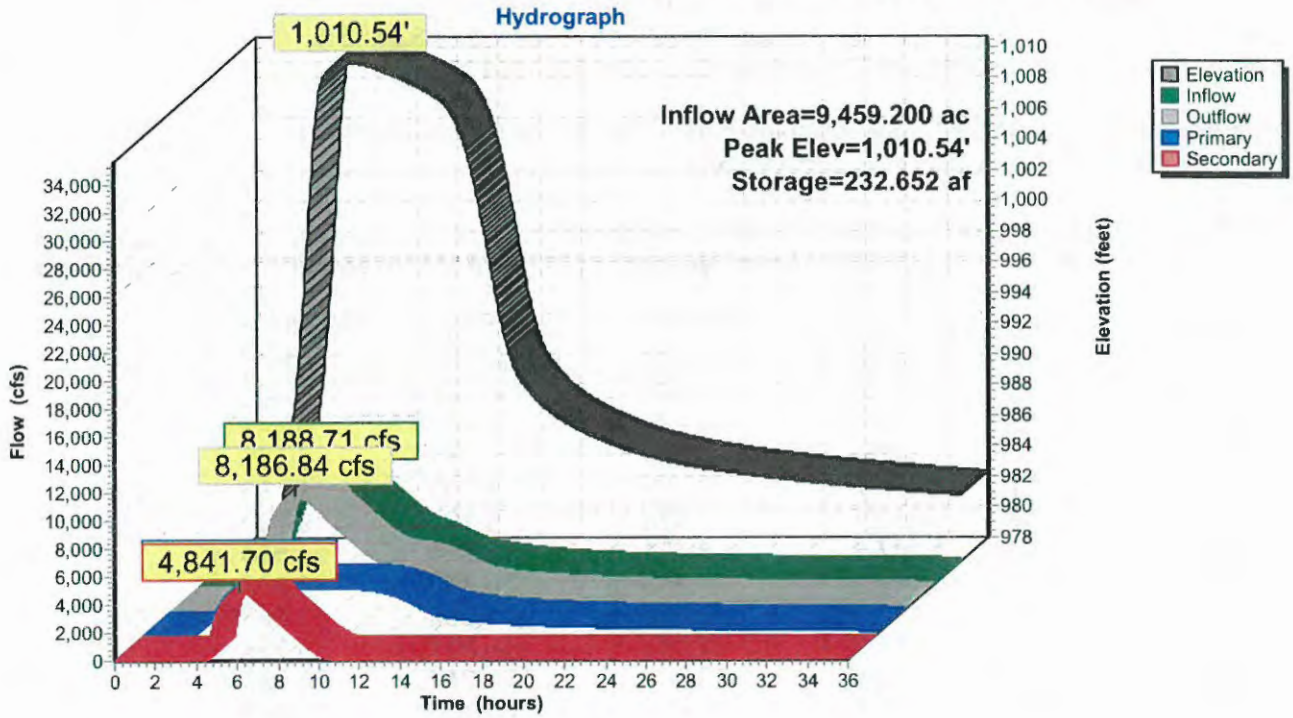
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
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

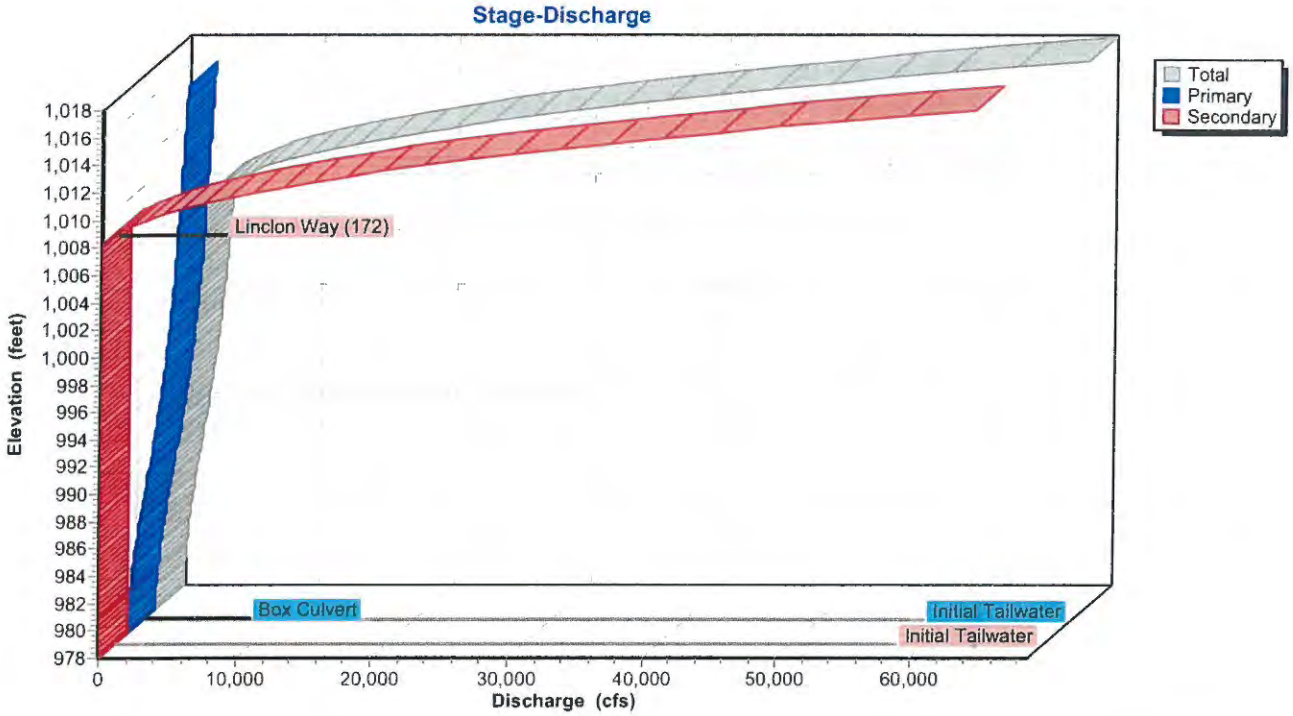
Primary OutFlow Max=3,368.21 cfs @ 4.66 hrs HW=1,009.33' TW=985.30' (Dynamic Tailwater)
└**1=Box Culvert** (Inlet Controls 3,368.21 cfs @ 29.46 fps)

Secondary OutFlow Max=4,841.69 cfs @ 6.07 hrs HW=1,010.54' TW=986.91' (Dynamic Tailwater)
└**2=Linclon Way (172)** (Weir Controls 4,841.69 cfs @ 4.87 fps)

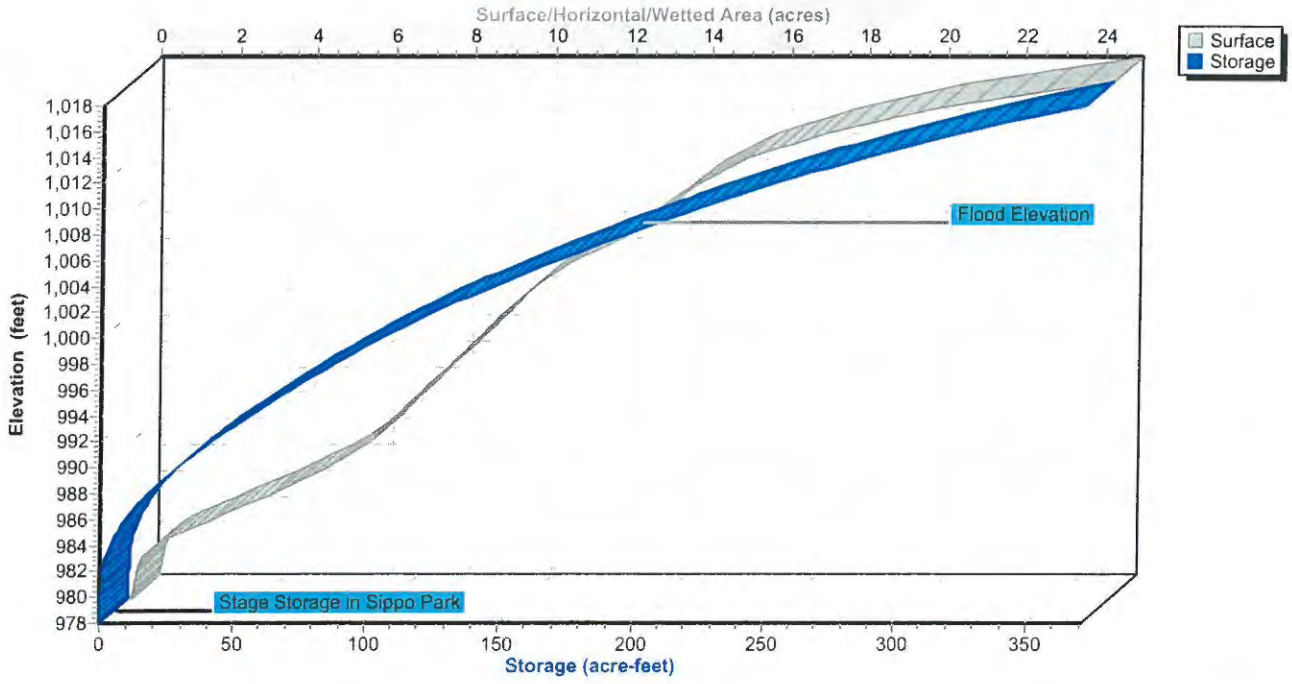
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



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



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

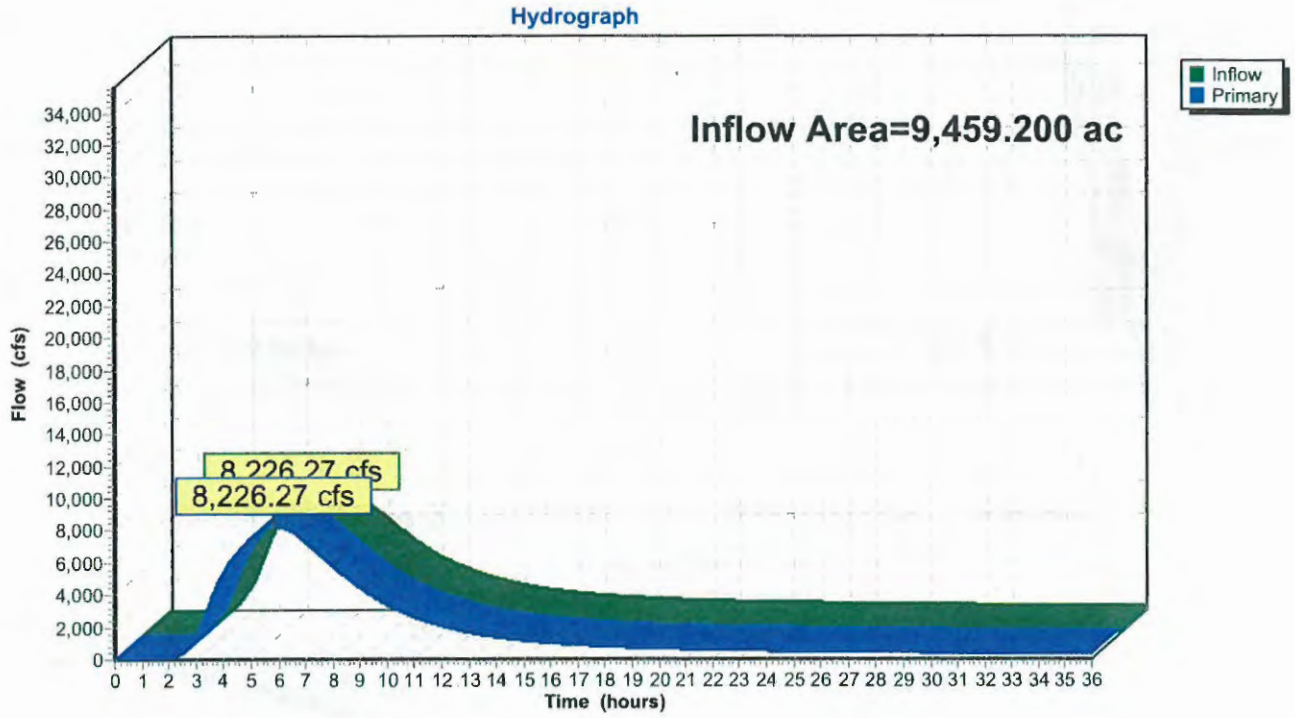


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 6.57" for 6-HR 0.4 PMF event
Inflow = 8,226.27 cfs @ 5.80 hrs, Volume= 5,182.719 af
Primary = 8,226.27 cfs @ 5.81 hrs, Volume= 5,182.719 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=9.64"
Tc=44.0 min CN=74 Runoff=520.17 cfs 92.550 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=9.79"
Tc=65.0 min CN=75 Runoff=1,106.00 cfs 219.198 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=9.05"
Tc=226.0 min CN=70 Runoff=2,794.23 cfs 1,057.009 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=8.75"
Tc=128.0 min CN=68 Runoff=2,892.68 cfs 783.786 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=8.59"
Tc=129.0 min CN=67 Runoff=2,036.94 cfs 554.655 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=9.64"
Tc=110.0 min CN=74 Runoff=2,337.59 cfs 581.009 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=9.79"
Tc=72.0 min CN=75 Runoff=2,916.69 cfs 600.184 af

Subcatchment HYD14: HYD14 Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=10.49"
Tc=78.0 min CN=80 Runoff=2,798.94 cfs 593.287 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=8.90"
Tc=155.0 min CN=69 Runoff=2,625.65 cfs 792.625 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=9.79"
Tc=156.0 min CN=75 Runoff=5,319.68 cfs 1,602.232 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=8.59"
Tc=151.0 min CN=67 Runoff=1,573.75 cfs 467.561 af

Reach 5R: Channel 5 Avg. Flow Depth=6.20' Max Vel=9.24 fps Inflow=1,854.00 cfs 1,462.306 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=1,840.29 cfs 1,455.666 af

Reach 7R: Channel 7 Avg. Flow Depth=13.45' Max Vel=3.92 fps Inflow=3,164.17 cfs 2,239.178 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=2,981.72 cfs 2,228.159 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=7.72' Max Vel=3.28 fps Inflow=2,725.66 cfs 1,338.725 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=2,723.21 cfs 1,337.936 af

Reach 15R: Channel 15 Avg. Flow Depth=13.00' Max Vel=2.96 fps Inflow=9,207.64 cfs 5,380.117 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=8,338.98 cfs 5,338.904 af

Reach 16R: Channel 16 Avg. Flow Depth=16.30' Max Vel=3.91 fps Inflow=10,719.08 cfs 6,519.616 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=10,497.54 cfs 6,476.192 af

Reach 18R: Sippo Creek Avg. Flow Depth=10.04' Max Vel=11.52 fps Inflow=11,414.16 cfs 7,053.912 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=11,414.17 cfs 7,053.787 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=1,599.17 cfs 311.630 af
Primary=1,599.17 cfs 311.630 af

Pond 1P: Sippo Creek Peak Elev=1,012.56' Storage=287.342 af Inflow=11,457.06 cfs 7,068.974 af
3,062.293 af Secondary=7,478.78 cfs 3,620.309 af Tertiary=996.25 cfs 372.936 af Outflow=11,415.24 cfs 7,055.537 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=3,279.51 cfs 1,368.060 af
Primary=3,279.51 cfs 1,368.060 af

Pond 3P: Lake Cable Peak Elev=1,100.02' Storage=2,614.873 af Inflow=3,279.51 cfs 1,368.059 af
Primary=808.28 cfs 1,202.281 af Secondary=1,045.72 cfs 260.160 af Outflow=1,854.00 cfs 1,462.441 af

Pond 4C: Confluence 4 Inflow=5,604.46 cfs 3,020.643 af
Primary=5,604.46 cfs 3,020.643 af

Pond 4P: Lake O'Springs Peak Elev=1,109.04' Storage=112.039 af Inflow=1,599.17 cfs 311.630 af
Primary=1,359.54 cfs 304.044 af Secondary=84.90 cfs 7.008 af Outflow=1,444.44 cfs 311.052 af

Pond 5C: Confluence 5 Inflow=7,530.77 cfs 3,575.157 af
Primary=7,530.77 cfs 3,575.157 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.54' Storage=29.798 af Inflow=520.17 cfs 92.550 af
Primary=353.73 cfs 75.445 af Secondary=164.91 cfs 16.987 af Outflow=518.64 cfs 92.432 af

Pond 6C: Confluence 6 Inflow=3,444.22 cfs 1,805.412 af
Primary=3,444.22 cfs 1,805.412 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=9,207.64 cfs 5,380.343 af
Primary=9,207.64 cfs 5,380.343 af

Pond 8C: Confluence 8 Inflow=10,719.08 cfs 6,519.857 af
Primary=10,719.08 cfs 6,519.857 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,027.60' Storage=767.516 af Inflow=5,078.17 cfs 1,509.336 af
Primary=128.96 cfs 287.640 af Secondary=2,632.34 cfs 1,051.170 af Outflow=2,725.66 cfs 1,338.810 af

Pond 9P: Sippo Lake Peak Elev=1,030.27' Storage=547.264 af Inflow=5,319.68 cfs 1,602.232 af
40.26 cfs 1,472.687 af Secondary=93.64 cfs 16.758 af Tertiary=244.27 cfs 19.892 af Outflow=5,078.17 cfs 1,509.337 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Inflow=3,164.17 cfs 2,239.315 af
Primary=3,164.17 cfs 2,239.315 af

Pond 16P: Lincoln Way Box Peak Elev=1,011.38' Storage=245.134 af Inflow=11,415.24 cfs 7,055.281 af
Primary=3,376.20 cfs 4,110.681 af Secondary=8,099.29 cfs 2,943.488 af Outflow=11,414.16 cfs 7,054.169 af

Pond 19C: Confluence 19 Inflow=11,457.06 cfs 7,069.226 af
Primary=11,457.06 cfs 7,069.226 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 7,344.097 af Average Runoff Depth = 9.32
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

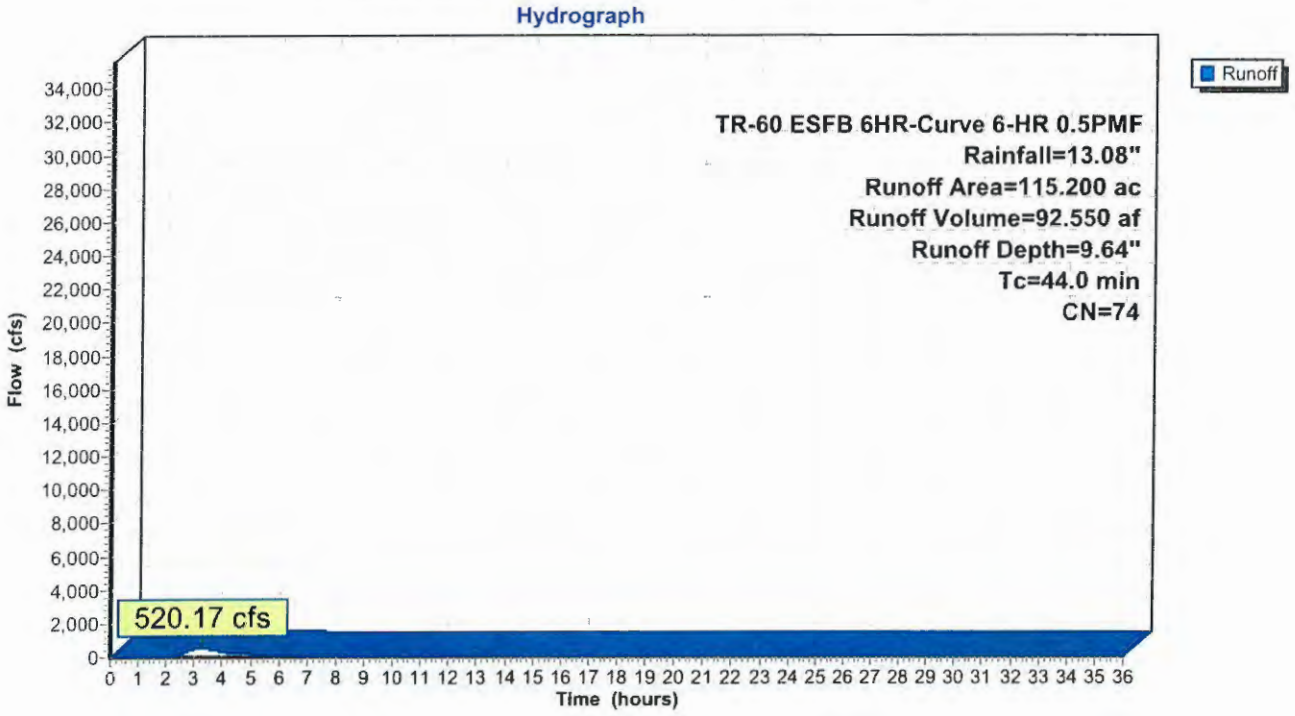
Runoff = 520.17 cfs @ 3.23 hrs, Volume= 92.550 af, Depth= 9.64"

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 0.5PMF Rainfall=13.08"

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

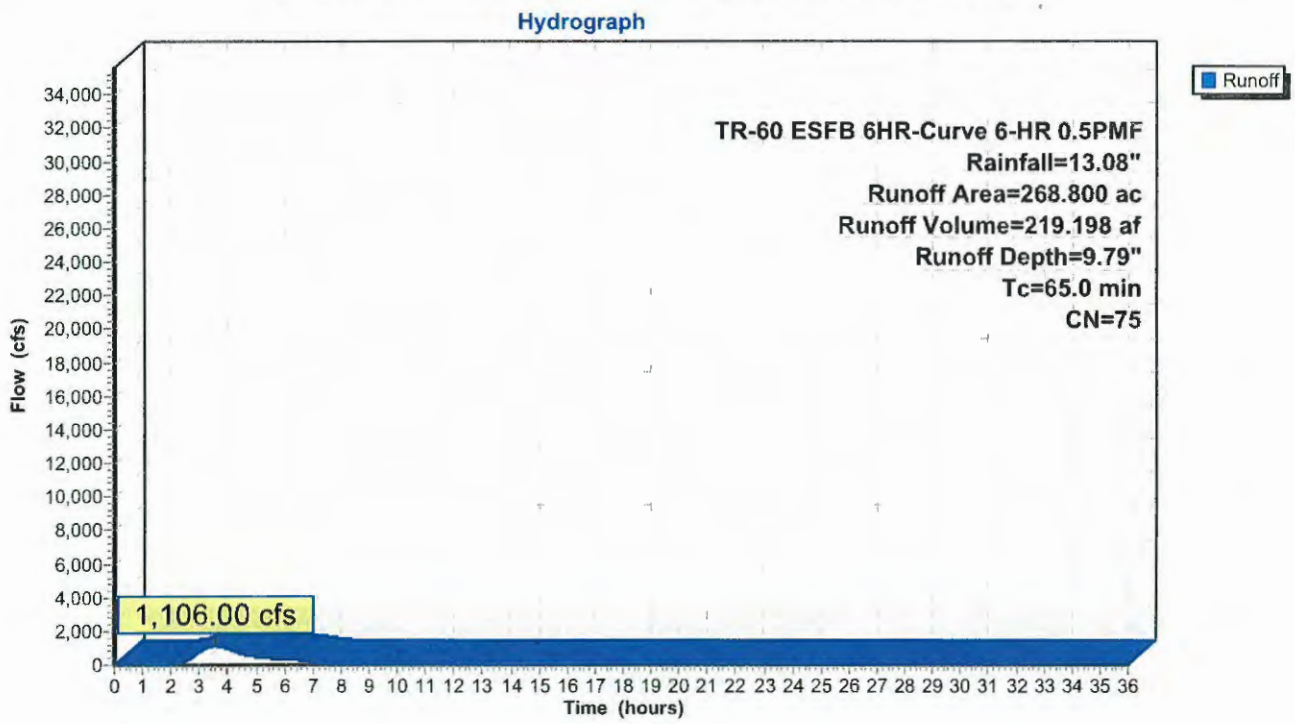
Runoff = 1,106.00 cfs @ 3.54 hrs, Volume= 219.198 af, Depth= 9.79"

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 0.5PMF Rainfall=13.08"

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

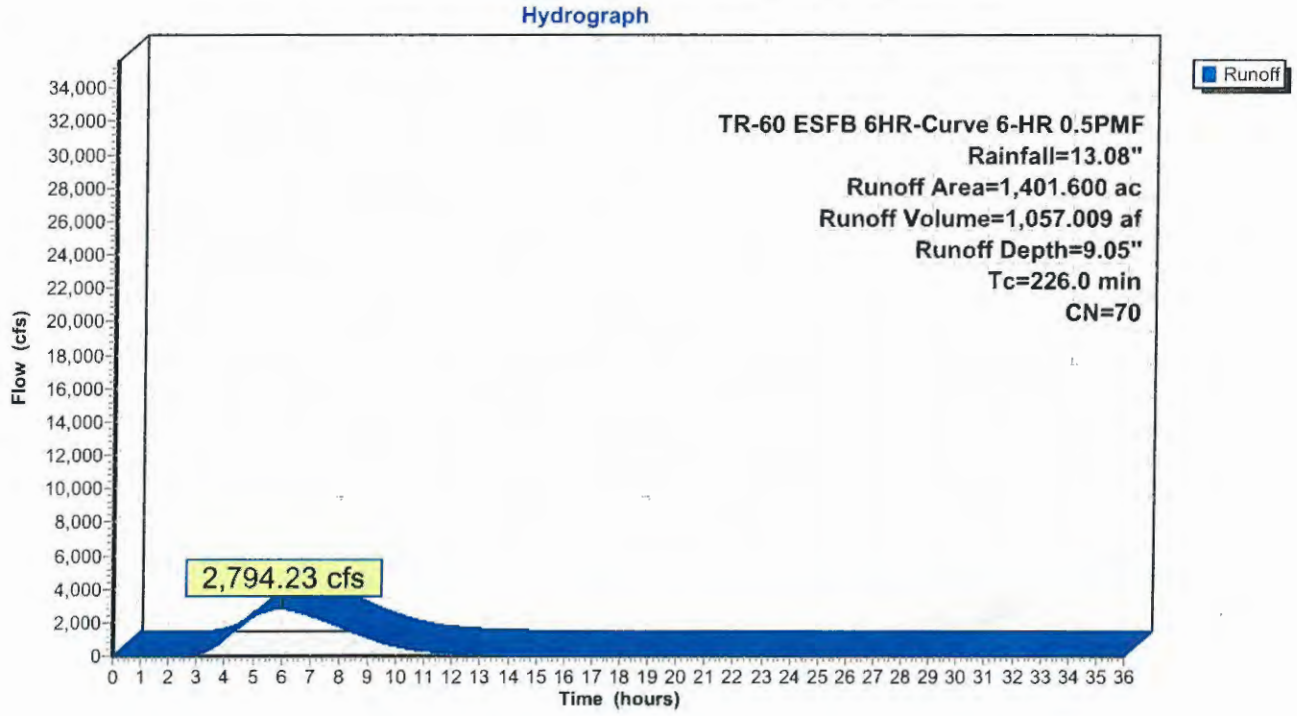
Runoff = 2,794.23 cfs @ 6.02 hrs, Volume= 1,057.009 af, Depth= 9.05"

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 0.5PMF Rainfall=13.08"

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

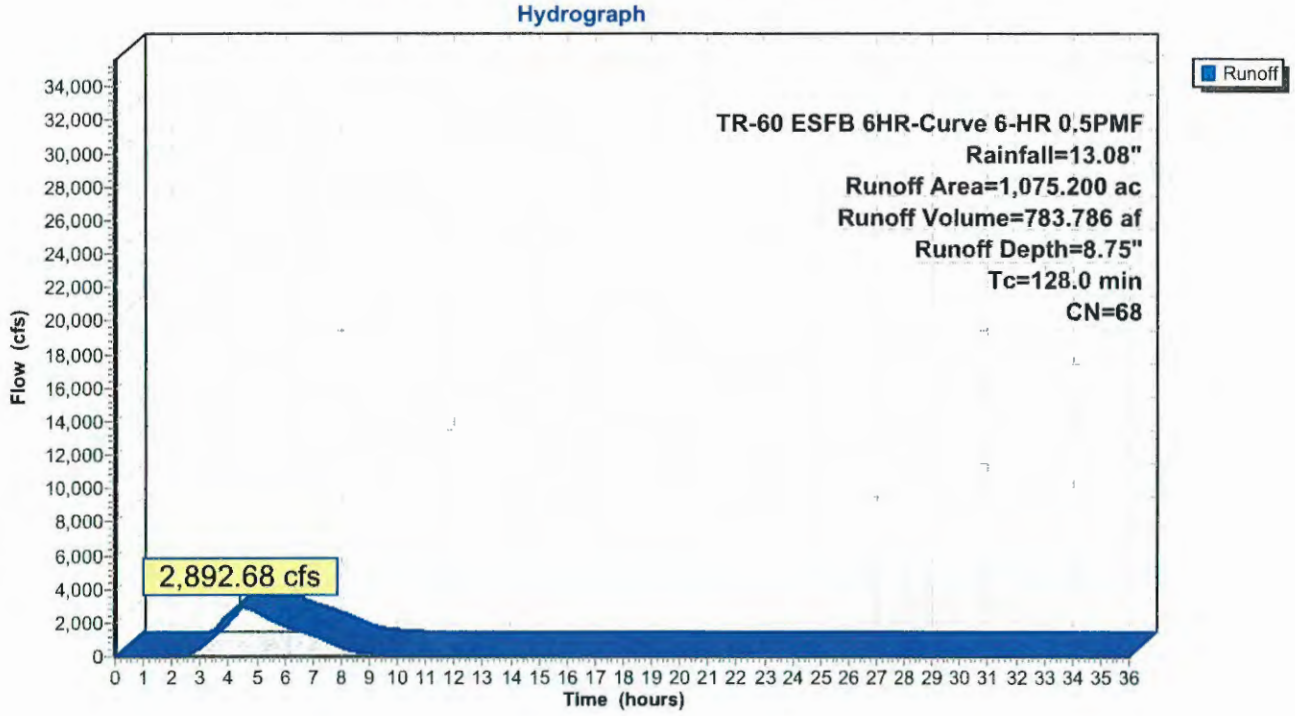
Runoff = 2,892.68 cfs @ 4.41 hrs, Volume= 783.786 af, Depth= 8.75"

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 0.5PMF Rainfall=13.08"

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

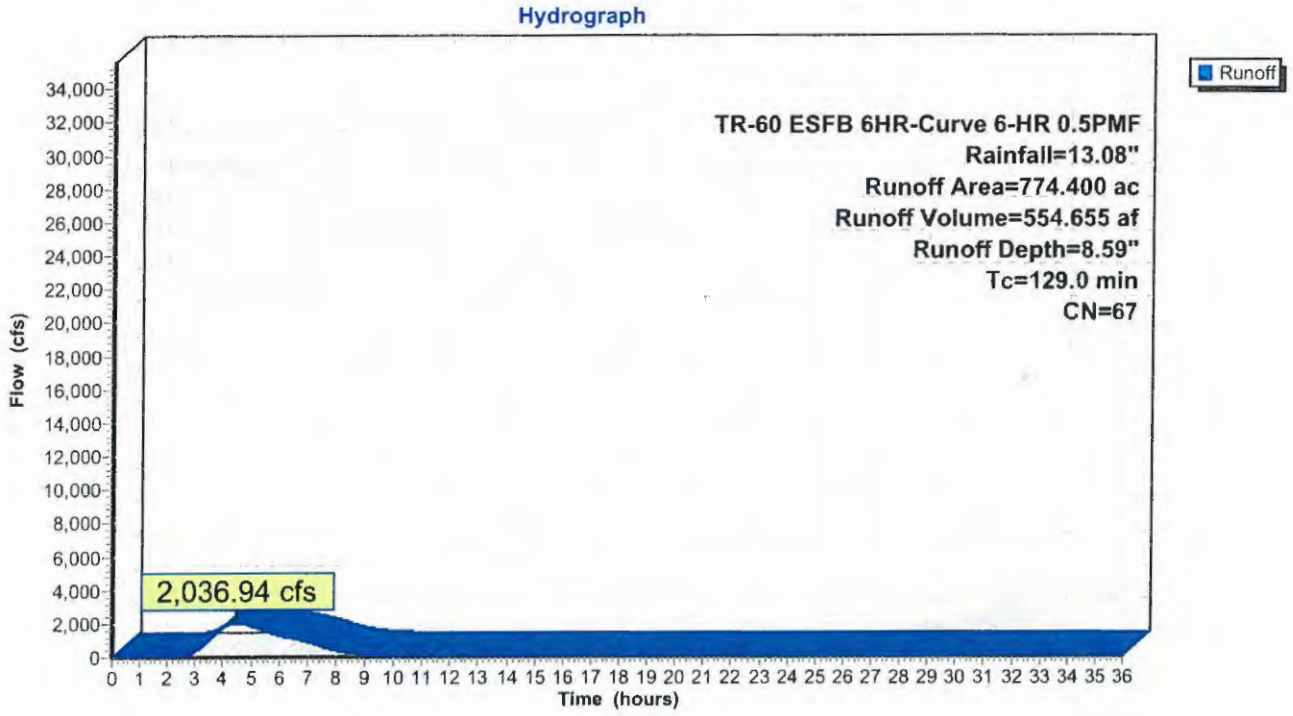
Runoff = 2,036.94 cfs @ 4.45 hrs, Volume= 554.655 af, Depth= 8.59"

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 0.5PMF Rainfall=13.08"

	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

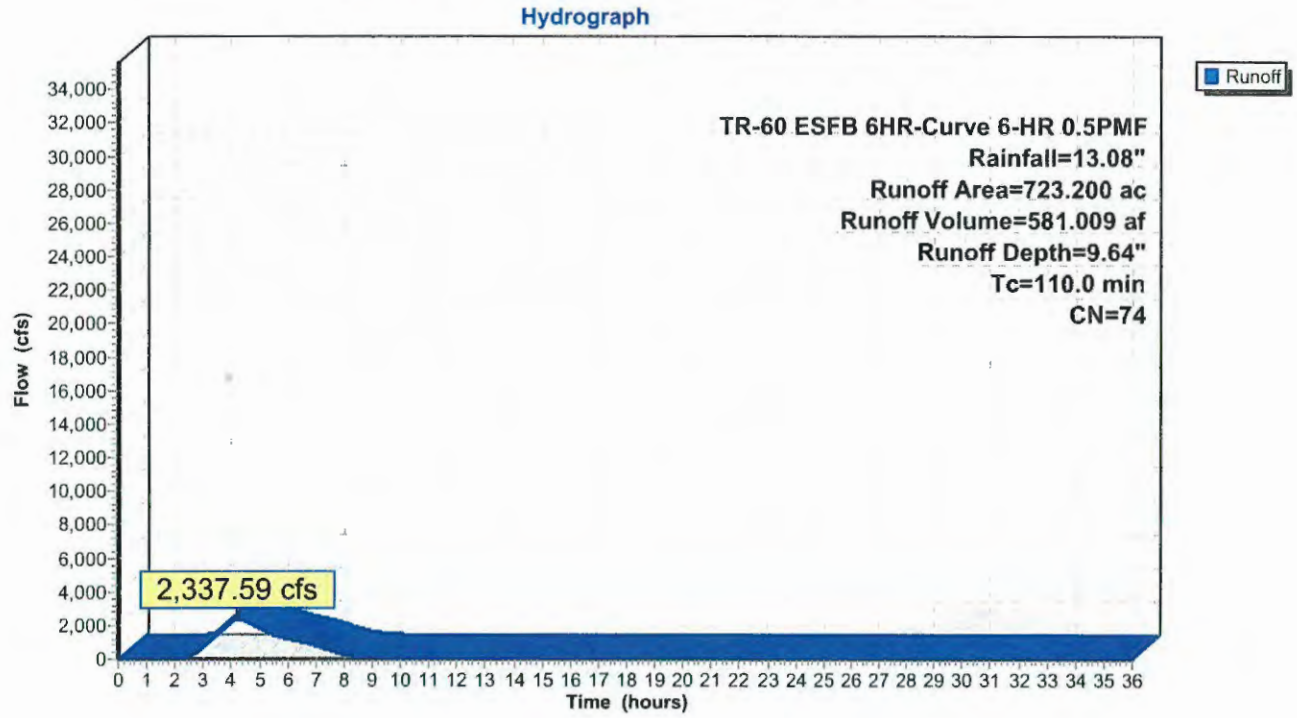
Runoff = 2,337.59 cfs @ 4.16 hrs, Volume= 581.009 af, Depth= 9.64"

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 0.5PMF Rainfall=13.08"

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

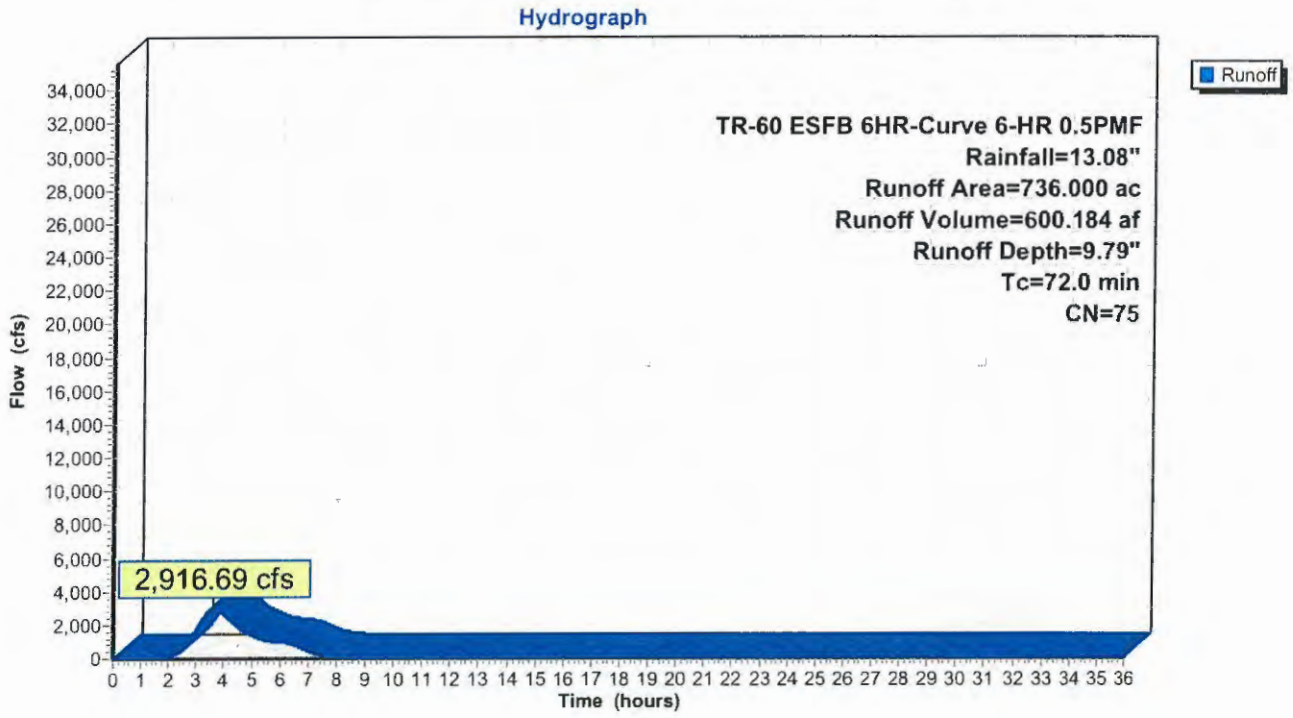
Runoff = 2,916.69 cfs @ 3.61 hrs, Volume= 600.184 af, Depth= 9.79"

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 0.5PMF Rainfall=13.08"

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

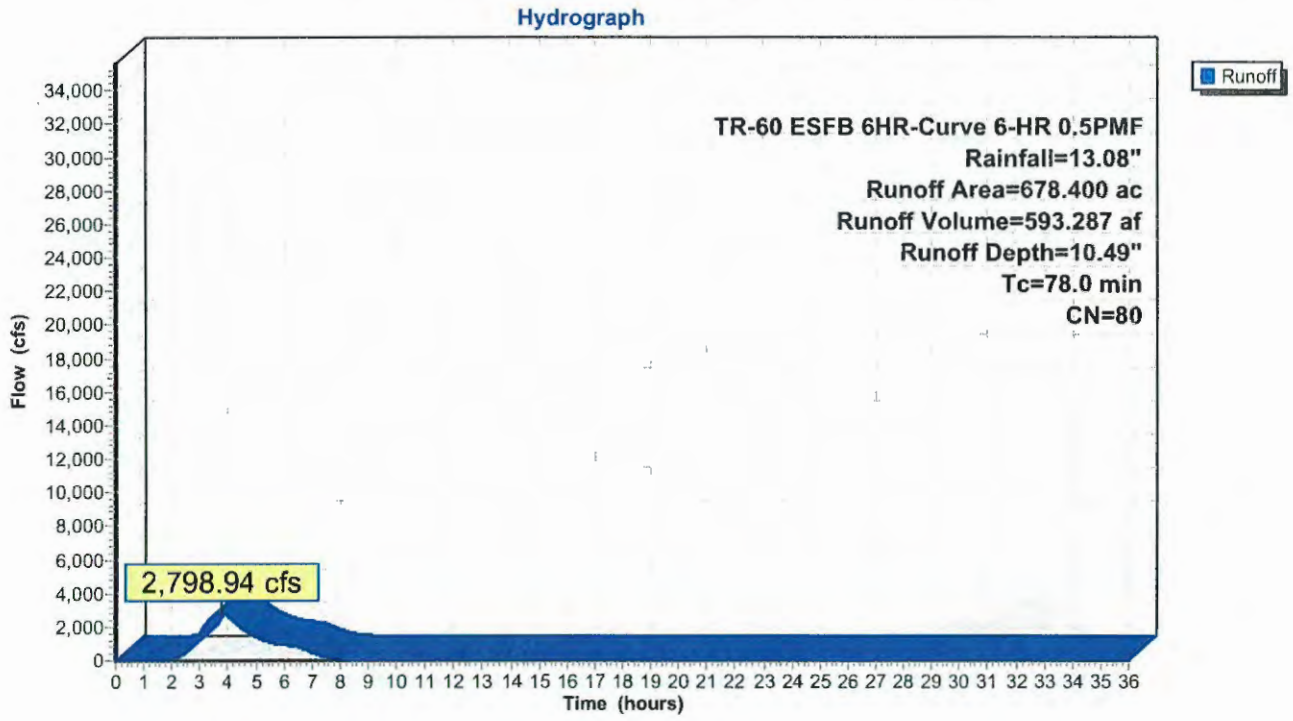
Runoff = 2,798.94 cfs @ 3.72 hrs, Volume= 593.287 af, Depth=10.49"

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 0.5PMF Rainfall=13.08"

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

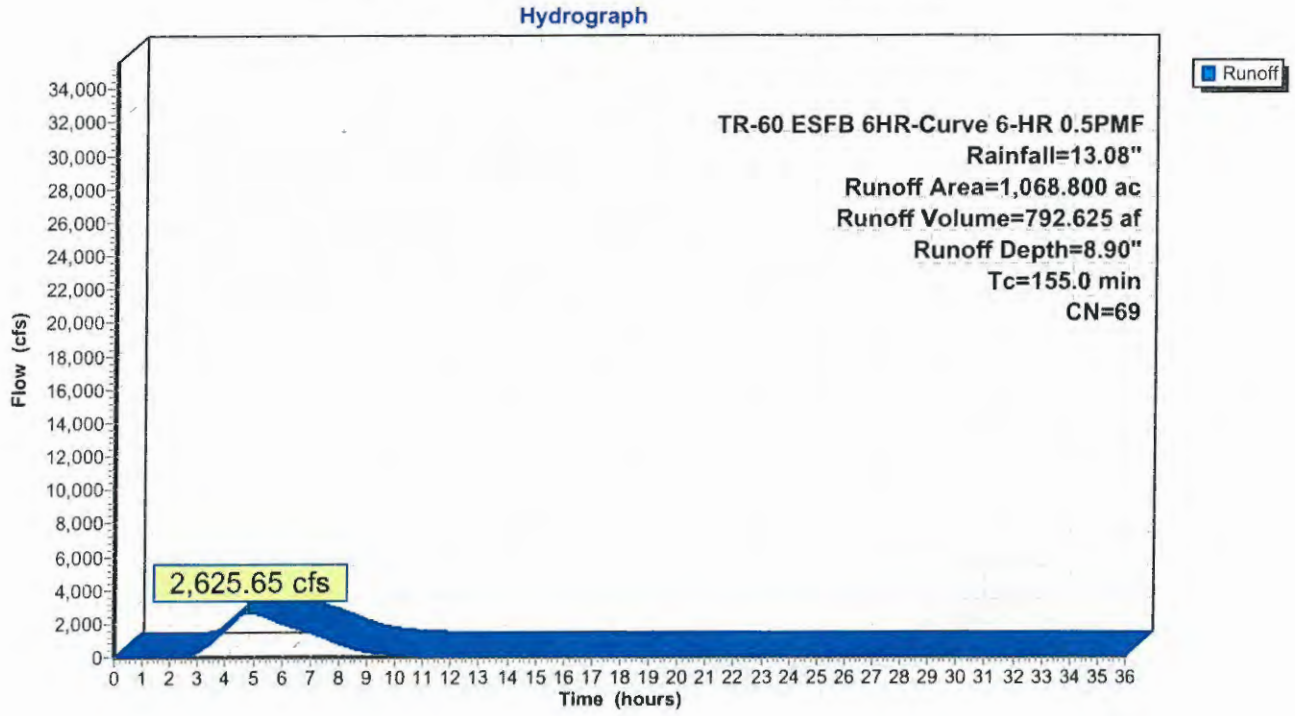
Runoff = 2,625.65 cfs @ 4.83 hrs, Volume= 792.625 af, Depth= 8.90"

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 0.5PMF Rainfall=13.08"

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

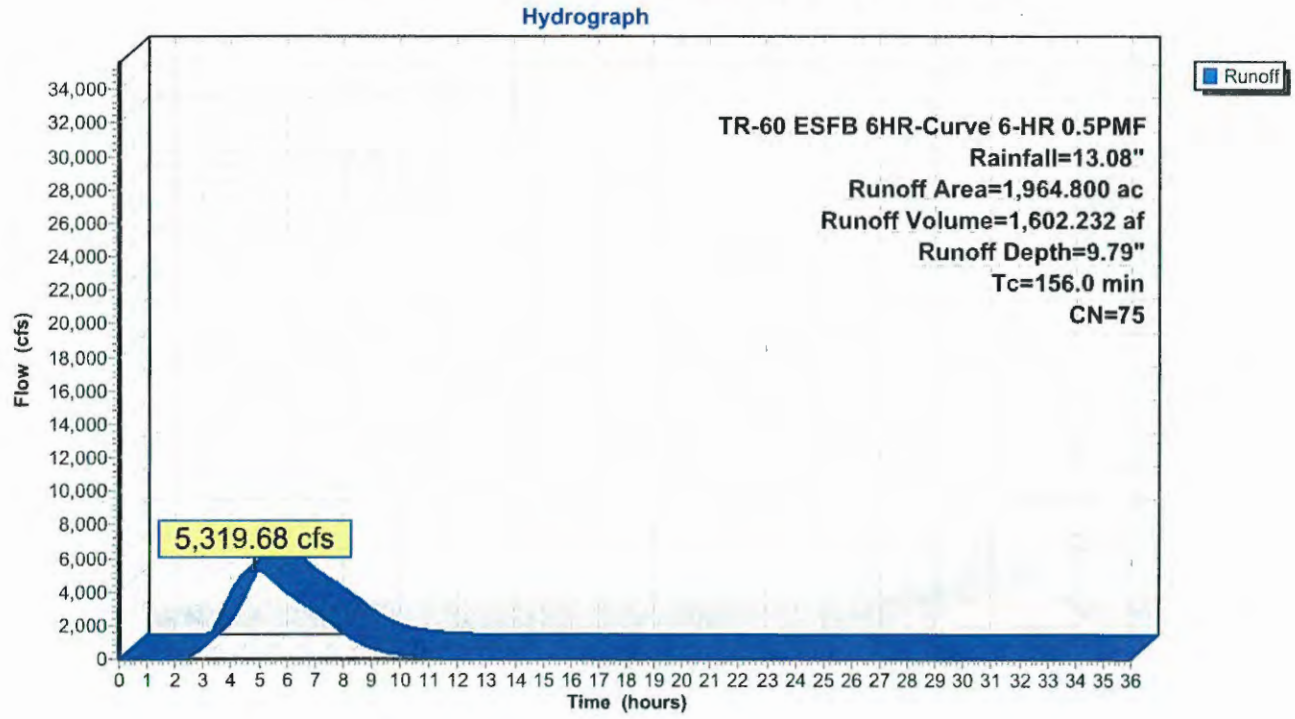
Runoff = 5,319.68 cfs @ 4.85 hrs, Volume= 1,602.232 af, Depth= 9.79"

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 0.5PMF Rainfall=13.08"

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

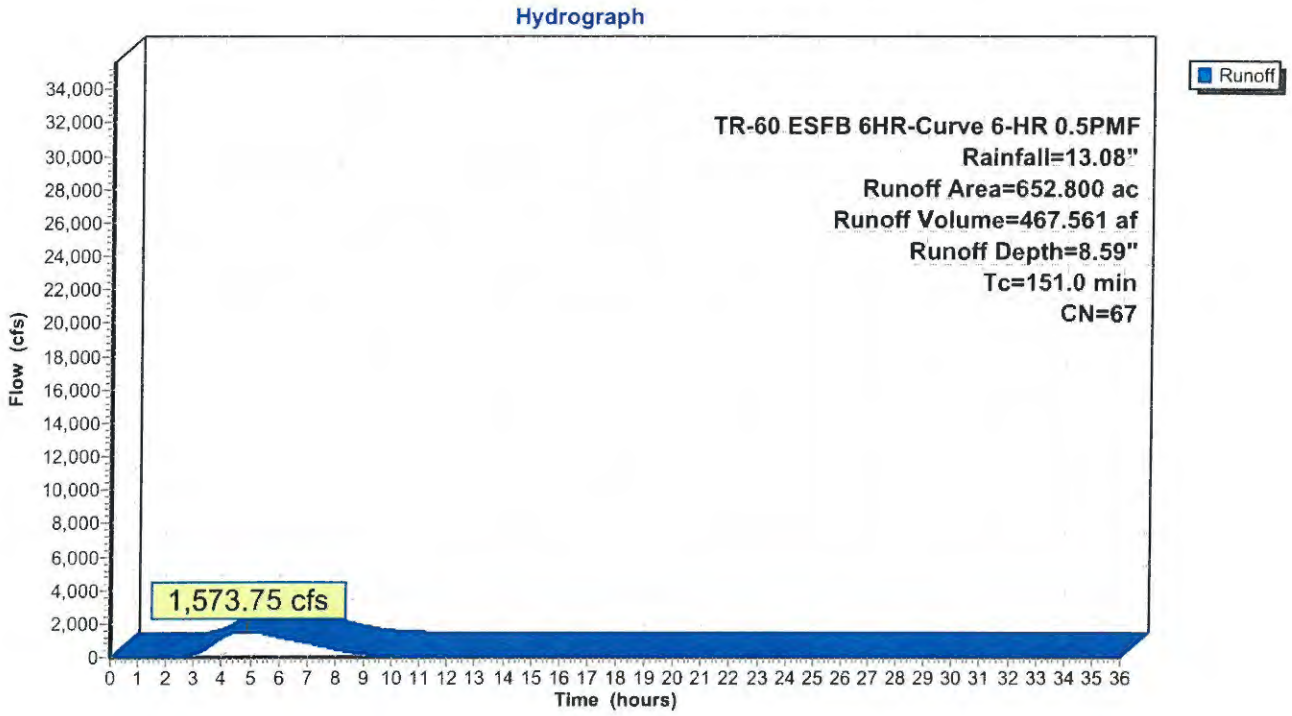
Runoff = 1,573.75 cfs @ 4.86 hrs, Volume= 467.561 af, Depth= 8.59"

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 0.5PMF Rainfall=13.08"

	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 > 9.83" for 6-HR 0.5PMF event
Inflow = 1,854.00 cfs @ 8.20 hrs, Volume= 1,462.306 af
Outflow = 1,840.29 cfs @ 8.41 hrs, Volume= 1,455.666 af, Atten= 1%, Lag= 12.9 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.24 fps, Min. Travel Time= 15.9 min
Avg. Velocity = 6.25 fps, Avg. Travel Time= 23.5 min

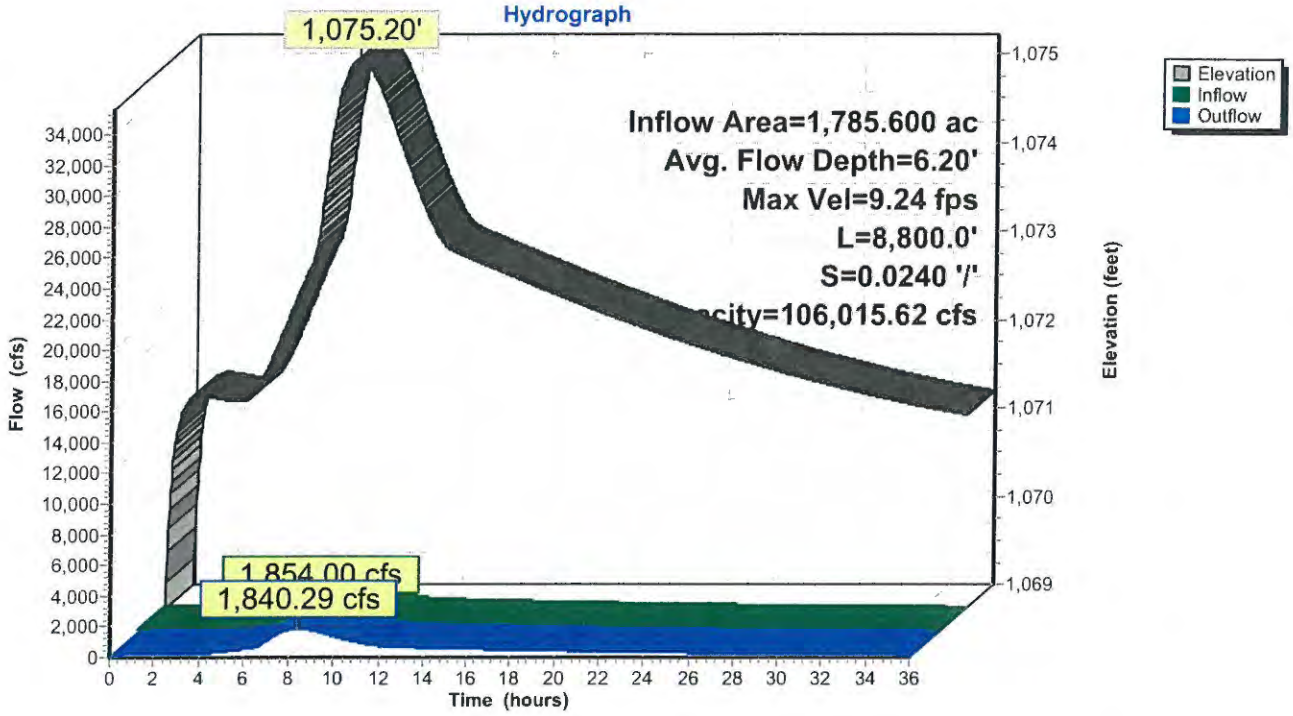
Peak Storage= 1,752,639 cf @ 8.41 hrs
Average Depth at Peak Storage= 6.20'
Defined Flood Depth= 16.00', Capacity at Flood Depth= 106,015.62 cfs
Bank-Full Depth= 16.00', Capacity at Bank-Full= 106,015.62 cfs

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'

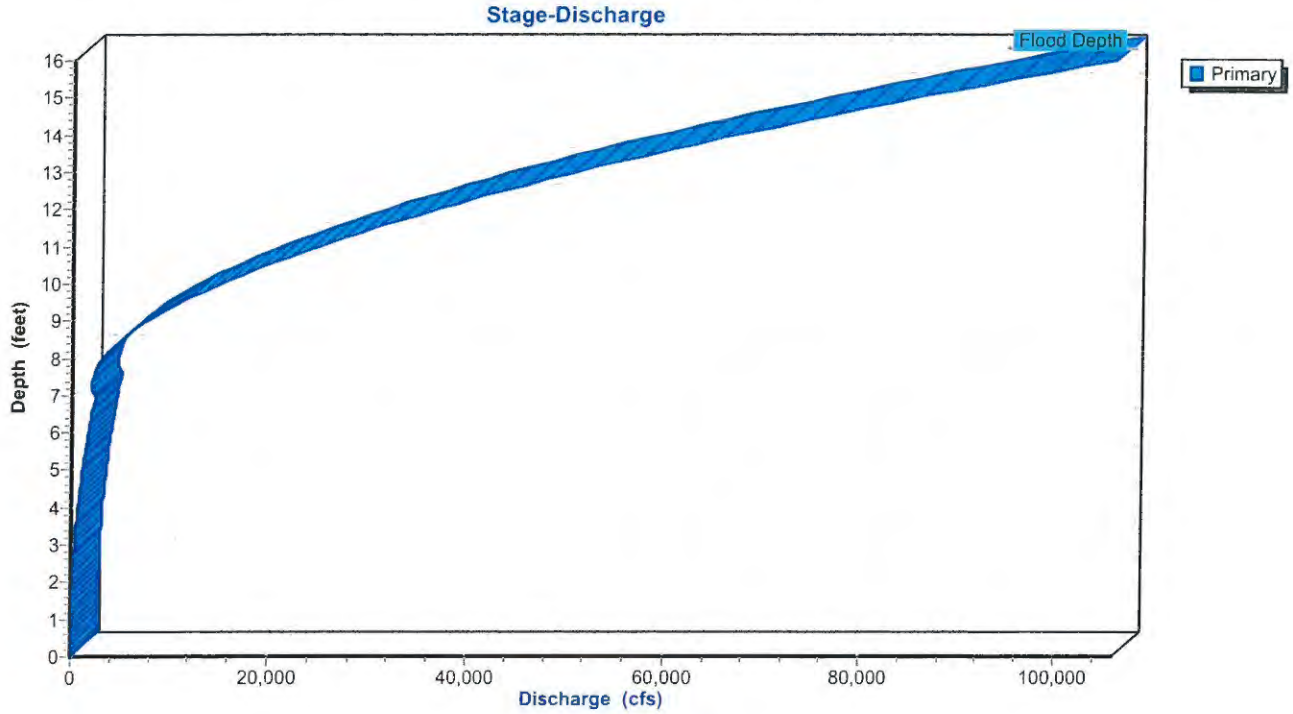
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

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

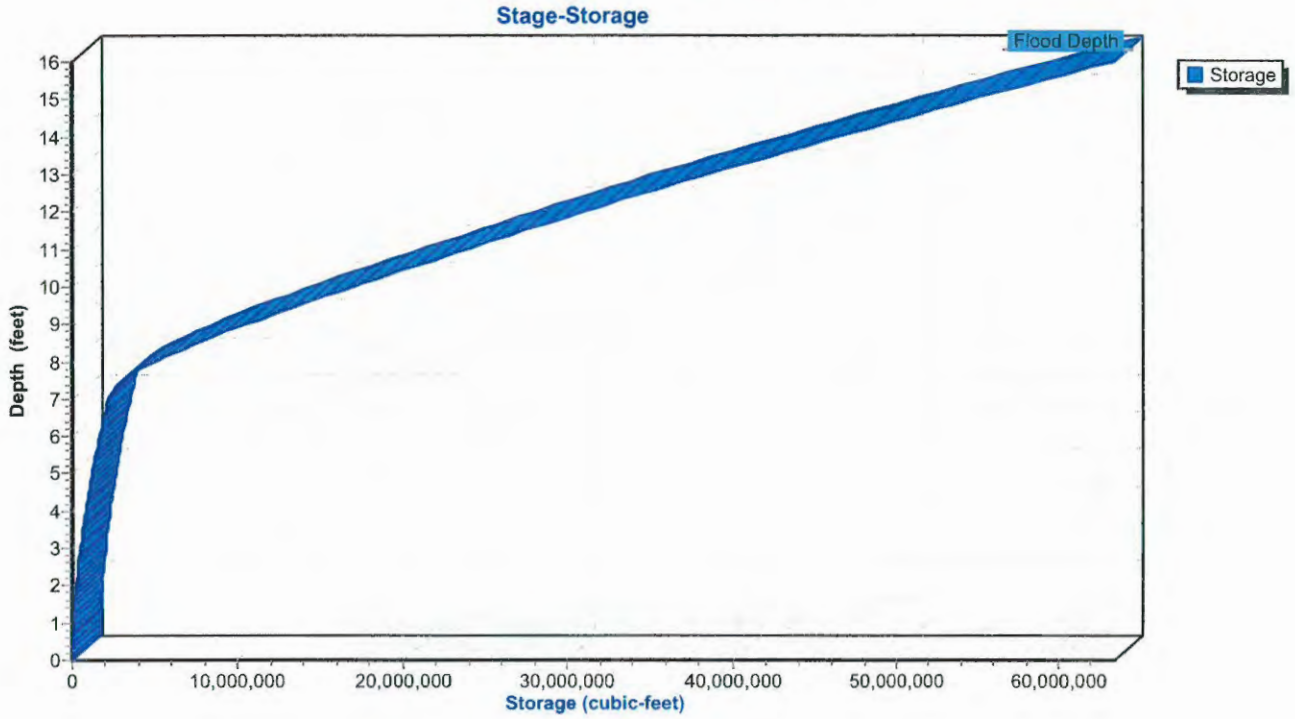
Reach 5R: Channel 5



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 > 9.39" for 6-HR 0.5PMF event
Inflow = 3,164.17 cfs @ 4.56 hrs, Volume= 2,239.178 af
Outflow = 2,981.72 cfs @ 4.99 hrs, Volume= 2,228.159 af, Atten= 6%, Lag= 25.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.92 fps, Min. Travel Time= 25.1 min
Avg. Velocity = 2.71 fps, Avg. Travel Time= 36.3 min

Peak Storage= 4,547,317 cf @ 4.99 hrs
Average Depth at Peak Storage= 13.45'
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

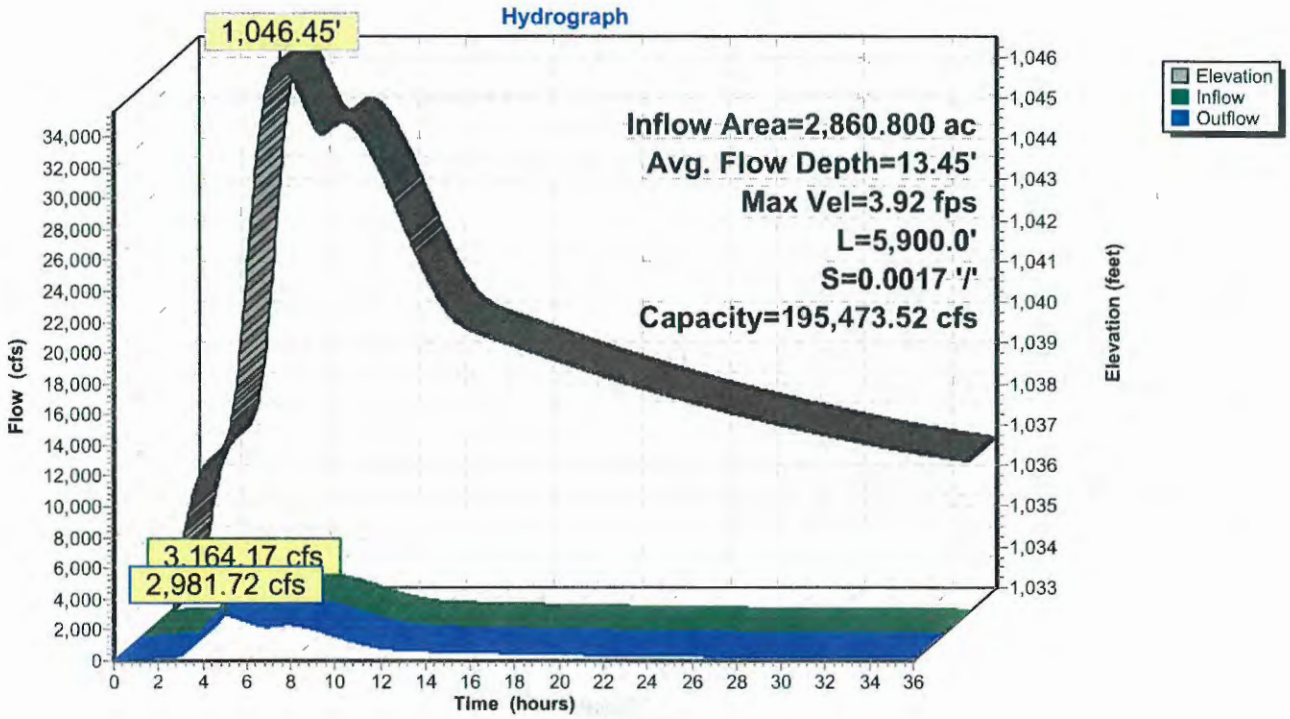
Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'

‡

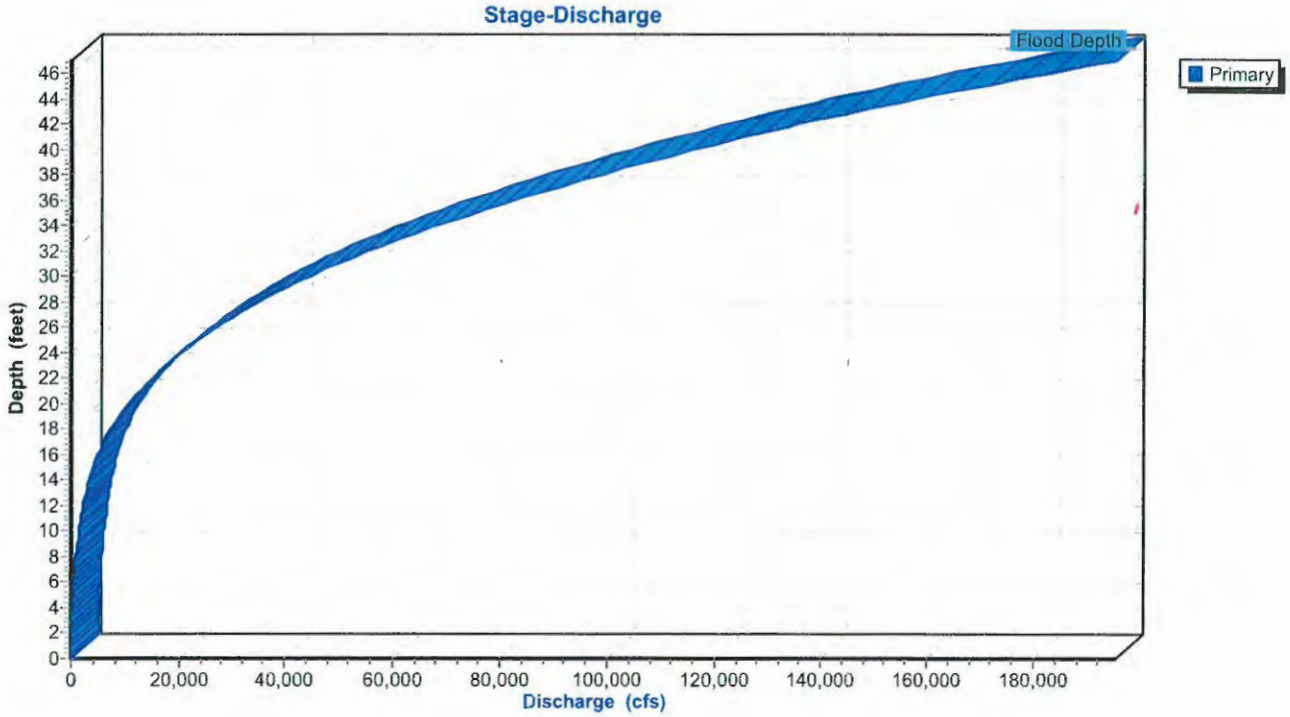
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00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

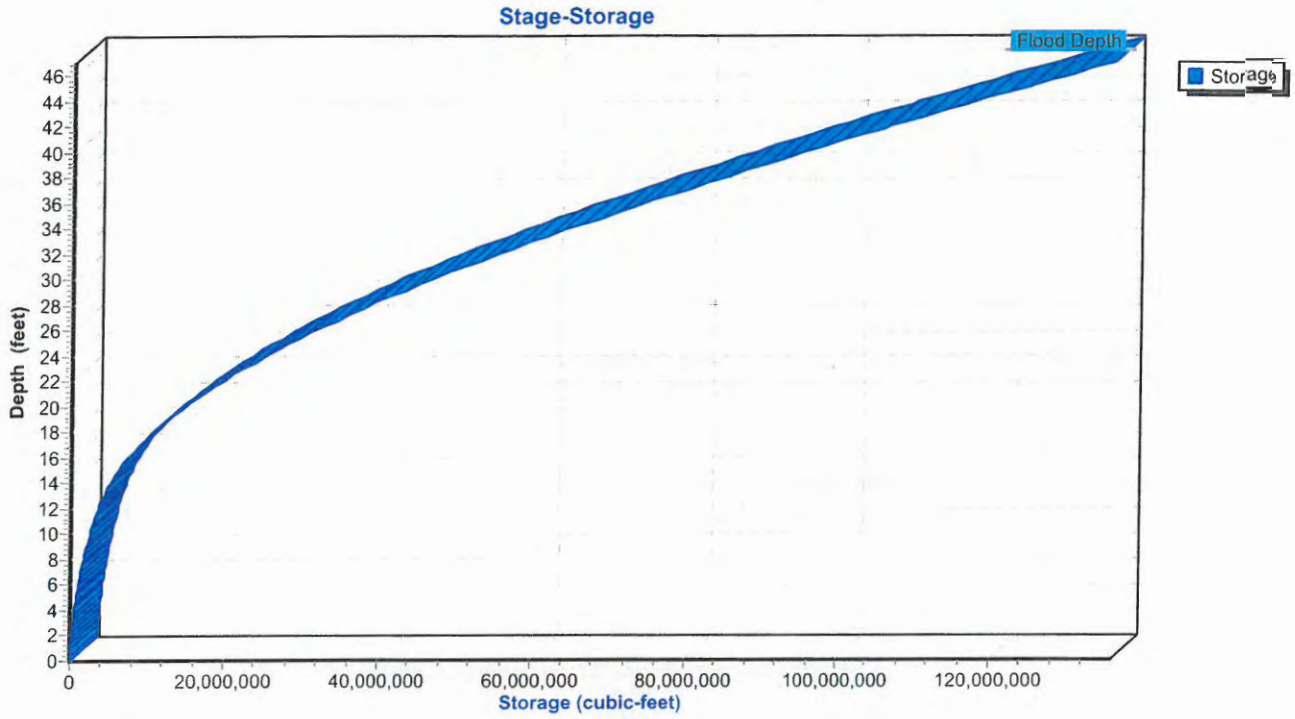
Reach 7R: Channel 7



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 > 8.18" for 6-HR 0.5PMF event
Inflow = 2,725.66 cfs @ 7.49 hrs, Volume= 1,338.725 af
Outflow = 2,723.21 cfs @ 7.57 hrs, Volume= 1,337.936 af, Atten= 0%, Lag= 4.9 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 = 2.41 fps, Avg. Travel Time= 6.2 min

Peak Storage= 1,106,781 cf @ 7.57 hrs
Average Depth at Peak Storage= 7.72'
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

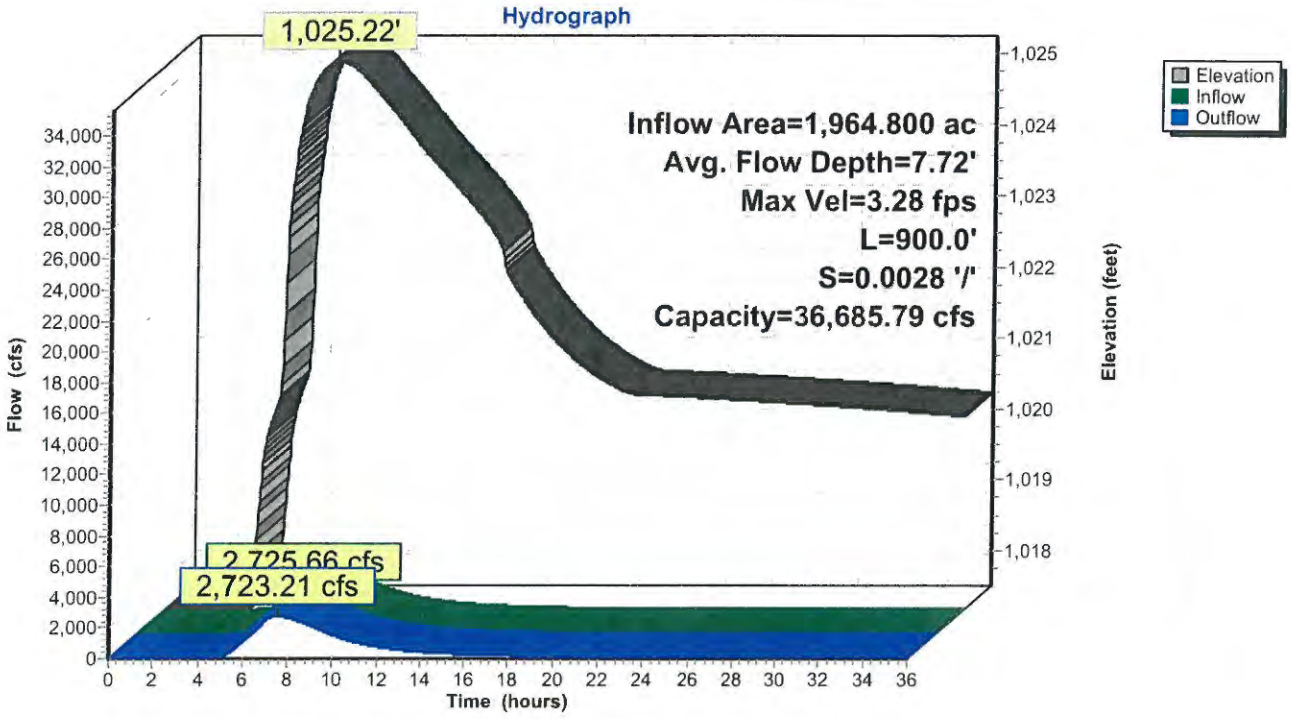
Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

‡

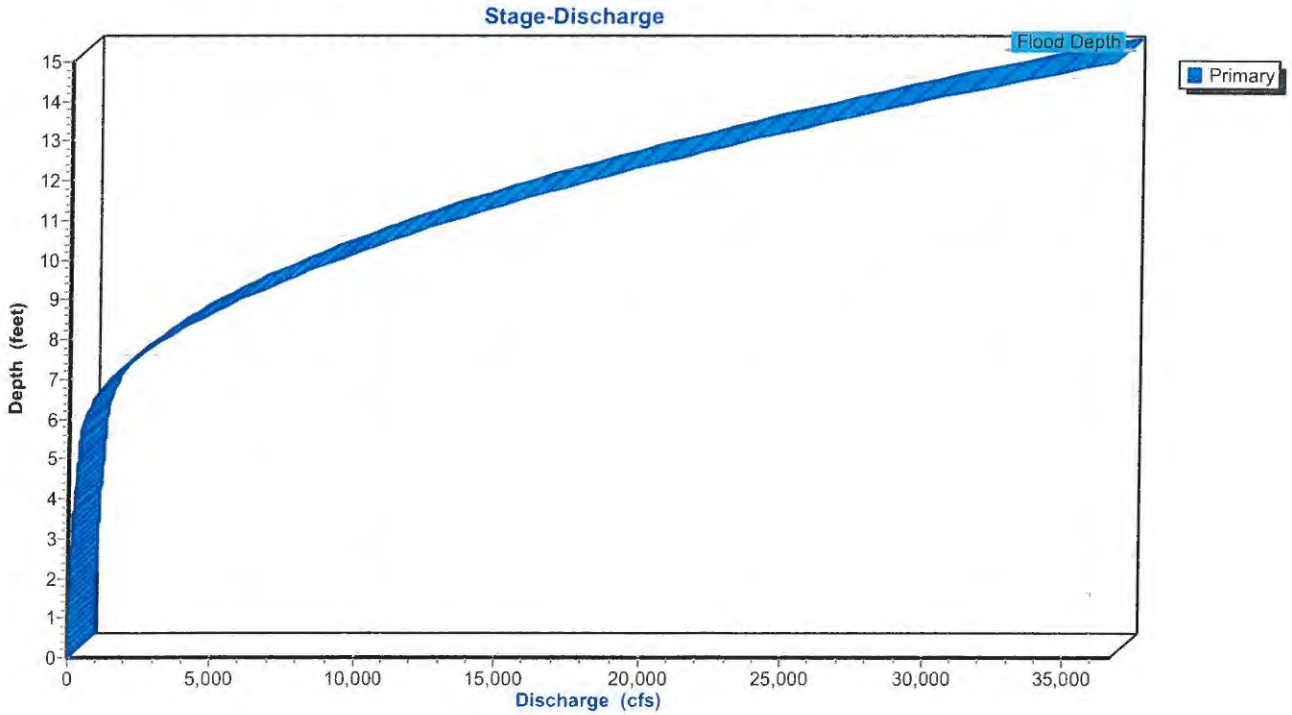
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00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

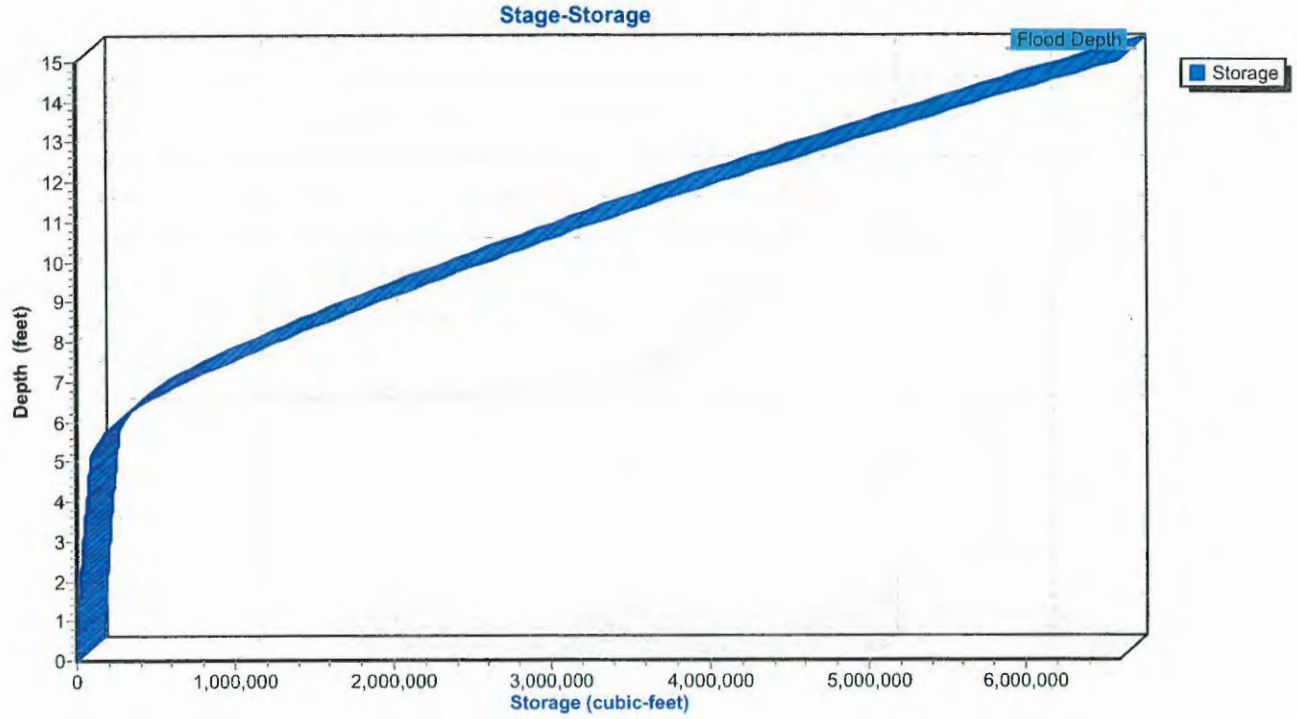
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



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 > 8.82" for 6-HR 0.5PMF event
Inflow = 9,207.64 cfs @ 4.86 hrs, Volume= 5,380.117 af
Outflow = 8,338.98 cfs @ 6.33 hrs, Volume= 5,338.904 af, Atten= 9%, Lag= 88.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.96 fps, Min. Travel Time= 49.5 min
Avg. Velocity = 1.79 fps, Avg. Travel Time= 82.1 min

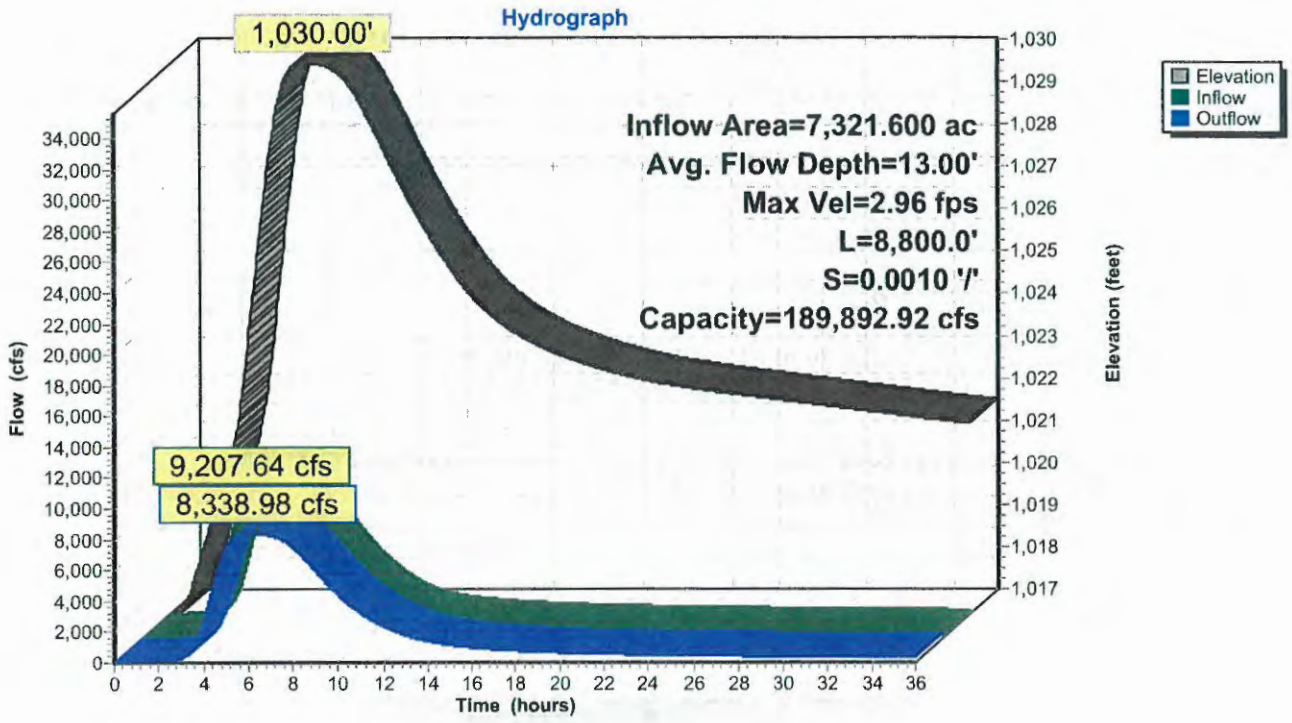
Peak Storage= 24,765,656 cf @ 6.33 hrs
Average Depth at Peak Storage= 13.00'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

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'

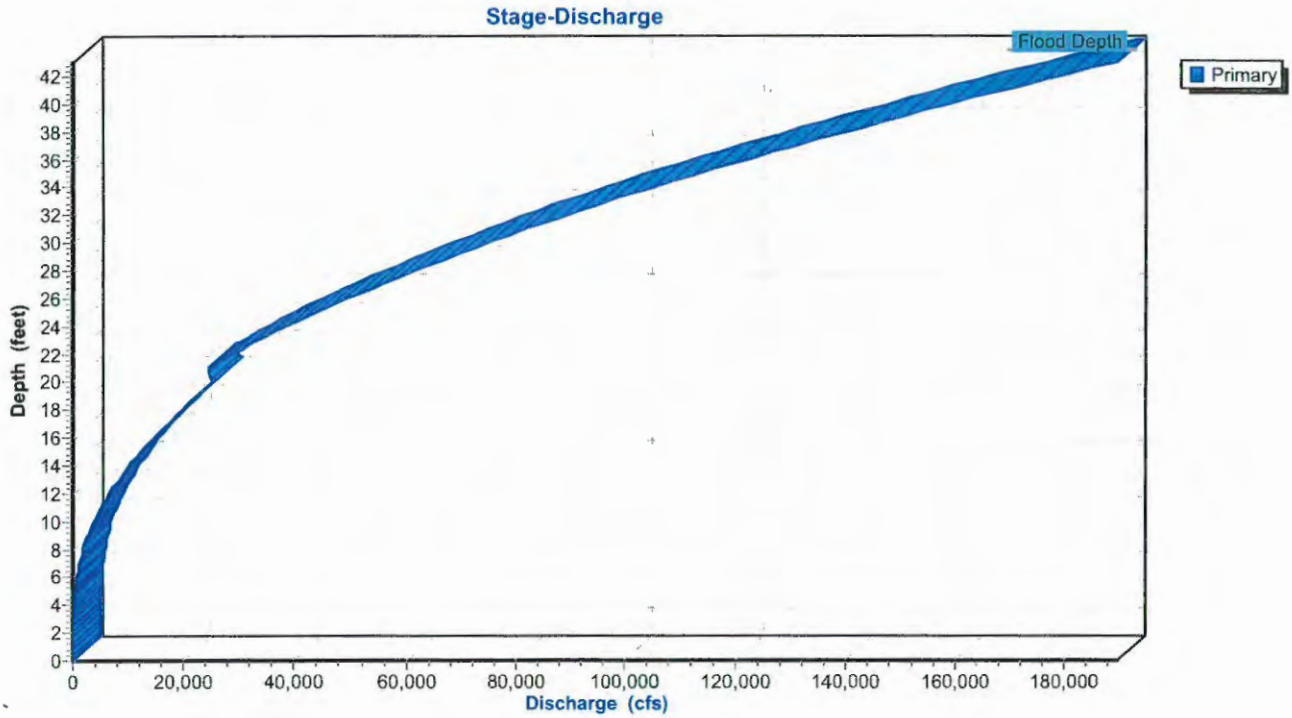
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00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

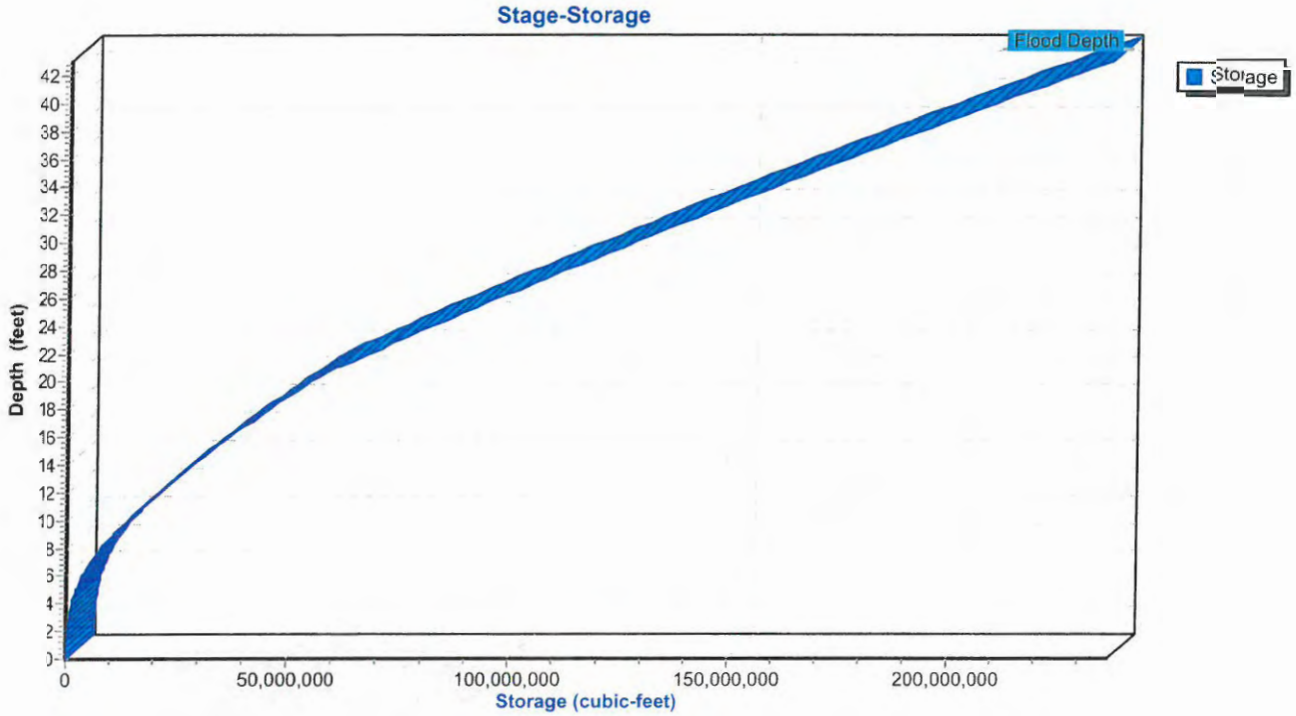
Reach 15R: Channel 15



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 > 8.91" for 6-HR 0.5PMF event
Inflow = 10,719.08 cfs @ 5.35 hrs, Volume= 6,519.616 af
Outflow = 10,497.54 cfs @ 5.86 hrs, Volume= 6,476.192 af, Atten= 2%, Lag= 30.6 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.91 fps, Min. Travel Time= 32.0 min
Avg. Velocity = 1.93 fps, Avg. Travel Time= 64.9 min

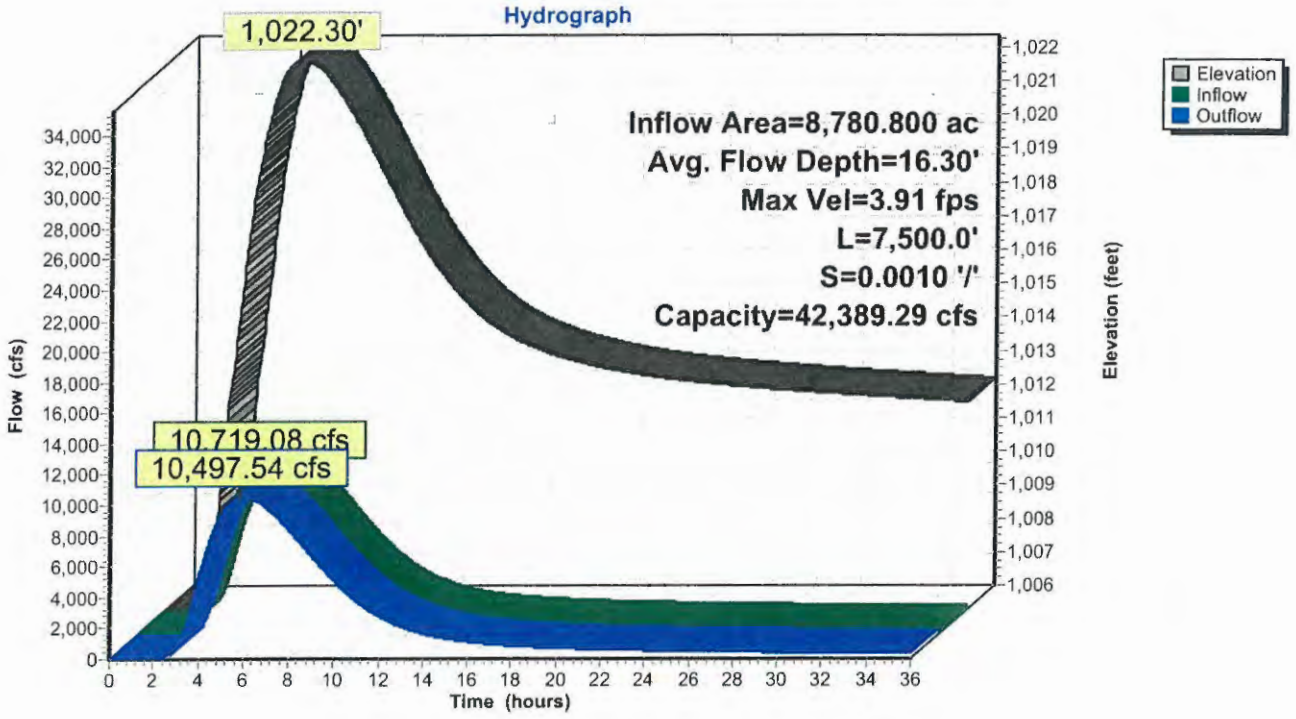
Peak Storage= 20,136,097 cf @ 5.86 hrs
Average Depth at Peak Storage= 16.30'
Defined Flood Depth= 28.00', Capacity at Flood Depth= 42,389.29 cfs
Bank-Full Depth= 28.00', Capacity at Bank-Full= 42,389.29 cfs

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'

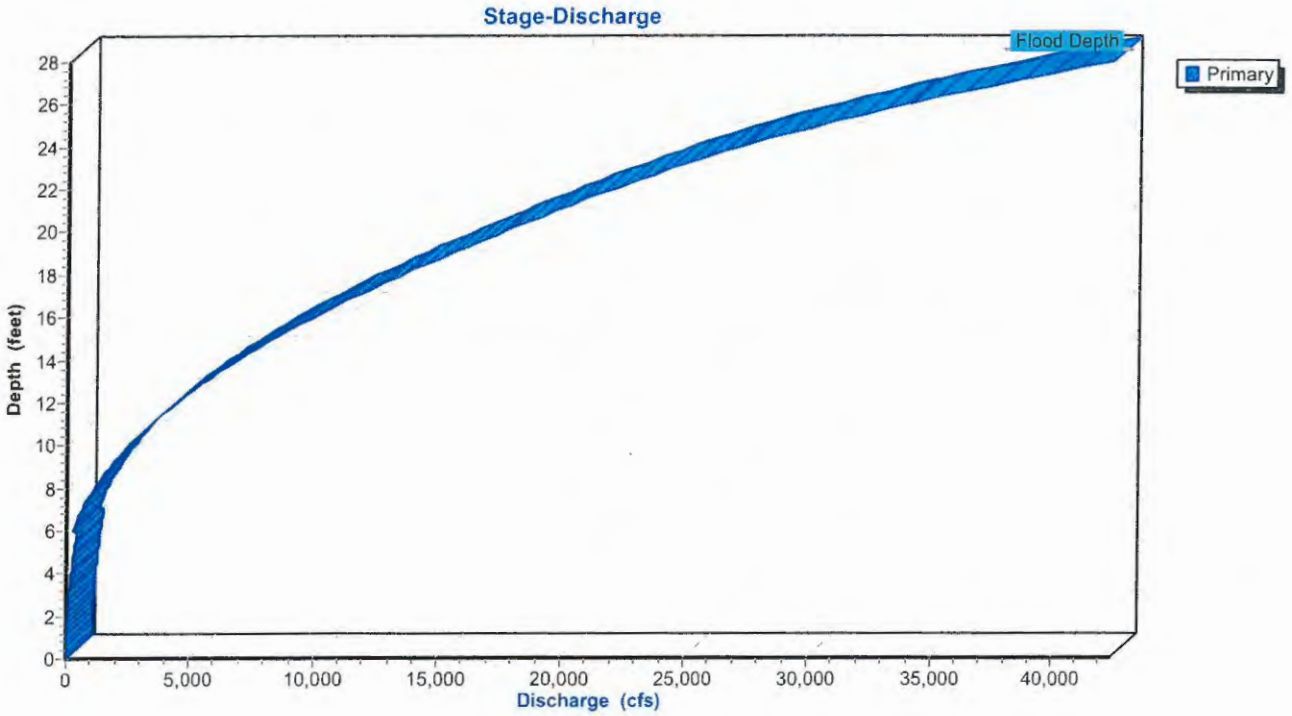
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00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

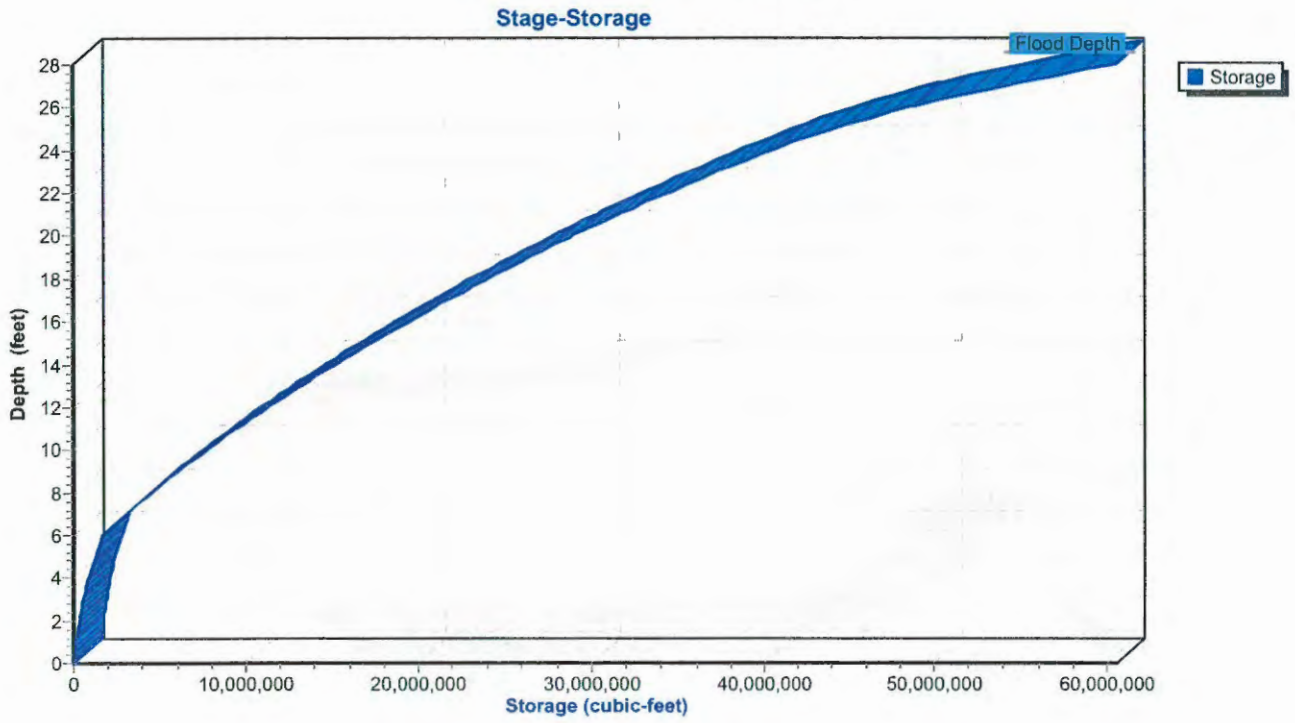
Reach 16R: Channel 16



Reach 16R: Channel 16



Reach 16R: Channel 16



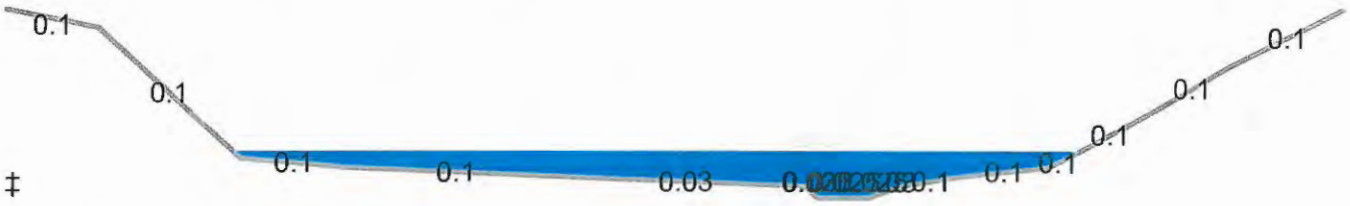
Summary for Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 8.95" for 6-HR 0.5PMF event
Inflow = 11,414.16 cfs @ 5.97 hrs, Volume= 7,053.912 af
Outflow = 11,414.17 cfs @ 5.98 hrs, Volume= 7,053.787 af, Atten= 0%, Lag= 0.5 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.52 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 9.27 fps, Avg. Travel Time= 0.8 min

Peak Storage= 445,989 cf @ 5.98 hrs
Average Depth at Peak Storage= 10.04'
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

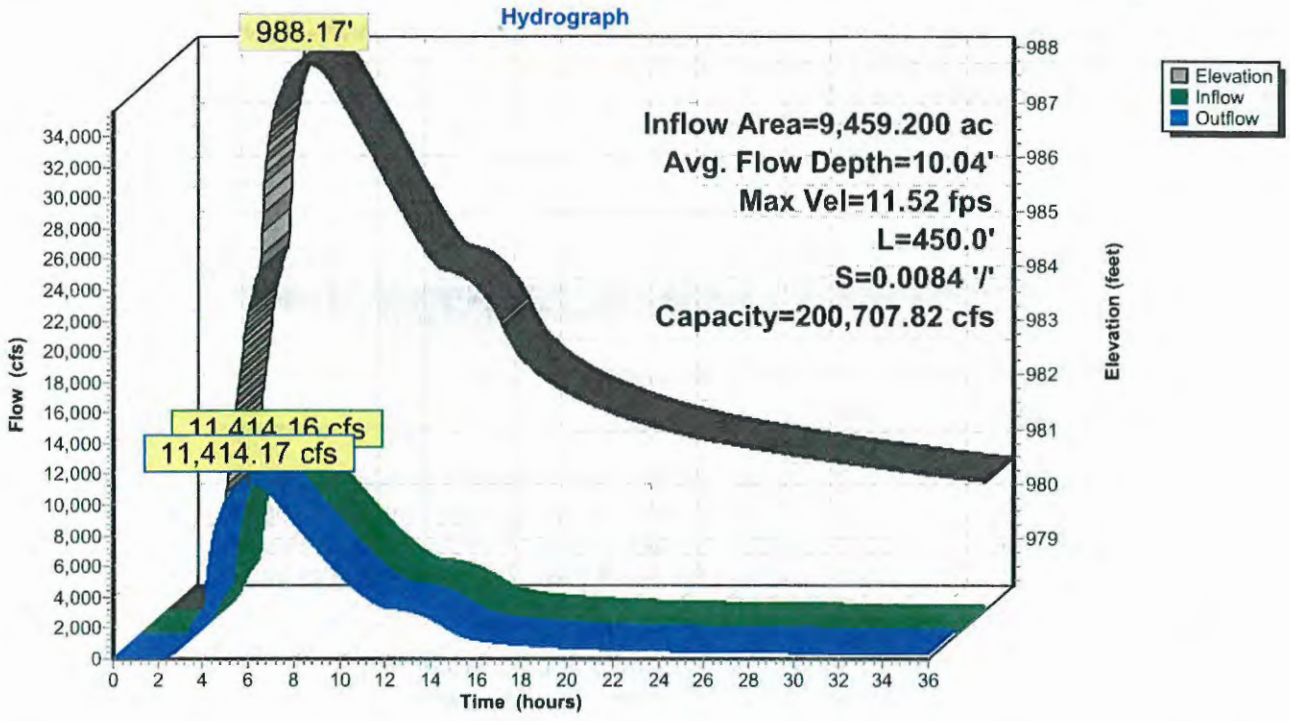
Custom cross-section, Length= 450.0' Slope= 0.0084 '/' (1006 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 978.13', Outlet Invert= 974.35'



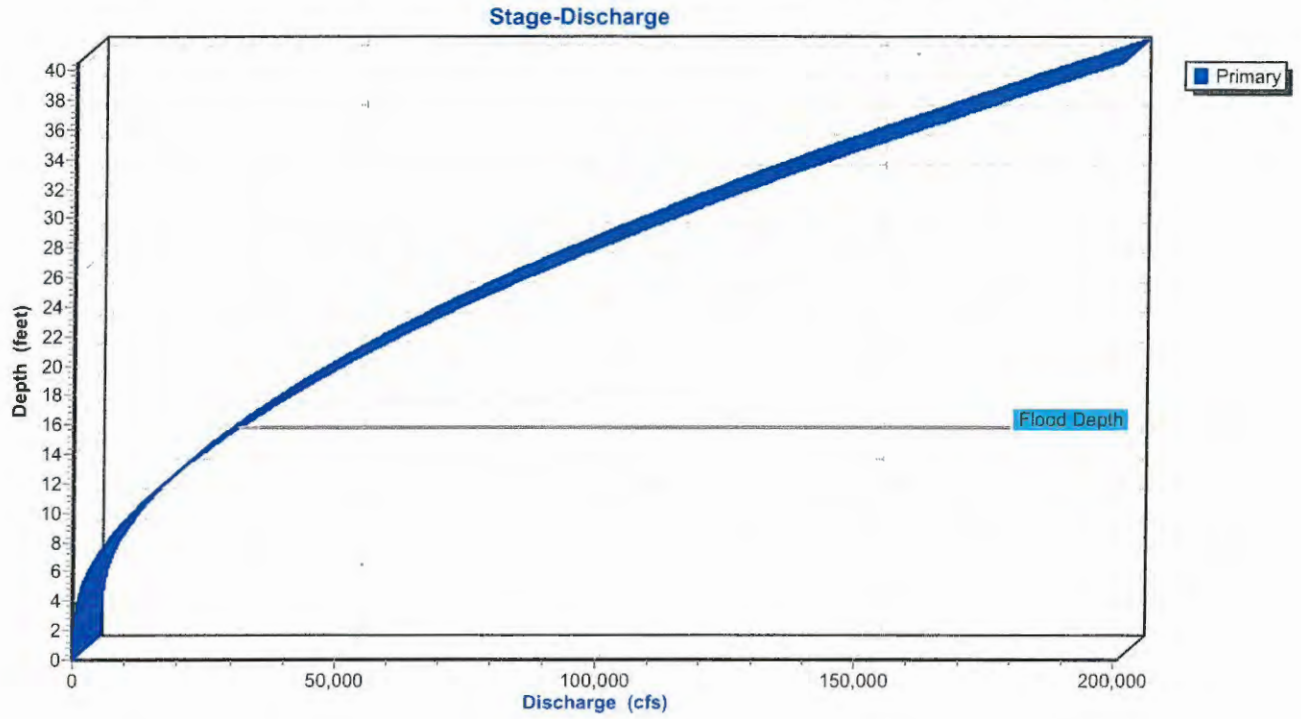
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, 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

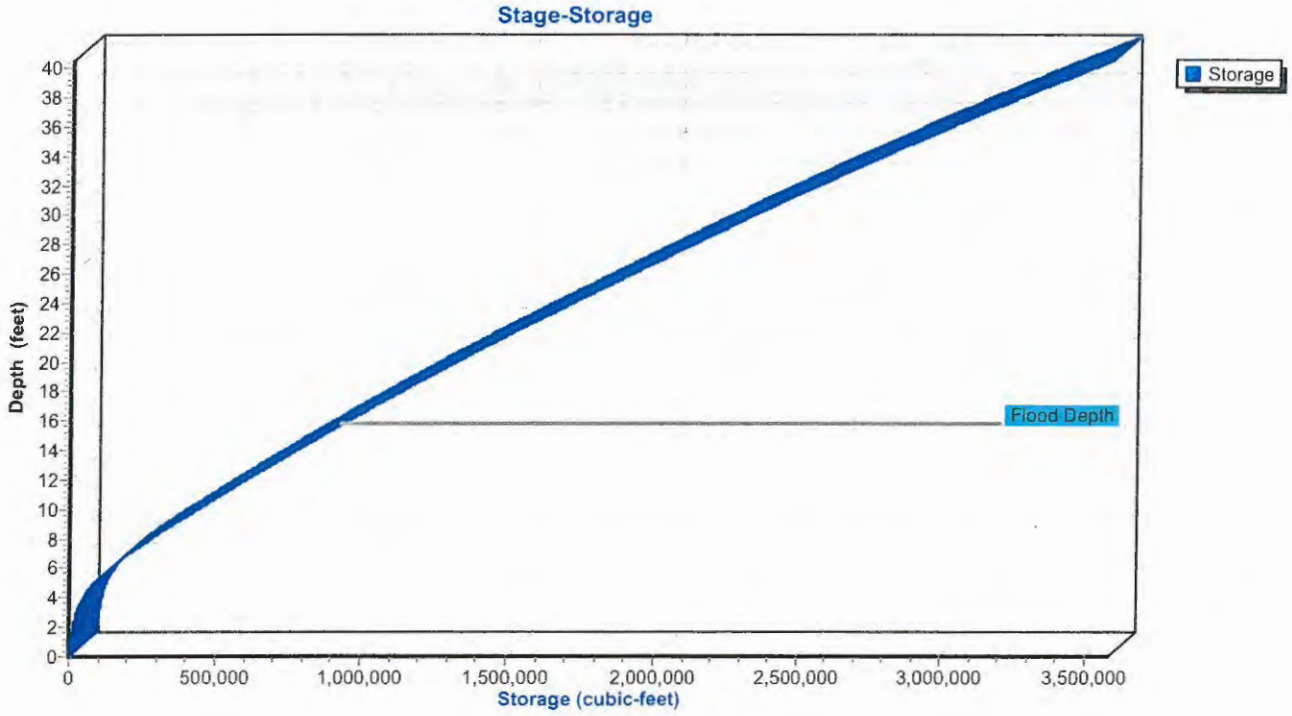
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

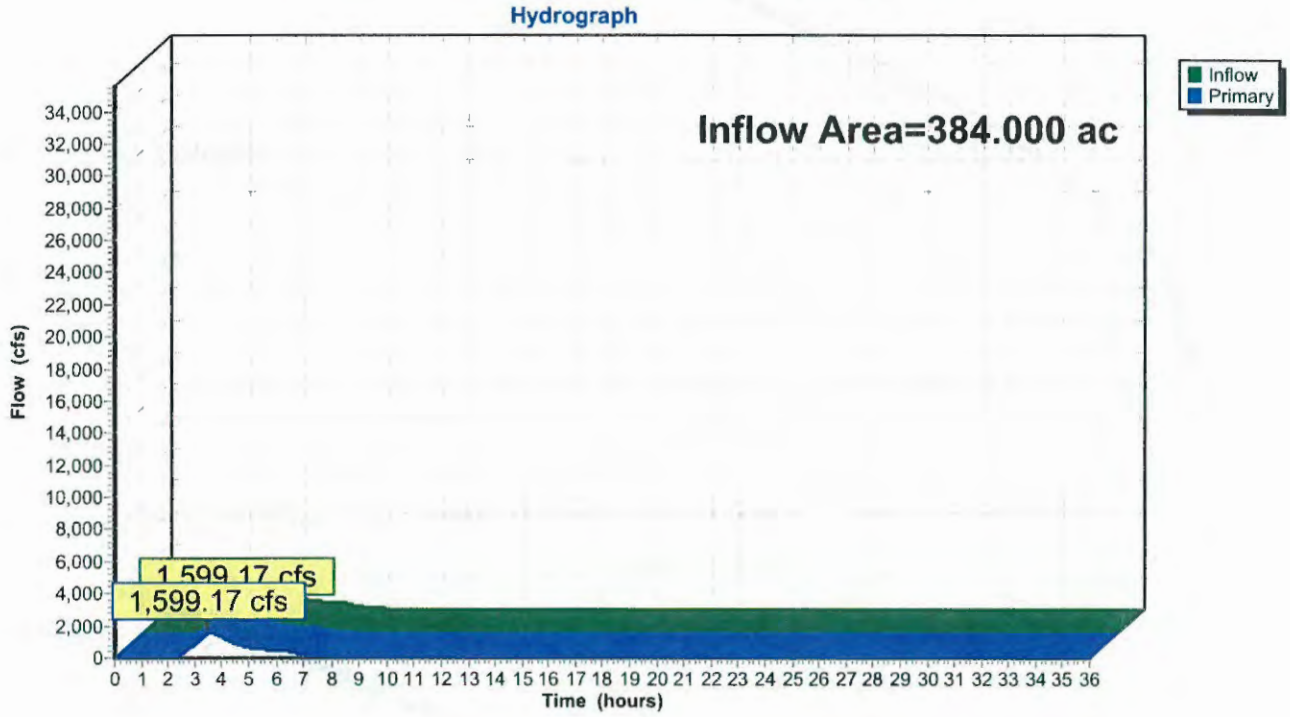


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 9.74" for 6-HR 0.5PMF event
Inflow = 1,599.17 cfs @ 3.47 hrs, Volume= 311.630 af
Primary = 1,599.17 cfs @ 3.48 hrs, Volume= 311.630 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 > 8.97" for 6-HR 0.5PMF event
Inflow = 11,457.06 cfs @ 5.69 hrs, Volume= 7,068.974 af
Outflow = 11,415.24 cfs @ 5.93 hrs, Volume= 7,055.537 af, Atten= 0%, Lag= 14.2 min
Primary = 3,166.07 cfs @ 3.82 hrs, Volume= 3,062.293 af
Secondary = 7,478.78 cfs @ 5.93 hrs, Volume= 3,620.309 af
Tertiary = 996.25 cfs @ 5.94 hrs, Volume= 372.936 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= 1,012.56' @ 5.95 hrs Surf.Area= 46.832 ac Storage= 287.342 af (226.380 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= 34.3 min calculated for 6,992.633 af (99% of inflow)
Center-of-Mass det. time= 14.7 min (586.9 - 572.2)

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

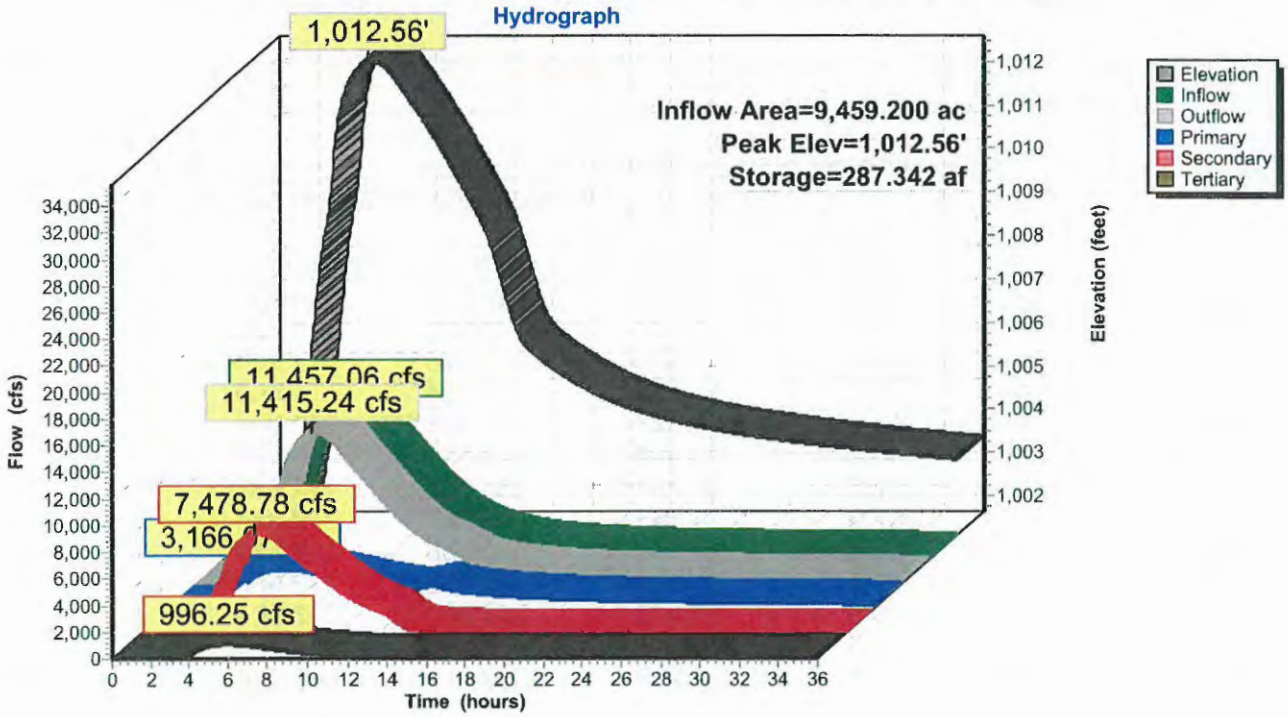
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	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=3,147.44 cfs @ 3.82 hrs HW=1,008.80' TW=1,002.29' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3,147.44 cfs @ 8.79 fps)

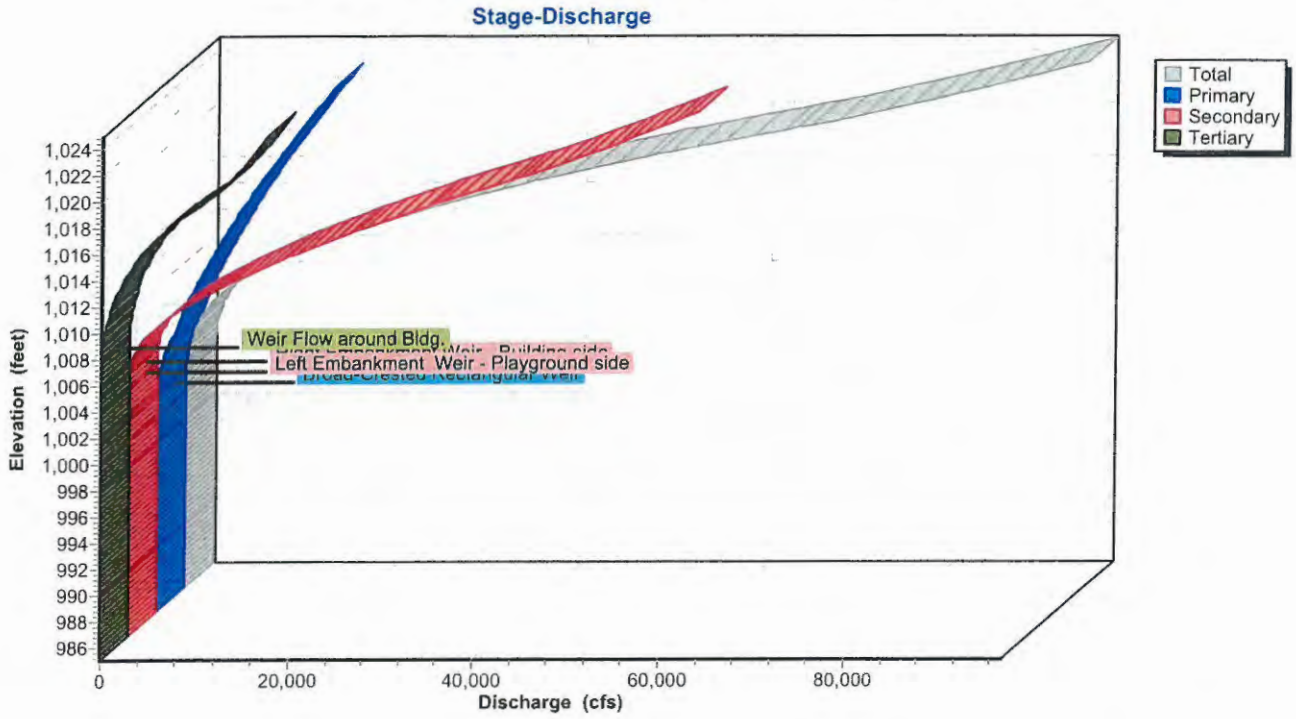
Secondary OutFlow Max=7,478.28 cfs @ 5.93 hrs HW=1,012.56' TW=1,011.38' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 2,552.50 cfs @ 5.02 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 4,925.77 cfs @ 4.95 fps)

Tertiary OutFlow Max=996.20 cfs @ 5.94 hrs HW=1,012.56' TW=1,011.38' (Dynamic Tailwater)
└─**4=Weir Flow around Bldg.** (Weir Controls 996.20 cfs @ 2.35 fps)

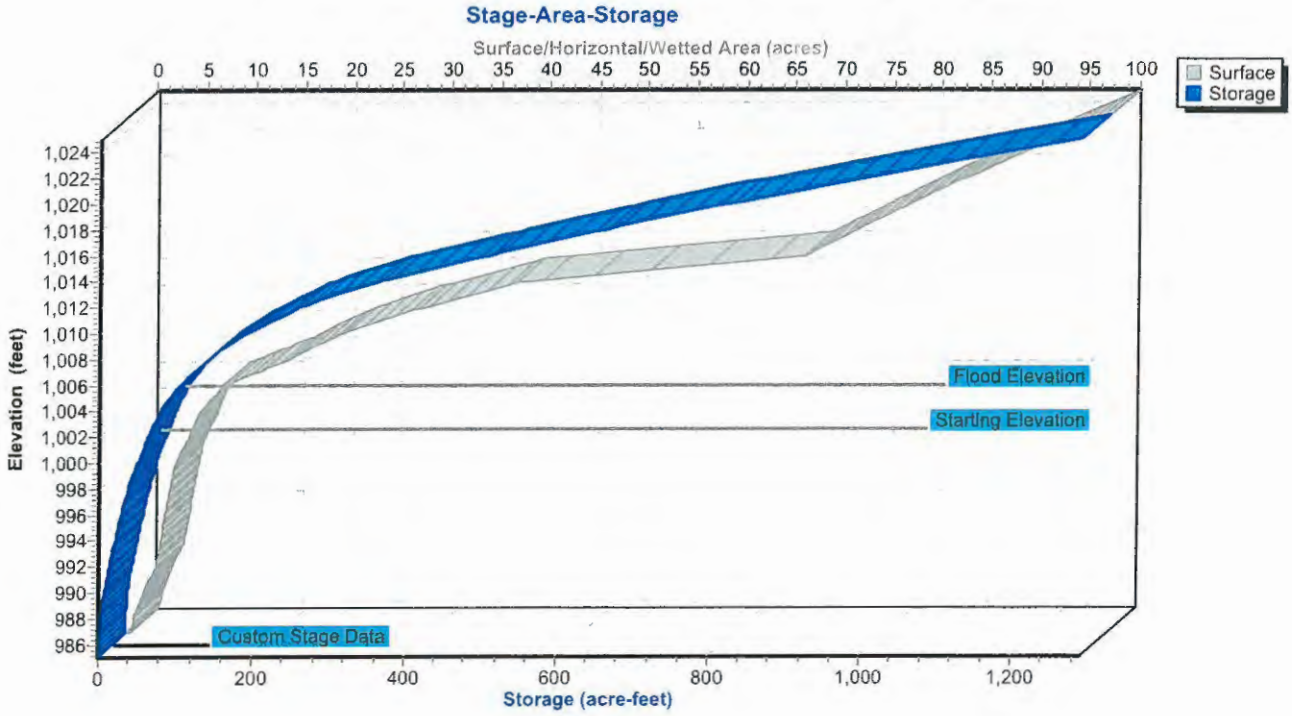
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

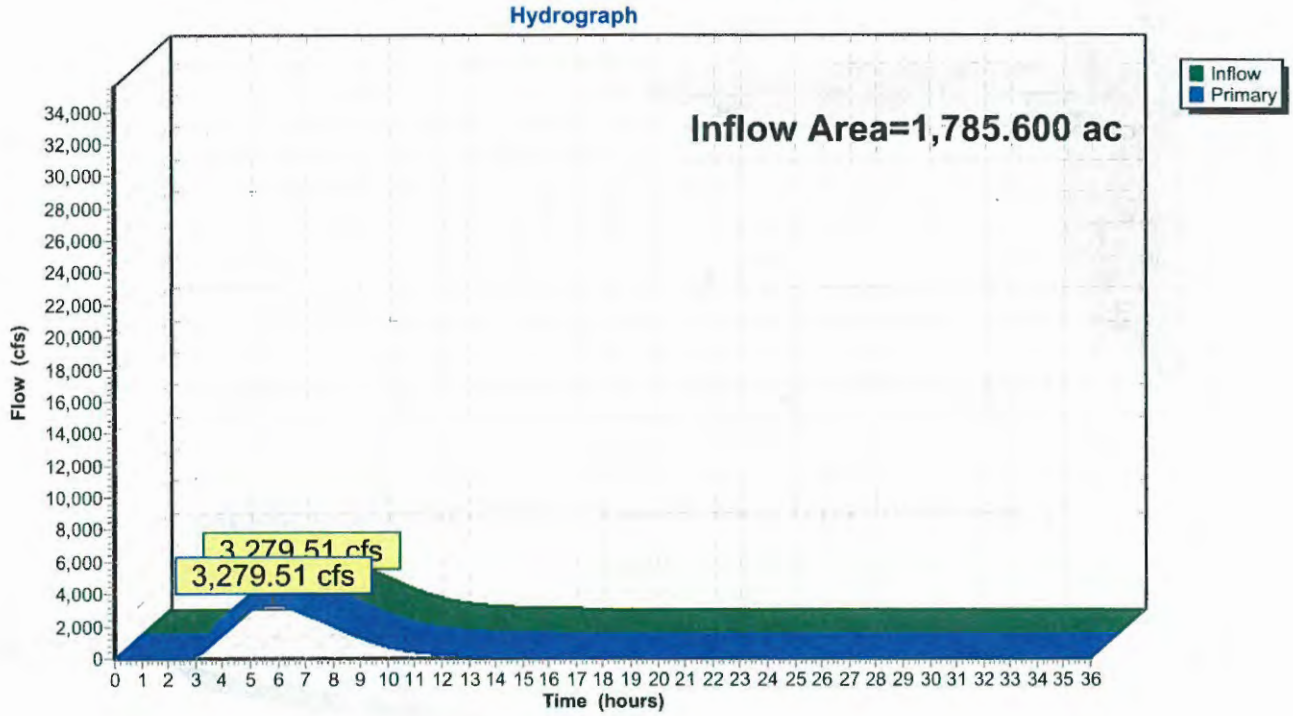


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 9.19" for 6-HR 0.5PMF event
Inflow = 3,279.51 cfs @ 5.78 hrs, Volume= 1,368.060 af
Primary = 3,279.51 cfs @ 5.79 hrs, Volume= 1,368.060 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 > 9.19" for 6-HR 0.5PMF event
Inflow = 3,279.51 cfs @ 5.79 hrs, Volume= 1,368.059 af
Outflow = 1,854.00 cfs @ 8.20 hrs, Volume= 1,462.441 af, Atten= 43%, Lag= 144.3 min
Primary = 808.28 cfs @ 8.20 hrs, Volume= 1,202.281 af
Secondary = 1,045.72 cfs @ 8.20 hrs, Volume= 260.160 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= 1,100.02' @ 8.20 hrs Surf.Area= 317.248 ac Storage= 2,614.873 af (700.873 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= 443.9 min (854.4 - 410.5)

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

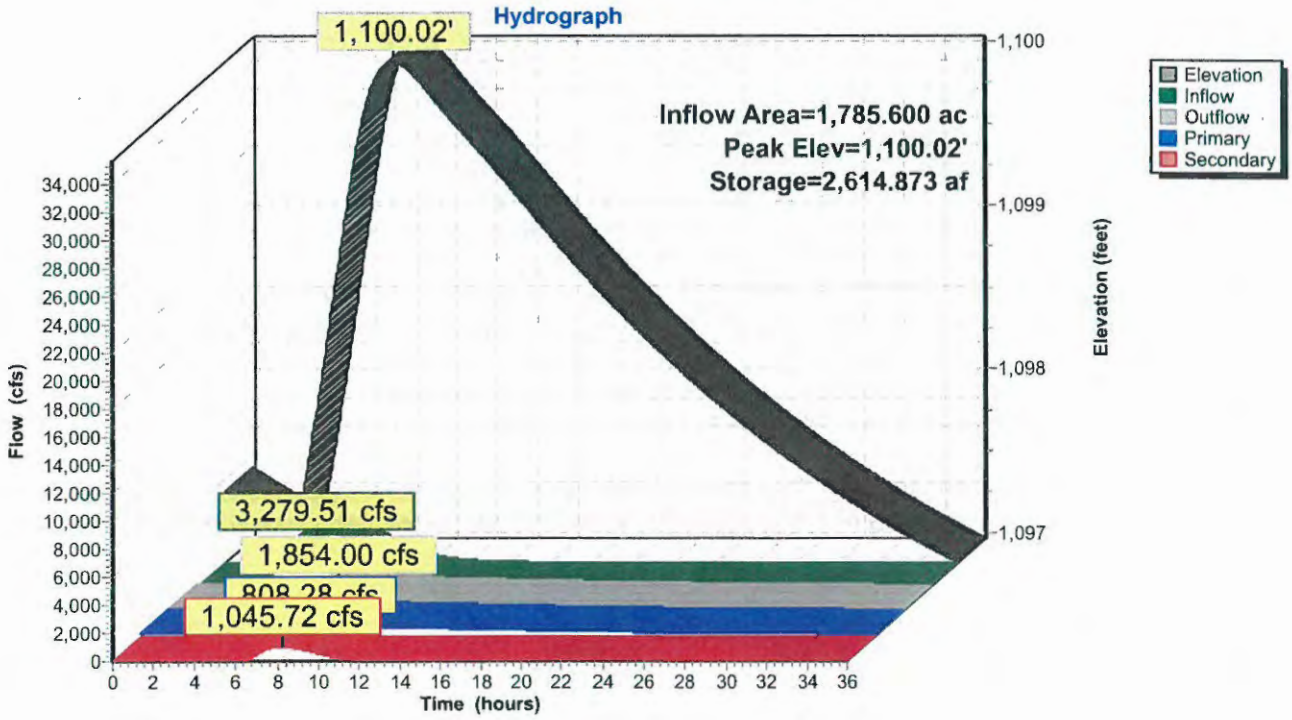
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

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

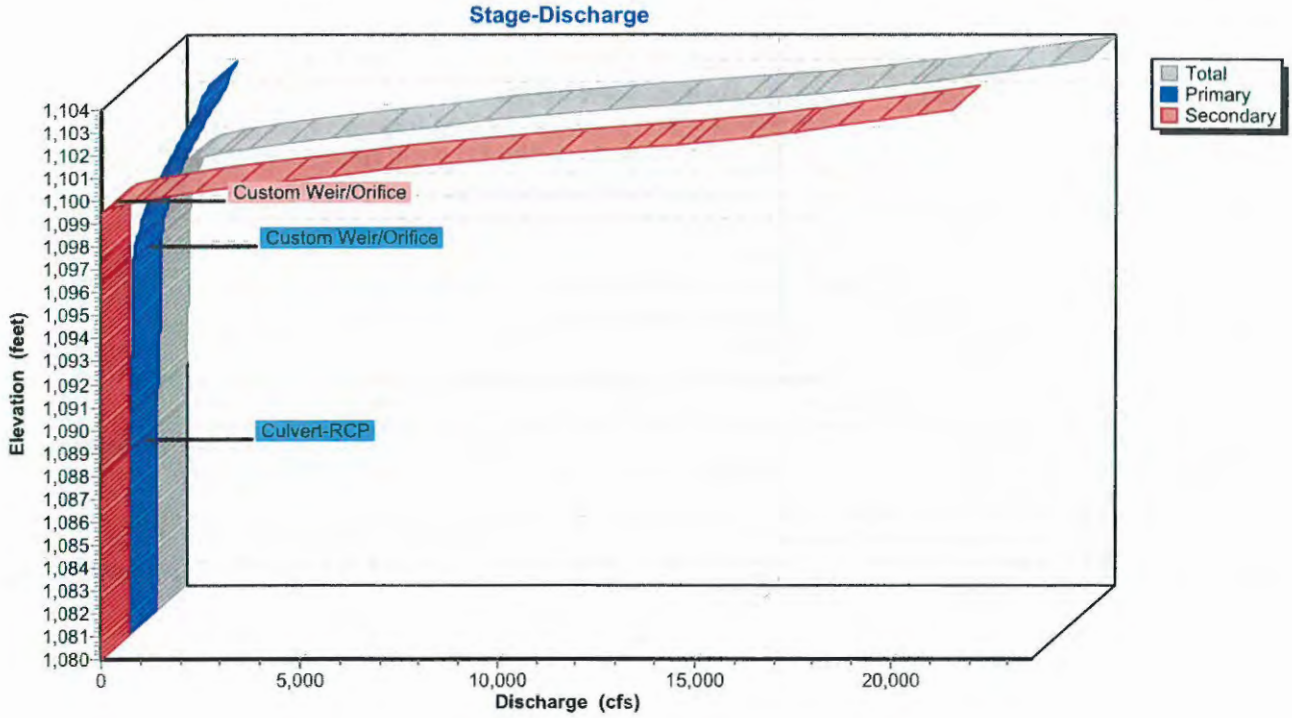
Primary OutFlow Max=808.28 cfs @ 8.20 hrs HW=1,100.02' TW=1,075.18' (Dynamic Tailwater)
└─**1=Culvert-RCP** (Barrel Controls 131.97 cfs @ 18.67 fps)
└─**2=Custom Weir/Orifice** (Weir Controls 676.31 cfs @ 6.23 fps)

Secondary OutFlow Max=1,045.71 cfs @ 8.20 hrs HW=1,100.02' TW=1,075.18' (Dynamic Tailwater)
└─**3=Custom Weir/Orifice** (Weir Controls 1,045.71 cfs @ 2.02 fps)

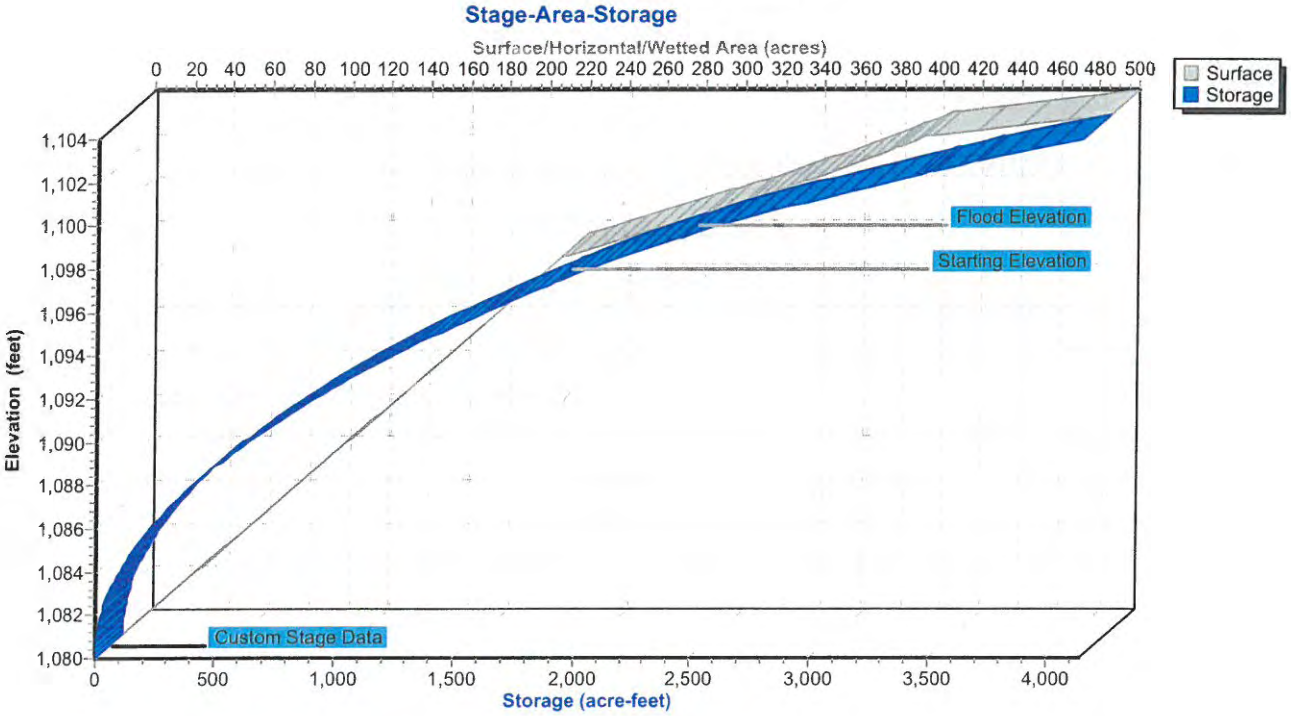
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

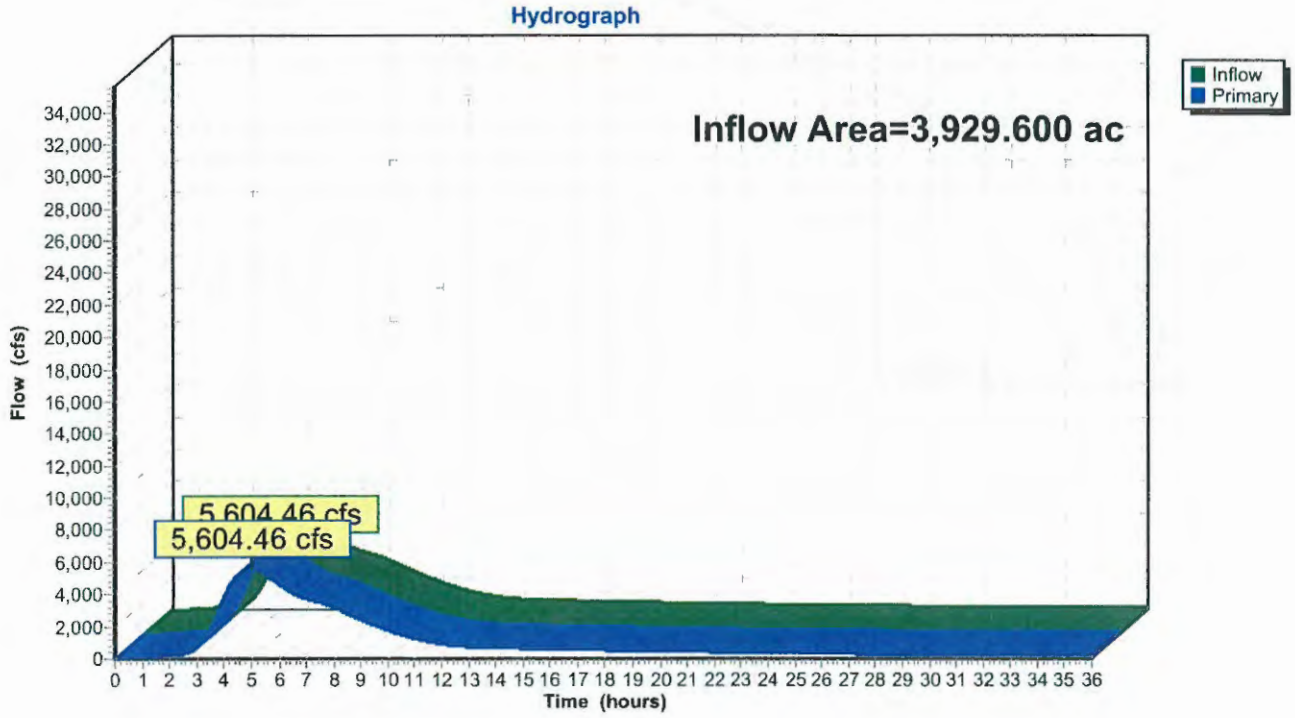


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 9.22" for 6-HR 0.5PMF event
Inflow = 5,604.46 cfs @ 4.98 hrs, Volume= 3,020.643 af
Primary = 5,604.46 cfs @ 4.99 hrs, Volume= 3,020.643 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 > 9.74" for 6-HR 0.5PMF event
Inflow = 1,599.17 cfs @ 3.48 hrs, Volume= 311.630 af
Outflow = 1,444.44 cfs @ 3.82 hrs, Volume= 311.052 af, Atten= 10%, Lag= 20.7 min
Primary = 1,359.54 cfs @ 3.82 hrs, Volume= 304.044 af
Secondary = 84.90 cfs @ 3.82 hrs, Volume= 7.008 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= 1,109.04' @ 3.82 hrs Surf.Area= 32.650 ac Storage= 112.039 af (87.739 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= 176.3 min calculated for 286.672 af (92% of inflow)
Center-of-Mass det. time= 136.2 min (410.5 - 274.3)

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

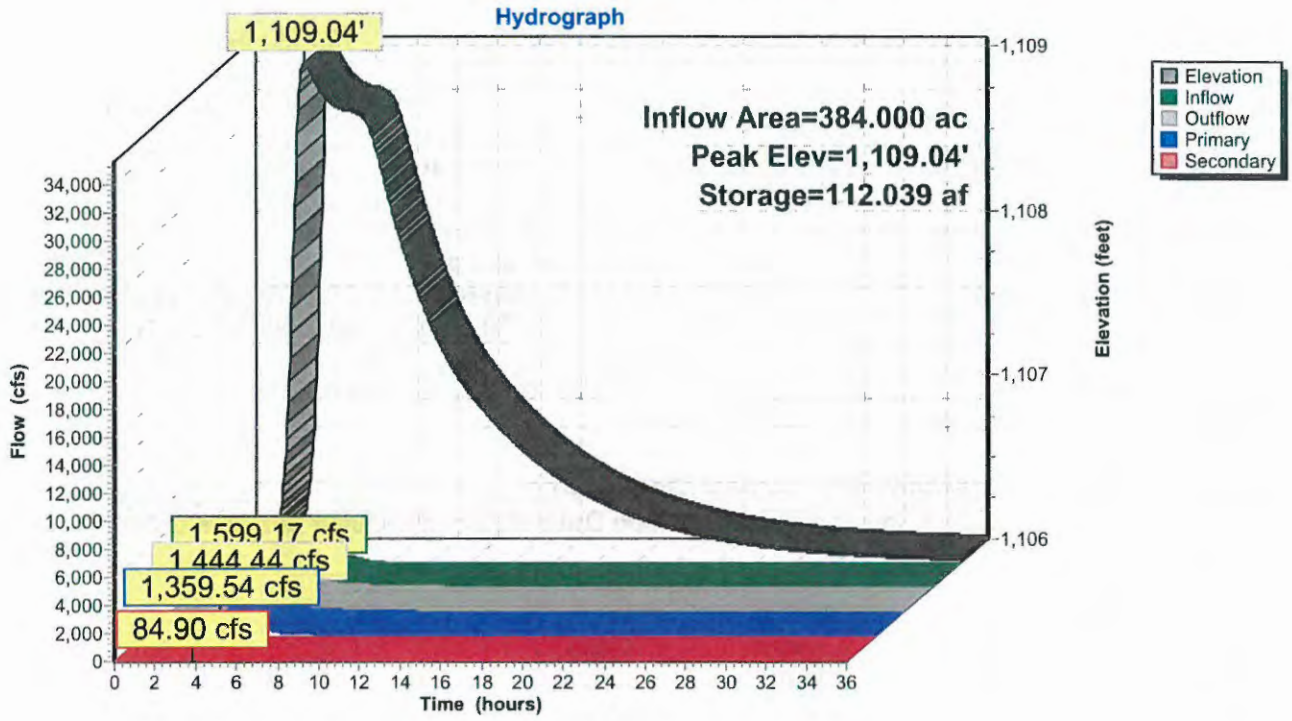
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

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

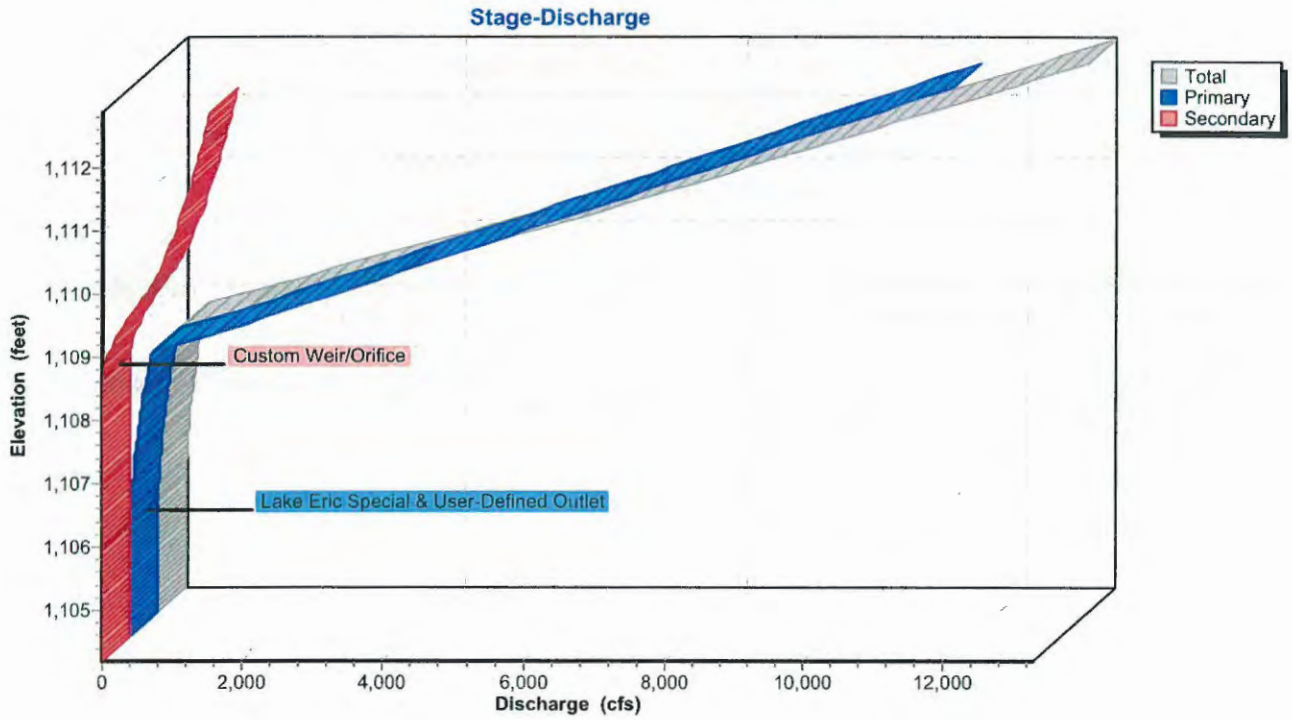
Primary OutFlow Max=1,359.48 cfs @ 3.82 hrs HW=1,109.04' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet**(Custom Controls 1,359.48 cfs)

Secondary OutFlow Max=84.89 cfs @ 3.82 hrs HW=1,109.04' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 84.89 cfs @ 1.64 fps)

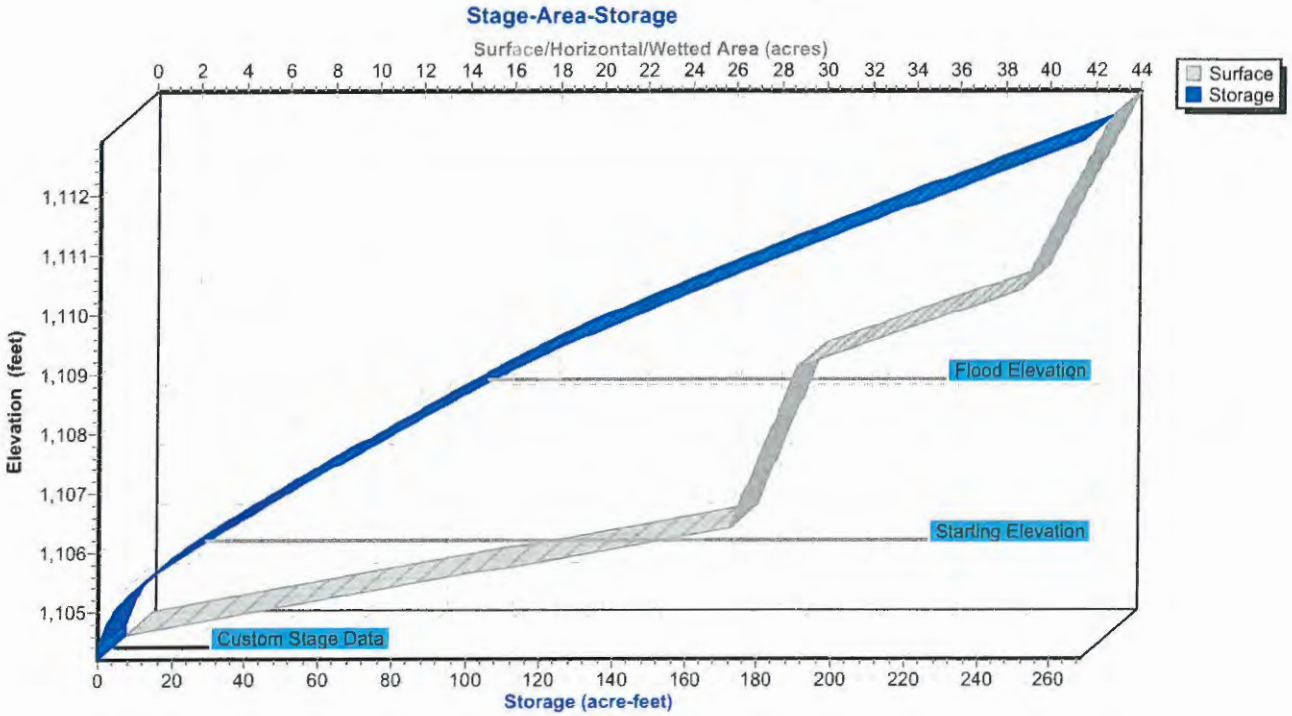
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

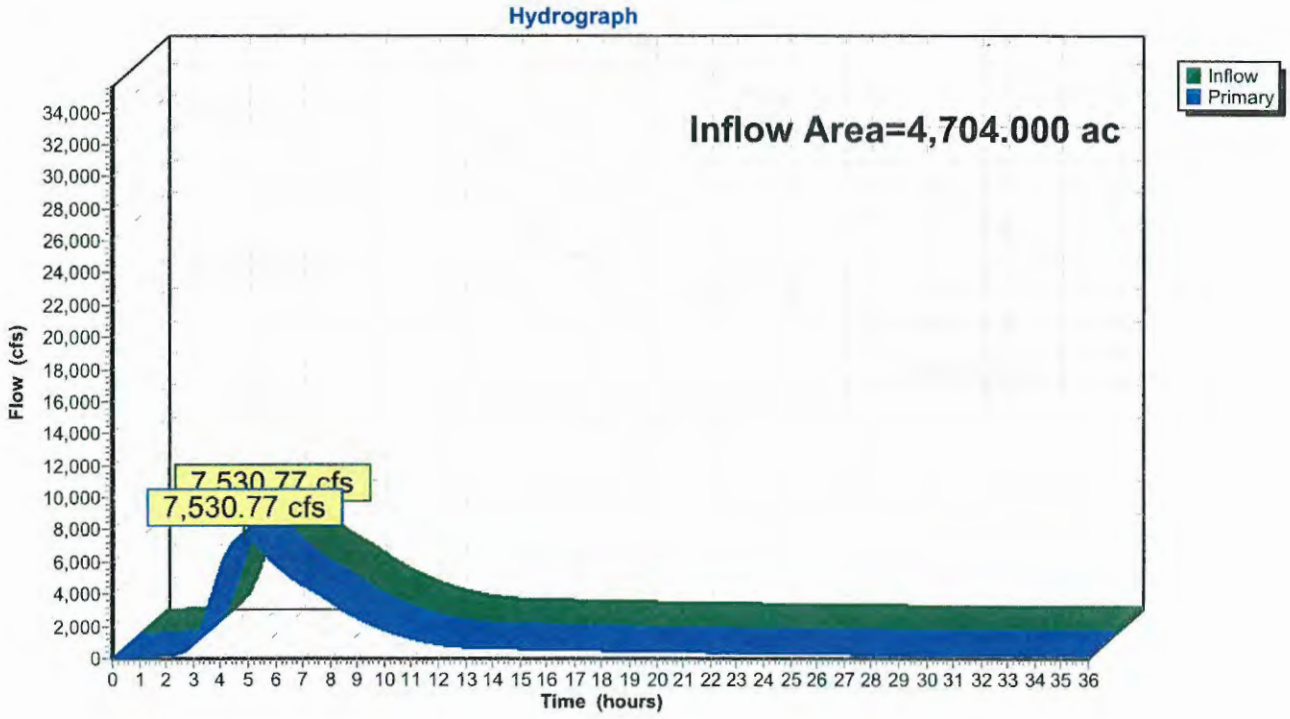


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 9.12" for 6-HR 0.5PMF event
Inflow = 7,530.77 cfs @ 4.83 hrs, Volume= 3,575.157 af
Primary = 7,530.77 cfs @ 4.84 hrs, Volume= 3,575.157 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 = 9.64" for 6-HR 0.5PMF event
Inflow = 520.17 cfs @ 3.23 hrs, Volume= 92.550 af
Outflow = 518.64 cfs @ 3.29 hrs, Volume= 92.432 af, Atten= 0%, Lag= 3.8 min
Primary = 353.73 cfs @ 3.29 hrs, Volume= 75.445 af
Secondary = 164.91 cfs @ 3.29 hrs, Volume= 16.987 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= 1,120.54' @ 3.29 hrs Surf.Area= 4.409 ac Storage= 29.798 af (16.108 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= 118.4 min calculated for 78.720 af (85% of inflow)
Center-of-Mass det. time= 74.6 min (313.0 - 238.4)

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

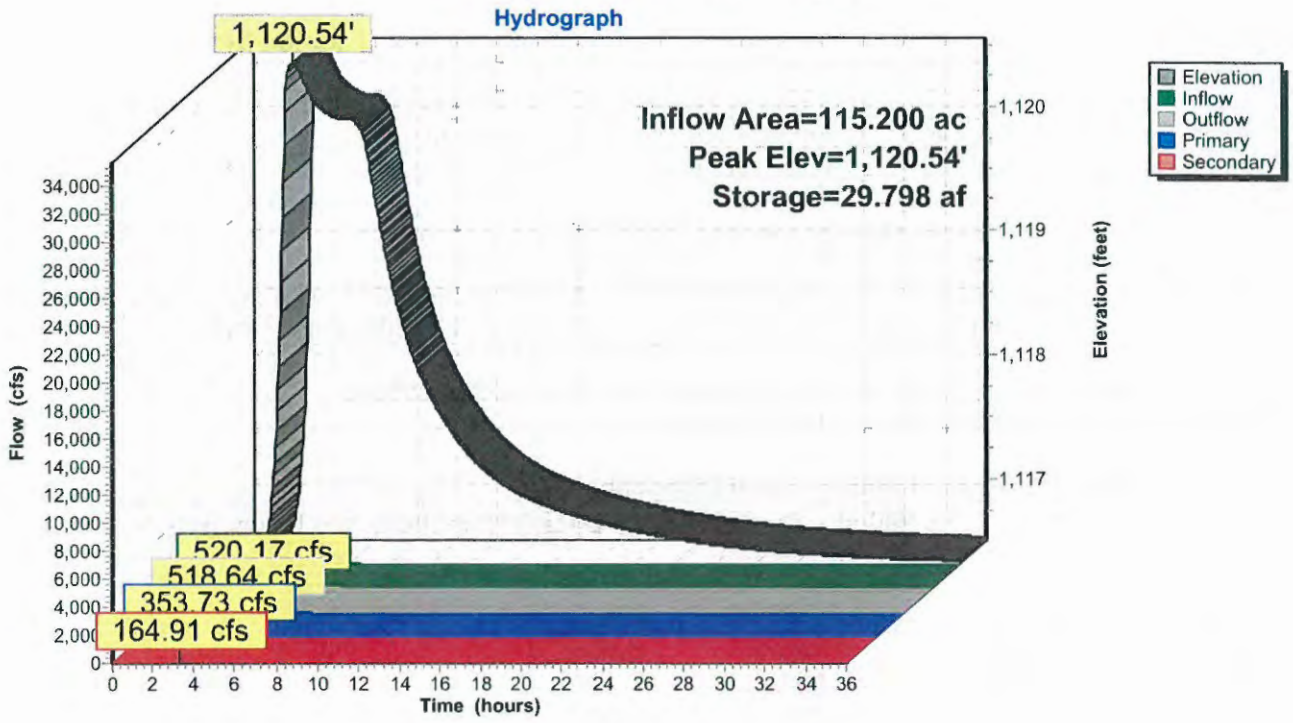
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

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

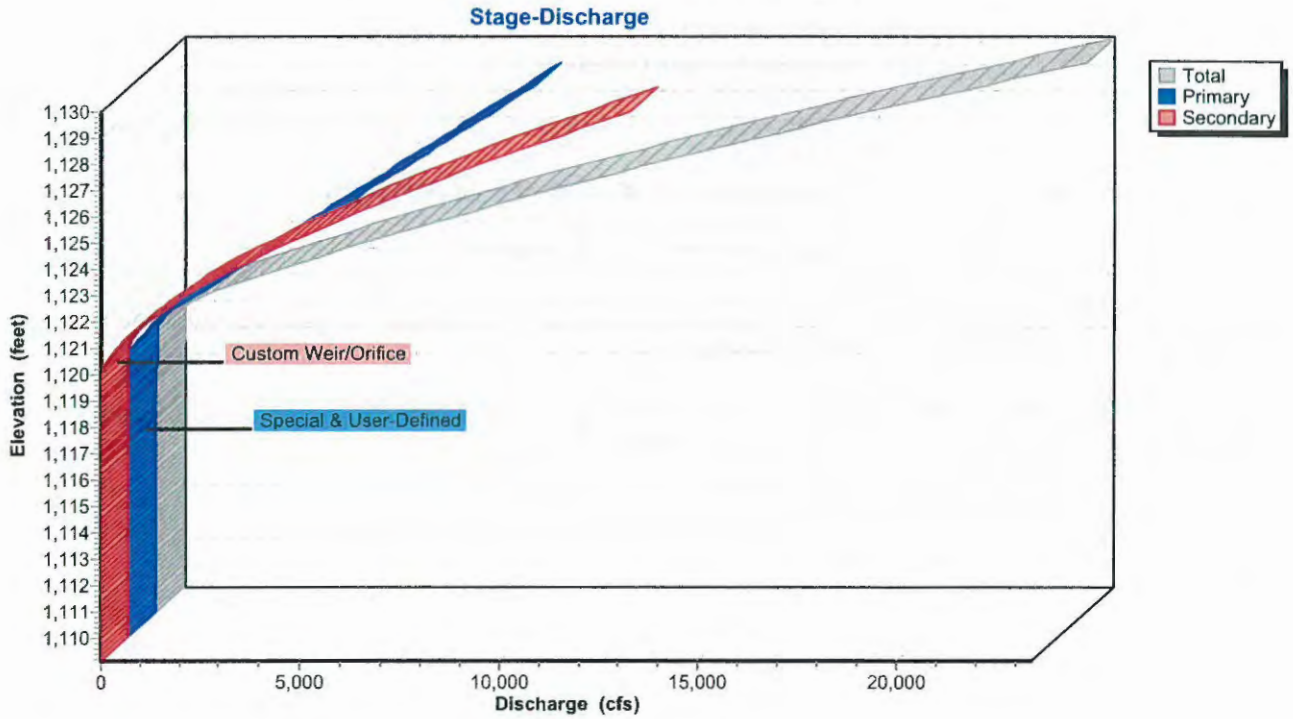
Primary OutFlow Max=353.71 cfs @ 3.29 hrs HW=1,120.54' TW=0.00' (Dynamic Tailwater)
↑—**1=Special & User-Defined** (Custom Controls 353.71 cfs)

Secondary OutFlow Max=164.90 cfs @ 3.29 hrs HW=1,120.54' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 164.90 cfs @ 2.05 fps)

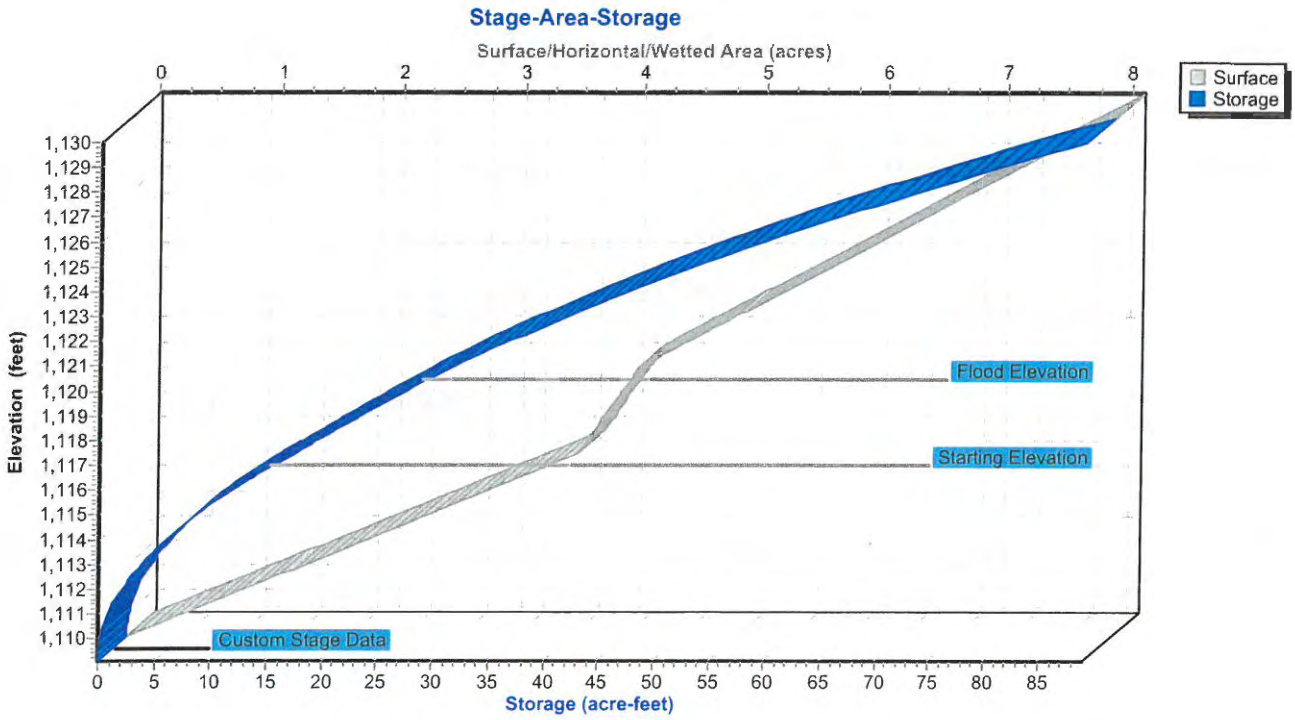
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

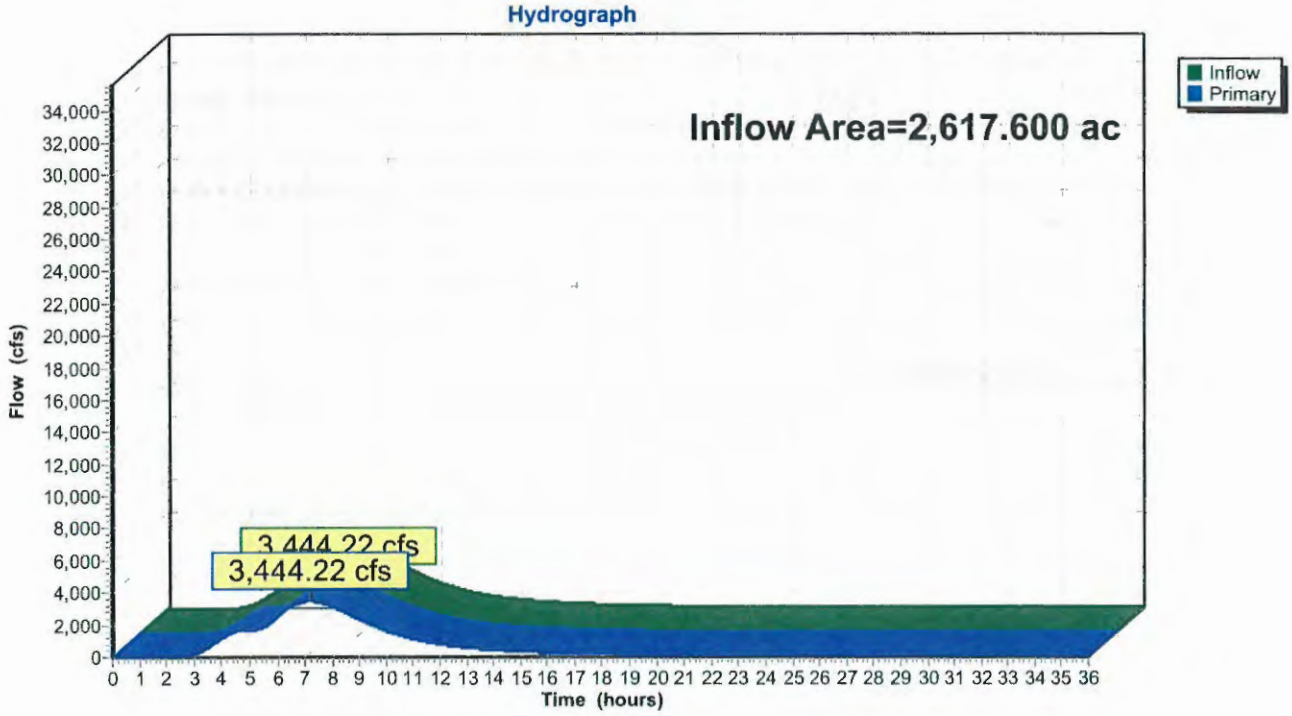


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 8.28" for 6-HR 0.5PMF event
Inflow = 3,444.22 cfs @ 7.19 hrs, Volume= 1,805.412 af
Primary = 3,444.22 cfs @ 7.20 hrs, Volume= 1,805.412 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

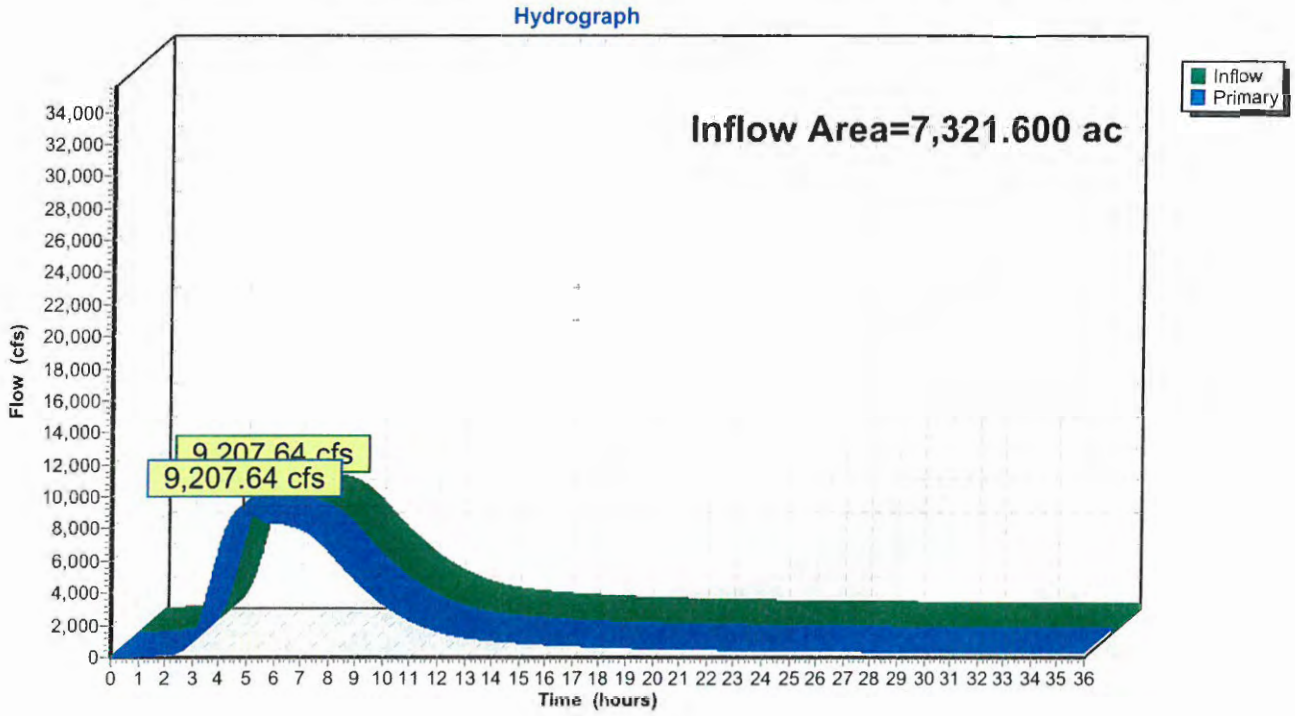


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 8.82" for 6-HR 0.5PMF event
Inflow = 9,207.64 cfs @ 4.85 hrs, Volume= 5,380.343 af
Primary = 9,207.64 cfs @ 4.86 hrs, Volume= 5,380.343 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

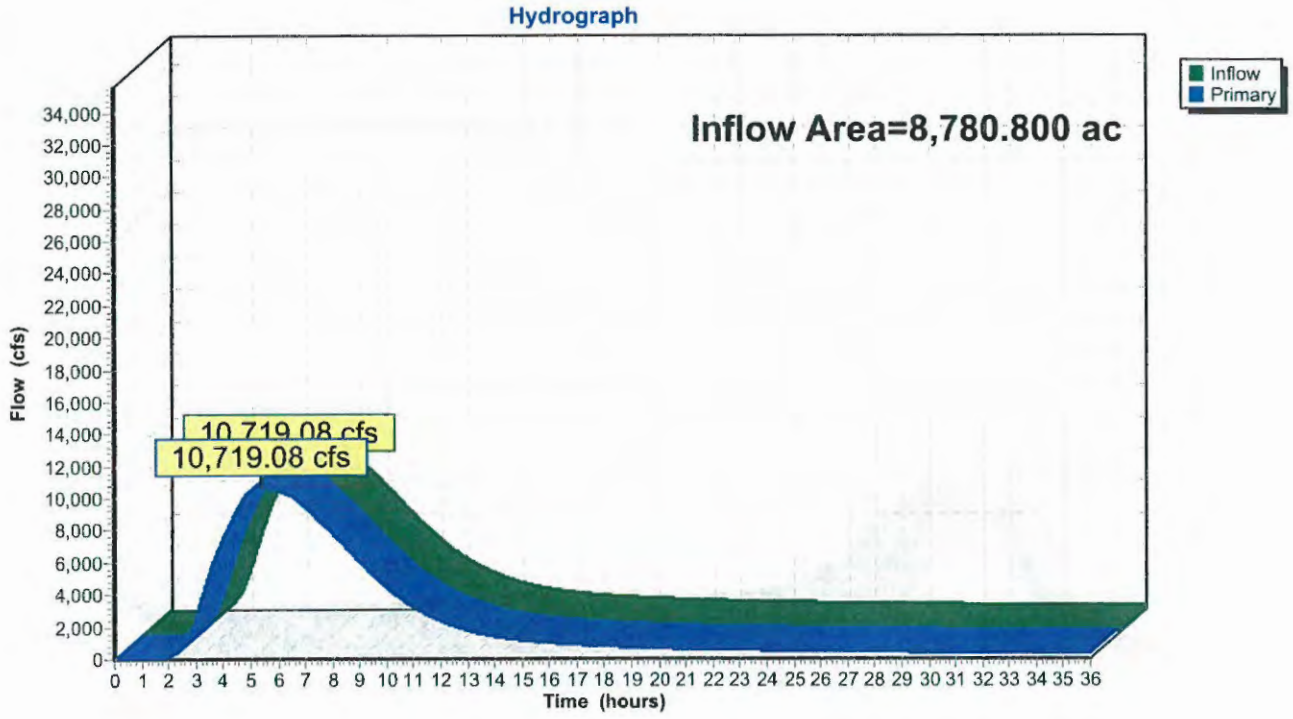


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 8.91" for 6-HR 0.5PMF event
Inflow = 10,719.08 cfs @ 5.34 hrs, Volume= 6,519.857 af
Primary = 10,719.08 cfs @ 5.35 hrs, Volume= 6,519.857 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 > 9.22" for 6-HR 0.5PMF event
Inflow = 5,078.17 cfs @ 5.23 hrs, Volume= 1,509.336 af
Outflow = 2,725.66 cfs @ 7.49 hrs, Volume= 1,338.810 af, Atten= 46%, Lag= 135.5 min
Primary = 128.96 cfs @ 5.16 hrs, Volume= 287.640 af
Secondary = 2,632.34 cfs @ 7.49 hrs, Volume= 1,051.170 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,027.60' @ 7.49 hrs Surf.Area= 205.949 ac Storage= 767.516 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 323.5 min calculated for 1,338.810 af (89% of inflow)
Center-of-Mass det. time= 289.9 min (689.2 - 399.3)

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

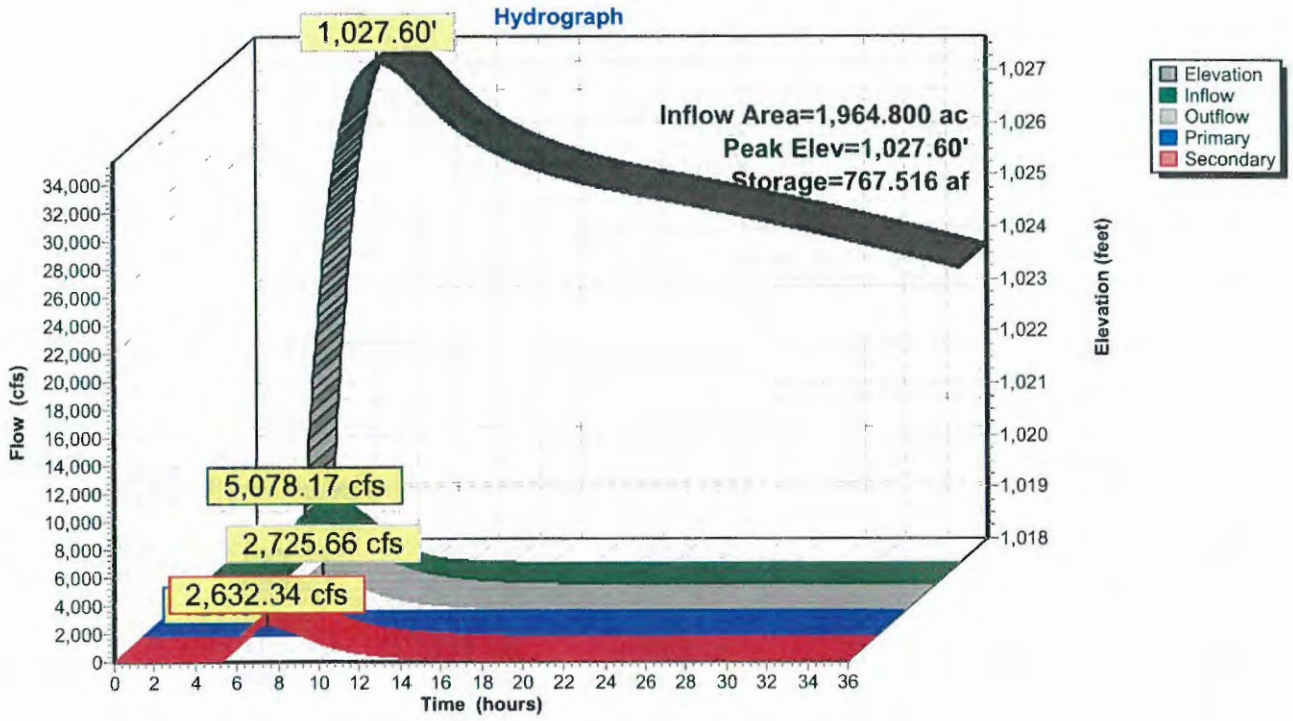
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	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

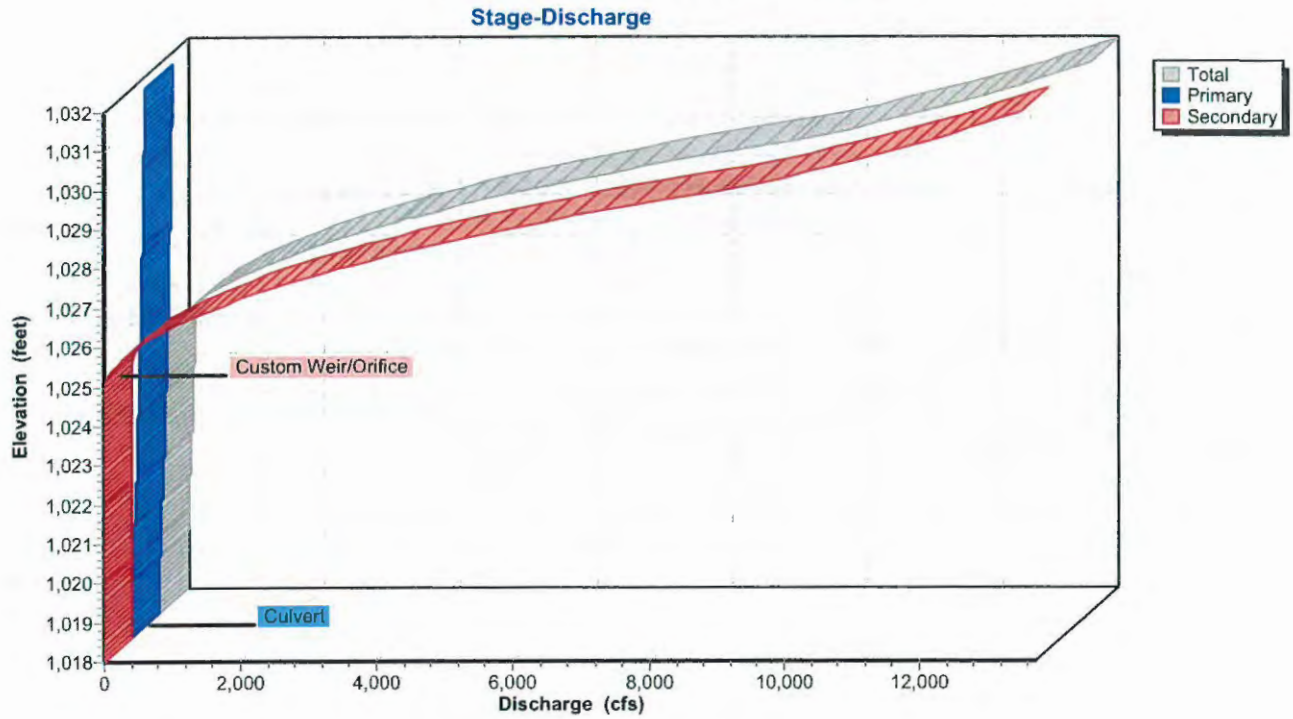
Primary OutFlow Max=128.10 cfs @ 5.16 hrs HW=1,025.25' TW=1,020.77' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 128.10 cfs @ 10.19 fps)

Secondary OutFlow Max=2,632.31 cfs @ 7.49 hrs HW=1,027.60' TW=1,025.22' (Dynamic Tailwater)
↑**2=Custom Weir/Orifice** (Weir Controls 2,632.31 cfs @ 4.87 fps)

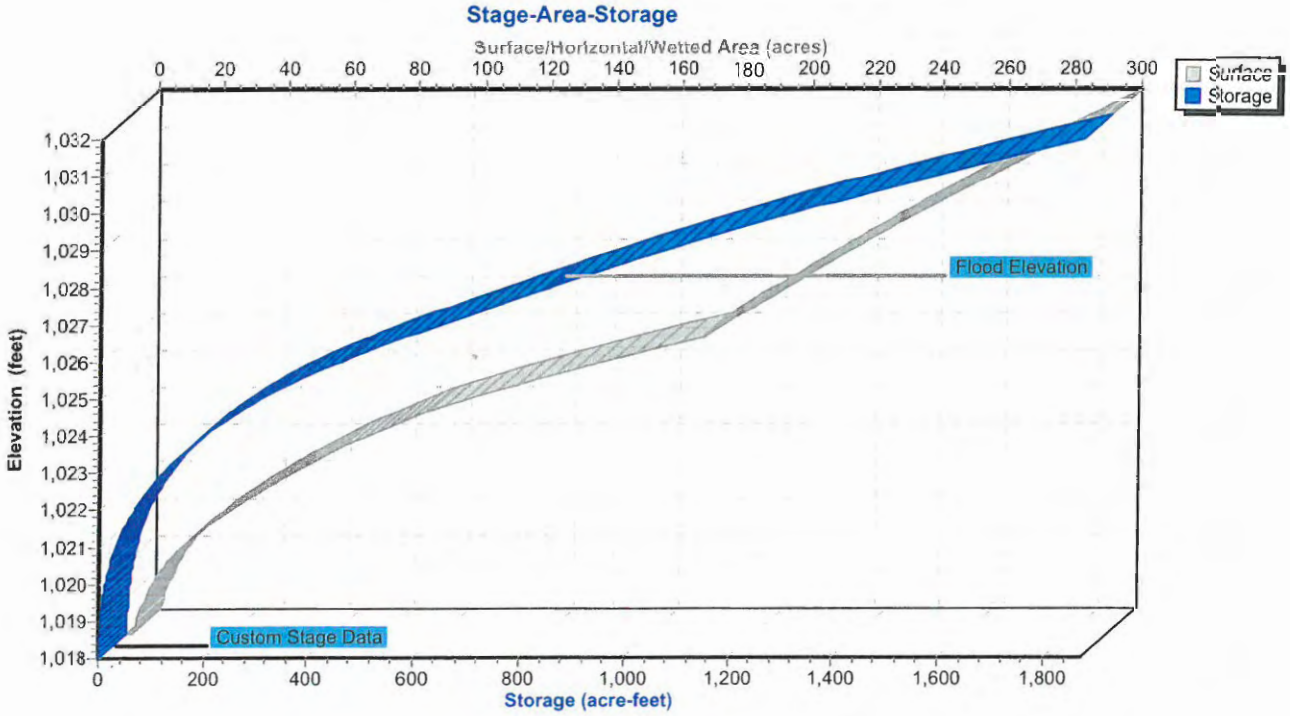
Pond 8P: Storage Area Genoa Rd



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 = 9.79" for 6-HR 0.5PMF event
Inflow = 5,319.68 cfs @ 4.85 hrs, Volume= 1,602.232 af
Outflow = 5,078.17 cfs @ 5.23 hrs, Volume= 1,509.337 af, Atten= 5%, Lag= 22.6 min
Primary = 4,740.26 cfs @ 5.23 hrs, Volume= 1,472.687 af
Secondary = 93.64 cfs @ 5.23 hrs, Volume= 16.758 af
Tertiary = 244.27 cfs @ 5.23 hrs, Volume= 19.892 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= 1,030.27' @ 5.23 hrs Surf.Area= 108.894 ac Storage= 547.264 af (327.264 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= 116.2 min calculated for 1,289.337 af (80% of inflow)
Center-of-Mass det. time= 57.7 min (399.3 - 341.5)

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

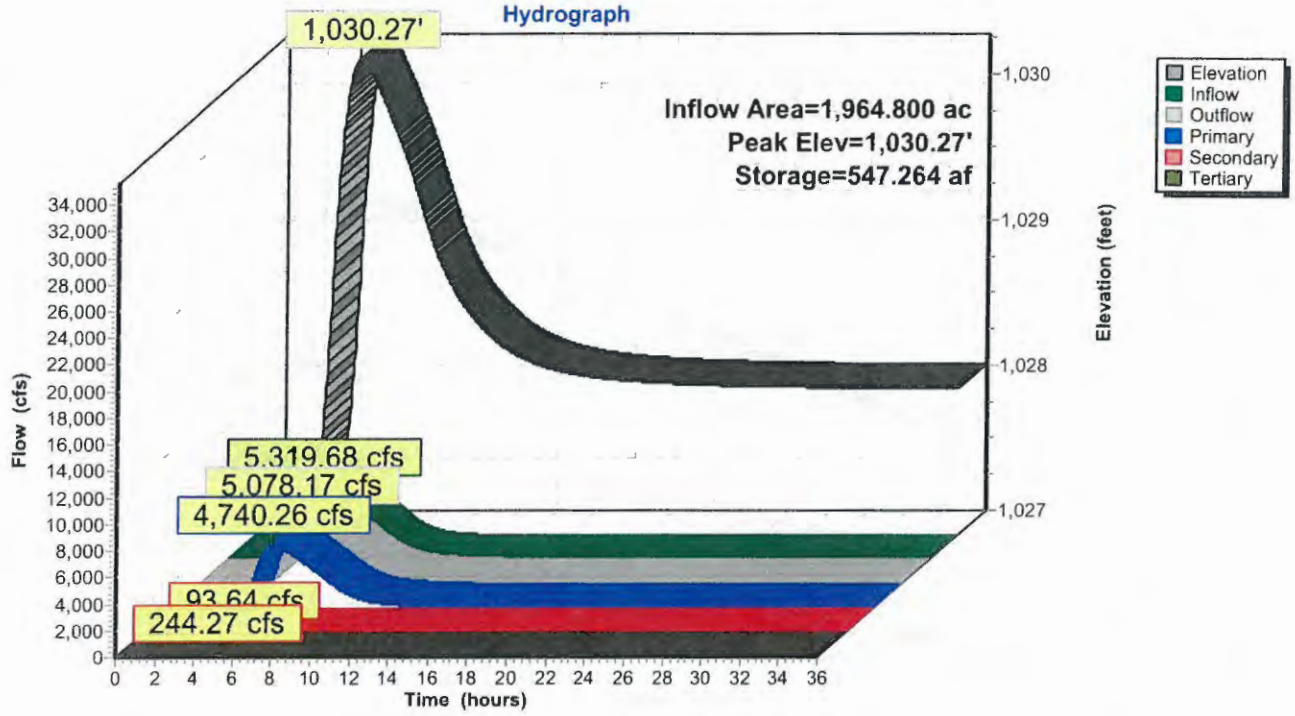
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular 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=4,740.23 cfs @ 5.23 hrs HW=1,030.27' TW=1,025.44' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2,697.45 cfs @ 3.96 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 2,042.78 cfs @ 3.50 fps)

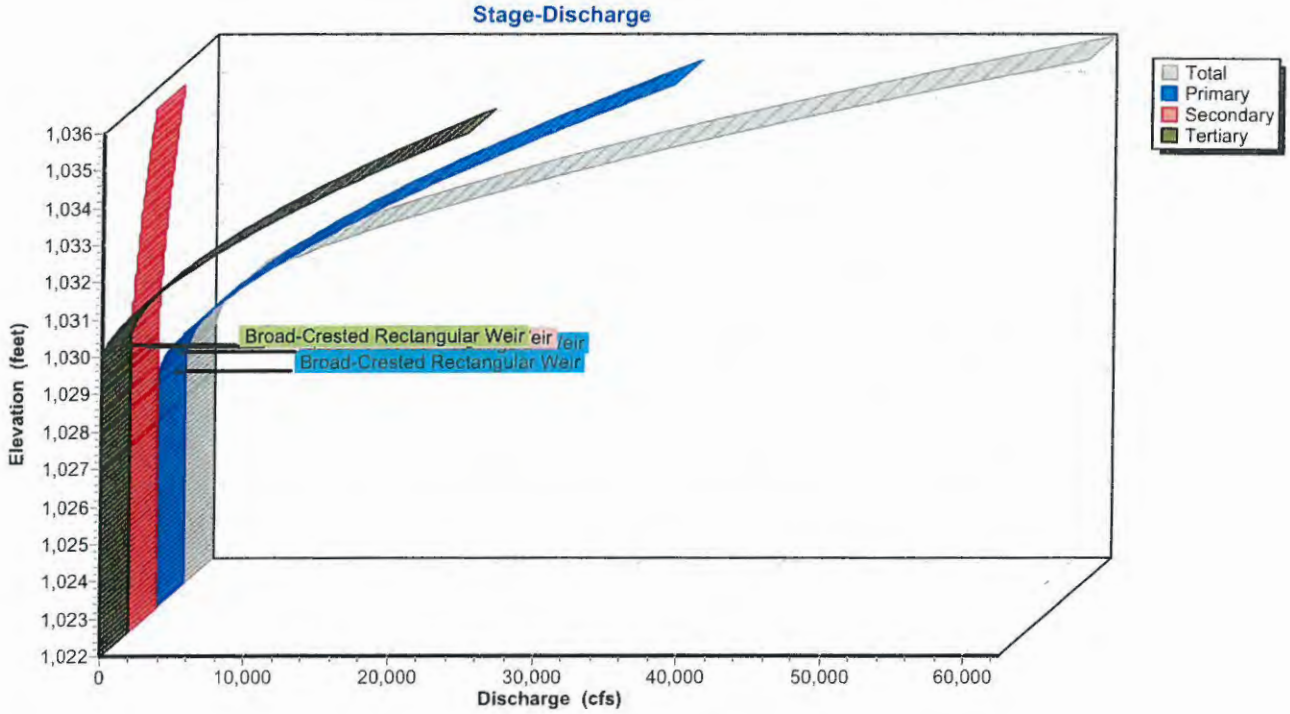
Secondary OutFlow Max=93.64 cfs @ 5.23 hrs HW=1,030.27' TW=1,025.44' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Weir Controls 93.64 cfs @ 3.22 fps)

Tertiary OutFlow Max=244.26 cfs @ 5.23 hrs HW=1,030.27' TW=1,025.44' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 244.26 cfs @ 1.39 fps)

Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



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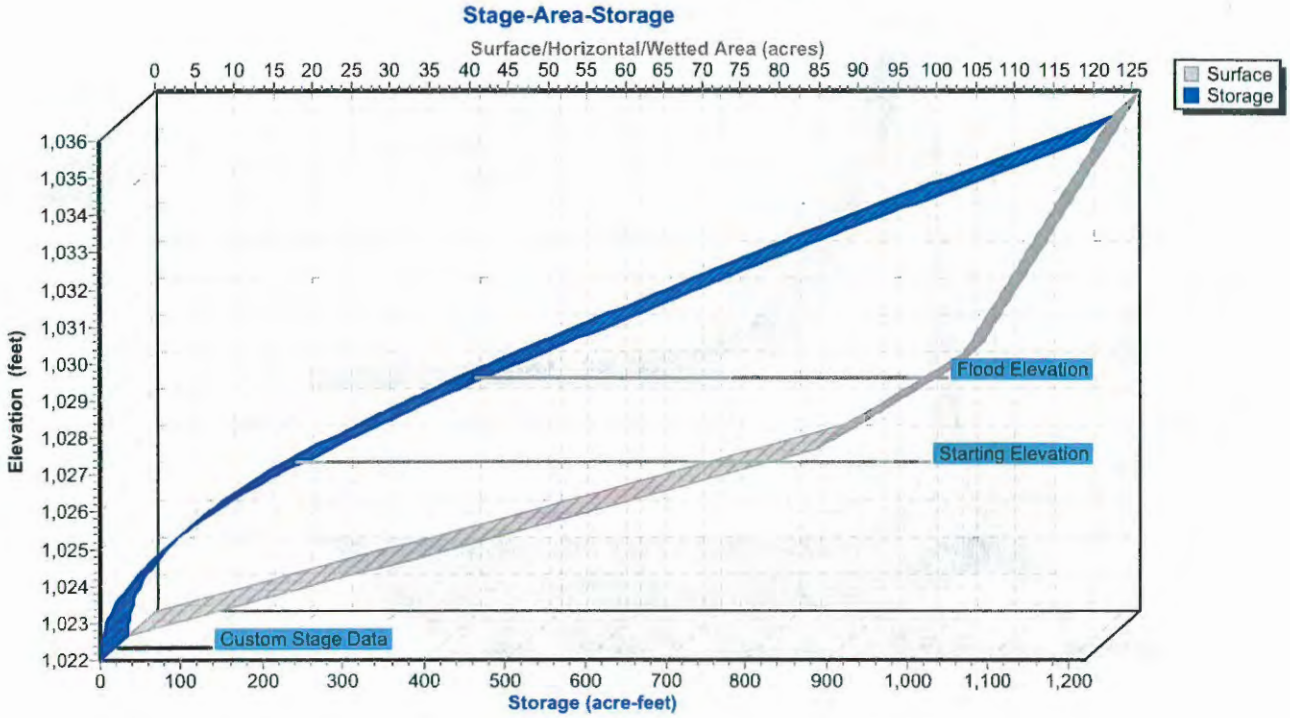
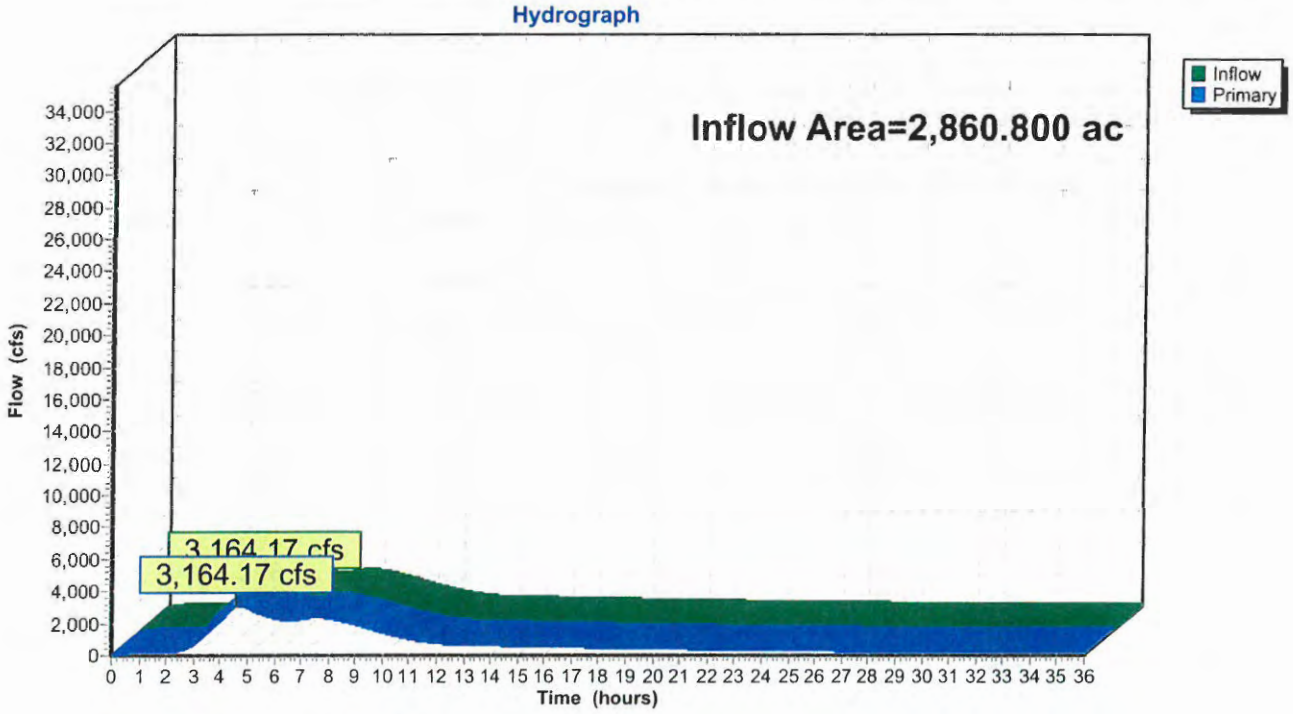


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 9.39" for 6-HR 0.5PMF event
Inflow = 3,164.17 cfs @ 4.55 hrs, Volume= 2,239.315 af
Primary = 3,164.17 cfs @ 4.56 hrs, Volume= 2,239.315 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 > 8.95" for 6-HR 0.5PMF event
Inflow = 11,415.24 cfs @ 5.93 hrs, Volume= 7,055.281 af
Outflow = 11,414.16 cfs @ 5.97 hrs, Volume= 7,054.169 af, Atten= 0%, Lag= 2.7 min
Primary = 3,376.20 cfs @ 4.15 hrs, Volume= 4,110.681 af
Secondary = 8,099.29 cfs @ 5.97 hrs, Volume= 2,943.488 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,011.38' @ 5.97 hrs Surf.Area= 15.219 ac Storage= 245.134 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 20.4 min calculated for 7,052.210 af (100% of inflow)
Center-of-Mass det. time= 20.1 min (607.0 - 586.9)

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

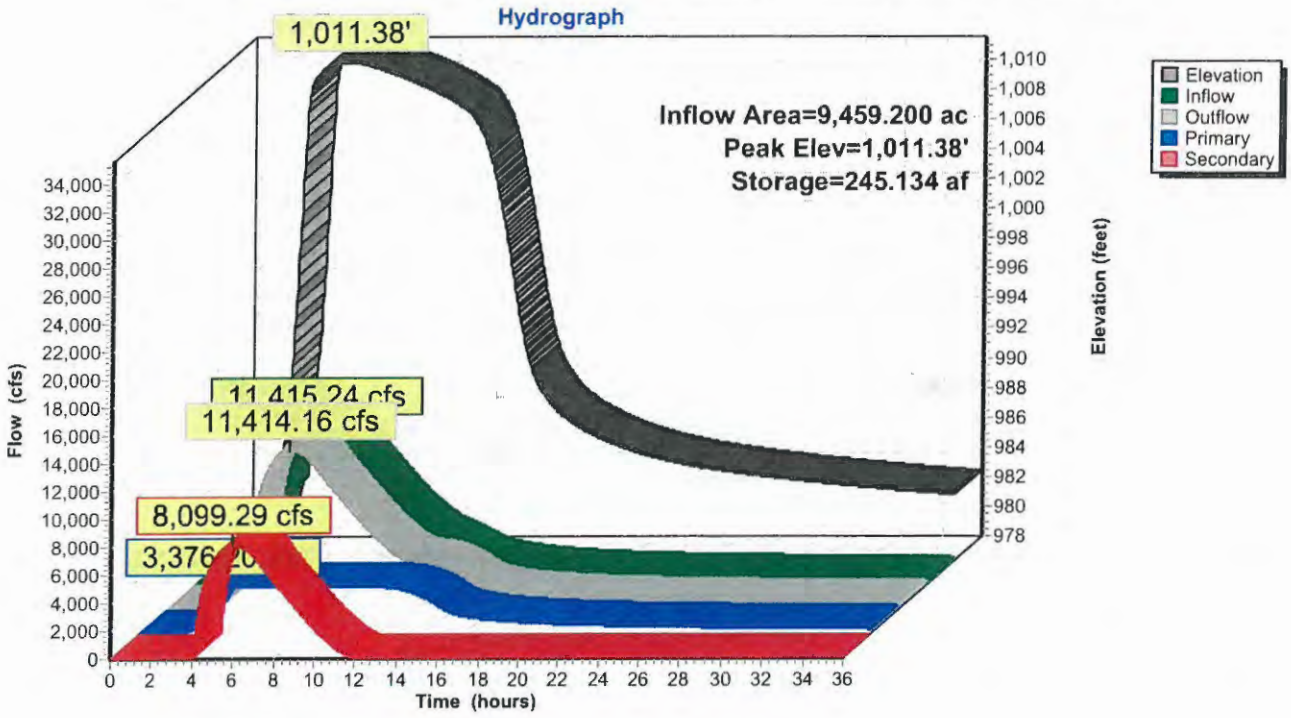
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
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

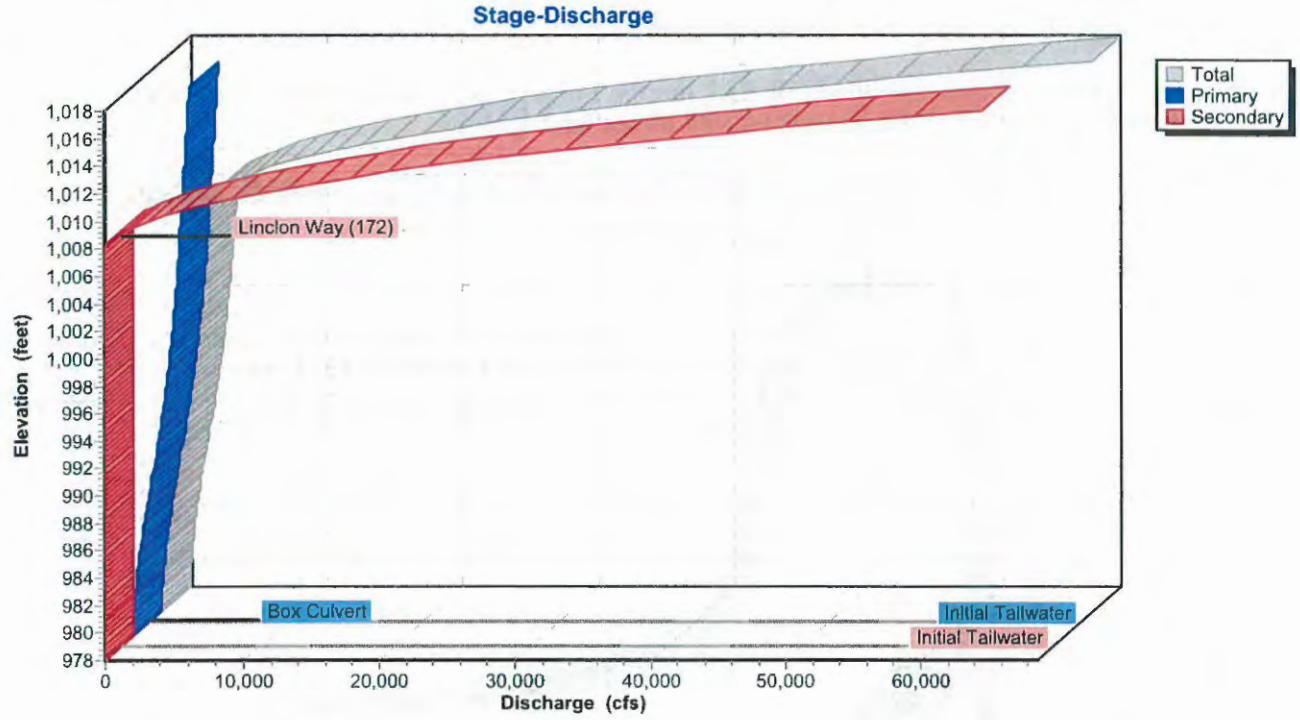
Primary OutFlow Max=3,370.56 cfs @ 4.15 hrs HW=1,009.22' TW=985.13' (Dynamic Tailwater)
↑—**1=Box Culvert** (Inlet Controls 3,370.56 cfs @ 29.48 fps)

Secondary OutFlow Max=8,099.28 cfs @ 5.97 hrs HW=1,011.38' TW=988.17' (Dynamic Tailwater)
↑—**2=Linclon Way (172)** (Weir Controls 8,099.28 cfs @ 5.57 fps)

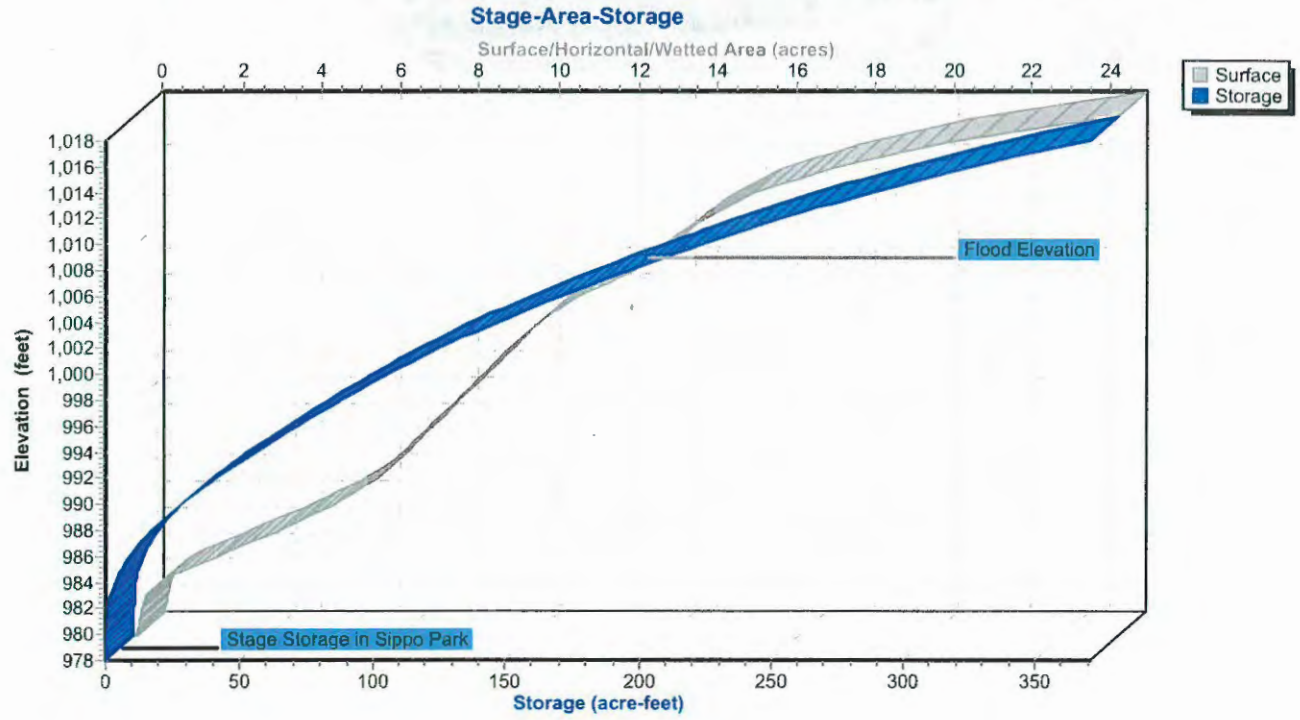
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



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



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

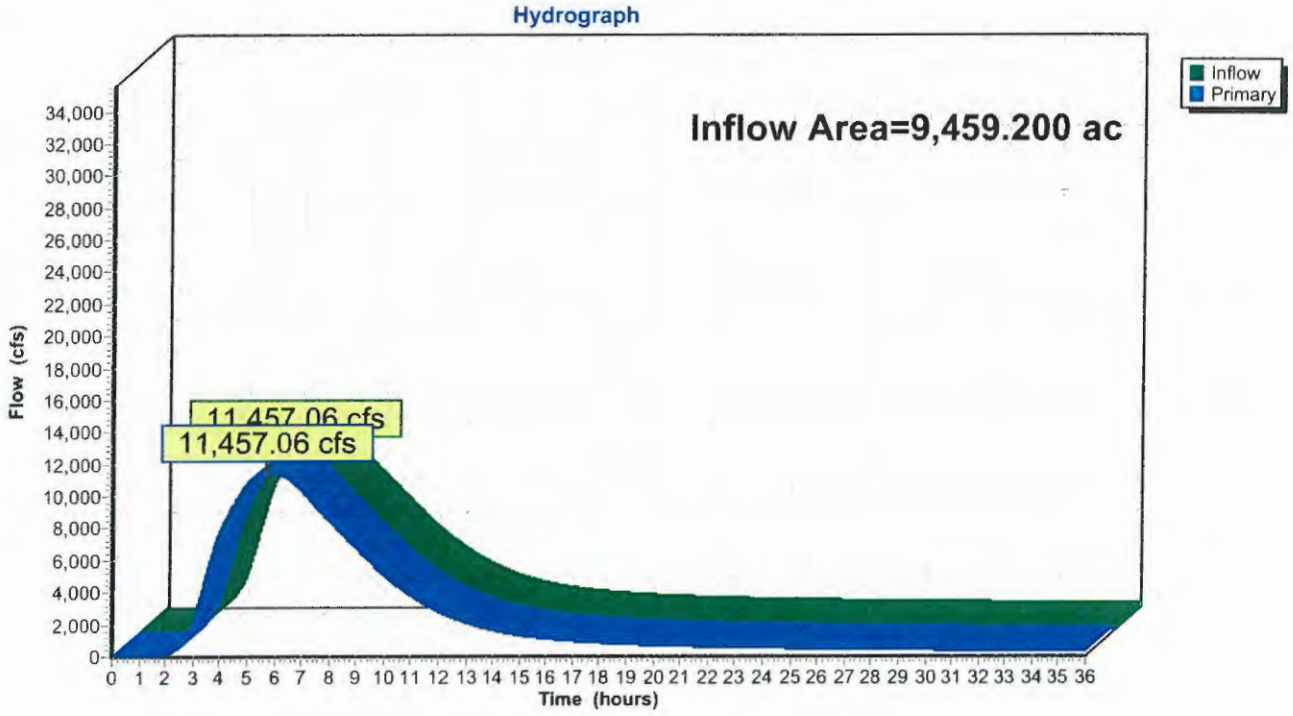


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 8.97" for 6-HR 0.5PMF event
Inflow = 11,457.06 cfs @ 5.68 hrs, Volume= 7,069.226 af
Primary = 11,457.06 cfs @ 5.69 hrs, Volume= 7,069.226 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=2.54"
Tc=44.0 min CN=74 Runoff=193.02 cfs 24.393 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=2.63"
Tc=65.0 min CN=75 Runoff=352.23 cfs 58.886 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=2.20"
Tc=226.0 min CN=70 Runoff=576.04 cfs 257.063 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=2.04"
Tc=128.0 min CN=68 Runoff=626.26 cfs 182.580 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=1.96"
Tc=129.0 min CN=67 Runoff=431.09 cfs 126.347 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=2.54"
Tc=110.0 min CN=74 Runoff=614.77 cfs 153.135 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=2.63"
Tc=72.0 min CN=75 Runoff=893.60 cfs 161.236 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=3.09"
Tc=78.0 min CN=80 Runoff=920.10 cfs 174.442 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=2.12"
Tc=155.0 min CN=69 Runoff=566.78 cfs 188.708 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=2.63"
Tc=156.0 min CN=75 Runoff=1,321.67 cfs 430.430 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=1.96"
Tc=151.0 min CN=67 Runoff=322.07 cfs 106.508 af

Reach 5R: Channel 5 Avg. Flow Depth=2.41' Max Vel=5.24 fps Inflow=221.72 cfs 503.530 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=203.77 cfs 497.900 af

Reach 7R: Channel 7 Avg. Flow Depth=7.06' Max Vel=2.92 fps Inflow=757.14 cfs 680.260 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=690.03 cfs 671.022 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=2.86' Max Vel=2.47 fps Inflow=111.02 cfs 183.479 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=111.02 cfs 182.716 af

Reach 15R: Channel 15 Avg. Flow Depth=7.48' Max Vel=1.99 fps Inflow=1,976.93 cfs 1,274.611 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=1,504.53 cfs 1,240.012 af

Reach 16R: Channel 16 Avg. Flow Depth=9.08' Max Vel=2.21 fps Inflow=1,931.47 cfs 1,553.979 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=1,830.19 cfs 1,515.784 af

Reach 18R: Sippo Creek Avg. Flow Depth=5.16' Max Vel=9.26 fps Inflow=1,937.82 cfs 1,676.783 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=1,937.81 cfs 1,676.661 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=388.66 cfs 82.661 af
Primary=388.66 cfs 82.661 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,006.27' Storage=110.251 af Inflow=1,982.19 cfs 1,689.805 af
354.37 cfs 1,570.137 af Secondary=319.71 cfs 107.873 af Tertiary=0.00 cfs 0.000 af Outflow=1,974.08 cfs 1,678.010 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=669.01 cfs 336.776 af
Primary=669.01 cfs 336.776 af

Pond 3P: Lake Cable Peak Elev=1,097.40' Storage=1,914.000 af Inflow=669.01 cfs 336.770 af
Primary=221.72 cfs 503.638 af Secondary=0.00 cfs 0.000 af Outflow=221.72 cfs 503.638 af

Pond 4C: Confluence 4 Inflow=1,254.50 cfs 859.618 af
Primary=1,254.50 cfs 859.618 af

Pond 4P: Lake O'Springs Peak Elev=1,107.28' Storage=59.678 af Inflow=388.66 cfs 82.661 af
Primary=93.21 cfs 79.718 af Secondary=0.00 cfs 0.000 af Outflow=93.21 cfs 79.718 af

Pond 5C: Confluence 5 Inflow=1,654.92 cfs 985.854 af
Primary=1,654.92 cfs 985.854 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,119.31' Storage=24.617 af Inflow=193.02 cfs 24.393 af
Primary=48.91 cfs 23.776 af Secondary=0.00 cfs 0.000 af Outflow=48.91 cfs 23.776 af

Pond 6C: Confluence 6 Inflow=322.08 cfs 289.143 af
Primary=322.08 cfs 289.143 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=1,976.93 cfs 1,274.804 af
Primary=1,976.93 cfs 1,274.804 af

Pond 8C: Confluence 8 Inflow=1,931.47 cfs 1,554.181 af
Primary=1,931.47 cfs 1,554.181 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,024.15' Storage=213.367 af Inflow=799.72 cfs 334.873 af
Primary=111.02 cfs 183.560 af Secondary=0.00 cfs 0.000 af Outflow=111.02 cfs 183.560 af

Pond 9P: Sippo Lake Peak Elev=1,028.85' Storage=395.946 af Inflow=1,321.67 cfs 430.430 af
Primary=799.72 cfs 334.878 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=799.72 cfs 334.878 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed Inflow=757.14 cfs 680.370 af
Primary=757.14 cfs 680.370 af

Pond 16P: Lincoln Way Box Peak Elev=992.66' Storage=46.201 af Inflow=1,974.08 cfs 1,677.797 af
Primary=1,937.82 cfs 1,676.997 af Secondary=0.00 cfs 0.000 af Outflow=1,937.82 cfs 1,676.997 af

Pond 19C: Confluence 19 Inflow=1,982.19 cfs 1,690.015 af
Primary=1,982.19 cfs 1,690.015 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 1,863.729 af Average Runoff Depth = 2.36"
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

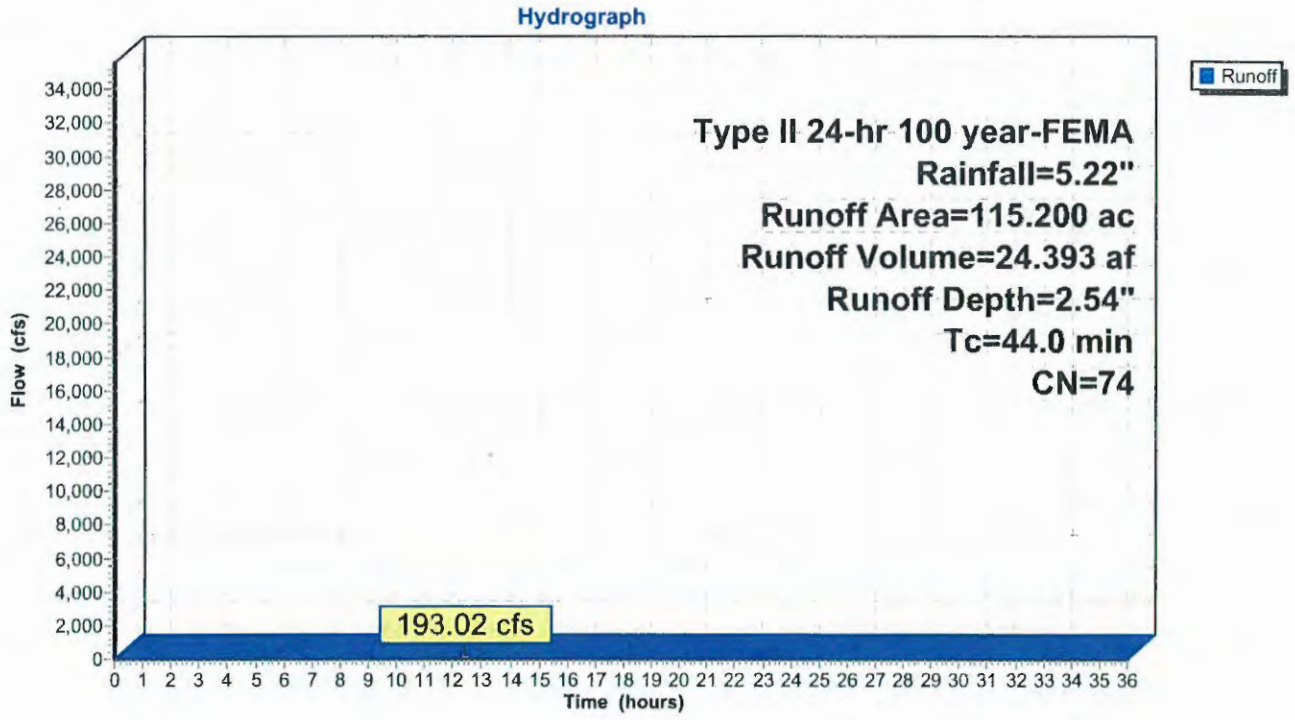
Runoff = 193.02 cfs @ 12.42 hrs, Volume= 24.393 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

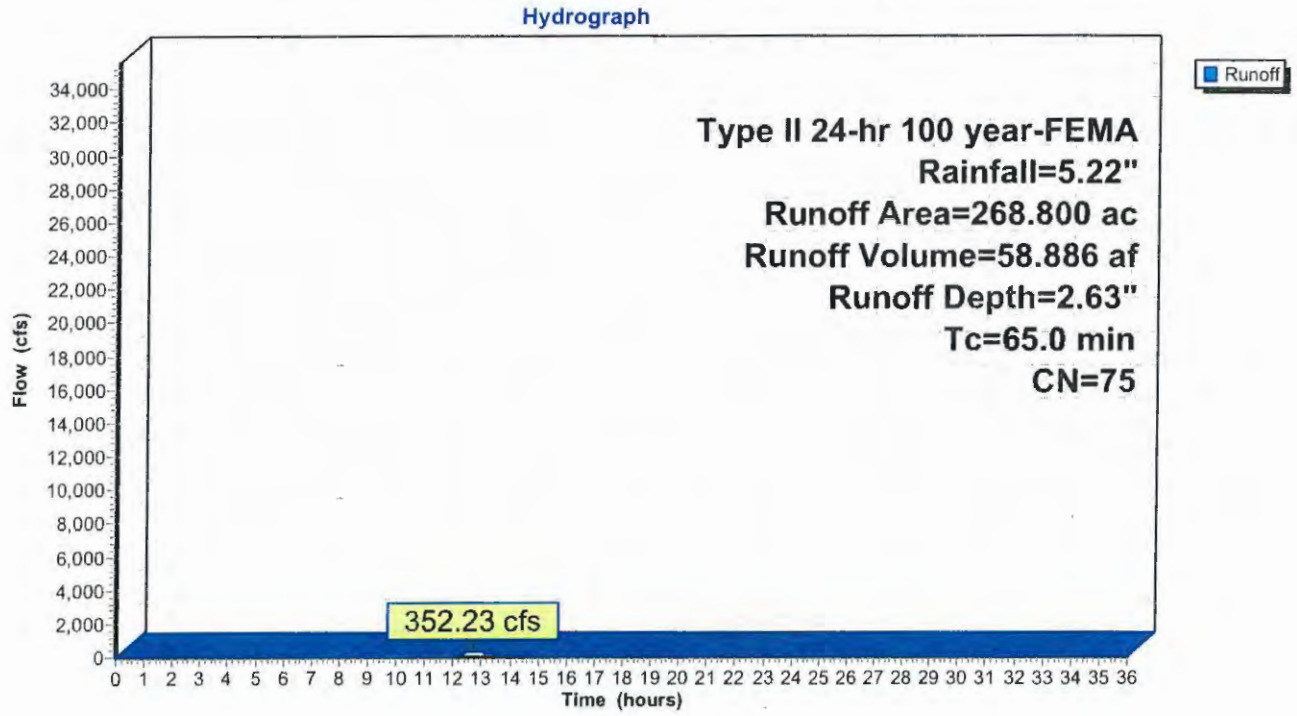
Runoff = 352.23 cfs @ 12.71 hrs, Volume= 58.886 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

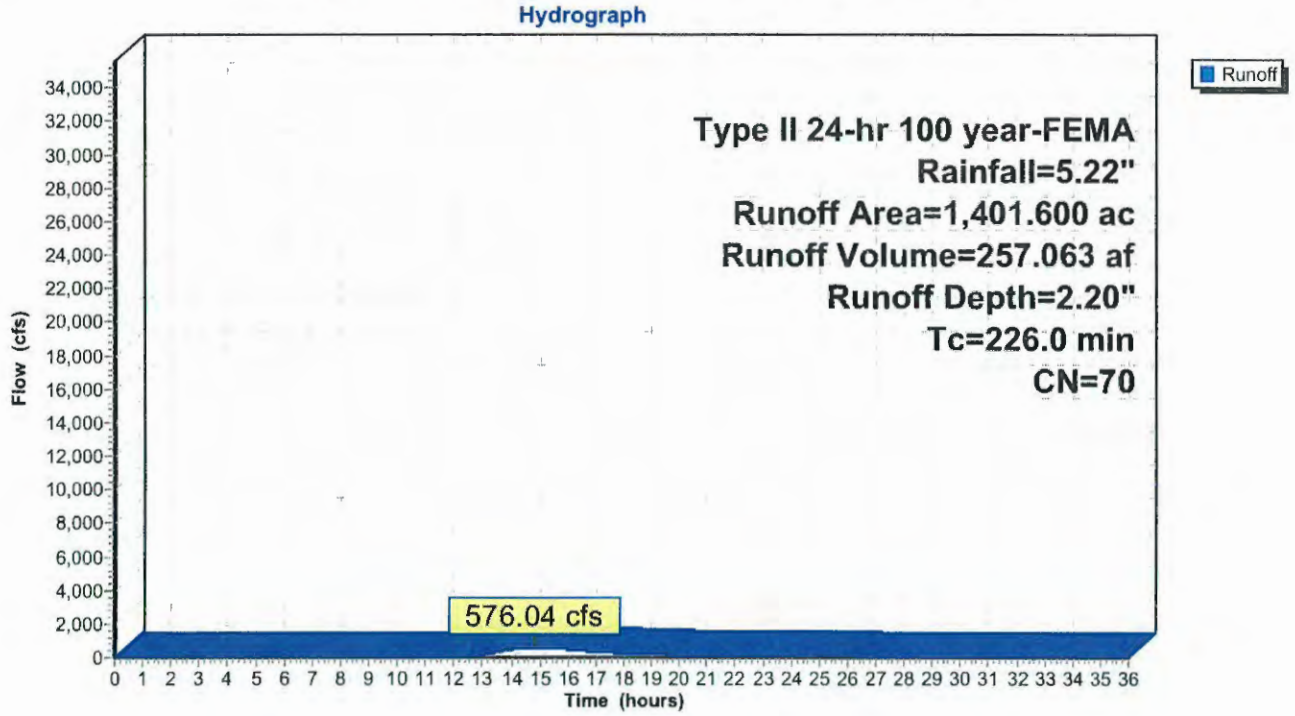
Runoff = 576.04 cfs @ 14.82 hrs, Volume= 257.063 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

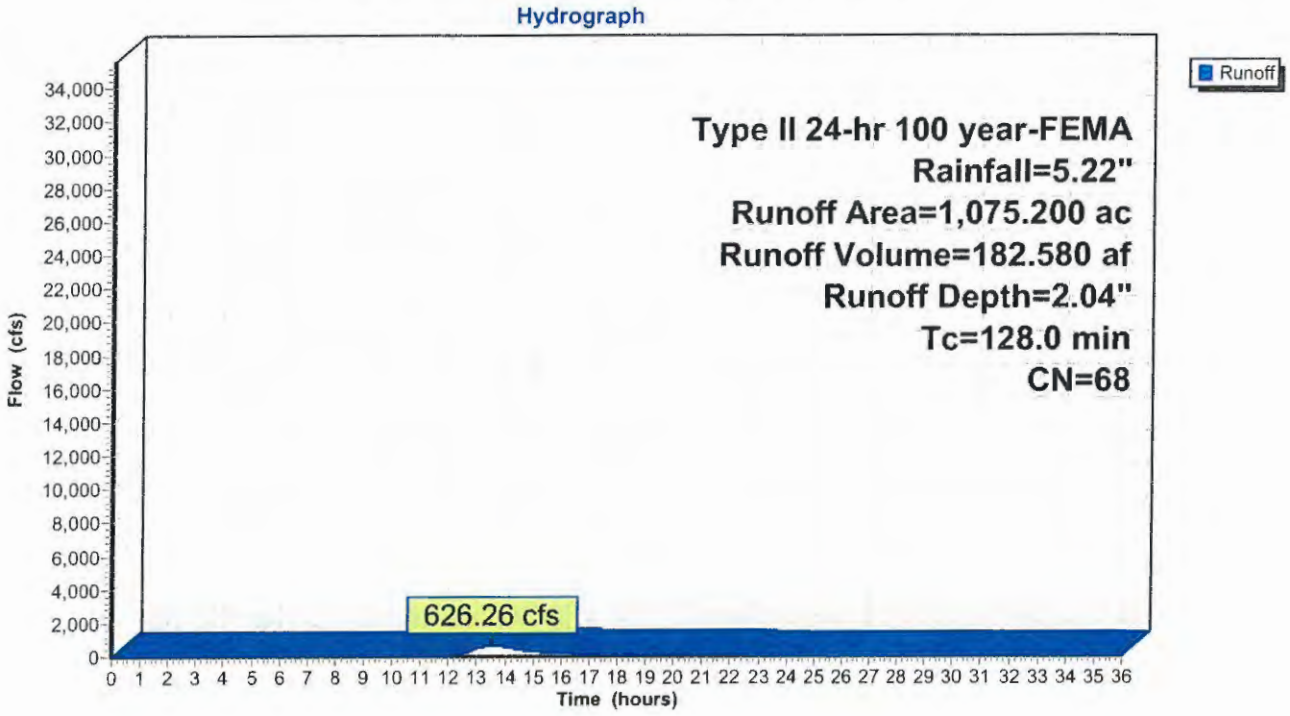
Runoff = 626.26 cfs @ 13.51 hrs, Volume= 182.580 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

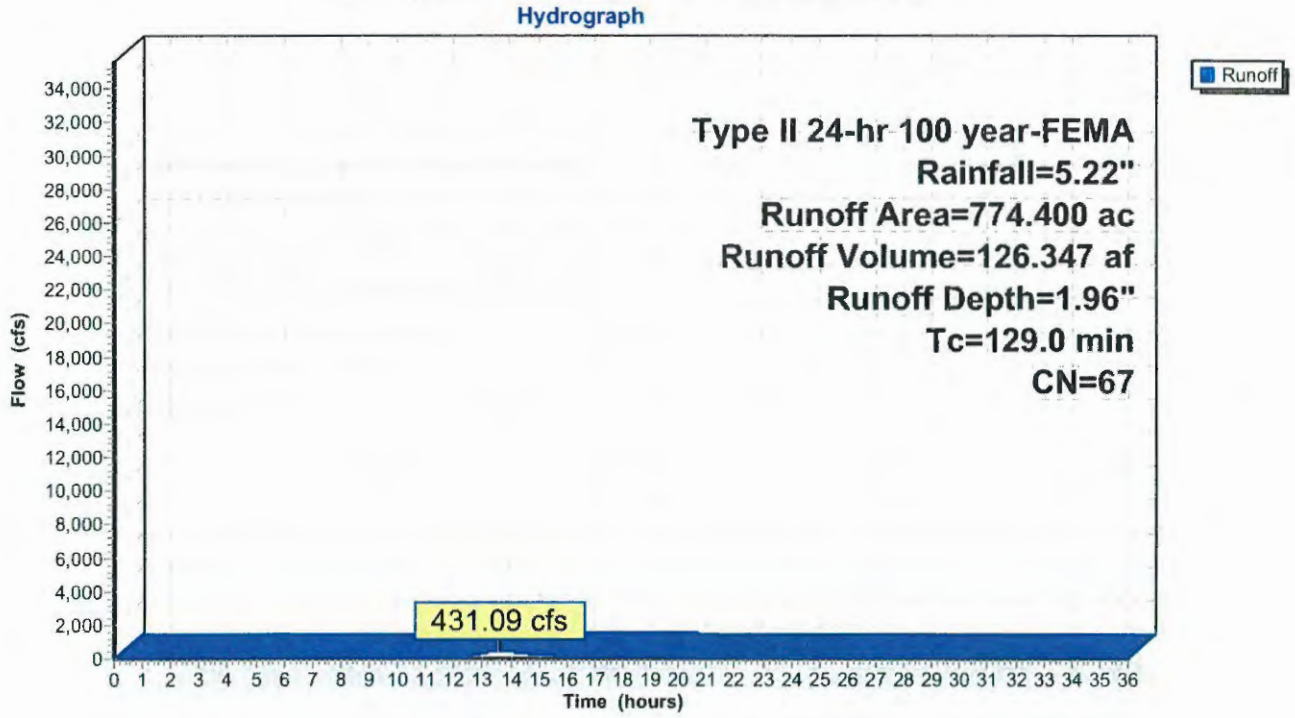
Runoff = 431.09 cfs @ 13.62 hrs, Volume= 126.347 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

	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

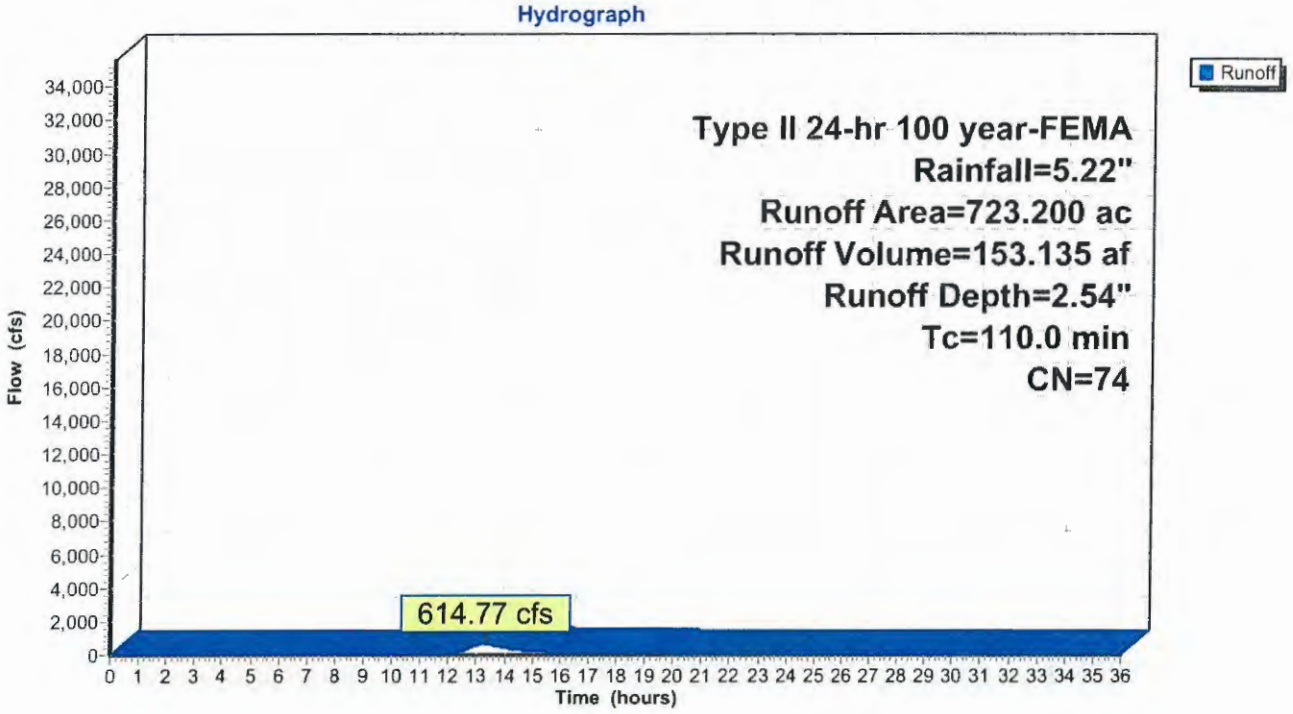
Runoff = 614.77 cfs @ 13.32 hrs, Volume= 153.135 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

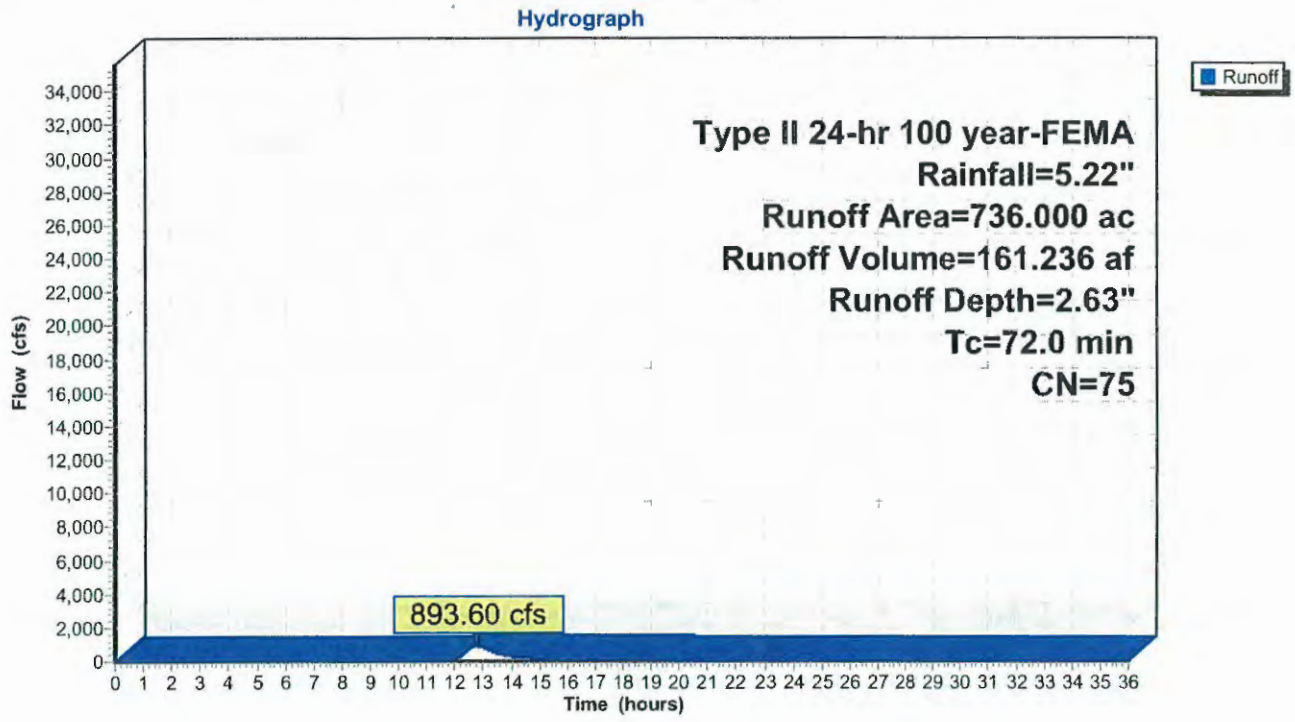
Runoff = 893.60 cfs @ 12.80 hrs, Volume= 161.236 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

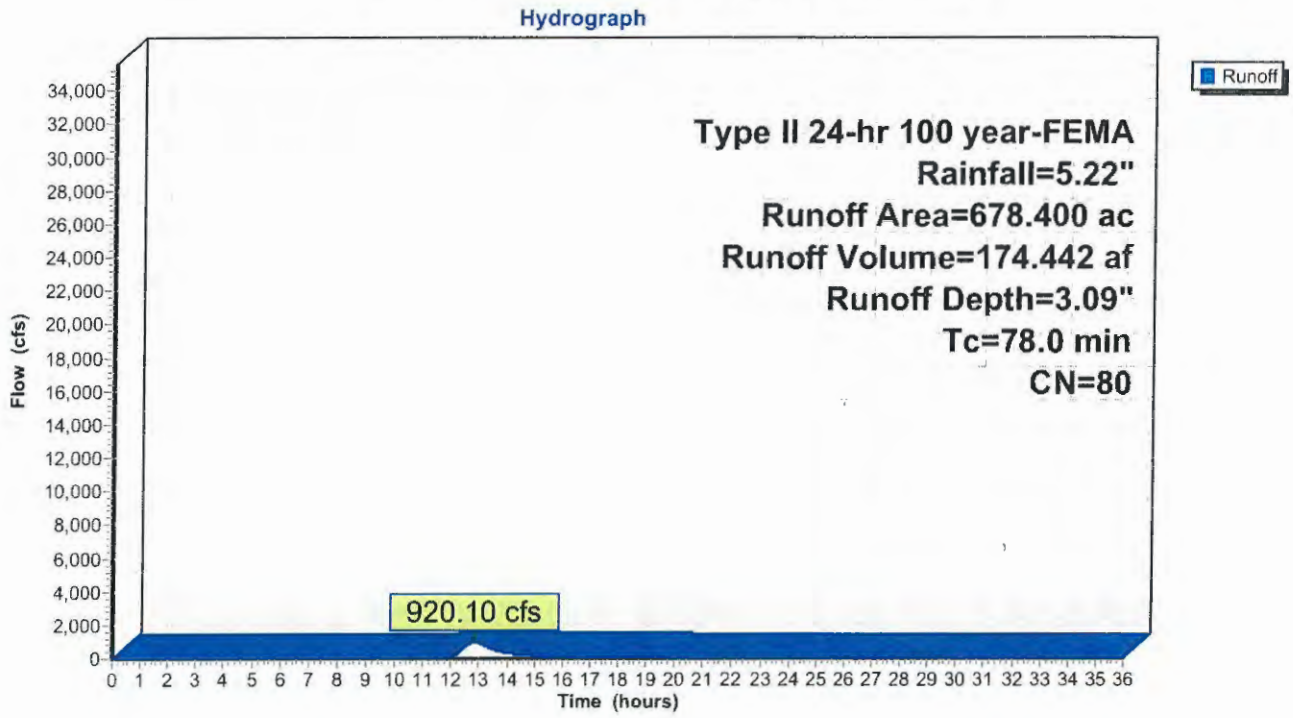
Runoff = 920.10 cfs @ 12.83 hrs, Volume= 174.442 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

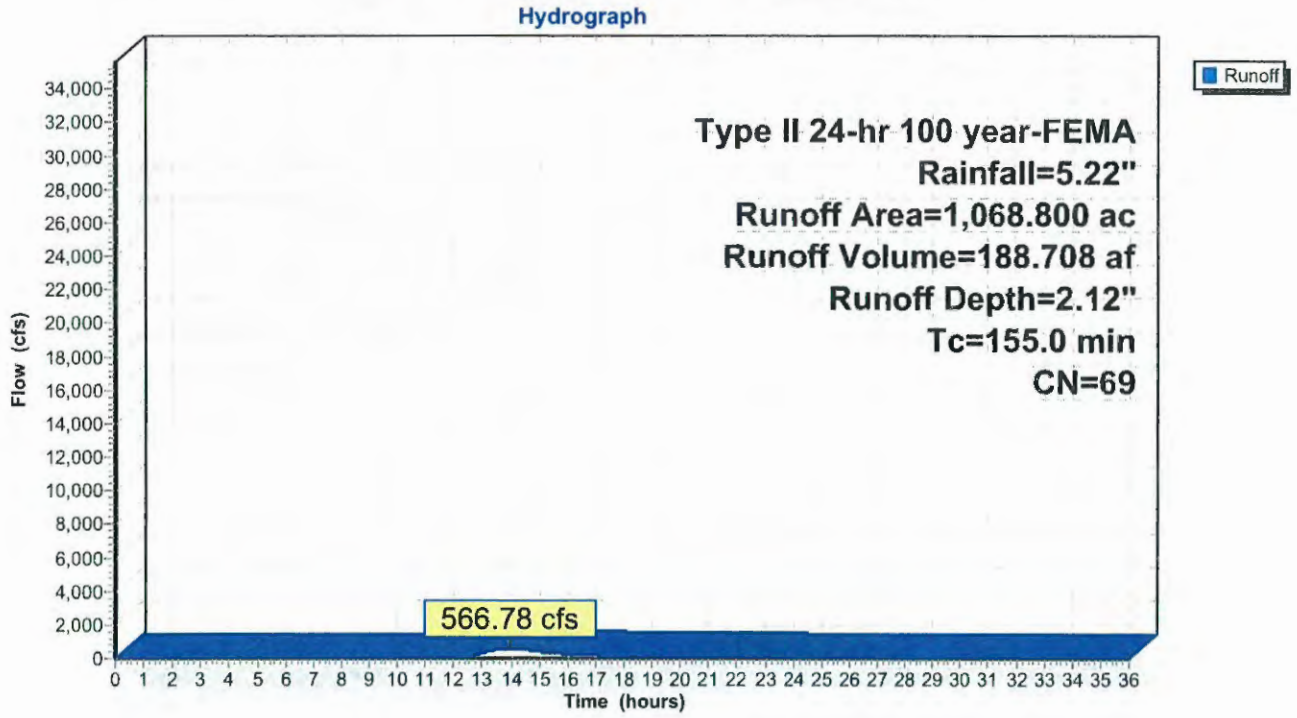
Runoff = 566.78 cfs @ 13.95 hrs, Volume= 188.708 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

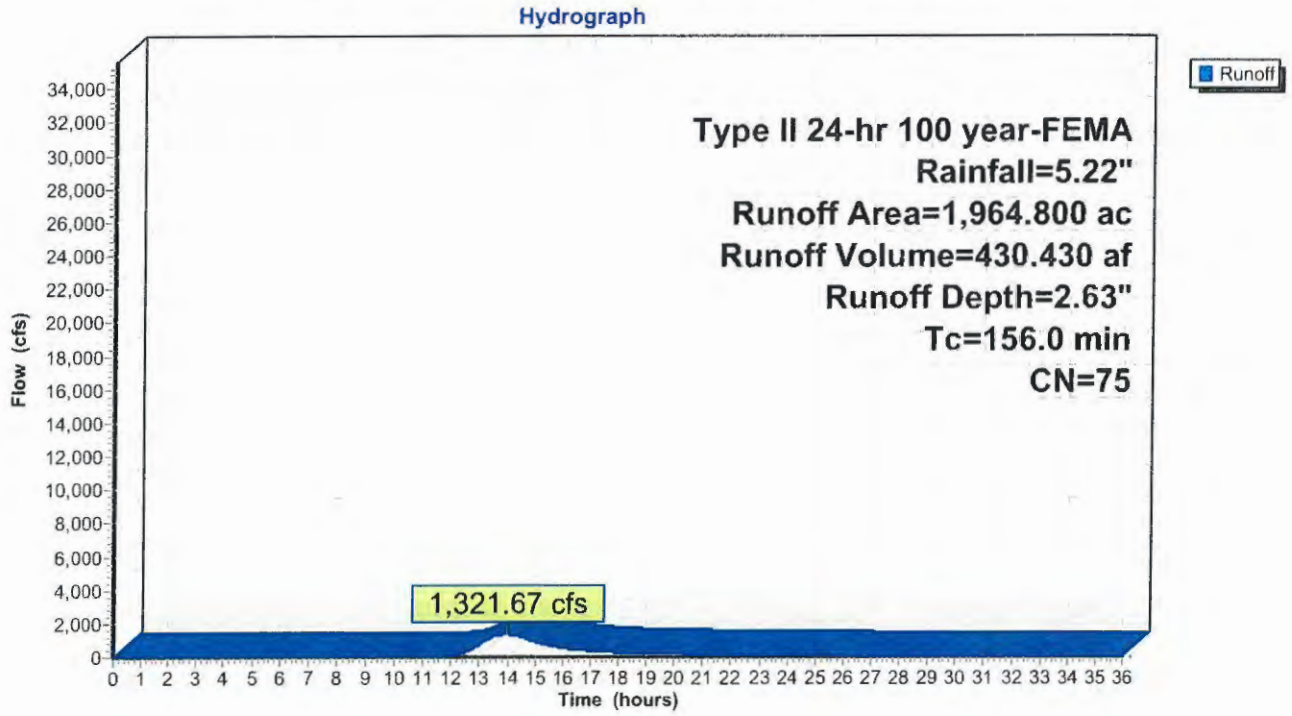
Runoff = 1,321.67 cfs @ 14.03 hrs, Volume= 430.430 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

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

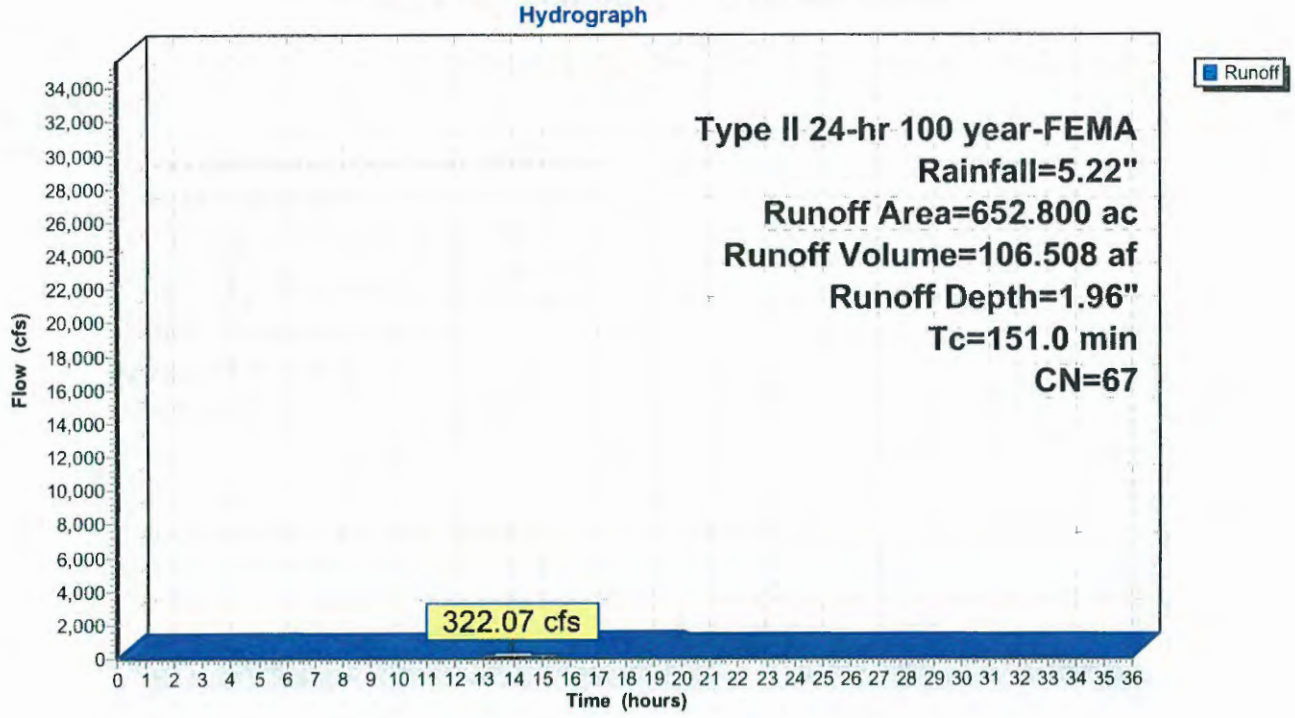
Runoff = 322.07 cfs @ 13.93 hrs, Volume= 106.508 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 100 year-FEMA Rainfall=5.22"

	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 > 3.38" for 100 year-FEMA event
Inflow = 221.72 cfs @ 0.00 hrs, Volume= 503.530 af
Outflow = 203.77 cfs @ 1.54 hrs, Volume= 497.900 af, Atten= 8%, Lag= 92.3 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.24 fps, Min. Travel Time= 28.0 min
Avg. Velocity = 4.96 fps, Avg. Travel Time= 29.6 min

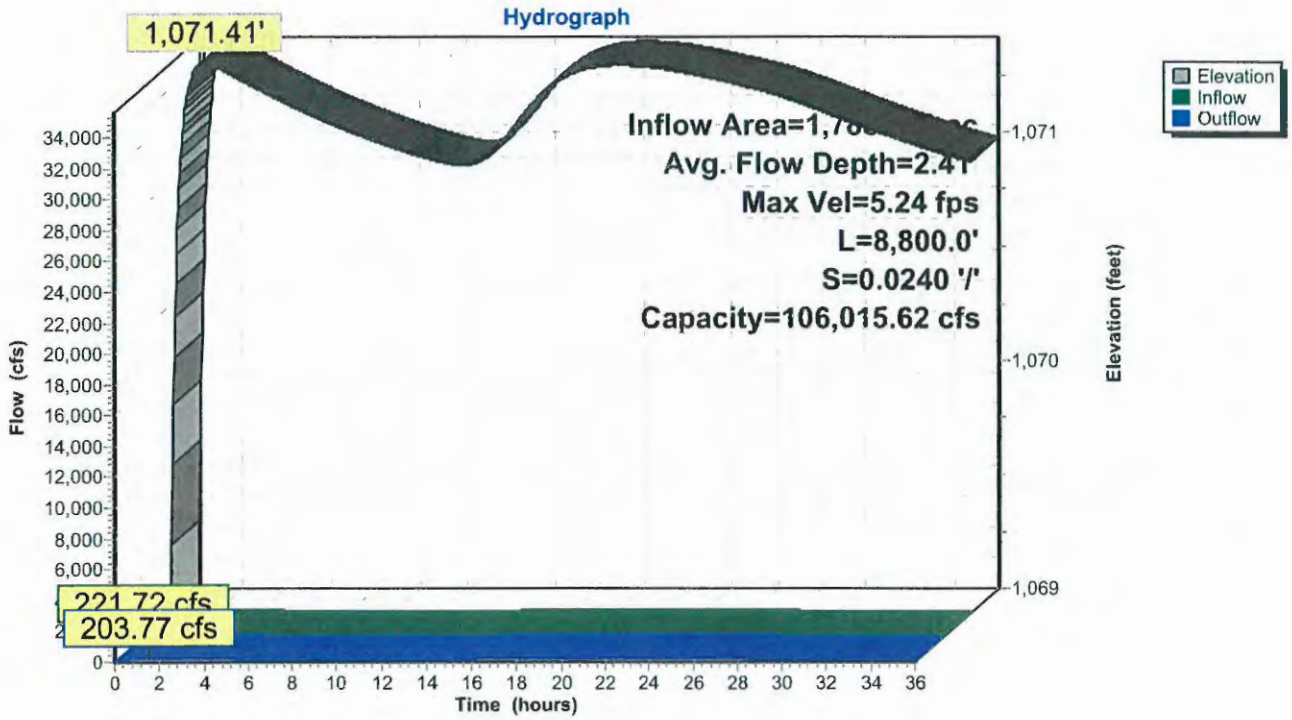
Peak Storage= 342,459 cf @ 1.54 hrs
Average Depth at Peak Storage= 2.41'
Defined Flood Depth= 16.00', Capacity at Flood Depth= 106,015.62 cfs
Bank-Full Depth= 16.00', Capacity at Bank-Full= 106,015.62 cfs

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'

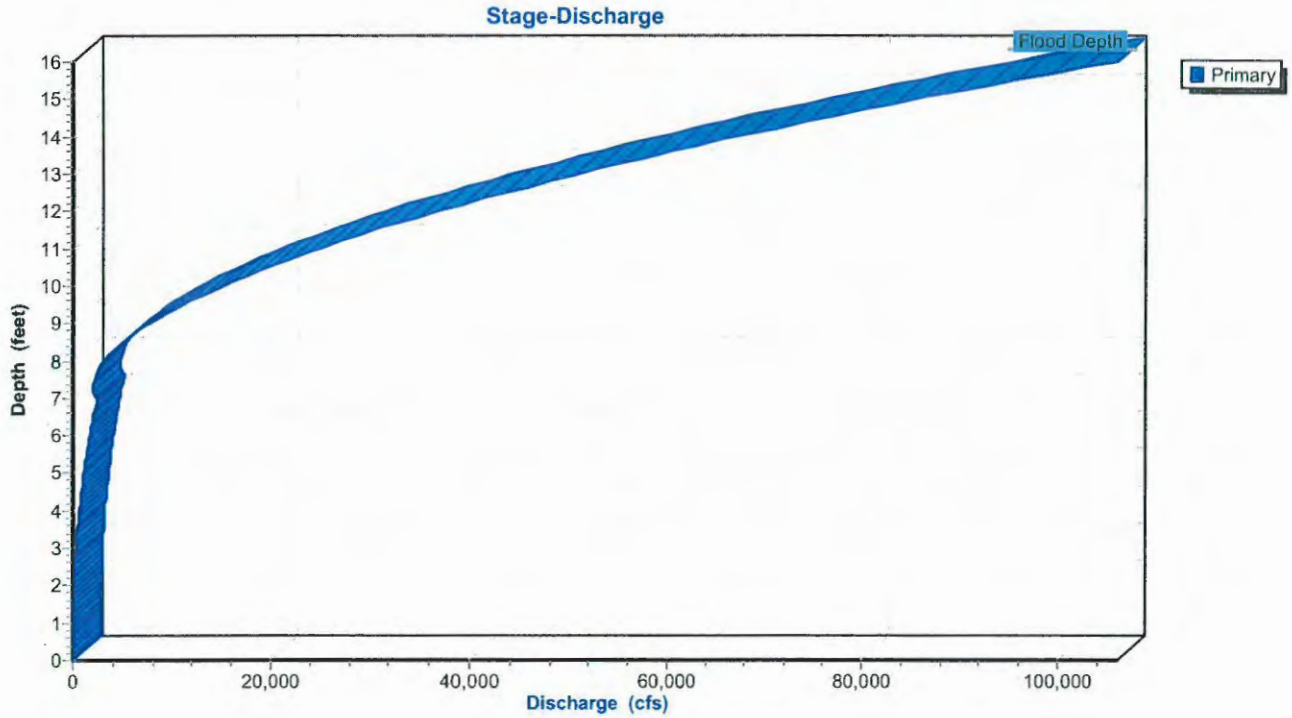
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

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

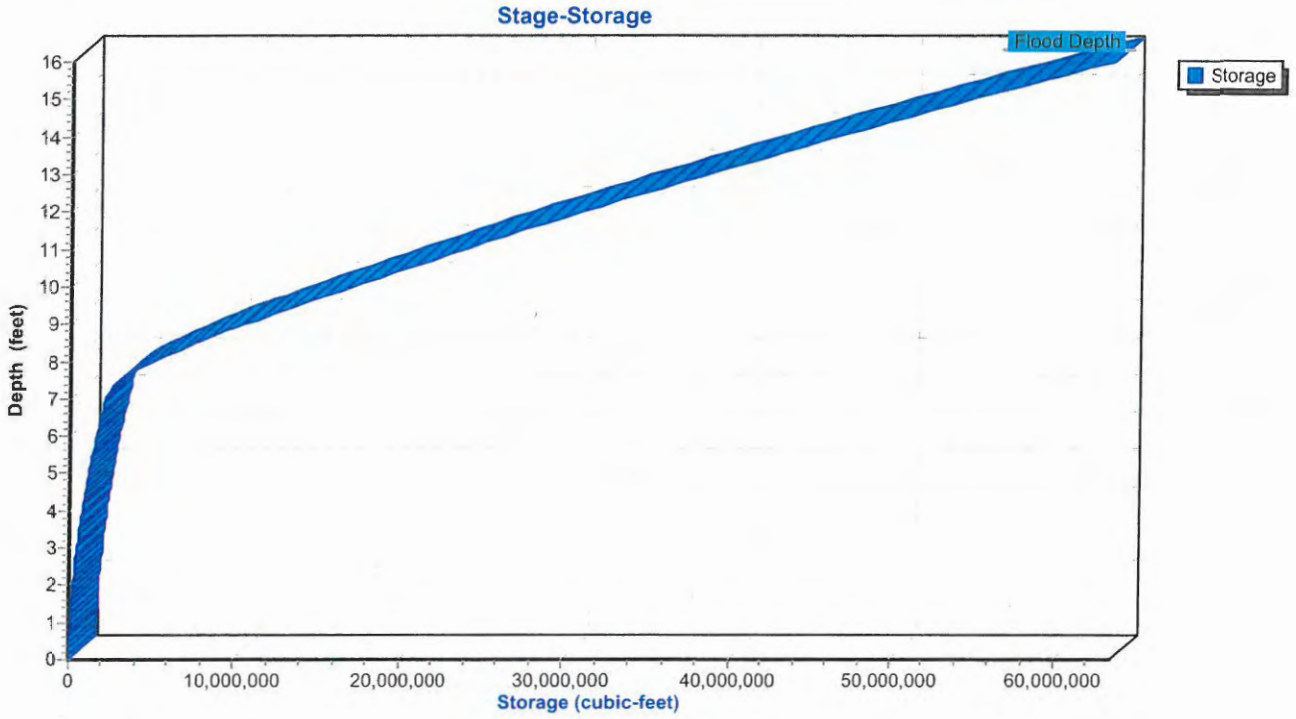
Reach 5R: Channel 5



Reach 5R: Channel 5



Reach 5R: Channel 5



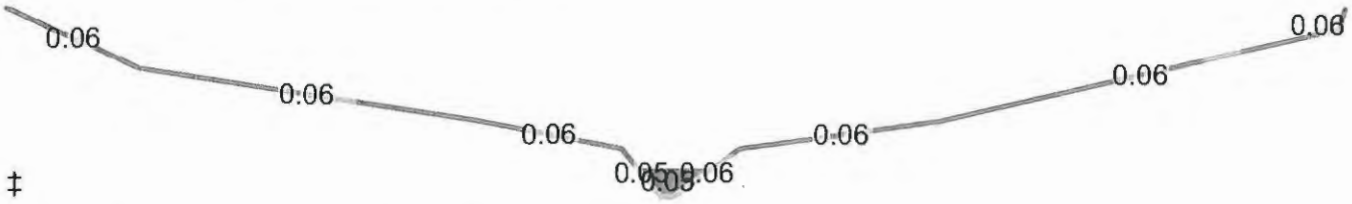
Summary for Reach 7R: Channel 7

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 2.85" for 100 year-FEMA event
Inflow = 757.14 cfs @ 13.52 hrs, Volume= 680.260 af
Outflow = 690.03 cfs @ 14.04 hrs, Volume= 671.022 af, Atten= 9%, Lag= 30.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.92 fps, Min. Travel Time= 33.7 min
Avg. Velocity = 2.17 fps, Avg. Travel Time= 45.3 min

Peak Storage= 1,396,100 cf @ 14.04 hrs
Average Depth at Peak Storage= 7.06'
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

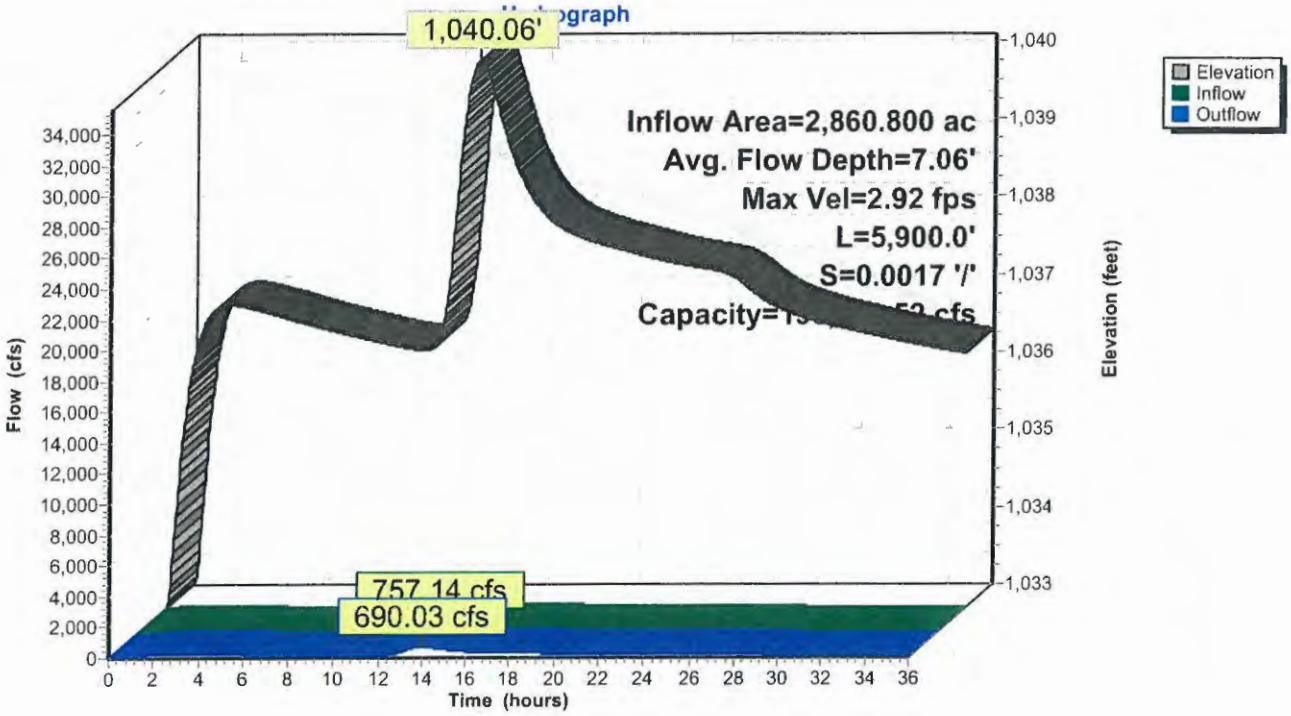
Custom cross-section, Length= 5,900.0' Slope= 0.0017 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,033.00', Outlet Invert= 1,022.97'



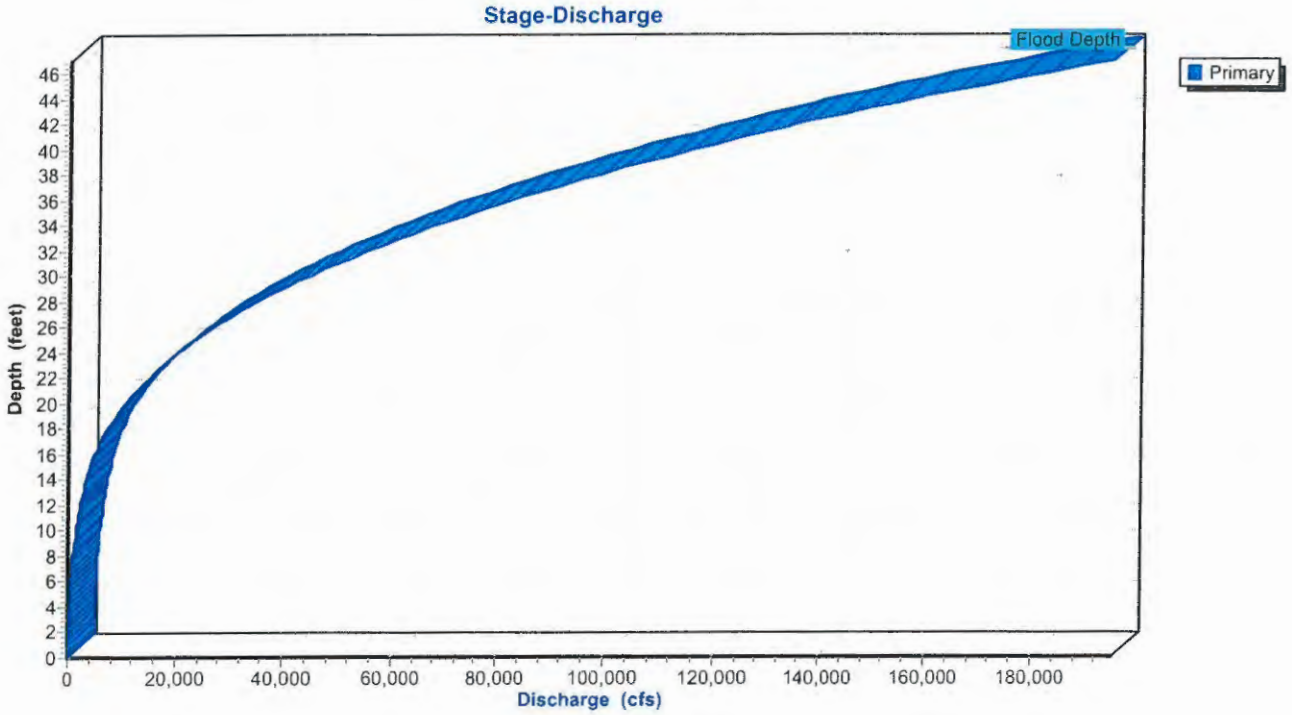
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00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

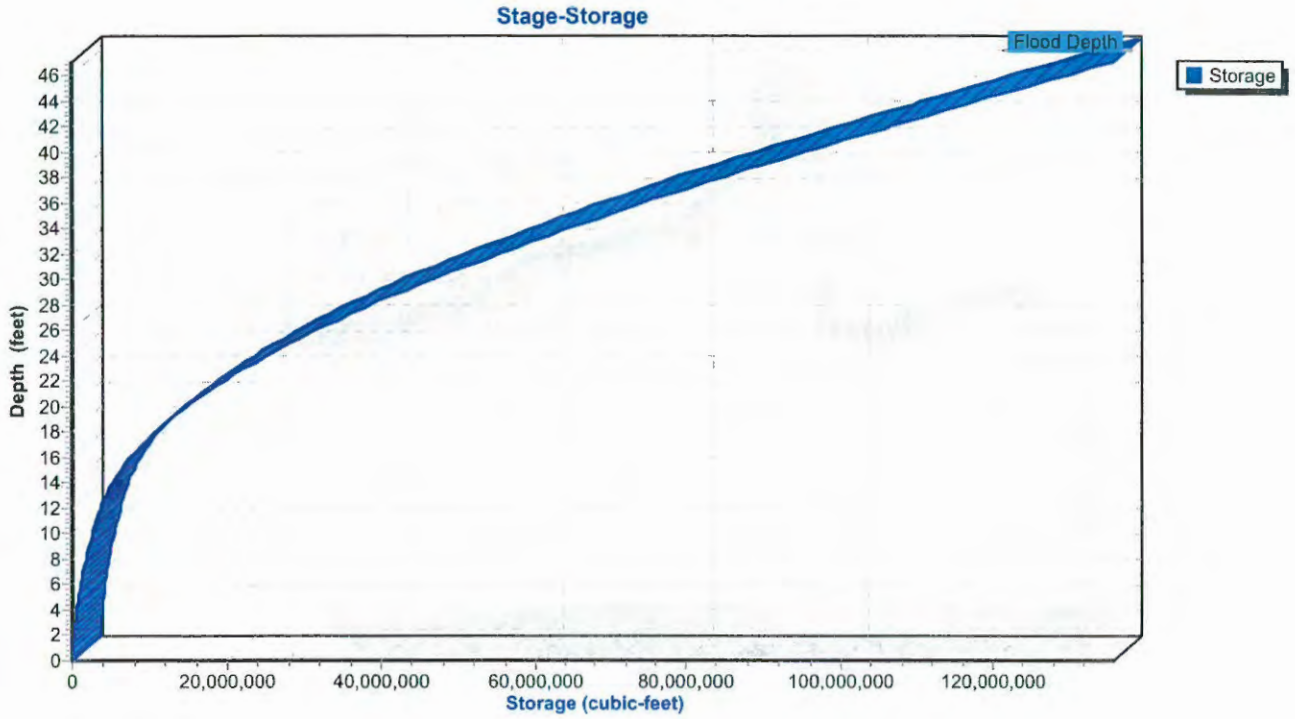
Reach 7R: Channel 7



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 > 1.12" for 100 year-FEMA event
Inflow = 111.02 cfs @ 25.35 hrs, Volume= 183.479 af
Outflow = 111.02 cfs @ 25.42 hrs, Volume= 182.716 af, Atten= 0%, Lag= 4.4 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.47 fps, Min. Travel Time= 6.1 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 6.4 min

Peak Storage= 40,388 cf @ 25.42 hrs
Average Depth at Peak Storage= 2.86'
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

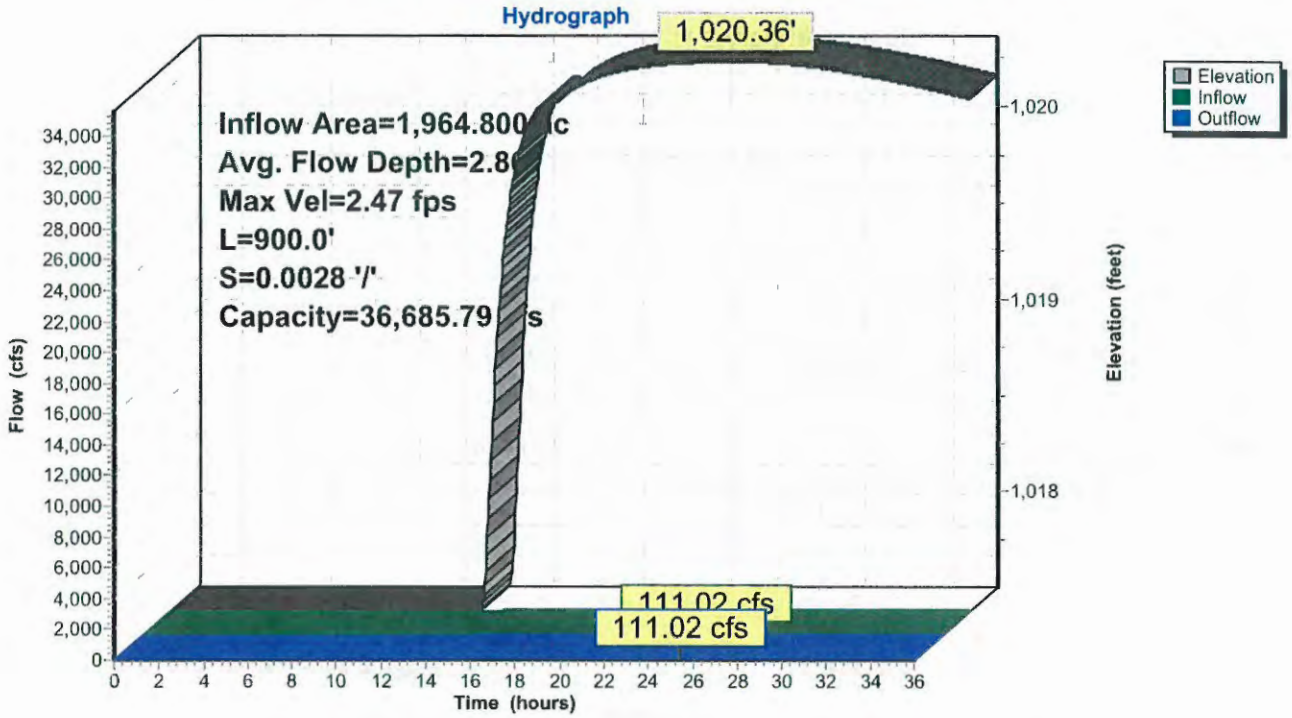
Custom cross-section, Length= 900.0' Slope= 0.0028 '/' (103 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.50', Outlet Invert= 1,015.00'

‡

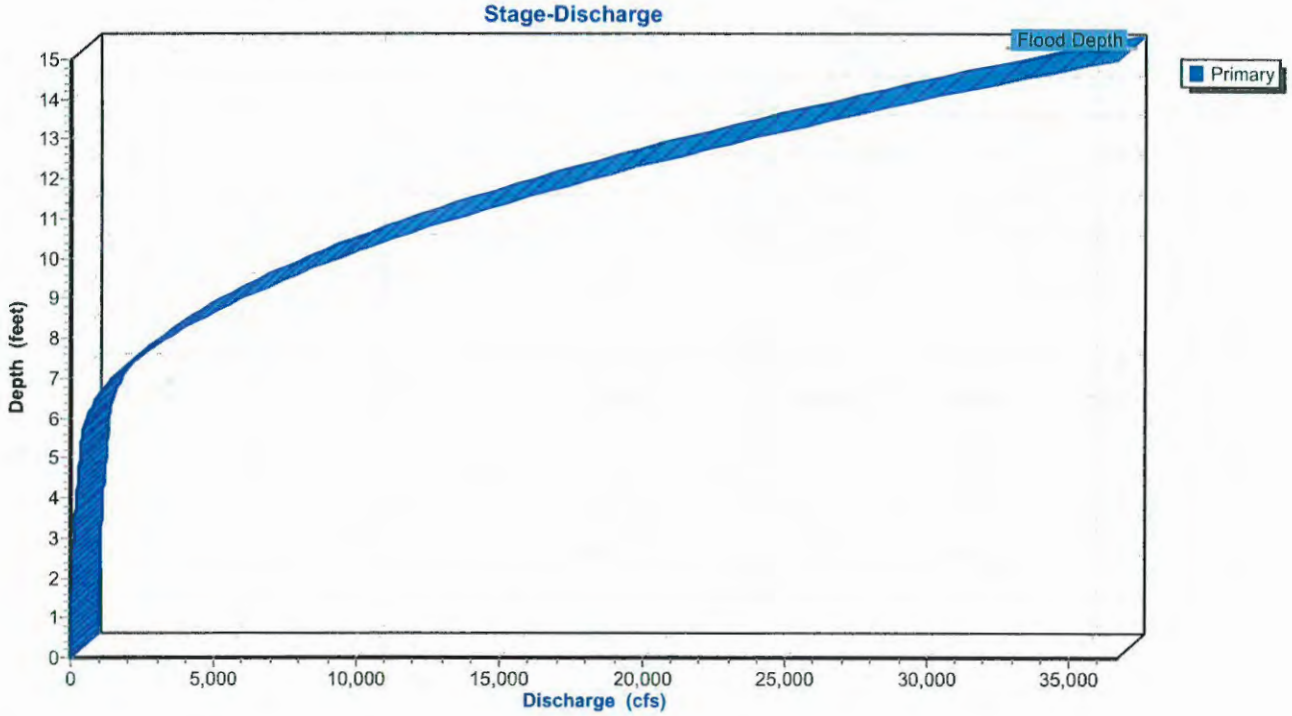
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00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

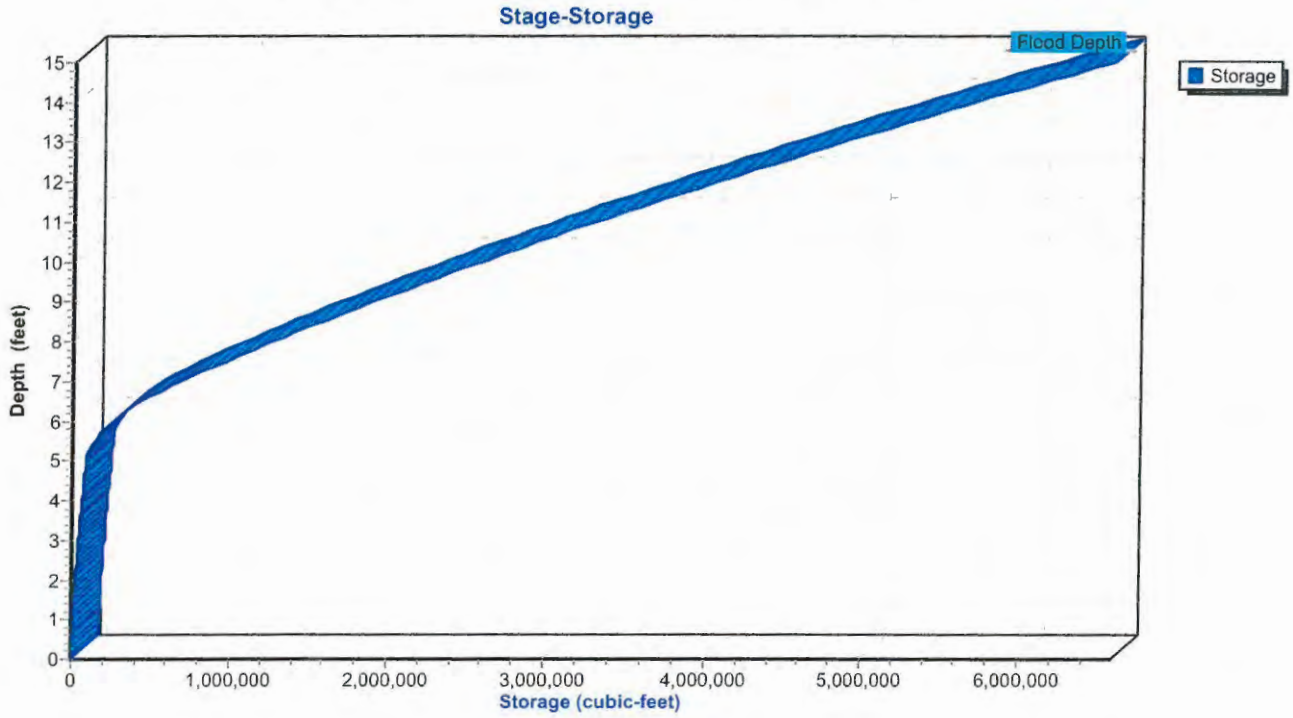
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



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



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



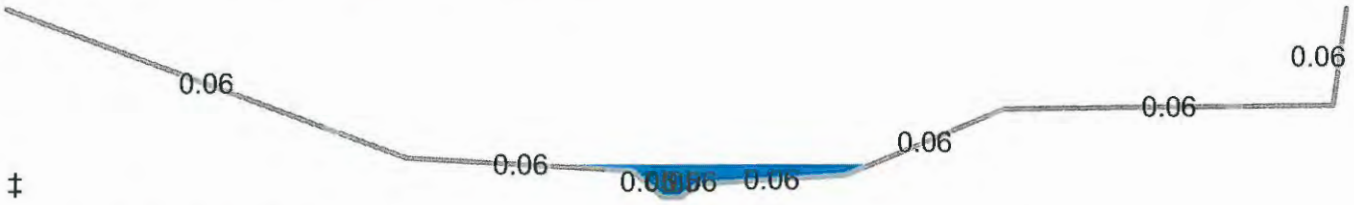
Summary for Reach 15R: Channel 15

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.09" for 100 year-FEMA event
Inflow = 1,976.93 cfs @ 13.94 hrs, Volume= 1,274.611 af
Outflow = 1,504.53 cfs @ 14.87 hrs, Volume= 1,240.012 af, Atten= 24%, Lag= 55.3 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.99 fps, Min. Travel Time= 73.6 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 98.9 min

Peak Storage= 6,655,728 cf @ 14.87 hrs
Average Depth at Peak Storage= 7.48'
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

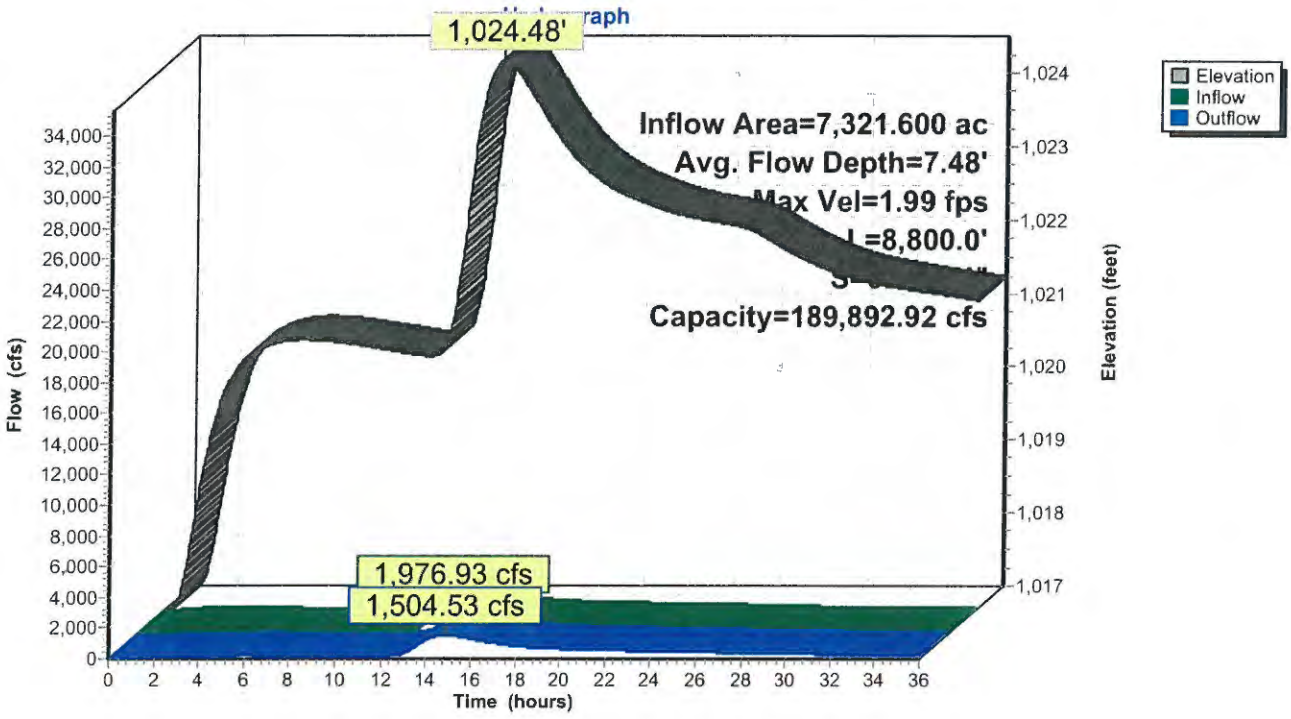
Custom cross-section, Length= 8,800.0' Slope= 0.0010 '/' (106 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,017.00', Outlet Invert= 1,008.20'



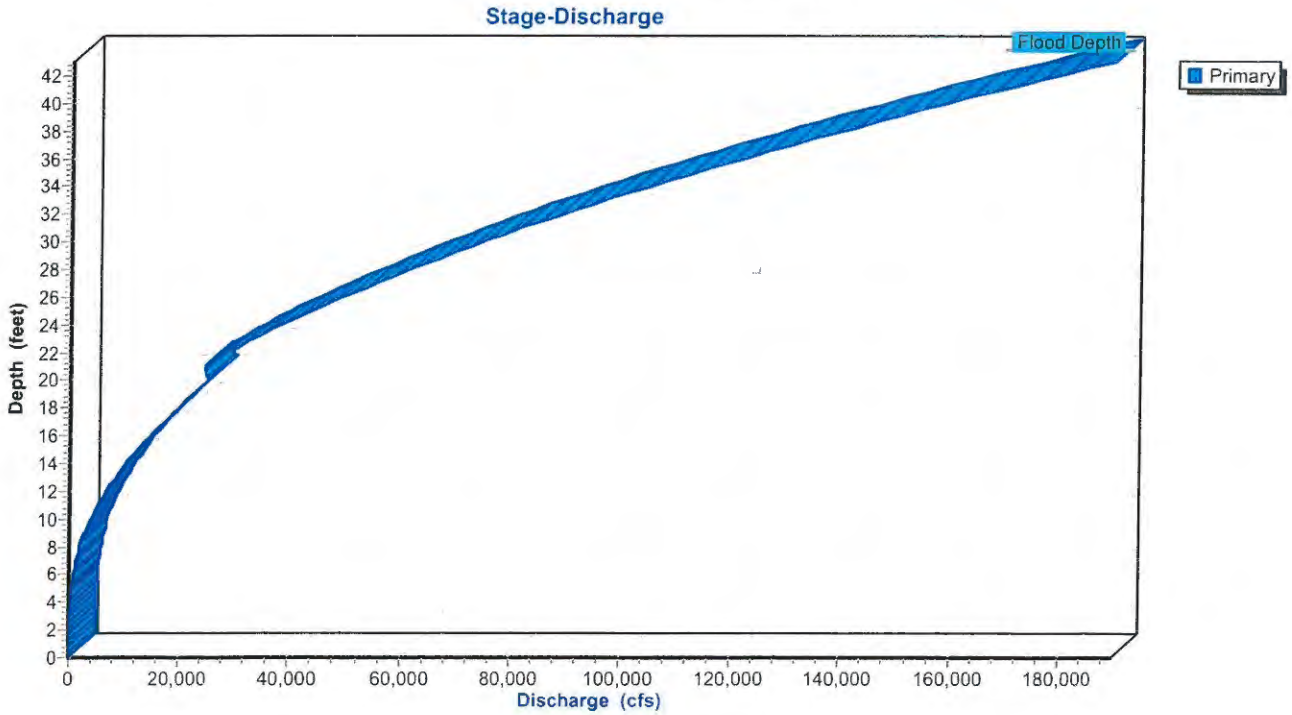
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00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

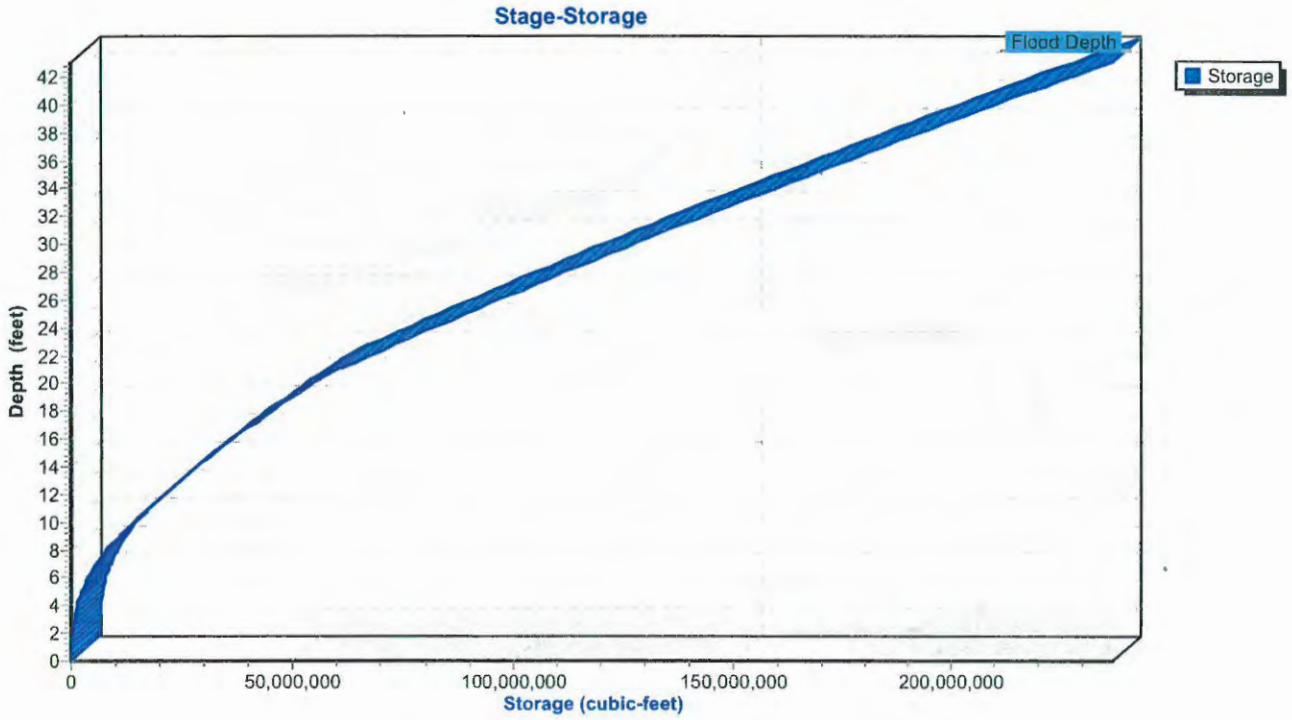
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



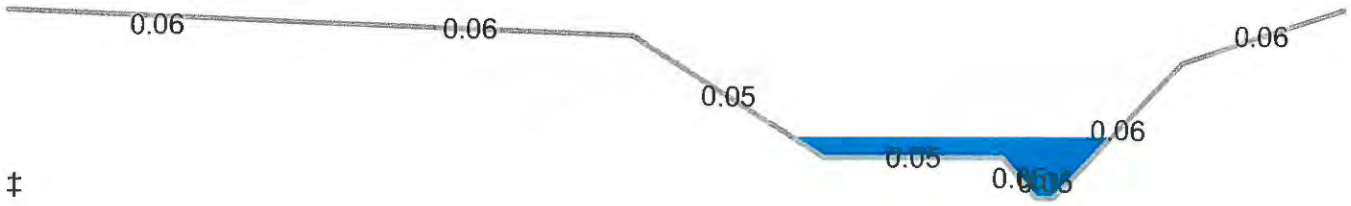
Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.12" for 100 year-FEMA event
Inflow = 1,931.47 cfs @ 14.36 hrs, Volume= 1,553.979 af
Outflow = 1,830.19 cfs @ 15.06 hrs, Volume= 1,515.784 af, Atten= 5%, Lag= 41.7 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.21 fps, Min. Travel Time= 56.6 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 84.5 min

Peak Storage= 6,217,299 cf @ 15.06 hrs
Average Depth at Peak Storage= 9.08'
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'

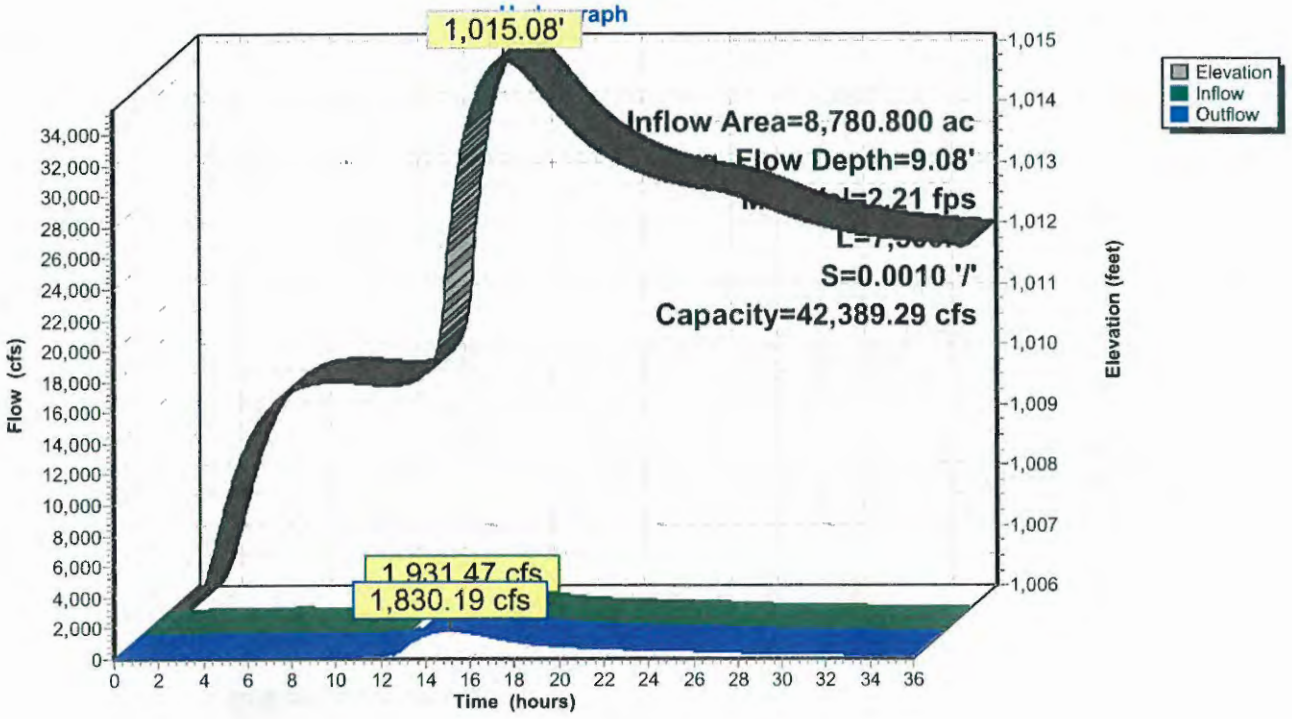


‡

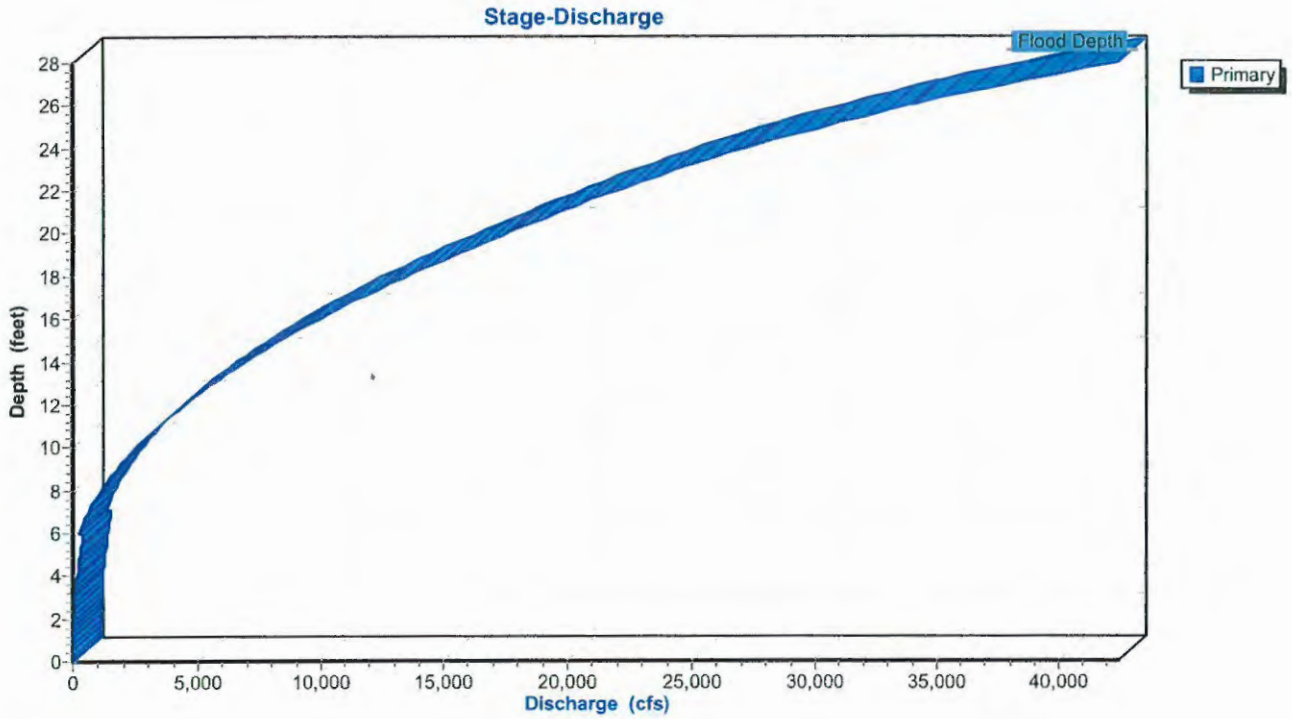
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00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

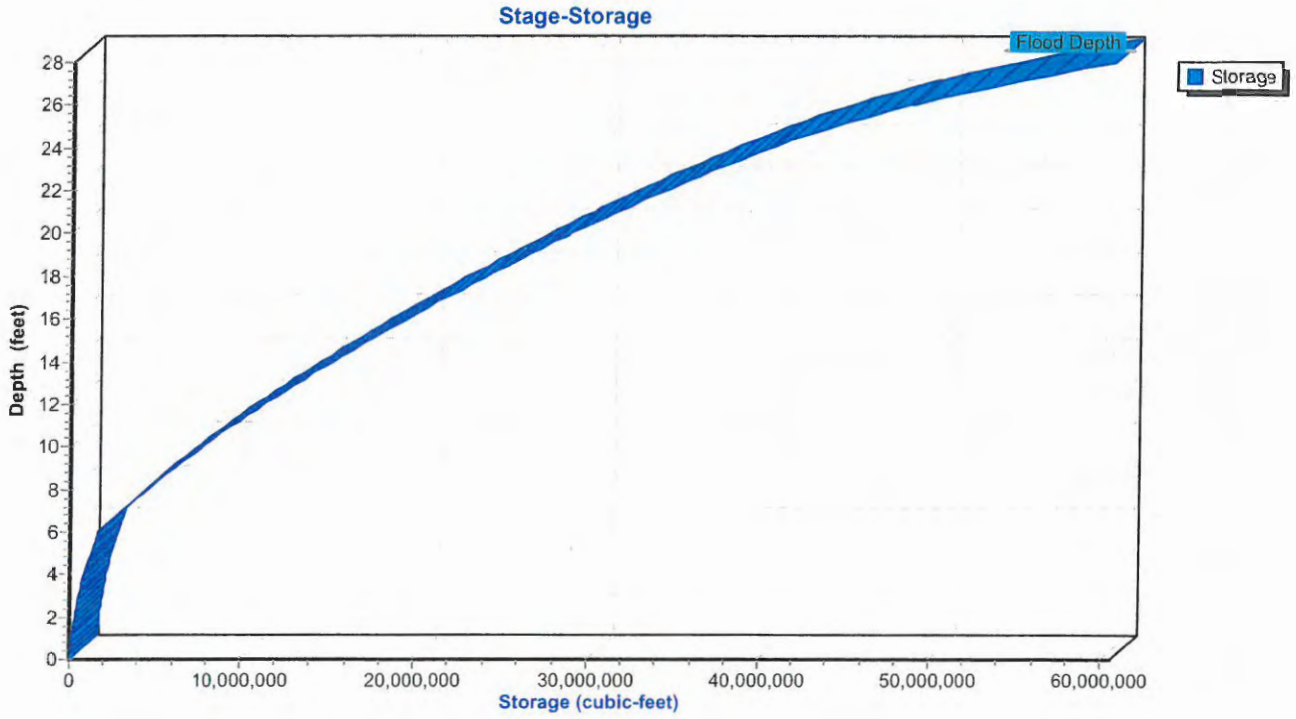
Reach 16R: Channel 16



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 > 2.13" for 100 year-FEMA event
Inflow = 1,937.82 cfs @ 15.54 hrs, Volume= 1,676.783 af
Outflow = 1,937.81 cfs @ 15.55 hrs, Volume= 1,676.661 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= 9.26 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 8.06 fps, Avg. Travel Time= 0.9 min

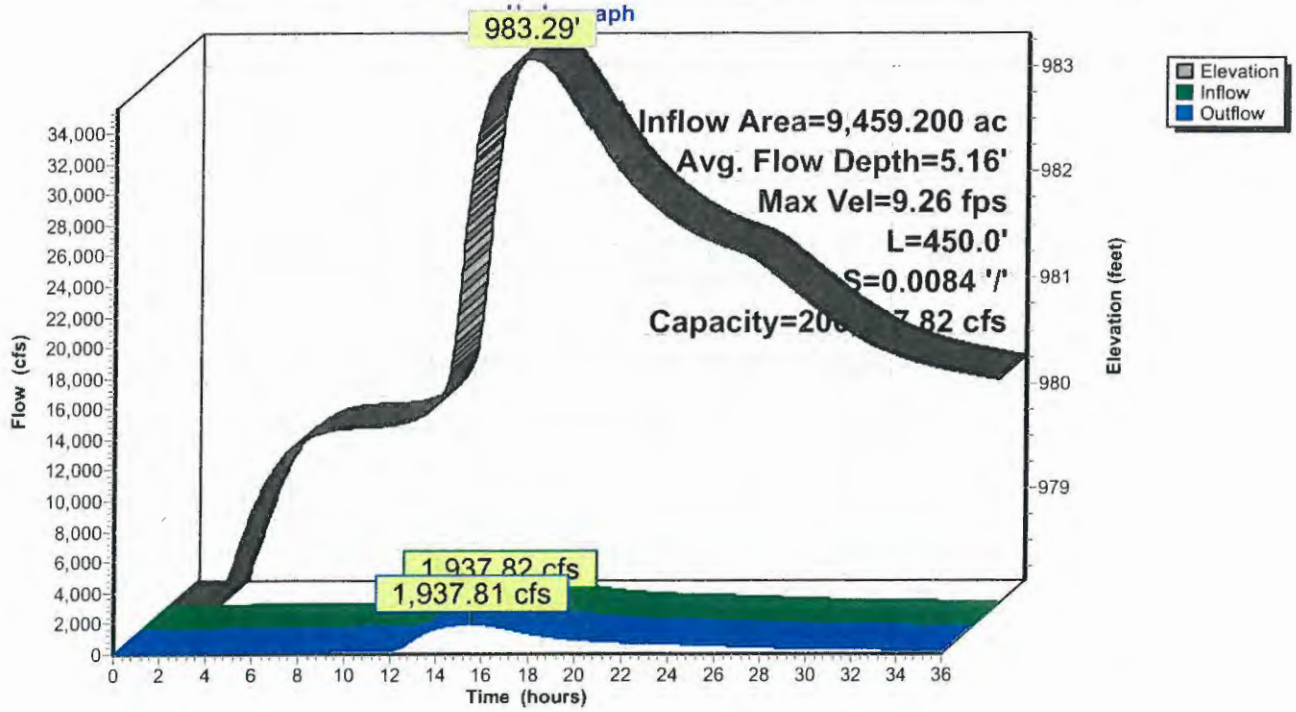
Peak Storage= 94,223 cf @ 15.55 hrs
Average Depth at Peak Storage= 5.16'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

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'

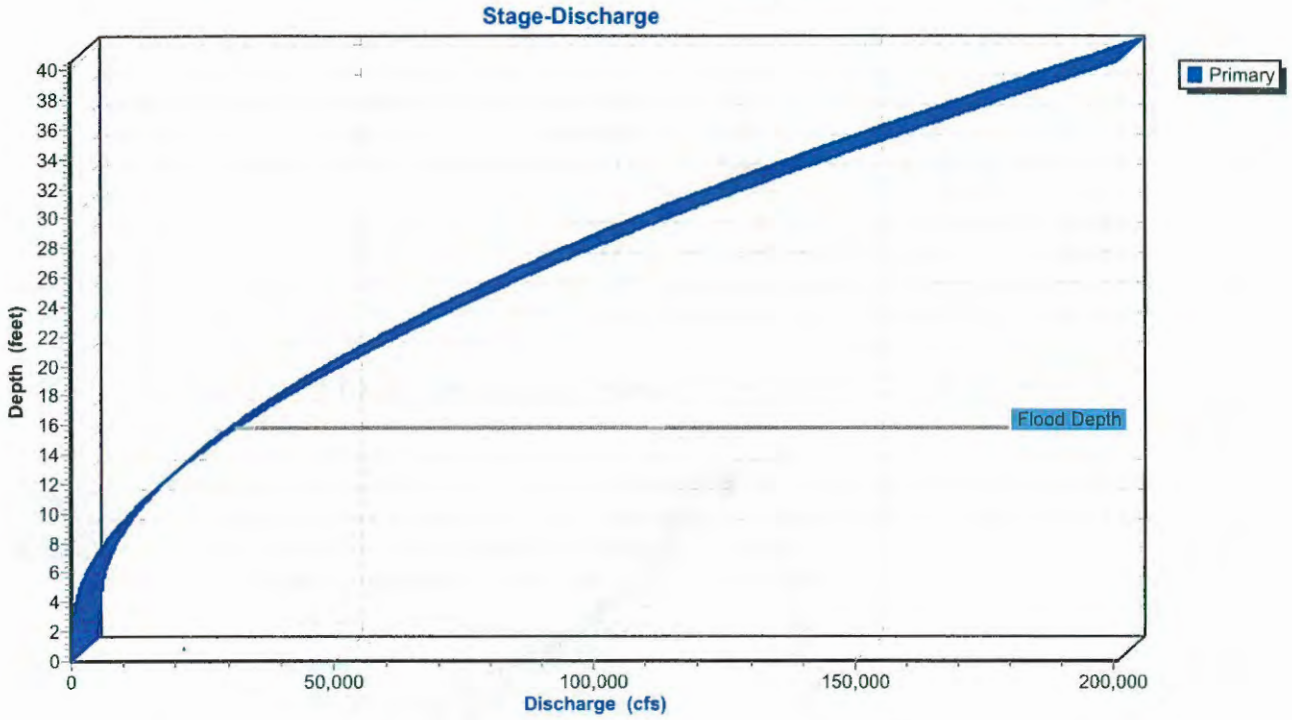
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, 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

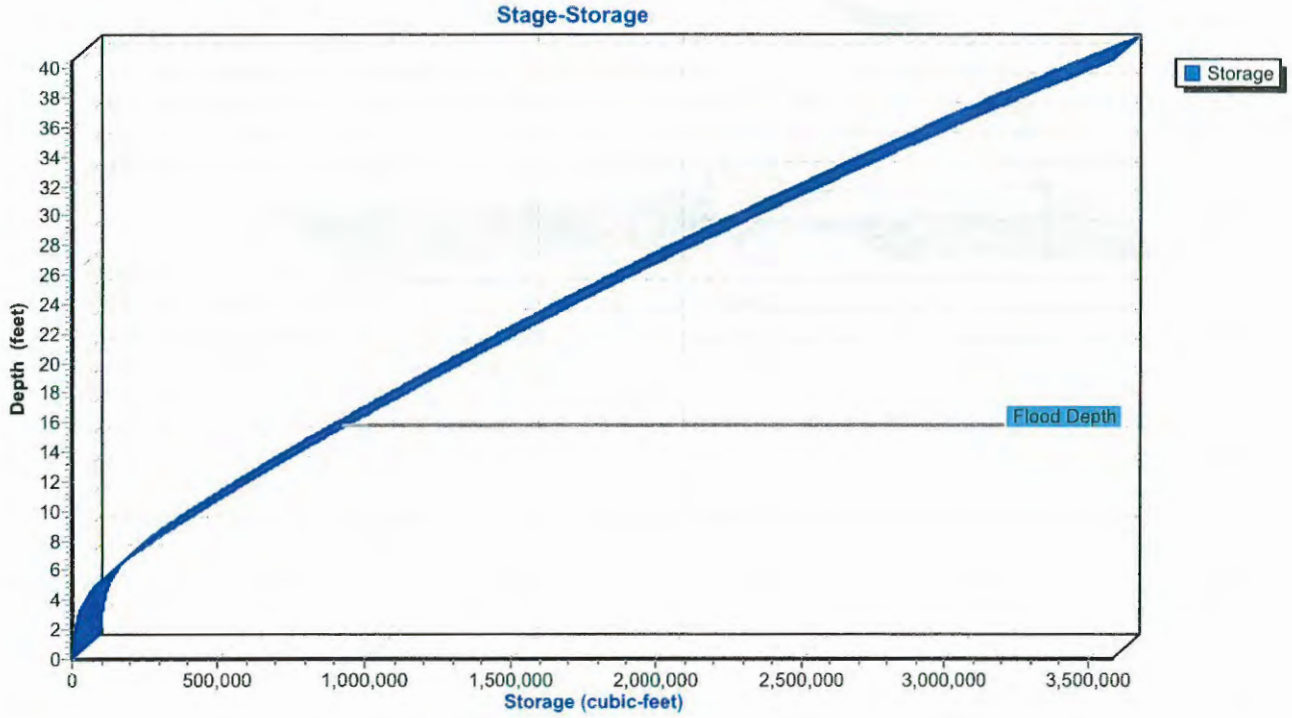
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

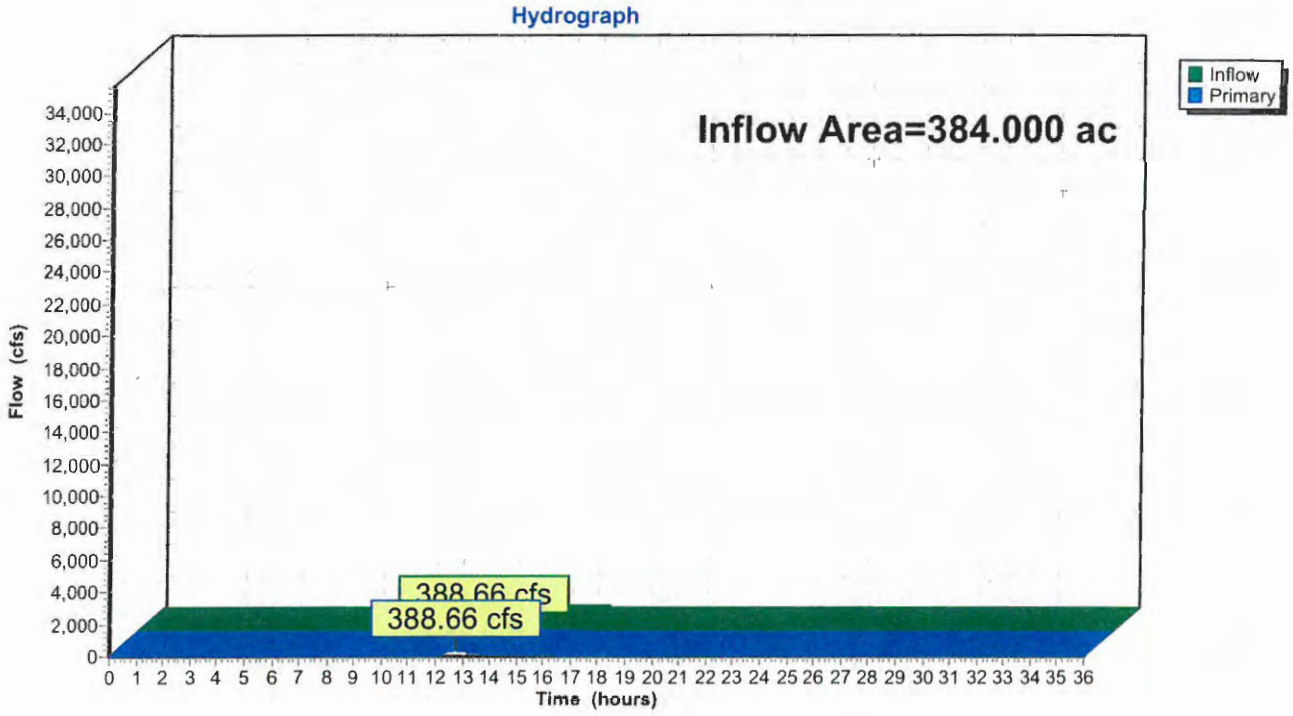


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 2.58" for 100 year-FEMA event
Inflow = 388.66 cfs @ 12.72 hrs, Volume= 82.661 af
Primary = 388.66 cfs @ 12.73 hrs, Volume= 82.661 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 > 2.14" for 100 year-FEMA event
Inflow = 1,982.19 cfs @ 14.87 hrs, Volume= 1,689.805 af
Outflow = 1,974.08 cfs @ 15.08 hrs, Volume= 1,678.010 af, Atten= 0%, Lag= 12.8 min
Primary = 1,654.37 cfs @ 15.08 hrs, Volume= 1,570.137 af
Secondary = 319.71 cfs @ 15.08 hrs, Volume= 107.873 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= 1,006.27' @ 15.08 hrs Surf.Area= 16.817 ac Storage= 110.251 af (49.289 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= 88.0 min calculated for 1,616.599 af (96% of inflow)
Center-of-Mass det. time= 17.1 min (1,155.0 - 1,137.9)

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

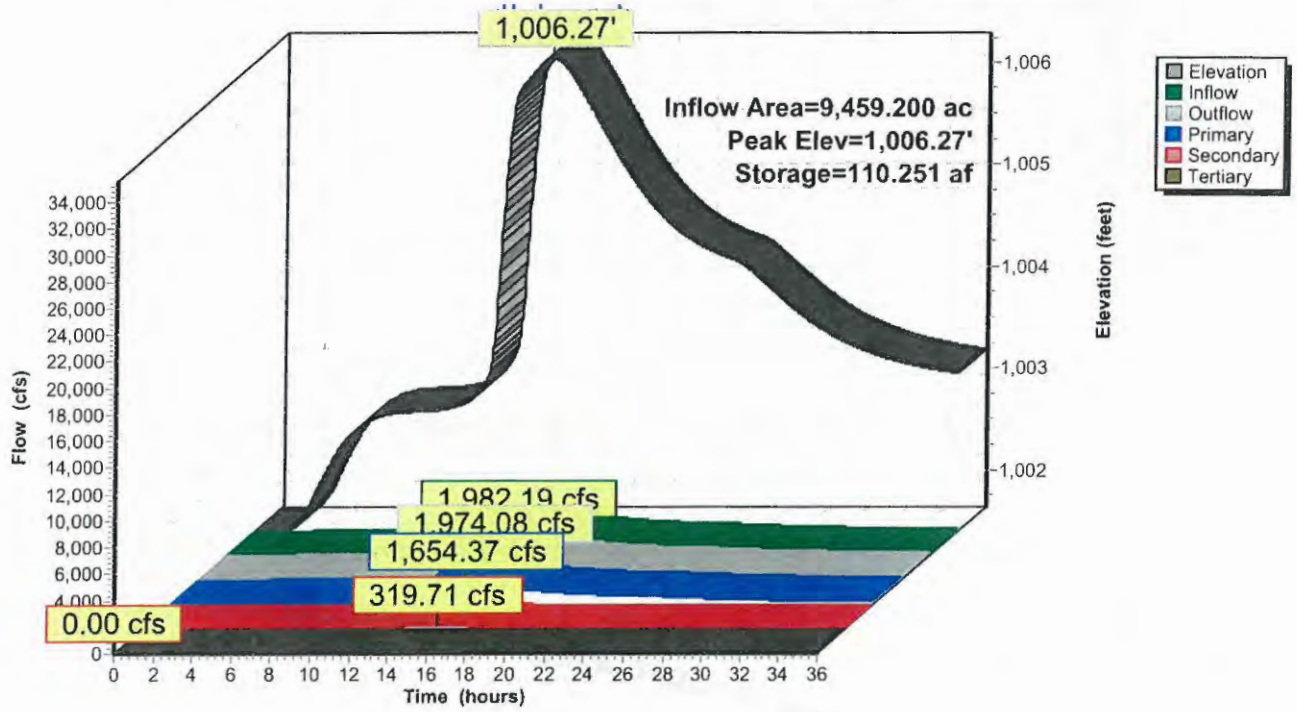
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	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=1,654.37 cfs @ 15.08 hrs HW=1,006.27' TW=992.47' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,654.37 cfs @ 7.14 fps)

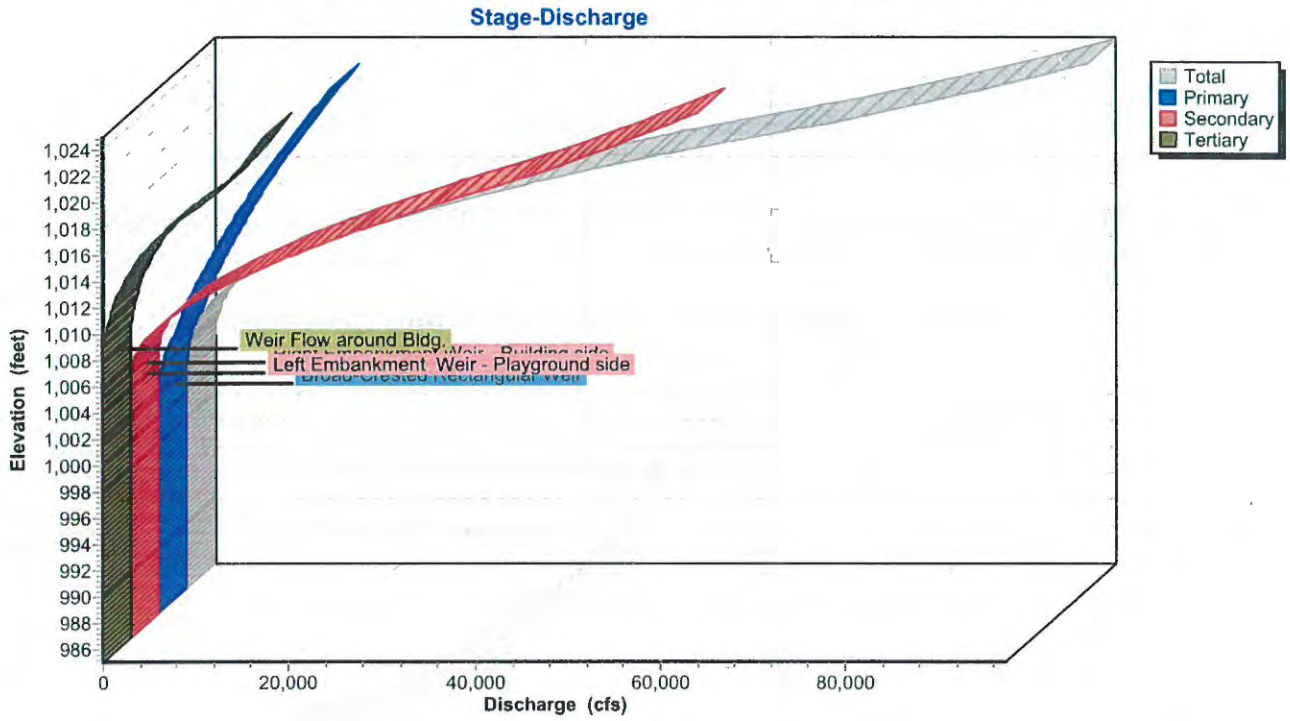
Secondary OutFlow Max=319.71 cfs @ 15.08 hrs HW=1,006.27' TW=992.47' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 98.31 cfs @ 3.33 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 221.39 cfs @ 3.91 fps)

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)

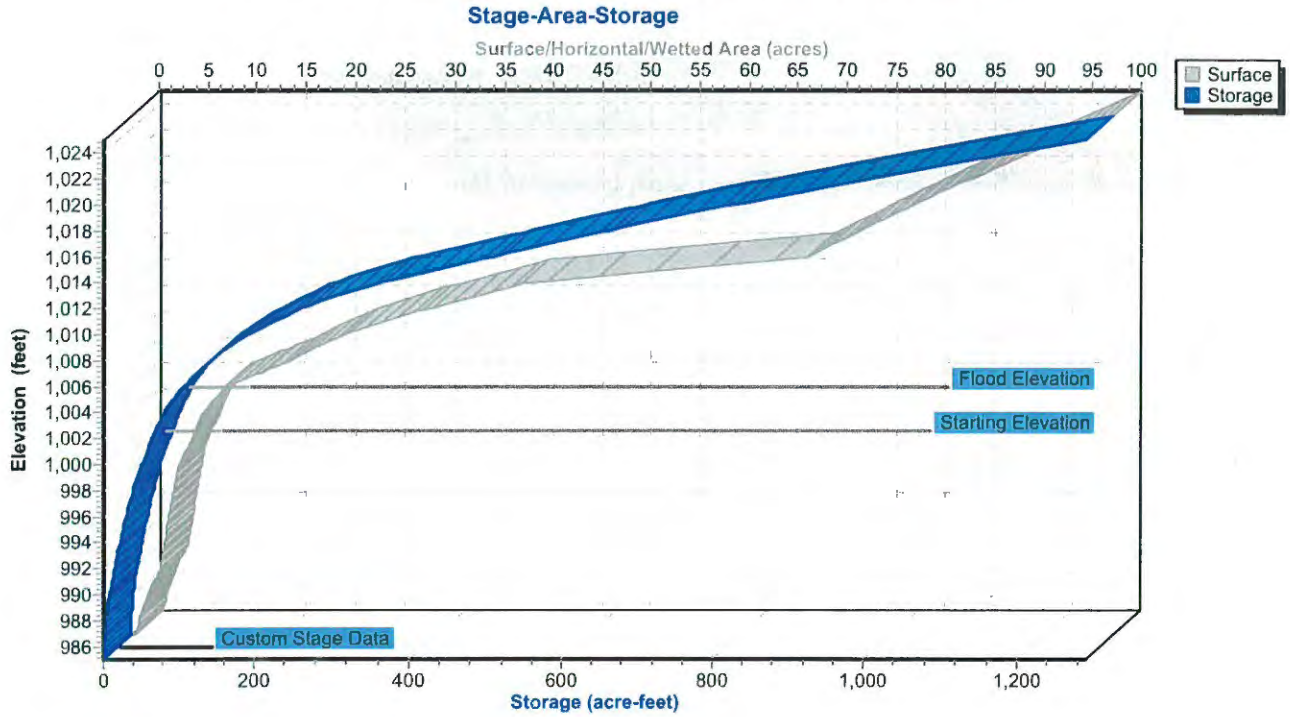
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

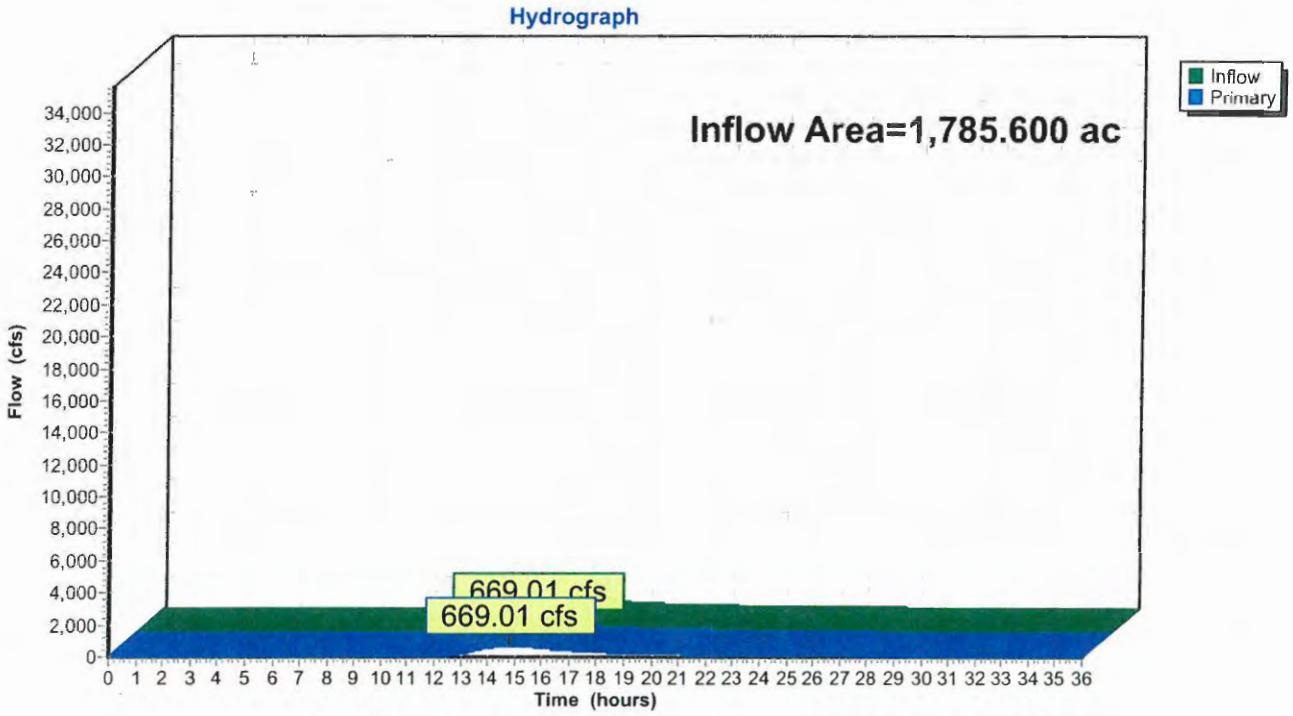


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 2.26" for 100 year-FEMA event
Inflow = 669.01 cfs @ 14.82 hrs, Volume= 336.776 af
Primary = 669.01 cfs @ 14.83 hrs, Volume= 336.776 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 > 2.26" for 100 year-FEMA event
Inflow = 669.01 cfs @ 14.83 hrs, Volume= 336.770 af
Outflow = 221.72 cfs @ 0.00 hrs, Volume= 503.638 af, Atten= 67%, Lag= 0.0 min
Primary = 221.72 cfs @ 0.00 hrs, Volume= 503.638 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= 1,097.40' @ 0.00 hrs Surf.Area= 220.000 ac Storage= 1,914.000 af
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= (not calculated: outflow precedes inflow)

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

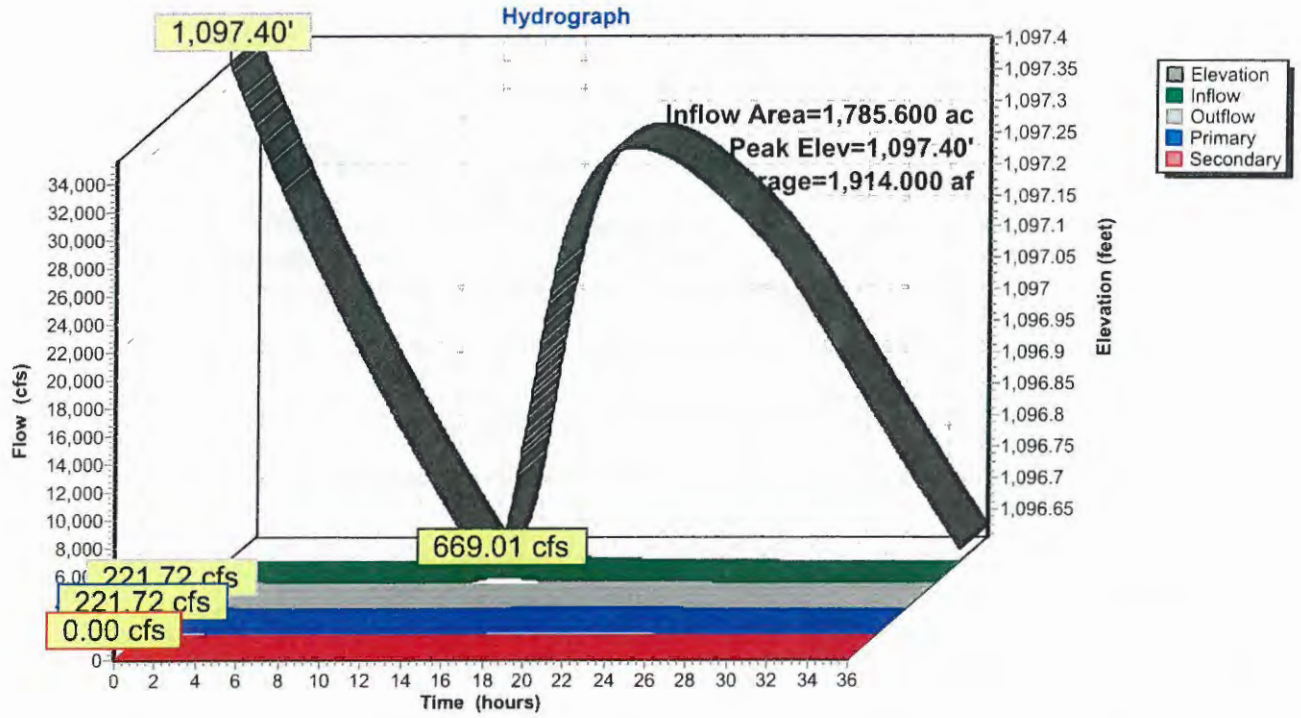
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

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

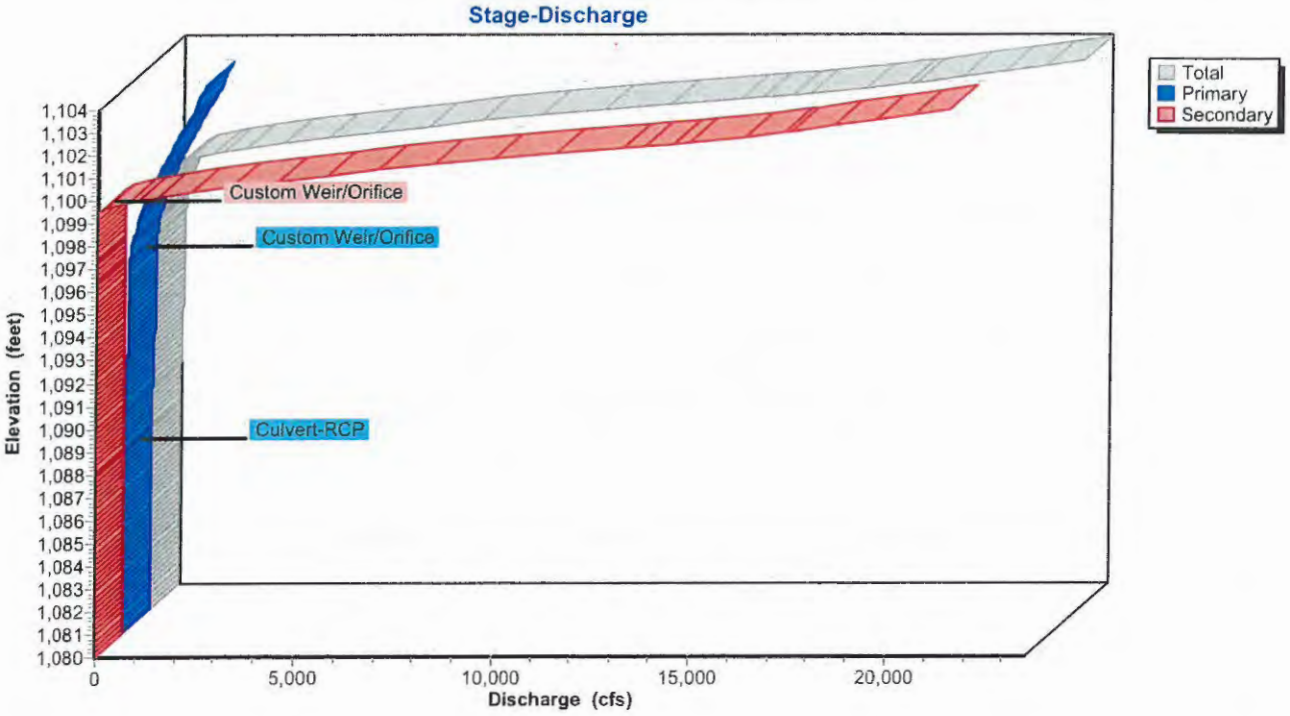
Primary OutFlow Max=221.72 cfs @ 0.00 hrs HW=1,097.40' TW=1,069.00' (Dynamic Tailwater)
↑—**1=Culvert-RCP** (Barrel Controls 123.47 cfs @ 17.47 fps)
└—**2=Custom Weir/Orifice** (Weir Controls 98.25 cfs @ 3.27 fps)

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)

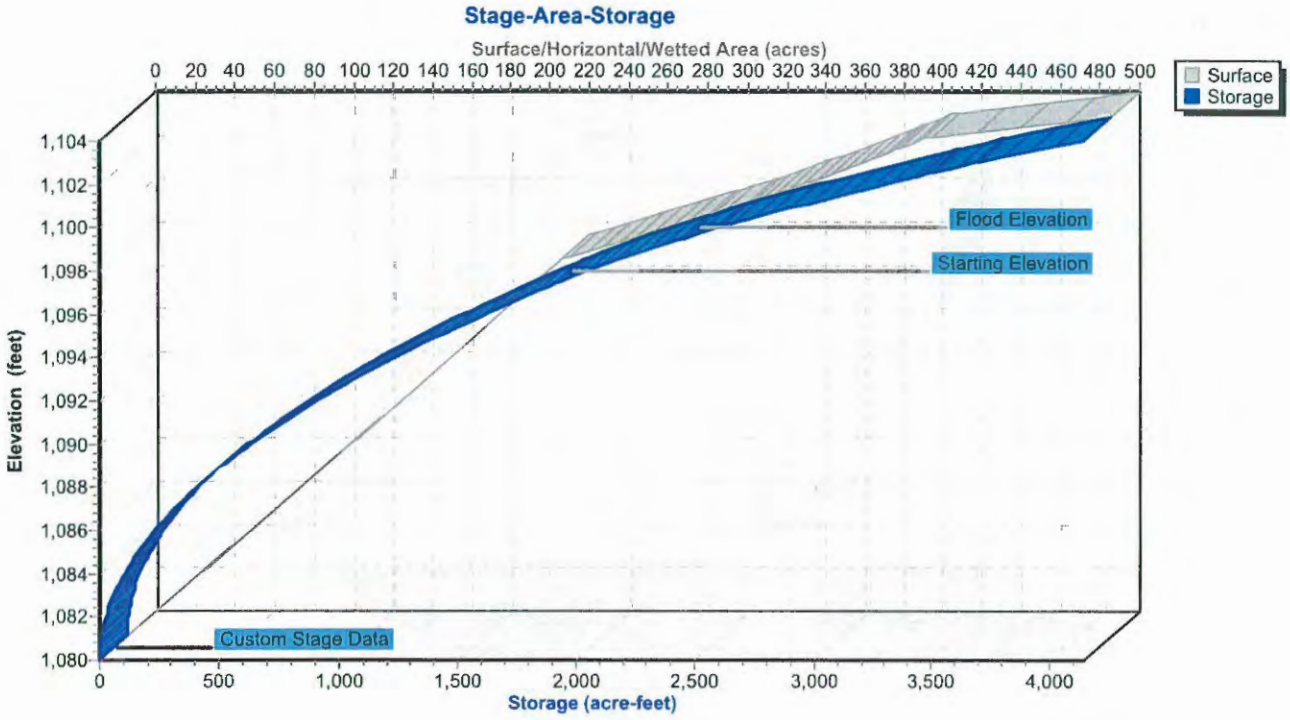
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

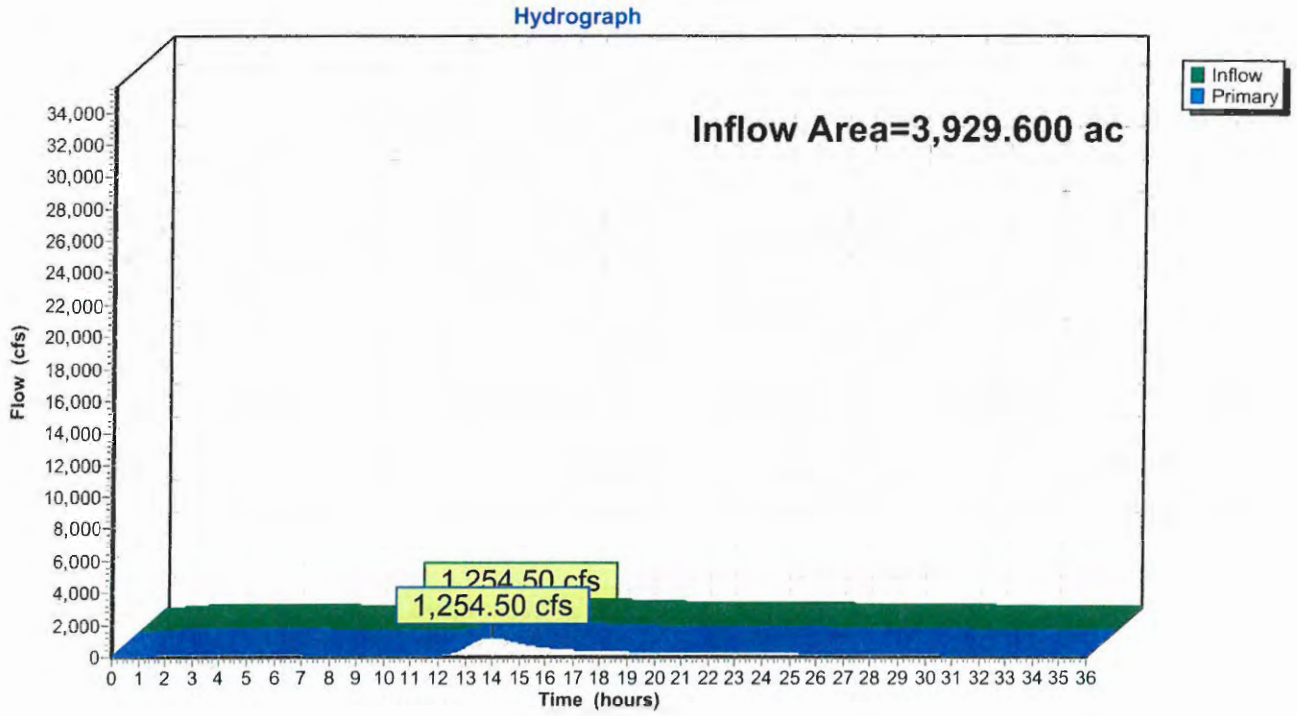


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 2.63" for 100 year-FEMA event
Inflow = 1,254.50 cfs @ 13.96 hrs, Volume= 859.618 af
Primary = 1,254.50 cfs @ 13.97 hrs, Volume= 859.618 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 > 2.58" for 100 year-FEMA event
Inflow = 388.66 cfs @ 12.73 hrs, Volume= 82.661 af
Outflow = 93.21 cfs @ 14.63 hrs, Volume= 79.718 af, Atten= 76%, Lag= 114.4 min
Primary = 93.21 cfs @ 14.63 hrs, Volume= 79.718 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= 1,107.28' @ 14.63 hrs Surf.Area= 28.419 ac Storage= 59.678 af (35.378 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= 554.3 min calculated for 55.403 af (67% of inflow)
Center-of-Mass det. time= 268.6 min (1,205.7 - 937.1)

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

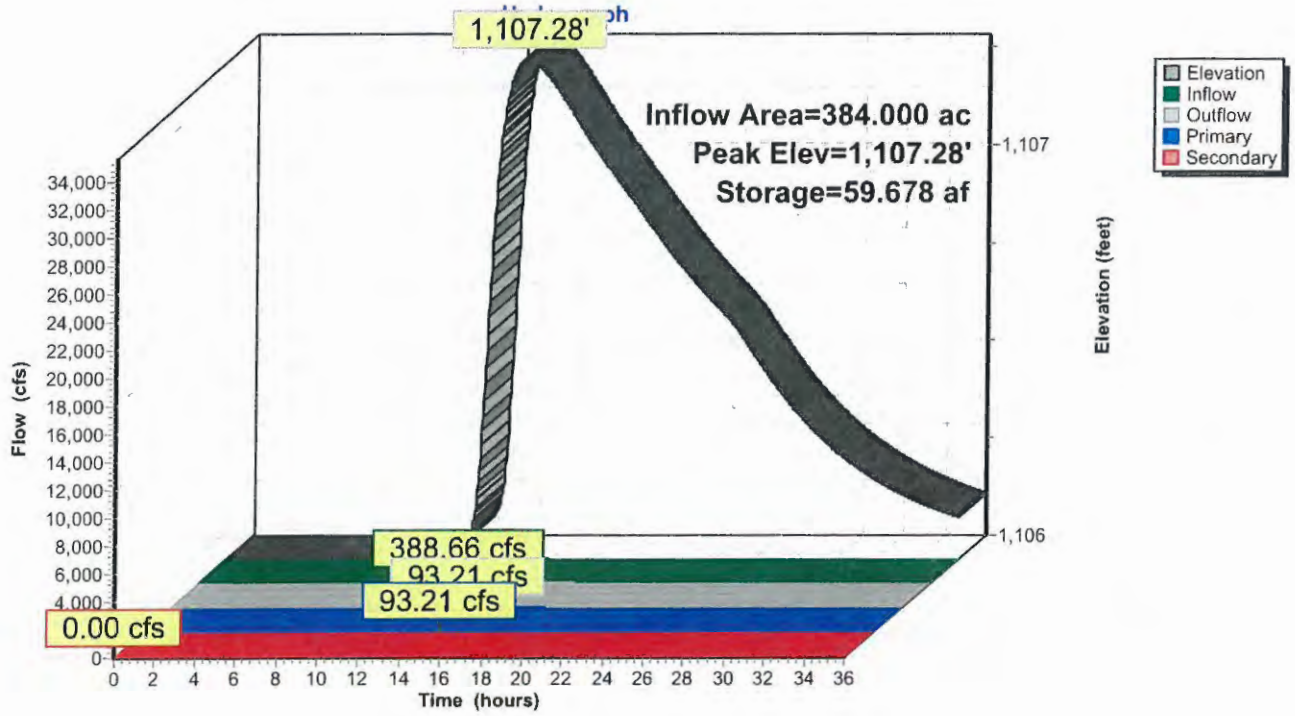
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

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=93.21 cfs @ 14.63 hrs HW=1,107.28' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet** (Custom Controls 93.21 cfs)

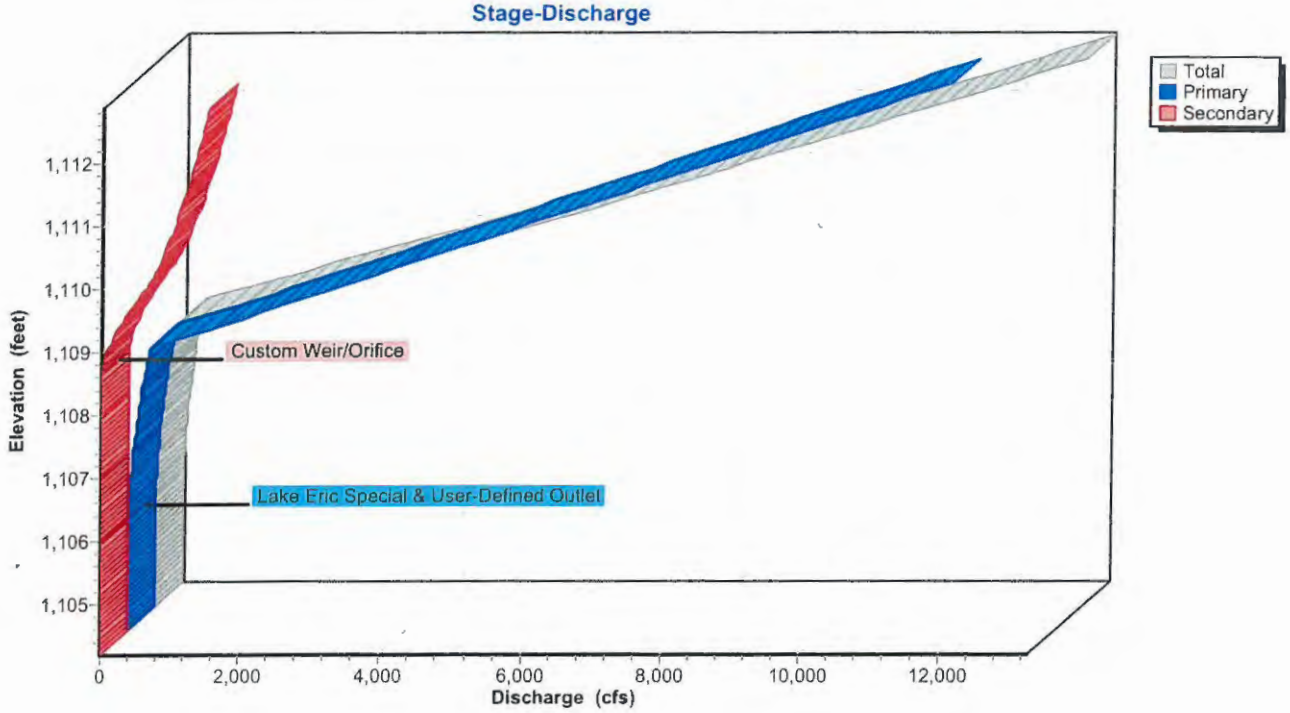
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,106.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond 4P: Lake O'Springs

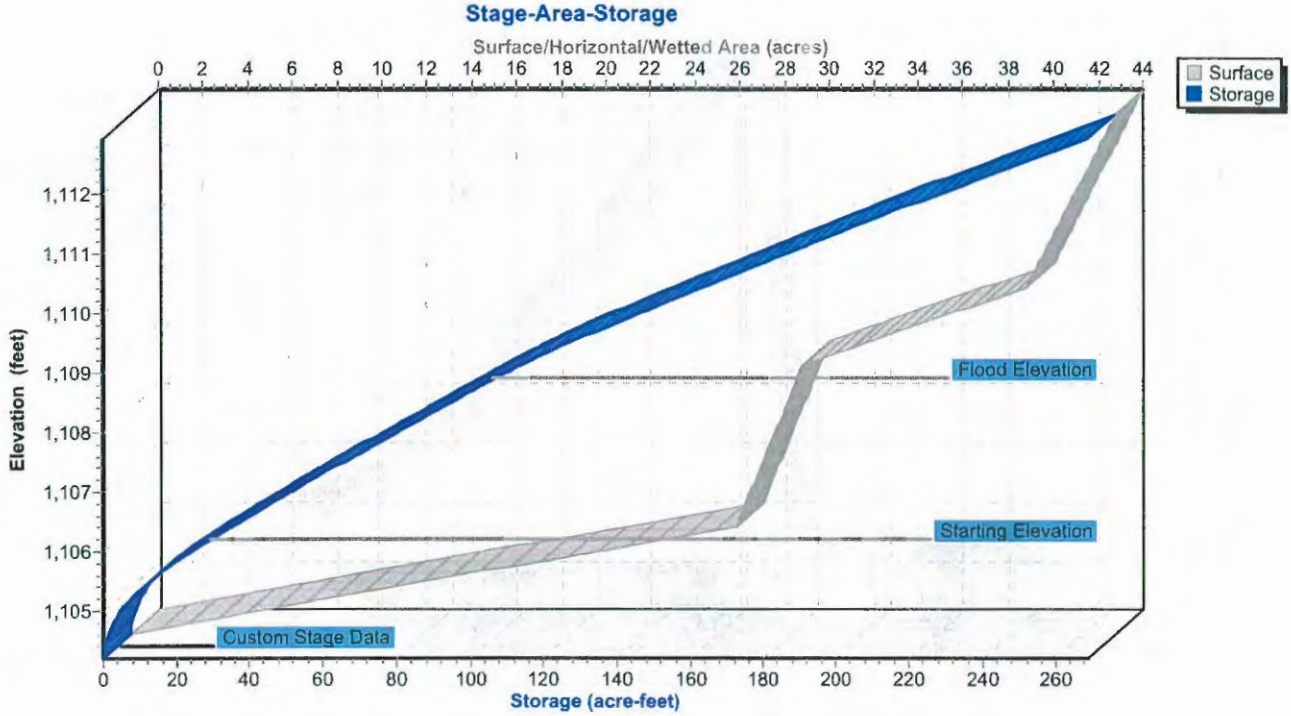


Pond 4P: Lake O'Springs

Stage-Discharge



Pond 4P: Lake O'Springs

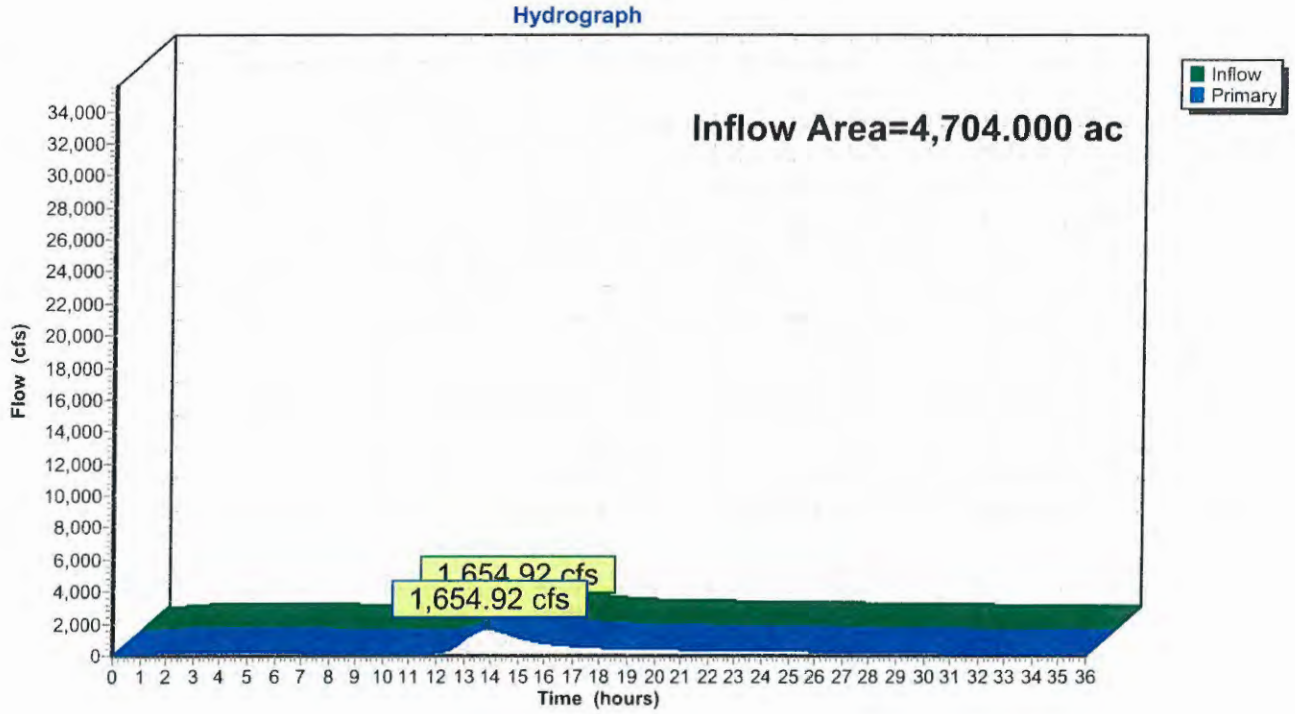


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 2.51" for 100 year-FEMA event
Inflow = 1,654.92 cfs @ 13.91 hrs, Volume= 985.854 af
Primary = 1,654.92 cfs @ 13.92 hrs, Volume= 985.854 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 = 2.54" for 100 year-FEMA event
Inflow = 193.02 cfs @ 12.42 hrs, Volume= 24.393 af
Outflow = 48.91 cfs @ 13.31 hrs, Volume= 23.776 af, Atten= 75%, Lag= 53.2 min
Primary = 48.91 cfs @ 13.31 hrs, Volume= 23.776 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= 1,119.31' @ 13.31 hrs Surf.Area= 4.096 ac Storage= 24.617 af (10.927 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= 602.1 min calculated for 10.086 af (41% of inflow)
Center-of-Mass det. time= 198.4 min (1,065.8 - 867.4)

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

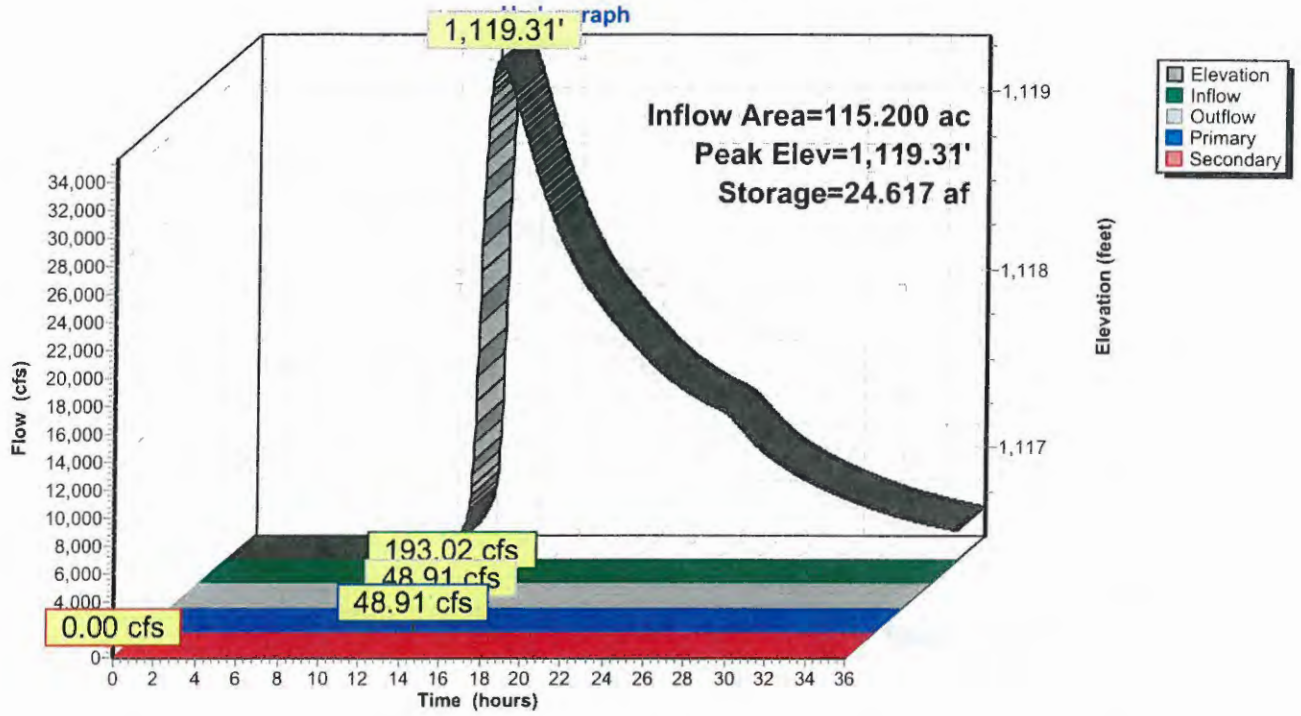
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

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

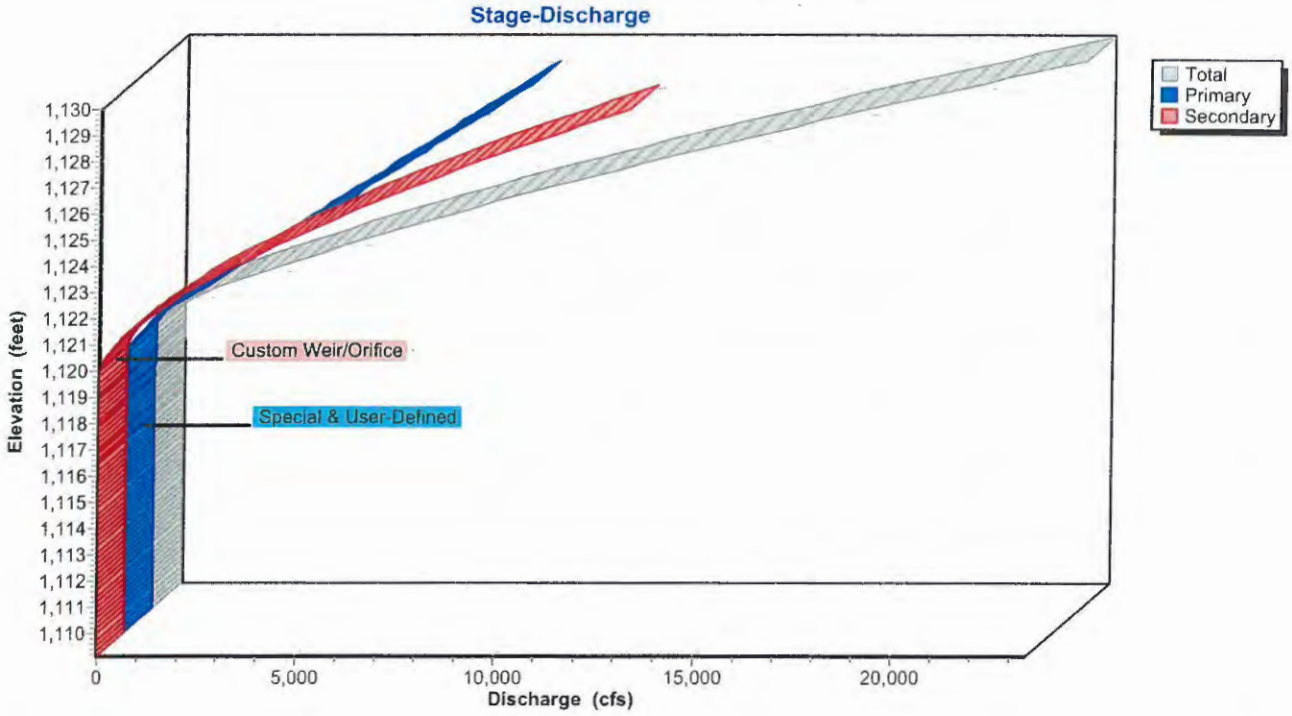
Primary OutFlow Max=48.91 cfs @ 13.31 hrs HW=1,119.31' TW=0.00' (Dynamic Tailwater)
↑—**1=Special & User-Defined** (Custom Controls 48.91 cfs)

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)

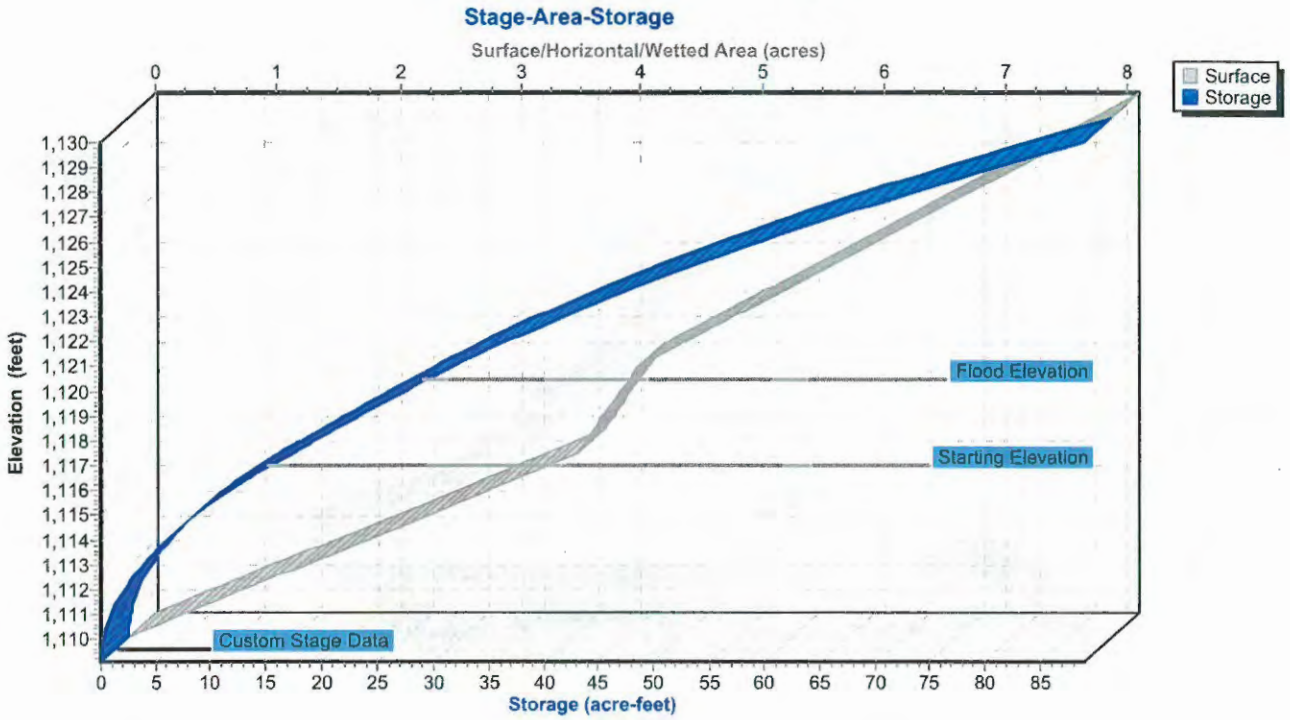
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

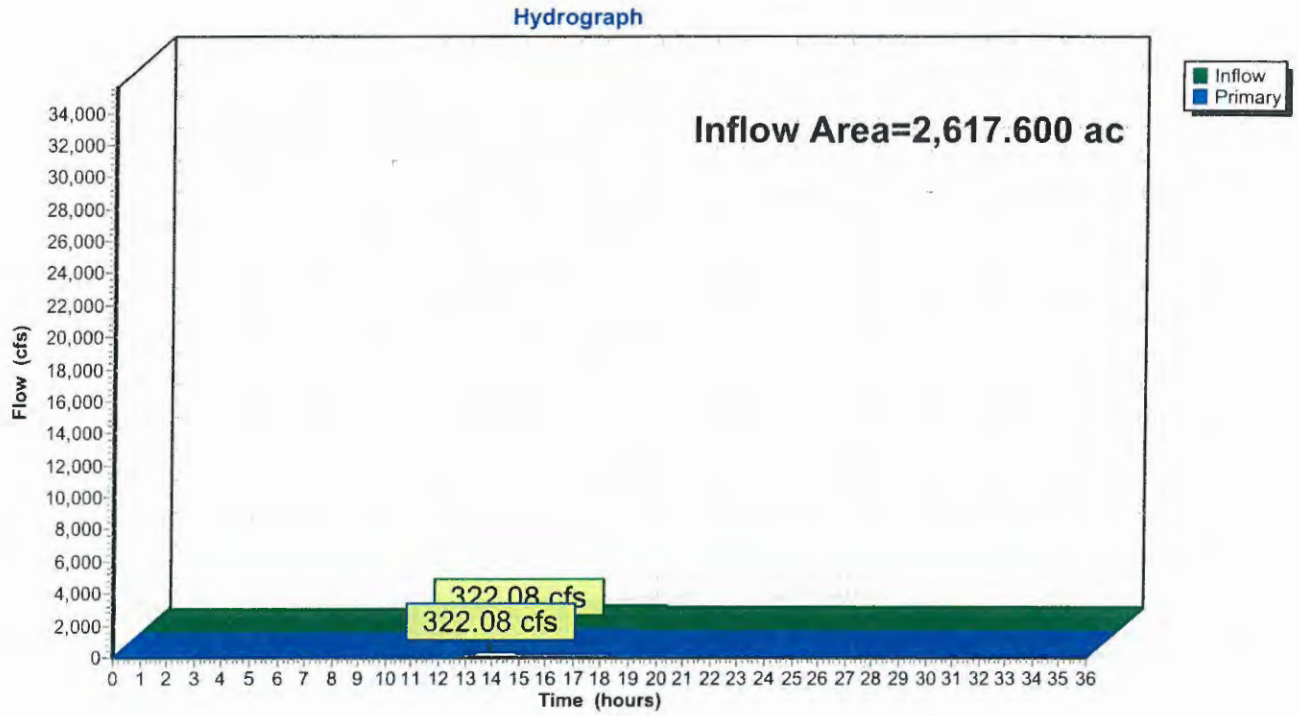


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 1.33" for 100 year-FEMA event
Inflow = 322.08 cfs @ 13.93 hrs, Volume= 289.143 af
Primary = 322.08 cfs @ 13.94 hrs, Volume= 289.143 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

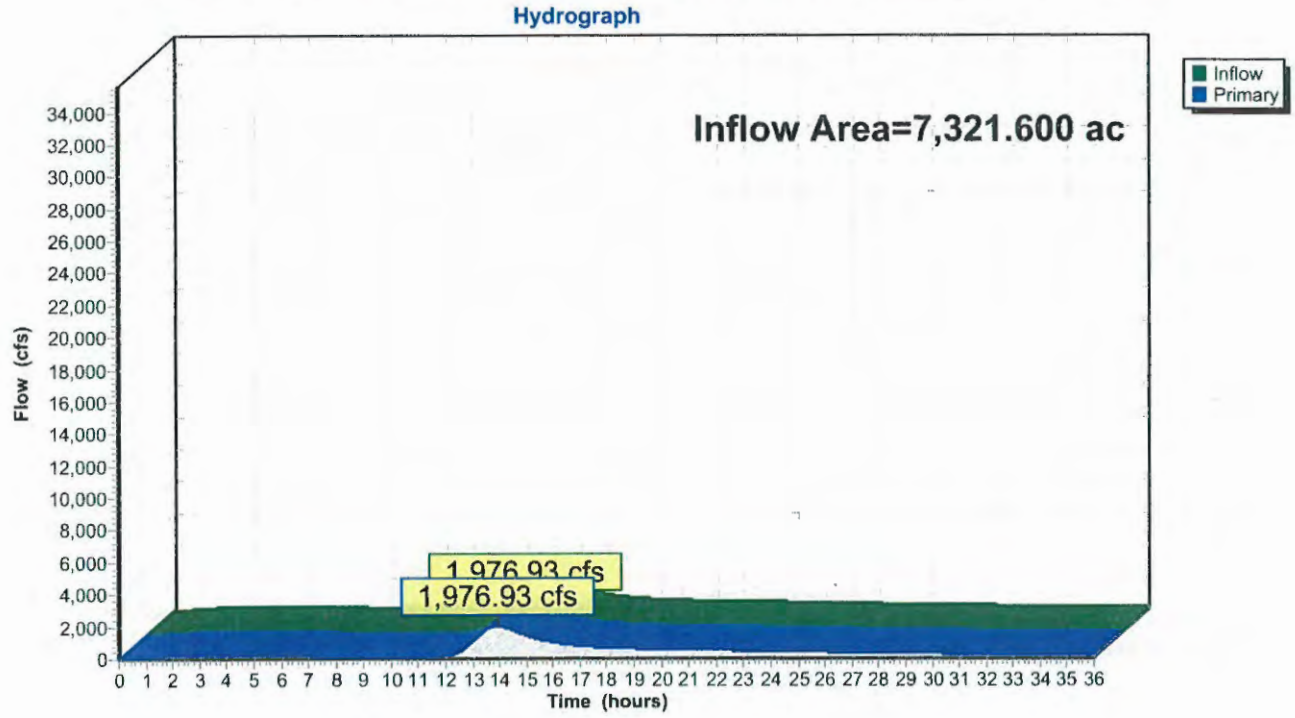


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.09" for 100 year-FEMA event
Inflow = 1,976.93 cfs @ 13.93 hrs, Volume= 1,274.804 af
Primary = 1,976.93 cfs @ 13.94 hrs, Volume= 1,274.804 af, Atten= 0%, Lag= 0.6 min

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

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

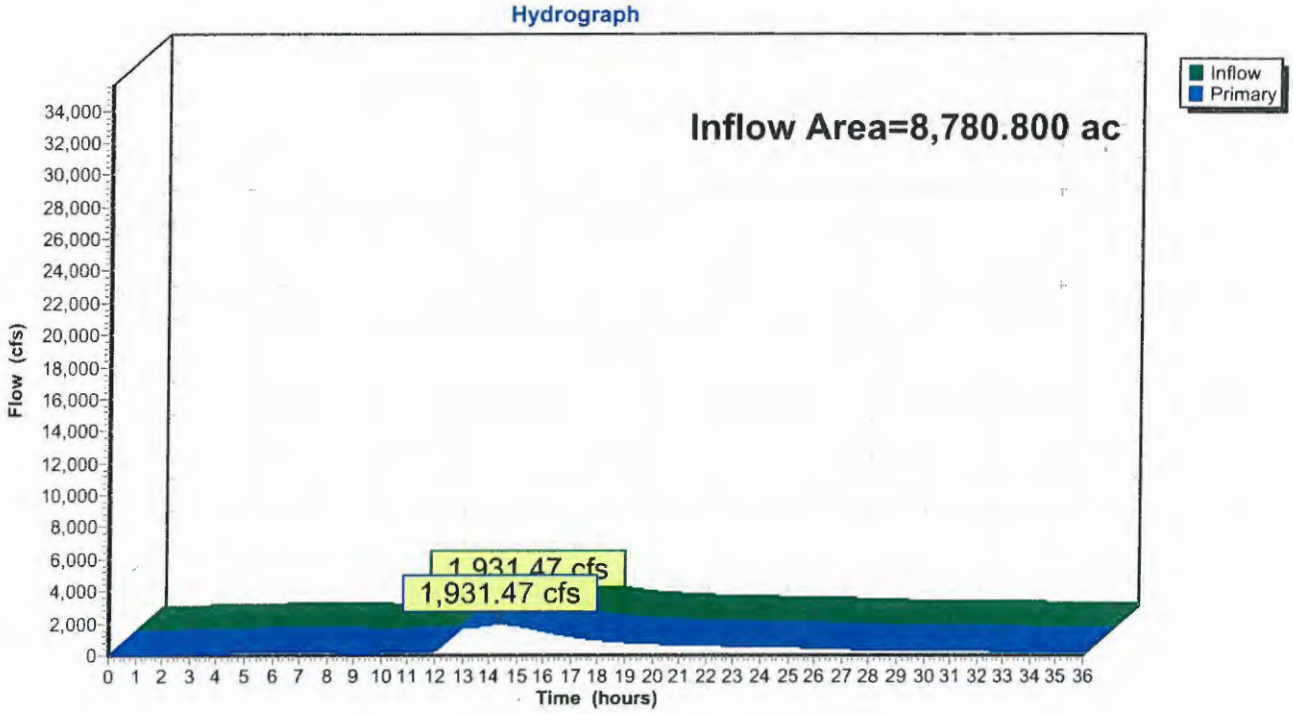


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.12" for 100 year-FEMA event
Inflow = 1,931.47 cfs @ 14.35 hrs, Volume= 1,554.181 af
Primary = 1,931.47 cfs @ 14.36 hrs, Volume= 1,554.181 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 > 2.05" for 100 year-FEMA event
Inflow = 799.72 cfs @ 15.19 hrs, Volume= 334.873 af
Outflow = 111.02 cfs @ 25.35 hrs, Volume= 183.560 af, Atten= 86%, Lag= 609.5 min
Primary = 111.02 cfs @ 25.35 hrs, Volume= 183.560 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= 1,024.15' @ 25.35 hrs Surf.Area= 96.352 ac Storage= 213.367 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 580.4 min calculated for 183.509 af (55% of inflow)
Center-of-Mass det. time= 403.5 min (1,530.3 - 1,126.7)

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

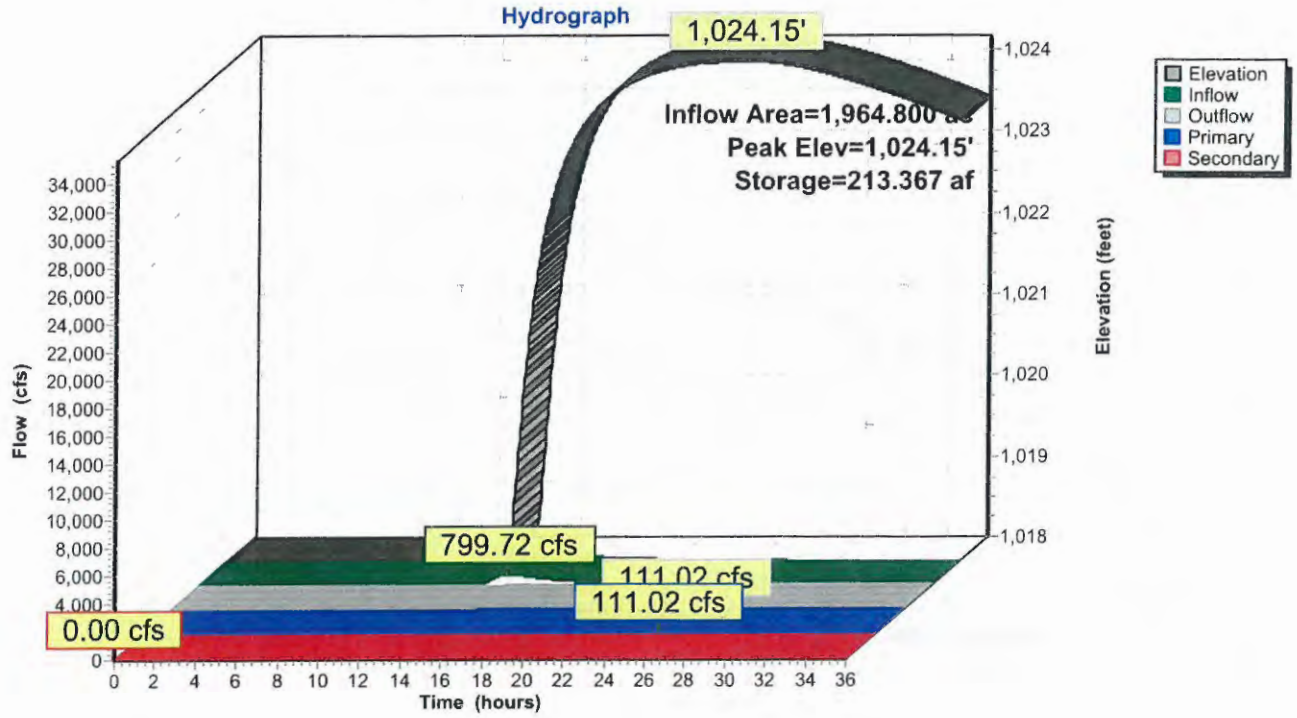
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	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

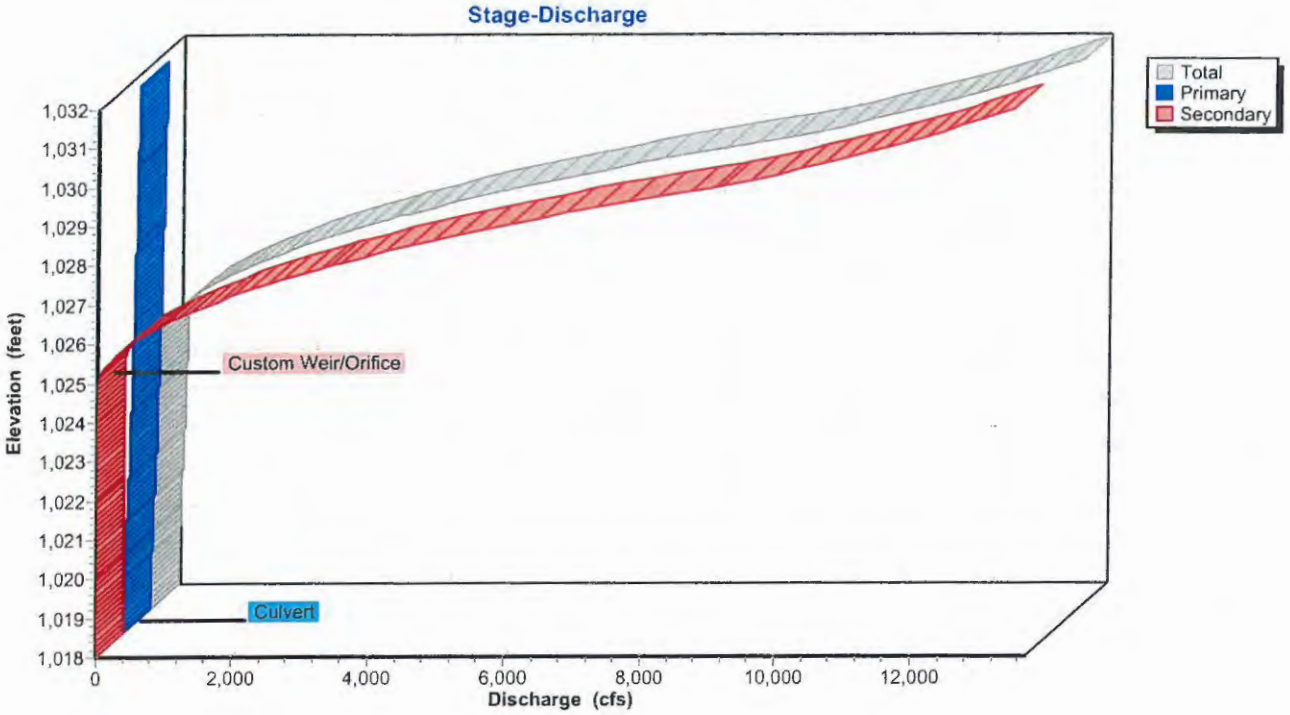
Primary OutFlow Max=111.02 cfs @ 25.35 hrs HW=1,024.15' TW=1,020.36' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 111.02 cfs @ 8.83 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,018.00' TW=1,017.50' (Dynamic Tailwater)
↑**2=Custom Weir/Orifice** (Controls 0.00 cfs)

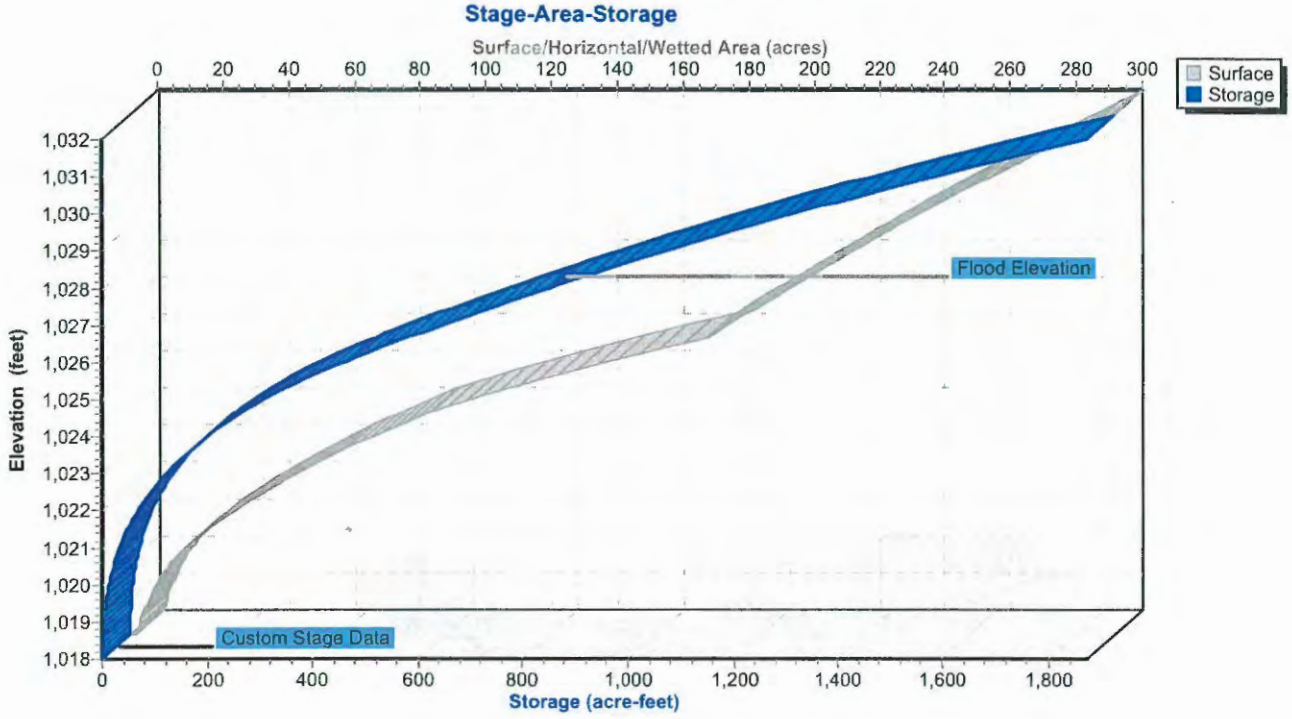
Pond 8P: Storage Area Genoa Rd



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 = 2.63" for 100 year-FEMA event
Inflow = 1,321.67 cfs @ 14.03 hrs, Volume= 430.430 af
Outflow = 799.72 cfs @ 15.19 hrs, Volume= 334.878 af, Atten= 39%, Lag= 69.3 min
Primary = 799.72 cfs @ 15.19 hrs, Volume= 334.878 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= 1,028.85' @ 15.19 hrs Surf.Area= 102.459 ac Storage= 395.946 af (175.946 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= 621.2 min calculated for 114.878 af (27% of inflow)
Center-of-Mass det. time= 157.3 min (1,126.8 - 969.5)

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

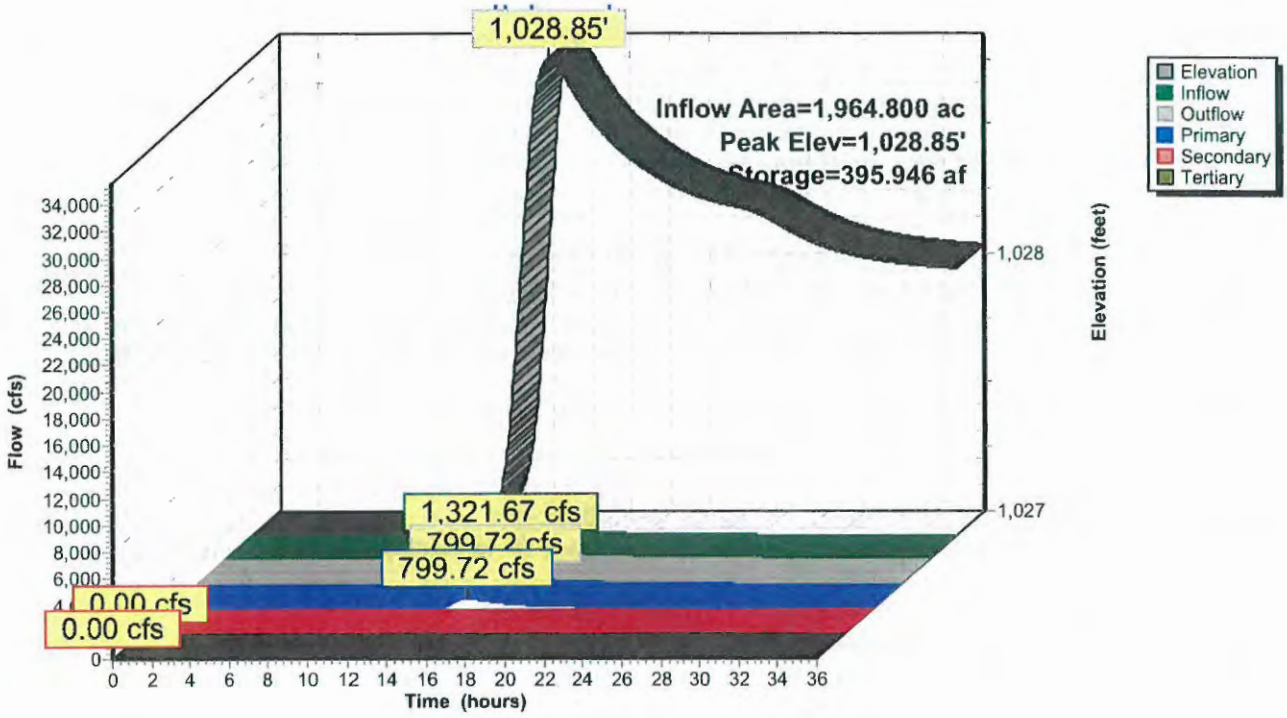
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular 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=799.72 cfs @ 15.19 hrs HW=1,028.85' TW=1,021.66' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 617.47 cfs @ 2.43 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 182.24 cfs @ 1.59 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)

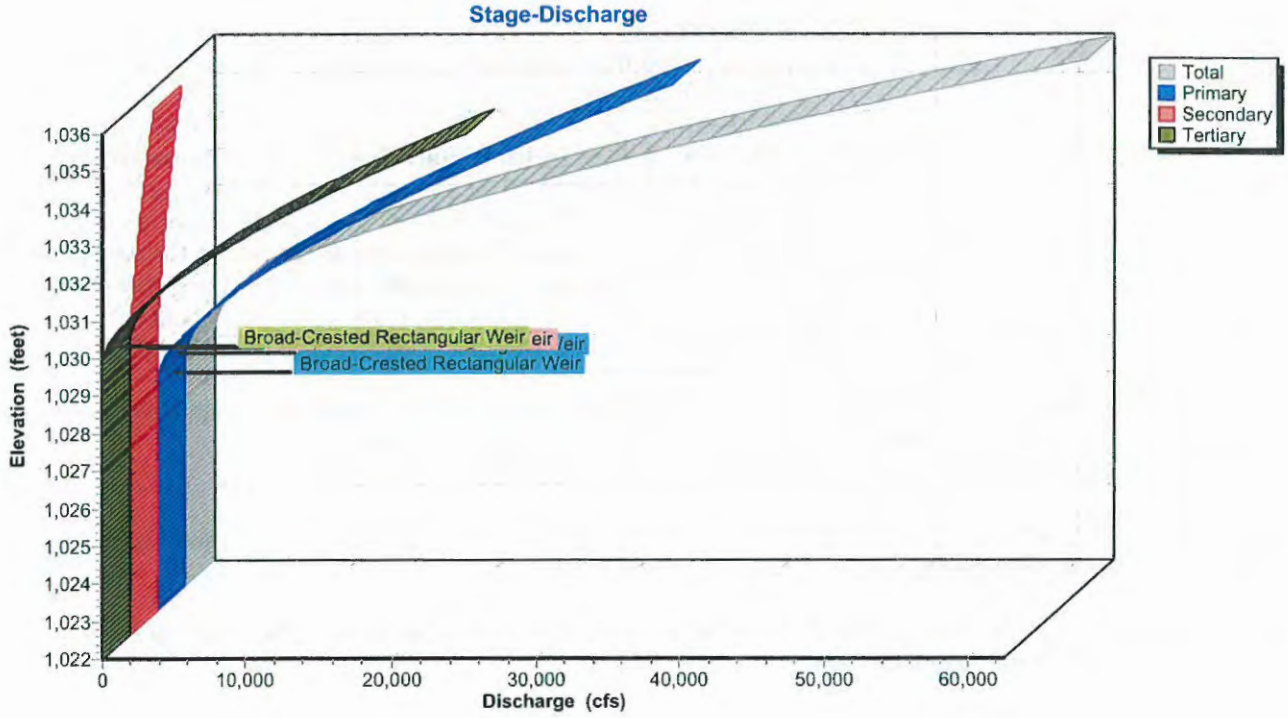
Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: Sippo Lake

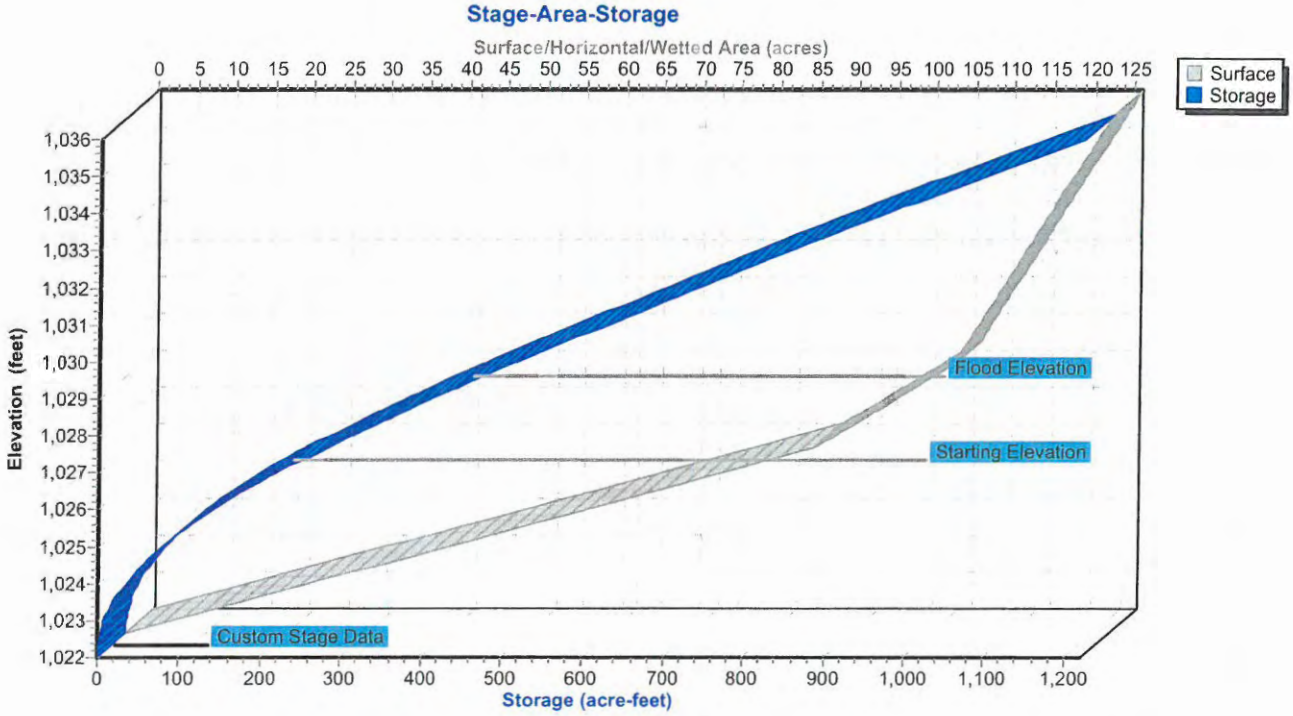


Pond 9P: Sippo Lake

Stage-Discharge



Pond 9P: Sippo Lake

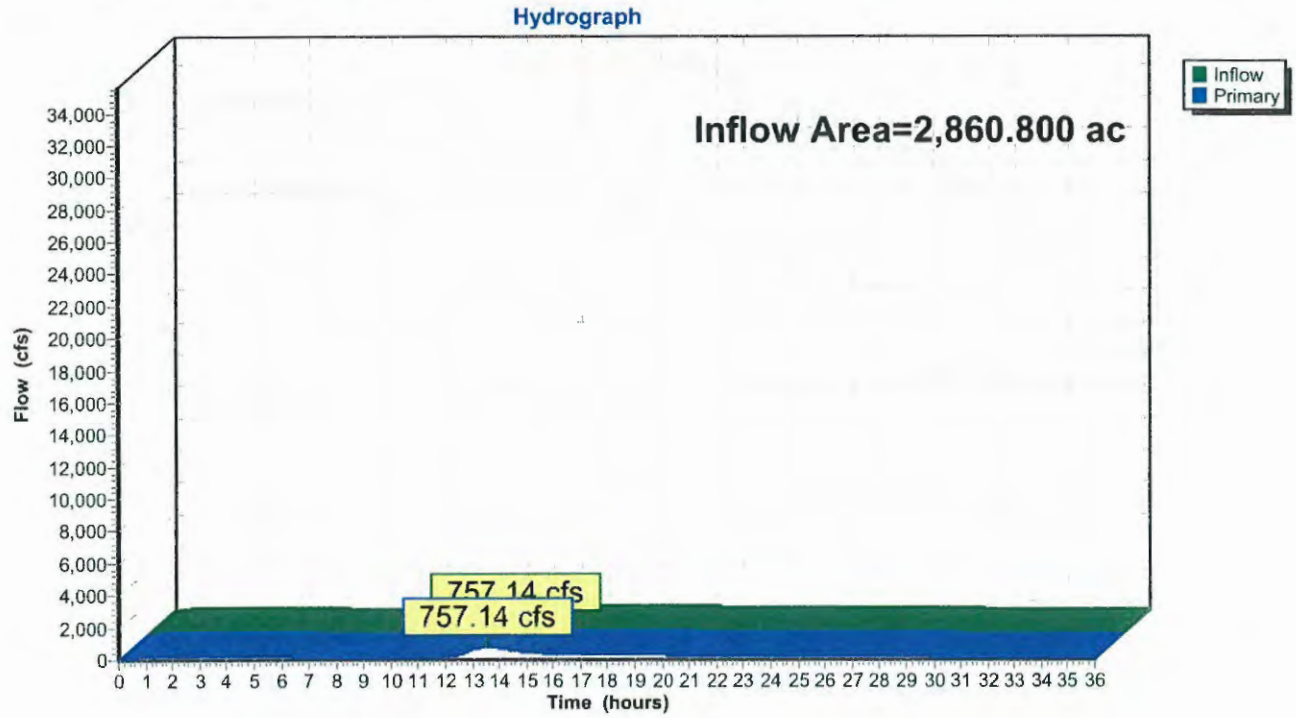


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 2.85" for 100 year-FEMA event
Inflow = 757.14 cfs @ 13.51 hrs, Volume= 680.370 af
Primary = 757.14 cfs @ 13.52 hrs, Volume= 680.370 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 > 2.13" for 100 year-FEMA event
Inflow = 1,974.08 cfs @ 15.08 hrs, Volume= 1,677.797 af
Outflow = 1,937.82 cfs @ 15.54 hrs, Volume= 1,676.997 af, Atten= 2%, Lag= 27.7 min
Primary = 1,937.82 cfs @ 15.54 hrs, Volume= 1,676.997 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= 992.66' @ 15.54 hrs Surf.Area= 6.981 ac Storage= 46.201 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 10.3 min calculated for 1,676.531 af (100% of inflow)
Center-of-Mass det. time= 9.8 min (1,164.7 - 1,154.9)

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

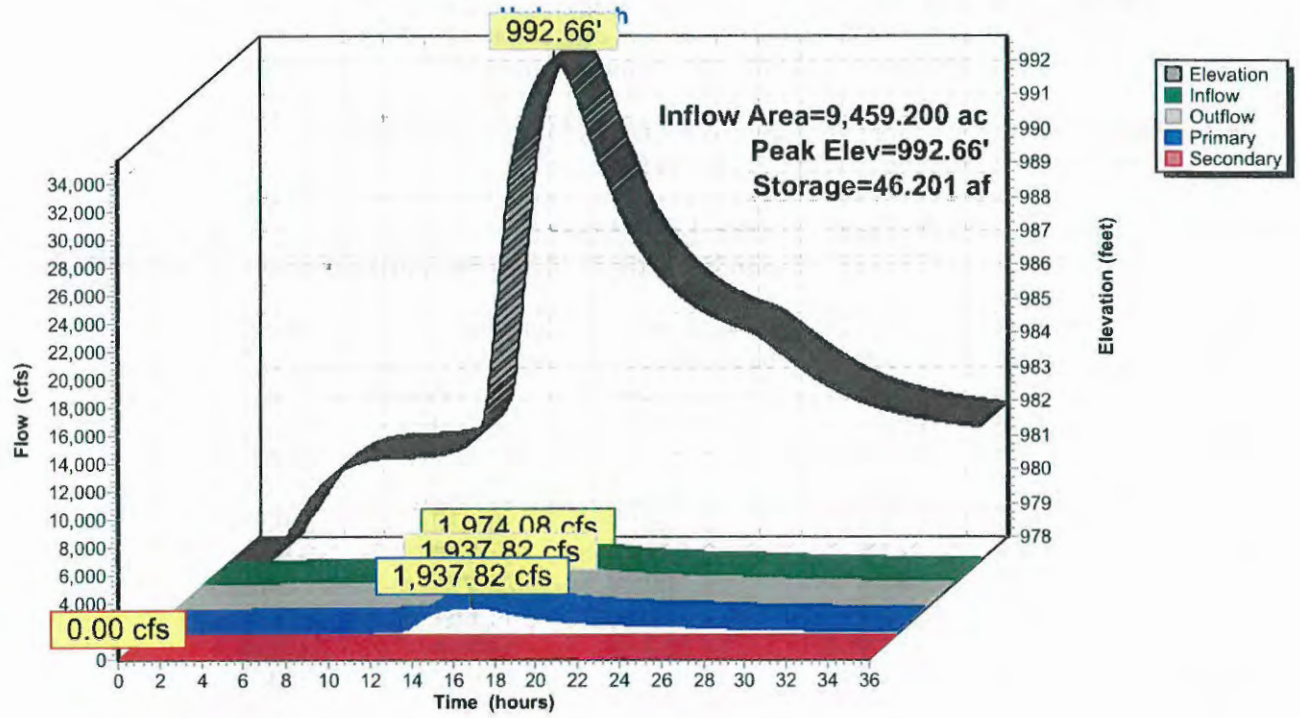
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
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

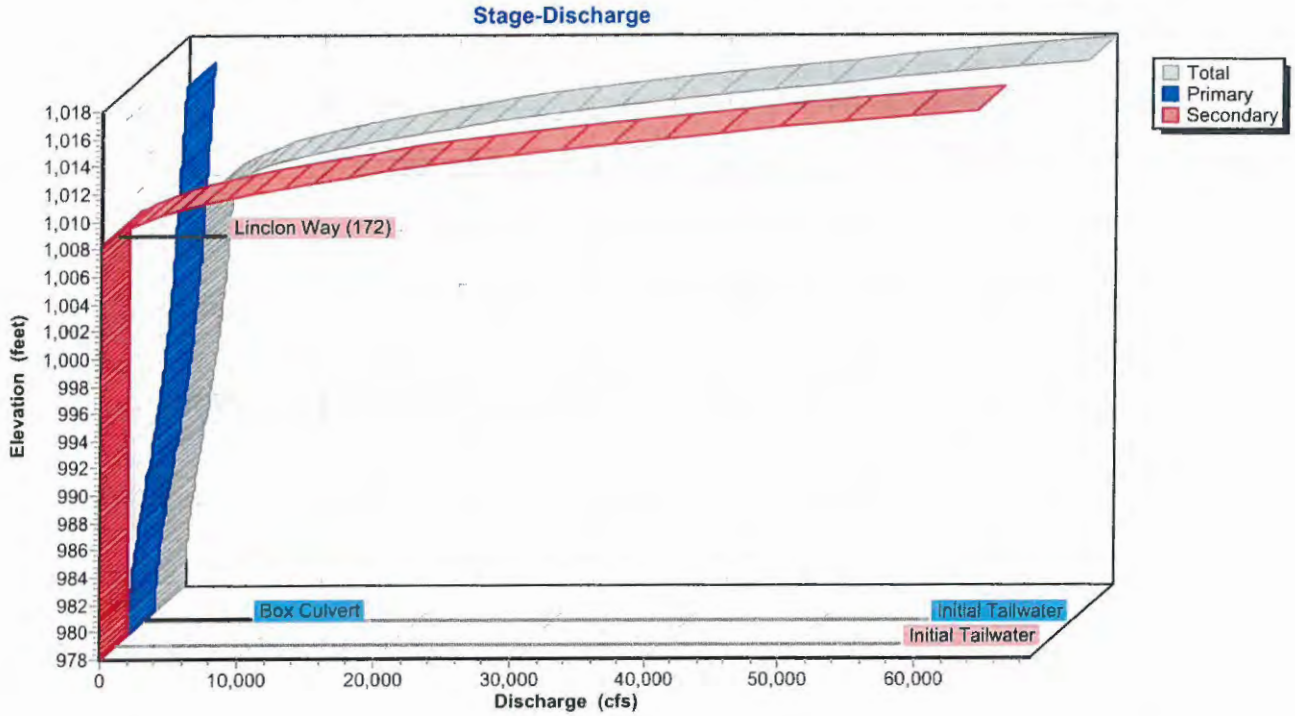
Primary OutFlow Max=1,937.81 cfs @ 15.54 hrs HW=992.66' TW=983.29' (Dynamic Tailwater)
└─**1=Box Culvert** (Barrel Controls 1,937.81 cfs @ 16.95 fps)

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)

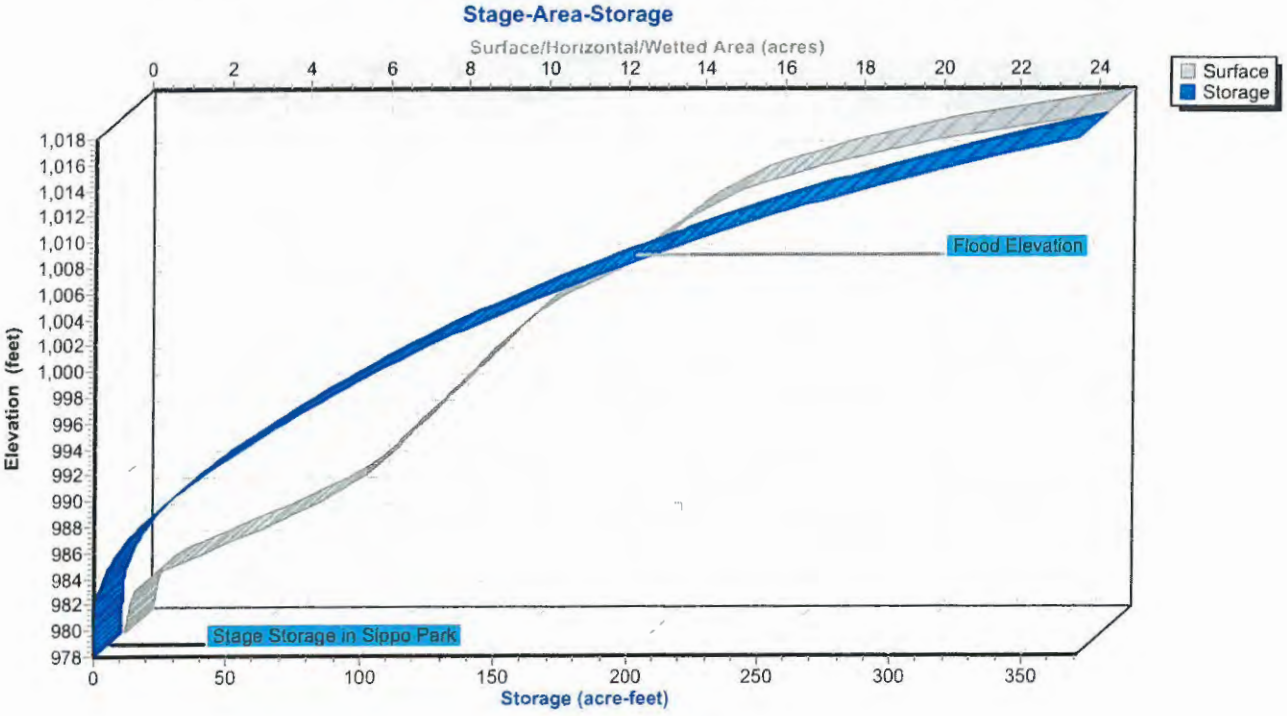
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



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



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

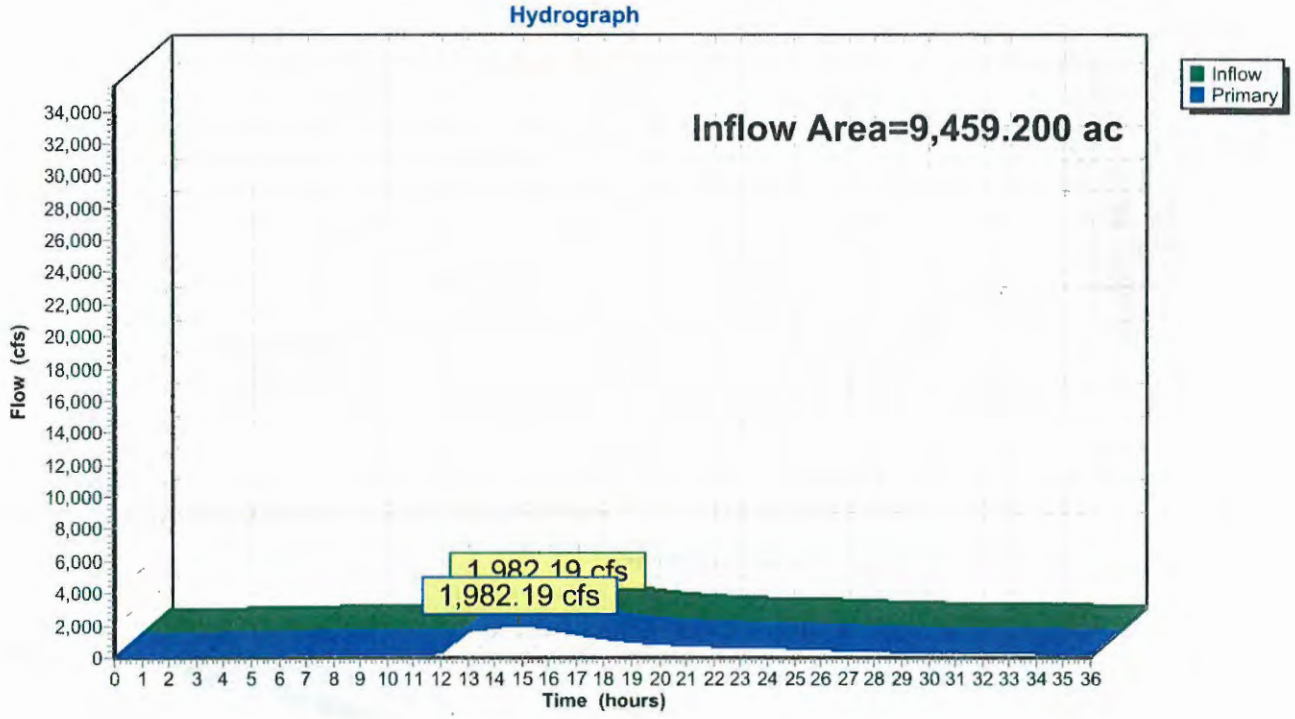


Summary for Pond 19C: Confluence 19

Inflow Area = 9,459.200 ac, 19.70% Impervious, Inflow Depth > 2.14" for 100 year-FEMA event
Inflow = 1,982.19 cfs @ 14.86 hrs, Volume= 1,690.015 af
Primary = 1,982.19 cfs @ 14.87 hrs, Volume= 1,690.015 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=3.25"
Tc=44.0 min CN=74 Runoff=249.04 cfs 31.222 af

Subcatchment HYD 2: Lake O'Springs Runoff Area=268.800 ac 38.00% Impervious Runoff Depth=3.35"
Tc=65.0 min CN=75 Runoff=451.97 cfs 75.047 af

Subcatchment HYD 3: Lake Cable Runoff Area=1,401.600 ac 25.00% Impervious Runoff Depth=2.87"
Tc=226.0 min CN=70 Runoff=764.41 cfs 335.076 af

Subcatchment HYD 4: Hyd 4 Watershed Runoff Area=1,075.200 ac 20.00% Impervious Runoff Depth=2.68"
Tc=128.0 min CN=68 Runoff=843.60 cfs 240.344 af

Subcatchment HYD11: HYD11 Watershed Runoff Area=774.400 ac 0.00% Impervious Runoff Depth=2.59"
Tc=129.0 min CN=67 Runoff=583.45 cfs 167.178 af

Subcatchment HYD12: HYD12 Watershed Runoff Area=723.200 ac 0.00% Impervious Runoff Depth=3.25"
Tc=110.0 min CN=74 Runoff=794.22 cfs 196.004 af

Subcatchment HYD13: HYD13 Watershed Runoff Area=736.000 ac 38.00% Impervious Runoff Depth=3.35"
Tc=72.0 min CN=75 Runoff=1,147.16 cfs 205.487 af

Subcatchment HYD14: HYD14 Watershed Runoff Area=678.400 ac 25.00% Impervious Runoff Depth=3.85"
Tc=78.0 min CN=80 Runoff=1,151.57 cfs 217.852 af

Subcatchment HYD6: HYD6 Watershed Runoff Area=1,068.800 ac 0.00% Impervious Runoff Depth=2.78"
Tc=155.0 min CN=69 Runoff=756.16 cfs 247.174 af

Subcatchment HYD8: Sippo Lake Runoff Area=1,964.800 ac 38.00% Impervious Runoff Depth=3.35"
Tc=156.0 min CN=75 Runoff=1,695.56 cfs 548.560 af

Subcatchment HYD9: HYD9 Watershed Runoff Area=652.800 ac 0.00% Impervious Runoff Depth=2.59"
Tc=151.0 min CN=67 Runoff=435.70 cfs 140.927 af

Reach 5R: Channel 5 Avg. Flow Depth=2.62' Max Vel=5.51 fps Inflow=246.72 cfs 563.254 af
L=8,800.0' S=0.0240 '/' Capacity=106,015.62 cfs Outflow=246.55 cfs 557.100 af

Reach 7R: Channel 7 Avg. Flow Depth=7.91' Max Vel=3.10 fps Inflow=976.47 cfs 797.195 af
L=5,900.0' S=0.0017 '/' Capacity=195,473.52 cfs Outflow=892.11 cfs 787.015 af

Reach 10Ra: Channel 10 (Reach Avg. Flow Depth=3.05' Max Vel=2.56 fps Inflow=125.92 cfs 212.745 af
L=900.0' S=0.0028 '/' Capacity=36,685.79 cfs Outflow=125.92 cfs 211.885 af

Reach 15R: Channel 15 Avg. Flow Depth=8.21' Max Vel=2.10 fps Inflow=2,625.57 cfs 1,553.384 af
L=8,800.0' S=0.0010 '/' Capacity=189,892.92 cfs Outflow=2,019.70 cfs 1,513.312 af

Reach 16R: Channel 16 Avg. Flow Depth=9.88' Max Vel=2.44 fps Inflow=2,567.85 cfs 1,914.335 af
L=7,500.0' S=0.0010 '/' Capacity=42,389.29 cfs Outflow=2,454.79 cfs 1,872.029 af

Reach 18R: Sippo Creek Avg. Flow Depth=5.65' Max Vel=9.45 fps Inflow=2,509.12 cfs 2,074.811 af
L=450.0' S=0.0084 '/' Capacity=200,707.82 cfs Outflow=2,509.11 cfs 2,074.686 af

Pond 1C: CONF 1 Combined O'Springs and Eric Inflow=507.38 cfs 105.601 af
Primary=507.38 cfs 105.601 af

Pond 1P: Sippo Creek Reservoir Peak Elev=1,006.86' Storage=120.616 af Inflow=2,650.69 cfs 2,089.394 af
979.97 cfs 1,854.317 af Secondary=663.74 cfs 222.021 af Tertiary=0.00 cfs 0.000 af Outflow=2,643.72 cfs 2,076.338 af

Pond 2C: CONF 2 Combined Cable and O'Springs Inflow=895.39 cfs 437.273 af
Primary=895.39 cfs 437.273 af

Pond 3P: Lake Cable Peak Elev=1,097.56' Storage=1,949.614 af Inflow=895.39 cfs 437.267 af
Primary=246.72 cfs 563.376 af Secondary=0.00 cfs 0.000 af Outflow=246.72 cfs 563.376 af

Pond 4C: Confluence 4 Inflow=1,647.36 cfs 1,034.062 af
Primary=1,647.36 cfs 1,034.062 af

Pond 4P: Lake O'Springs Peak Elev=1,107.61' Storage=69.079 af Inflow=507.38 cfs 105.600 af
Primary=132.66 cfs 102.204 af Secondary=0.00 cfs 0.000 af Outflow=132.66 cfs 102.204 af

Pond 5C: Confluence 5 Inflow=2,188.06 cfs 1,201.113 af
Primary=2,188.06 cfs 1,201.113 af

Pond 5P: Lake Eric (Slagle) Peak Elev=1,120.00' Storage=27.505 af Inflow=249.04 cfs 31.222 af
Primary=70.89 cfs 30.554 af Secondary=0.09 cfs 0.000 af Outflow=70.98 cfs 30.554 af

Pond 6C: Confluence 6 Inflow=439.02 cfs 352.717 af
Primary=439.02 cfs 352.717 af

Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake Inflow=2,625.57 cfs 1,553.607 af
Primary=2,625.57 cfs 1,553.607 af

Pond 8C: Confluence 8 Inflow=2,567.85 cfs 1,914.569 af
Primary=2,567.85 cfs 1,914.569 af

Pond 8P: Storage Area Genoa Rd Peak Elev=1,025.01' Storage=311.088 af Inflow=1,208.68 cfs 452.817 af
Primary=125.34 cfs 212.762 af Secondary=0.59 cfs 0.079 af Outflow=125.92 cfs 212.841 af

Pond 9P: Sippo Lake Peak Elev=1,029.05' Storage=416.635 af Inflow=1,695.56 cfs 548.560 af
mary=1,208.68 cfs 452.822 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1,208.68 cfs 452.822 af

Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed Inflow=976.47 cfs 797.319 af
Primary=976.47 cfs 797.319 af

Pond 16P: Lincoln Way Box Peak Elev=997.51' Storage=83.995 af Inflow=2,643.72 cfs 2,076.092 af
Primary=2,509.12 cfs 2,075.058 af Secondary=0.00 cfs 0.000 af Outflow=2,509.12 cfs 2,075.058 af

Pond 19C: Confluence 19 Inflow=2,650.69 cfs 2,089.638 af
Primary=2,650.69 cfs 2,089.638 af

Total Runoff Area = 9,459.200 ac Runoff Volume = 2,404.869 af Average Runoff Depth = 3.05
80.30% Pervious = 7,595.712 ac 19.70% Impervious = 1,863.488 ac

Summary for Subcatchment HYD 1: Lake Eric Drainage Area

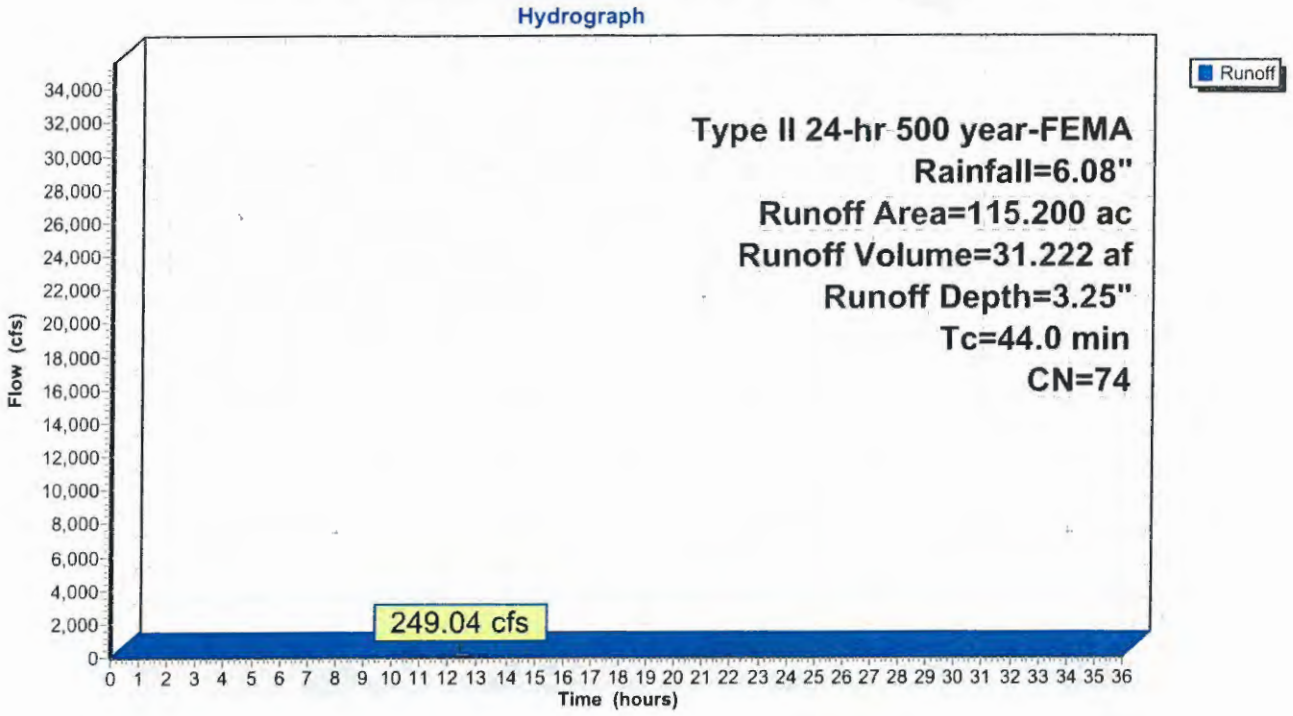
Runoff = 249.04 cfs @ 12.42 hrs, Volume= 31.222 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

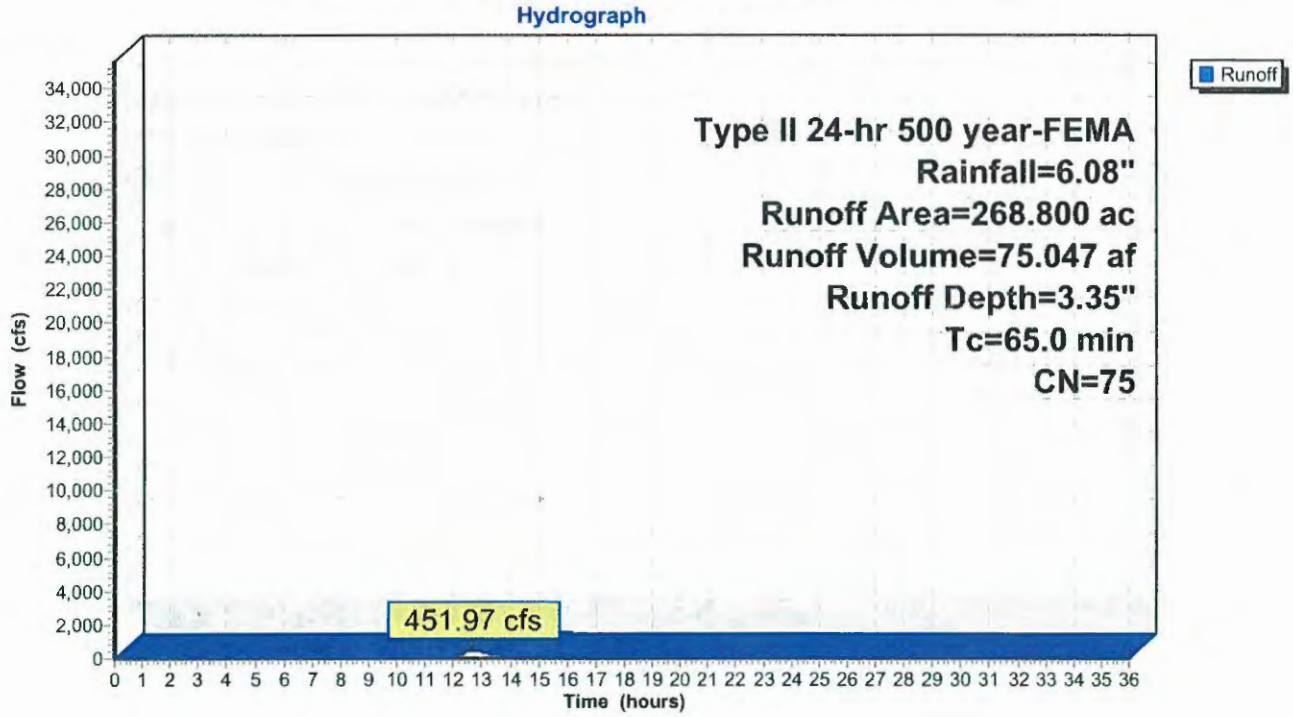
Runoff = 451.97 cfs @ 12.70 hrs, Volume= 75.047 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

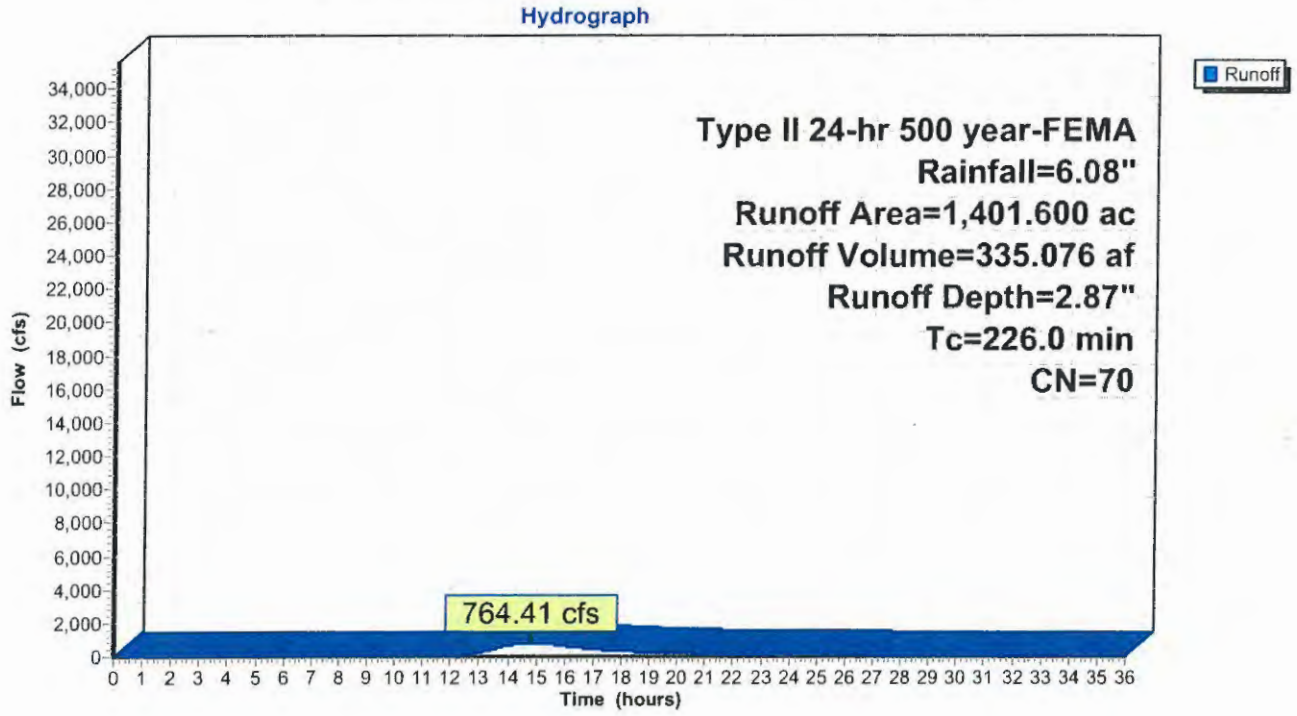
Runoff = 764.41 cfs @ 14.82 hrs, Volume= 335.076 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

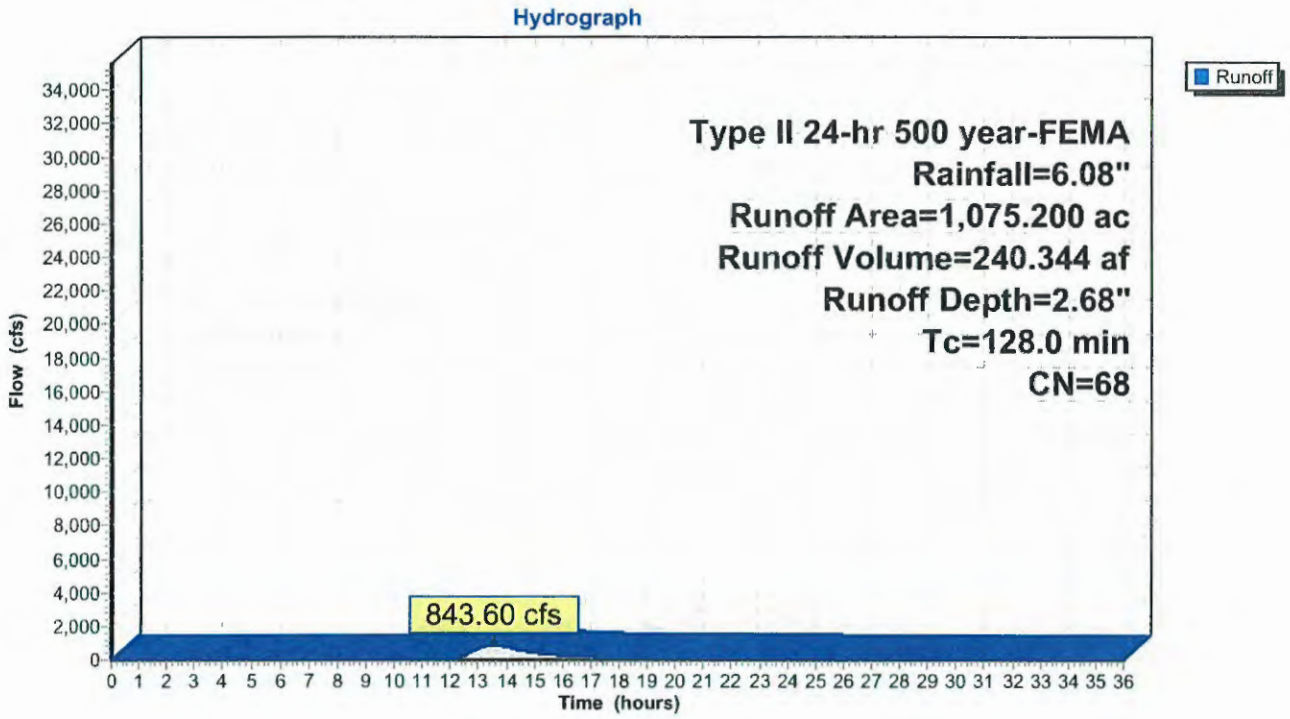
Runoff = 843.60 cfs @ 13.51 hrs, Volume= 240.344 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

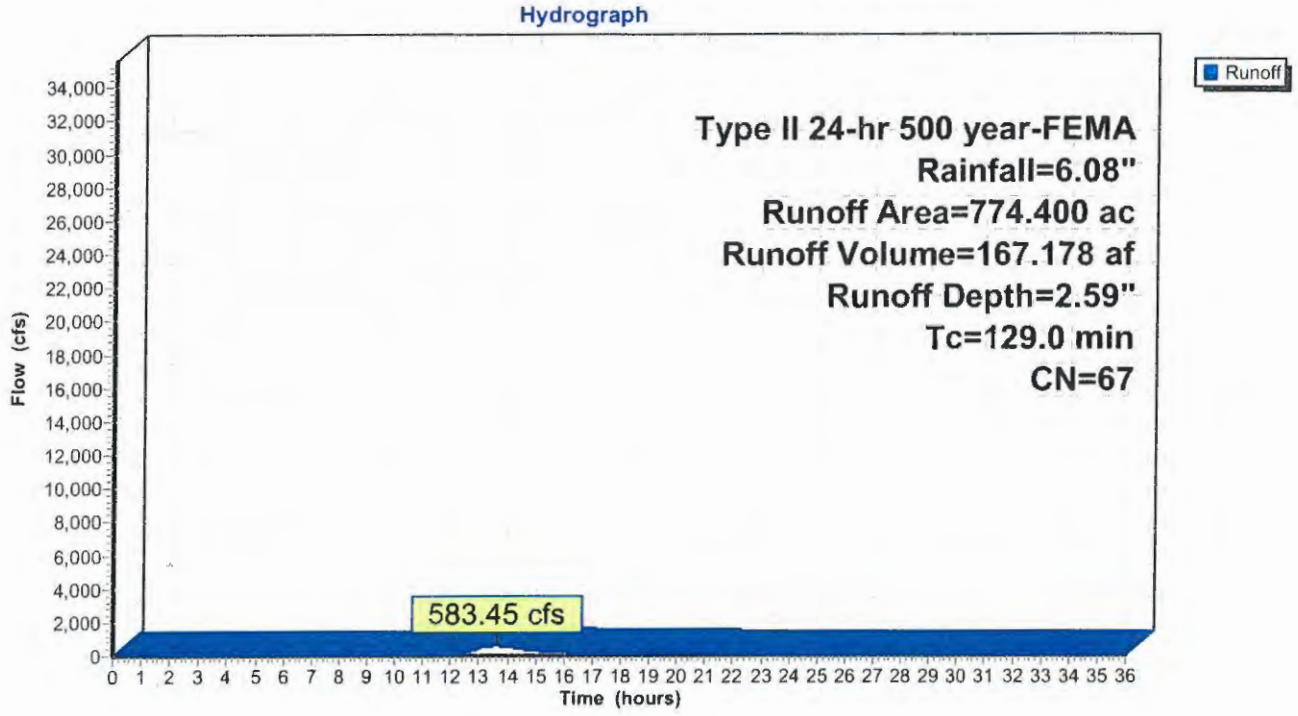
Runoff = 583.45 cfs @ 13.62 hrs, Volume= 167.178 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

	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

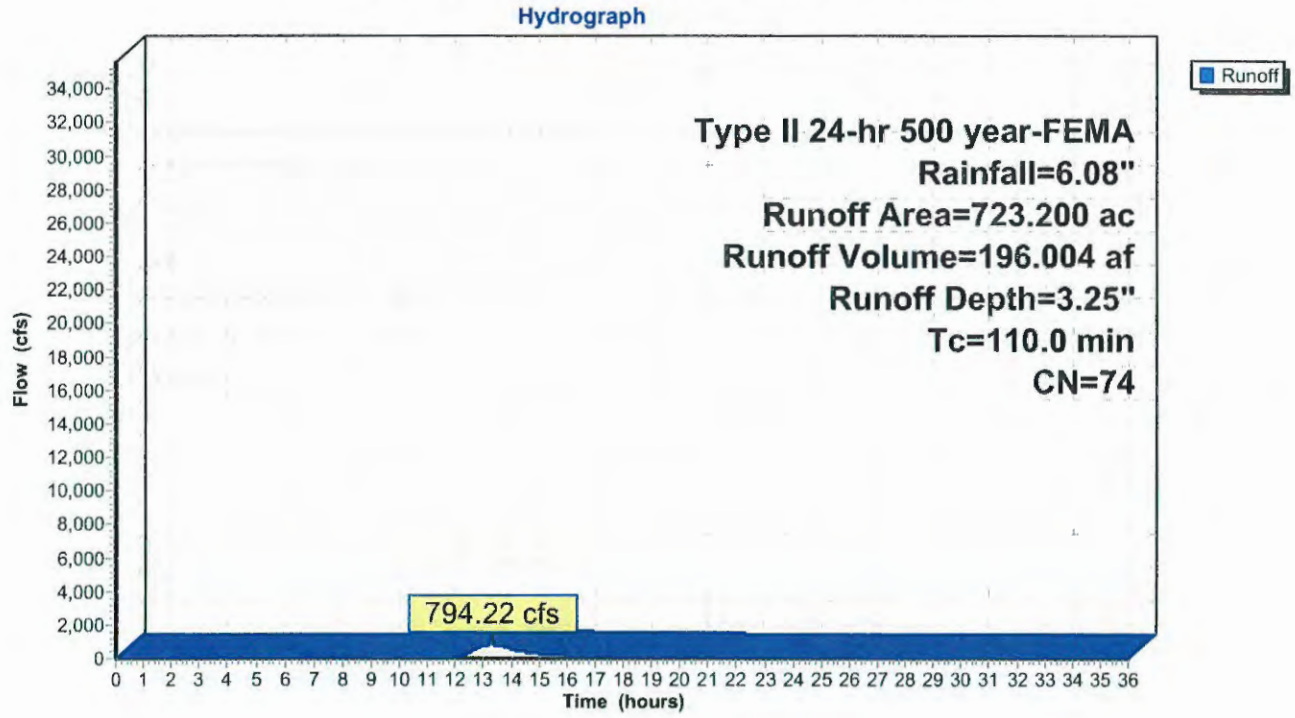
Runoff = 794.22 cfs @ 13.32 hrs, Volume= 196.004 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

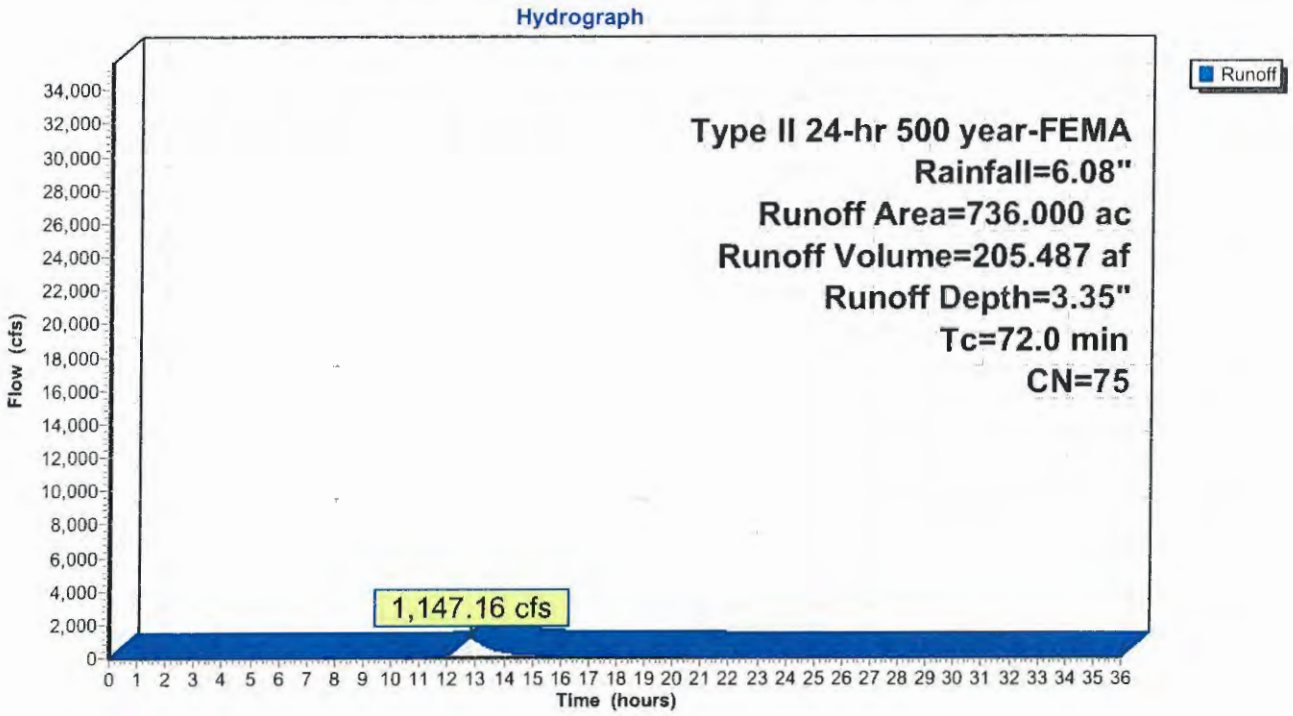
Runoff = 1,147.16 cfs @ 12.80 hrs, Volume= 205.487 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

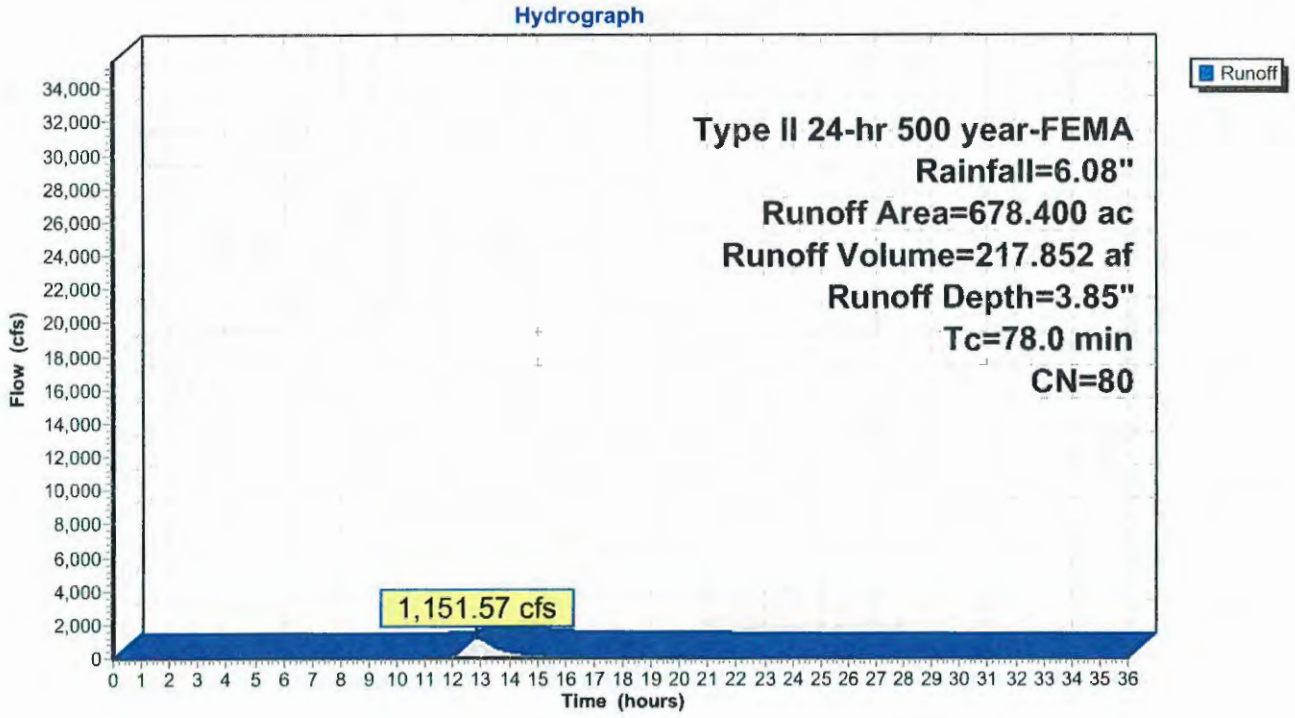
Runoff = 1,151.57 cfs @ 12.83 hrs, Volume= 217.852 af, Depth= 3.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

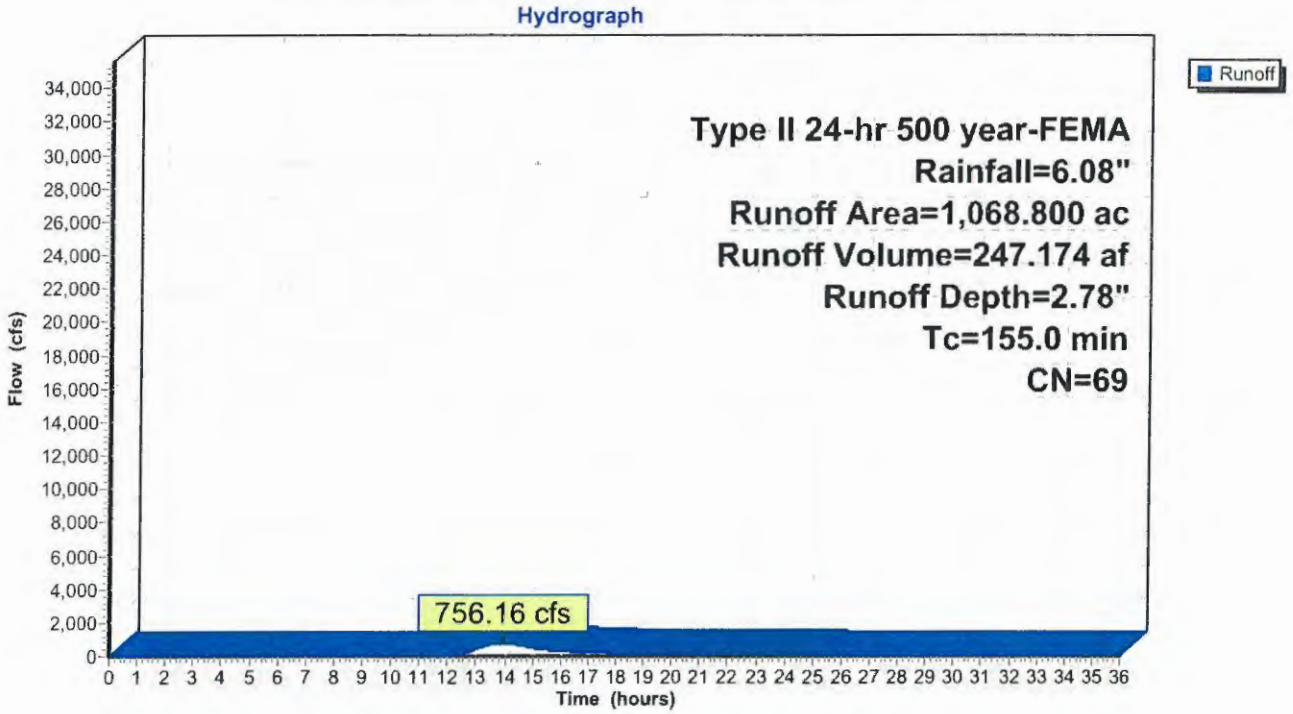
Runoff = 756.16 cfs @ 13.95 hrs, Volume= 247.174 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

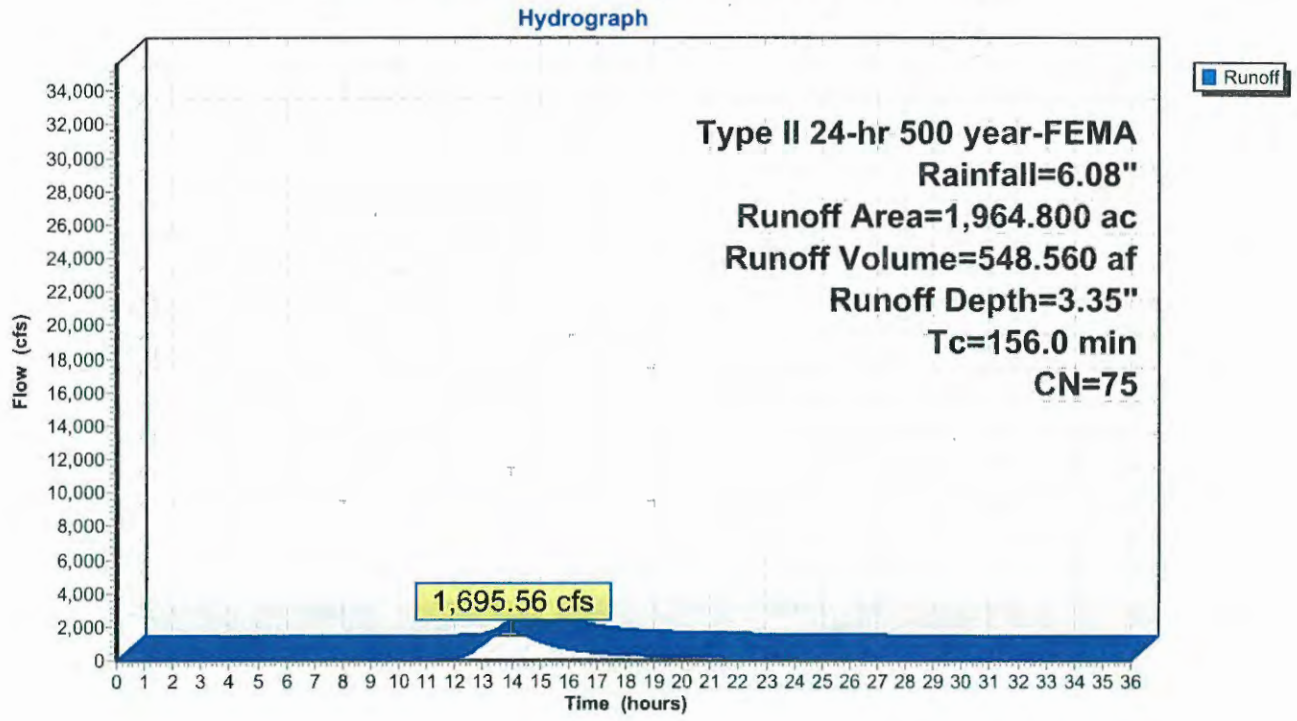
Runoff = 1,695.56 cfs @ 14.03 hrs, Volume= 548.560 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

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

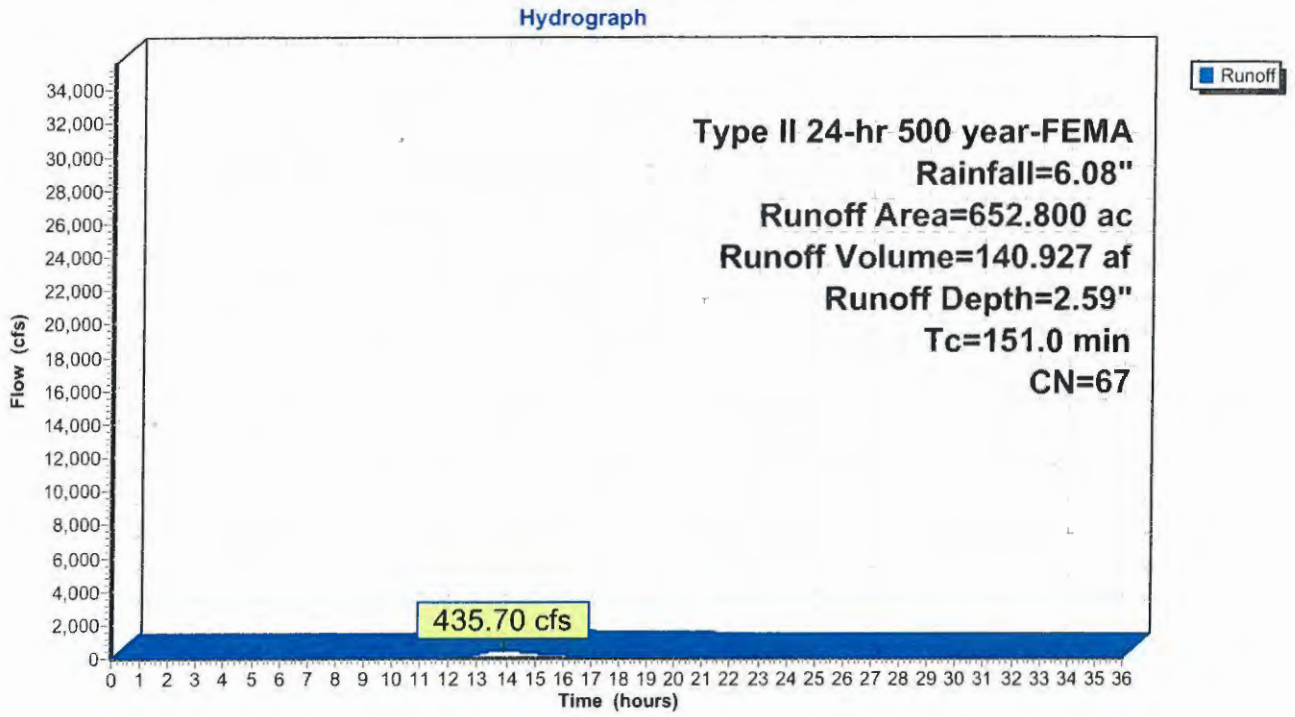
Runoff = 435.70 cfs @ 13.92 hrs, Volume= 140.927 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type II 24-hr 500 year-FEMA Rainfall=6.08"

	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



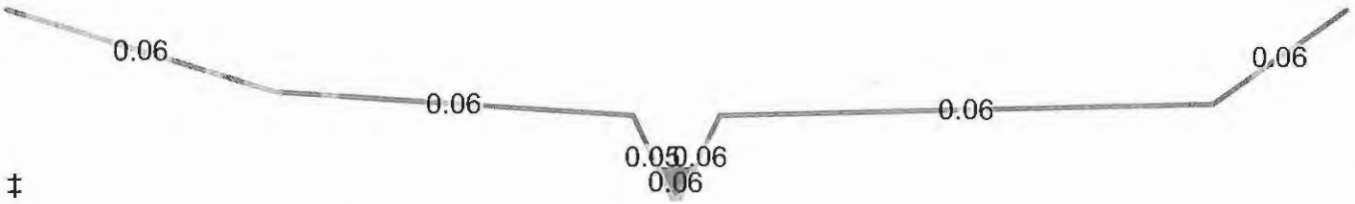
Summary for Reach 5R: Channel 5

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 3.79" for 500 year-FEMA event
Inflow = 246.72 cfs @ 19.93 hrs, Volume= 563.254 af
Outflow = 246.55 cfs @ 20.28 hrs, Volume= 557.100 af, Atten= 0%, Lag= 21.2 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.51 fps, Min. Travel Time= 26.6 min
Avg. Velocity = 5.09 fps, Avg. Travel Time= 28.8 min

Peak Storage= 394,326 cf @ 20.28 hrs
Average Depth at Peak Storage= 2.62'
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'

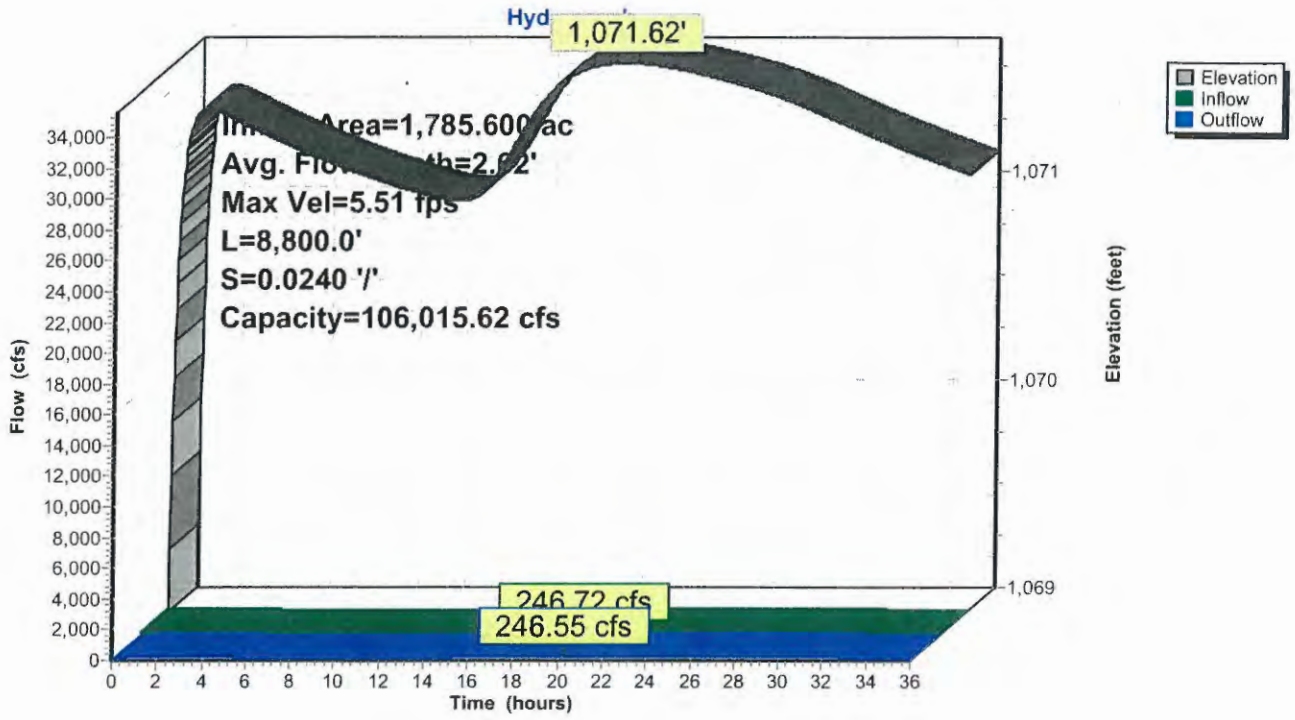


‡

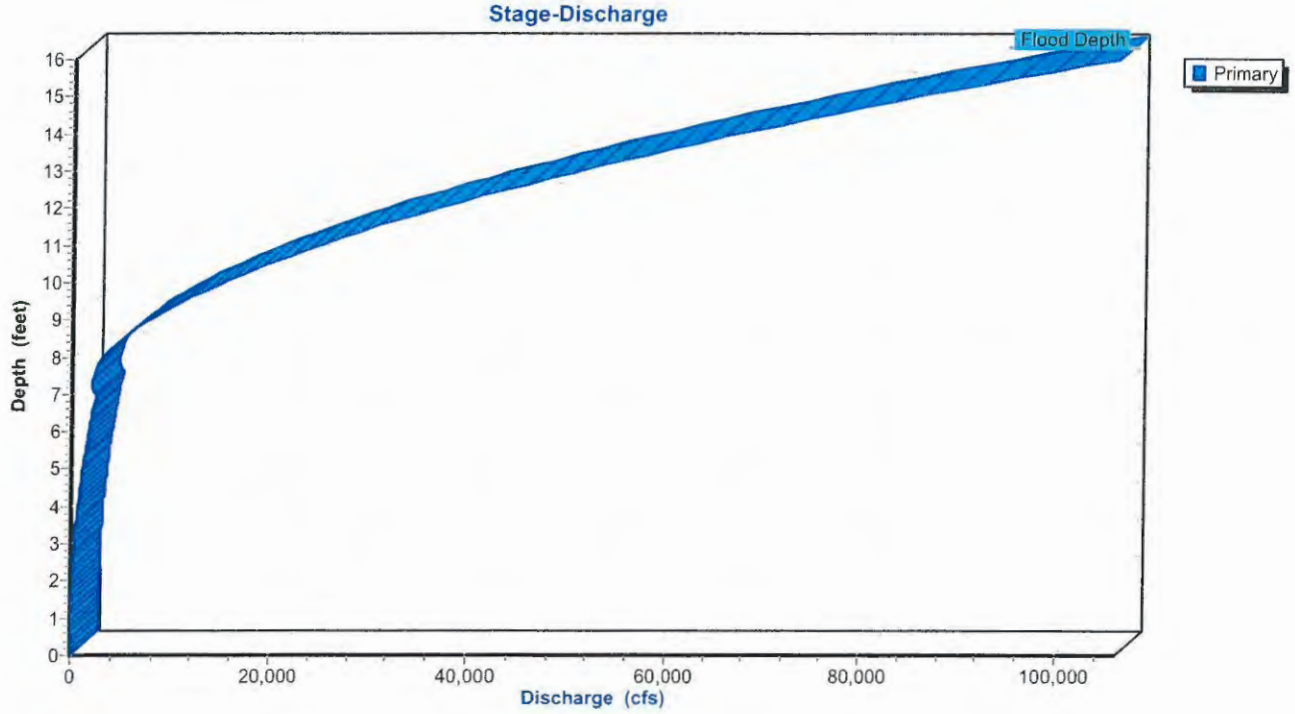
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,085.00	0.00		
200.00	1,078.00	7.00	0.060	
465.00	1,076.00	9.00	0.060	
494.00	1,069.00	16.00	0.050	
500.00	1,069.00	16.00	0.060	
530.00	1,076.00	9.00	0.060	
900.00	1,077.00	8.00	0.060	
1,000.00	1,085.00	0.00	0.060	

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

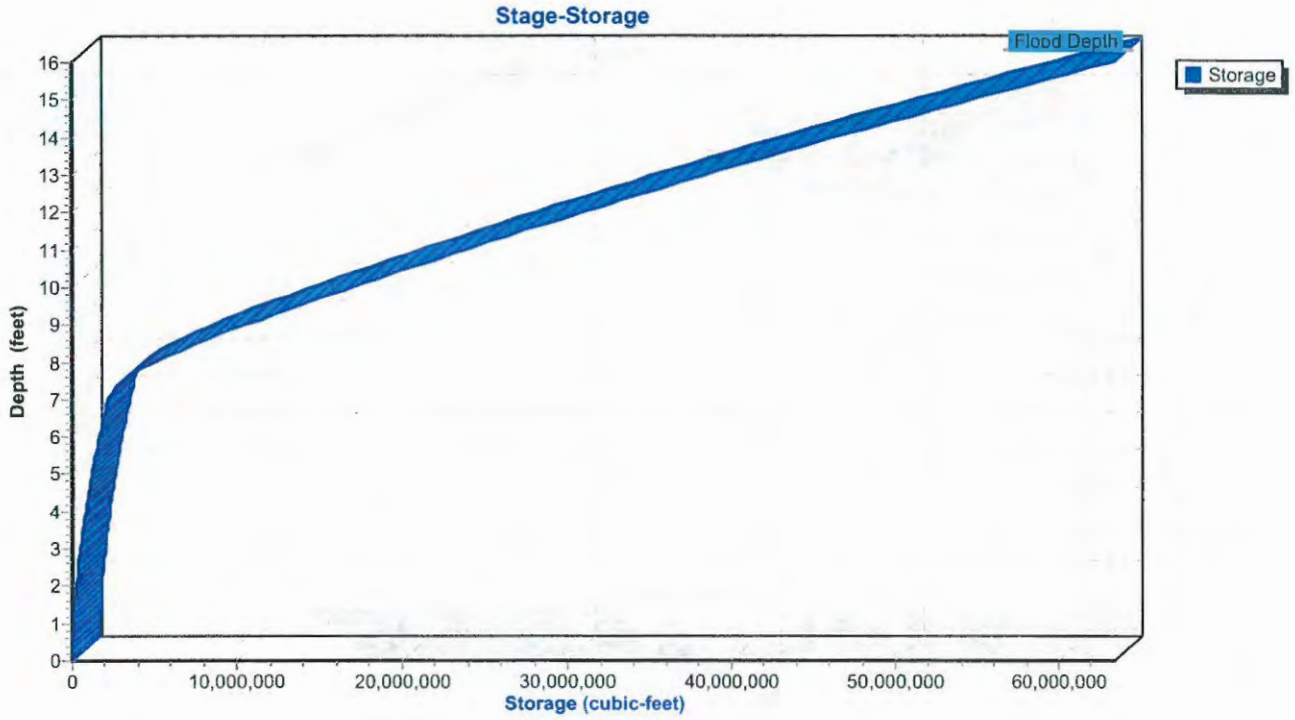
Reach 5R: Channel 5



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 > 3.34" for 500 year-FEMA event
Inflow = 976.47 cfs @ 13.52 hrs, Volume= 797.195 af
Outflow = 892.11 cfs @ 13.99 hrs, Volume= 787.015 af, Atten= 9%, Lag= 28.3 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.10 fps, Min. Travel Time= 31.7 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 43.9 min

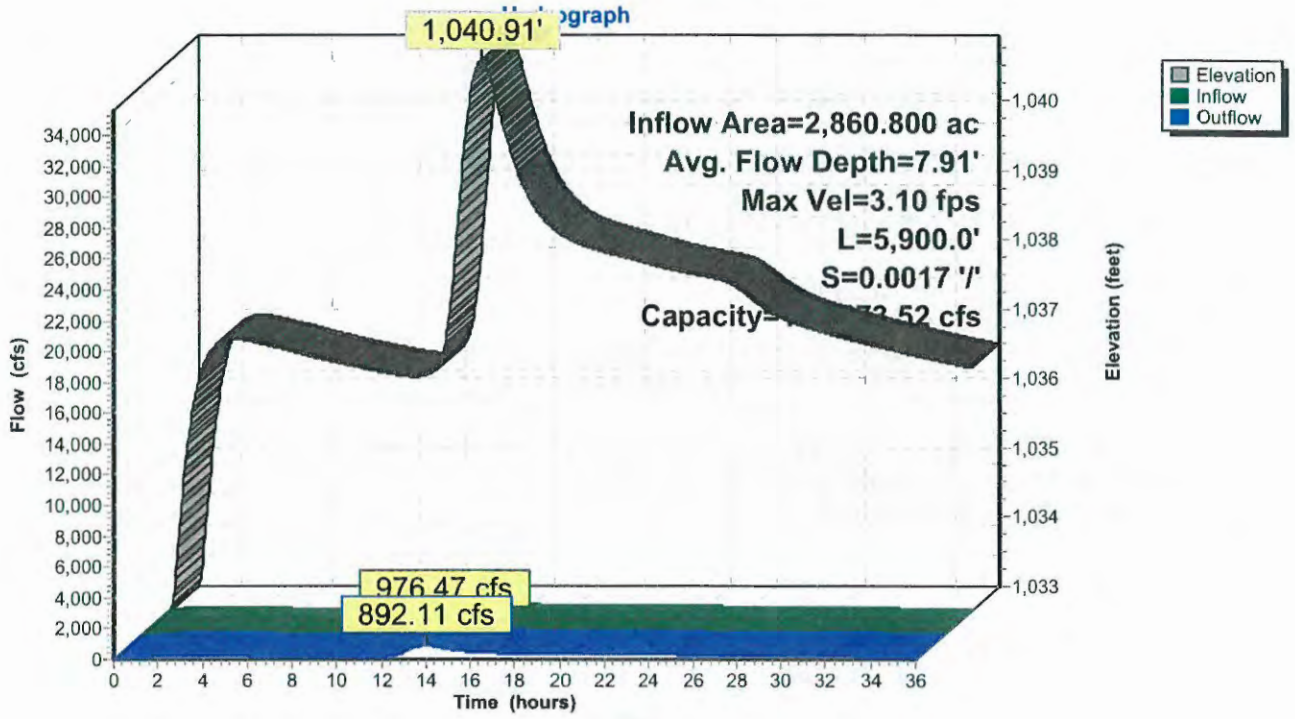
Peak Storage= 1,697,472 cf @ 13.99 hrs
Average Depth at Peak Storage= 7.91'
Defined Flood Depth= 47.00', Capacity at Flood Depth= 195,473.52 cfs
Bank-Full Depth= 47.00', Capacity at Bank-Full= 195,473.52 cfs

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'

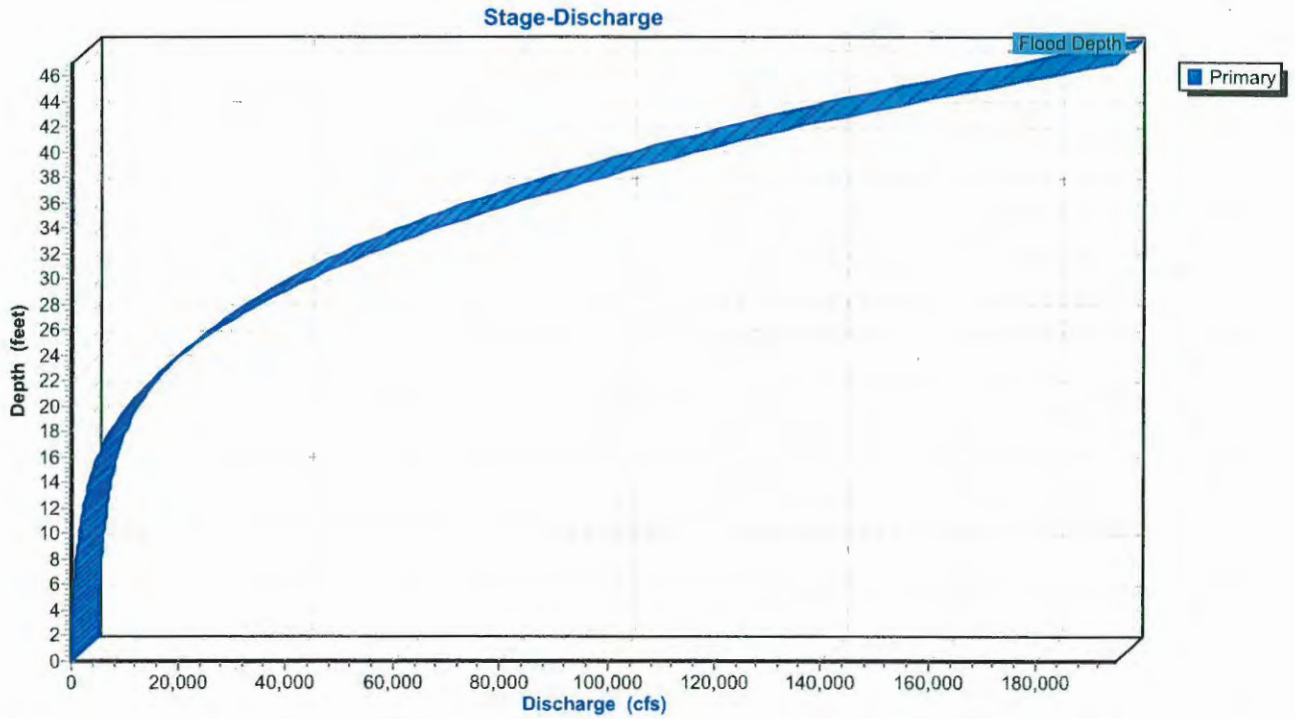
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,080.00	0.00		
100.00	1,065.00	15.00	0.060	
350.00	1,052.00	28.00	0.060	
460.00	1,045.00	35.00	0.060	
490.00	1,033.00	47.00	0.050	
500.00	1,033.00	47.00	0.050	
550.00	1,045.00	35.00	0.060	
700.00	1,052.00	28.00	0.060	
1,000.00	1,075.00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

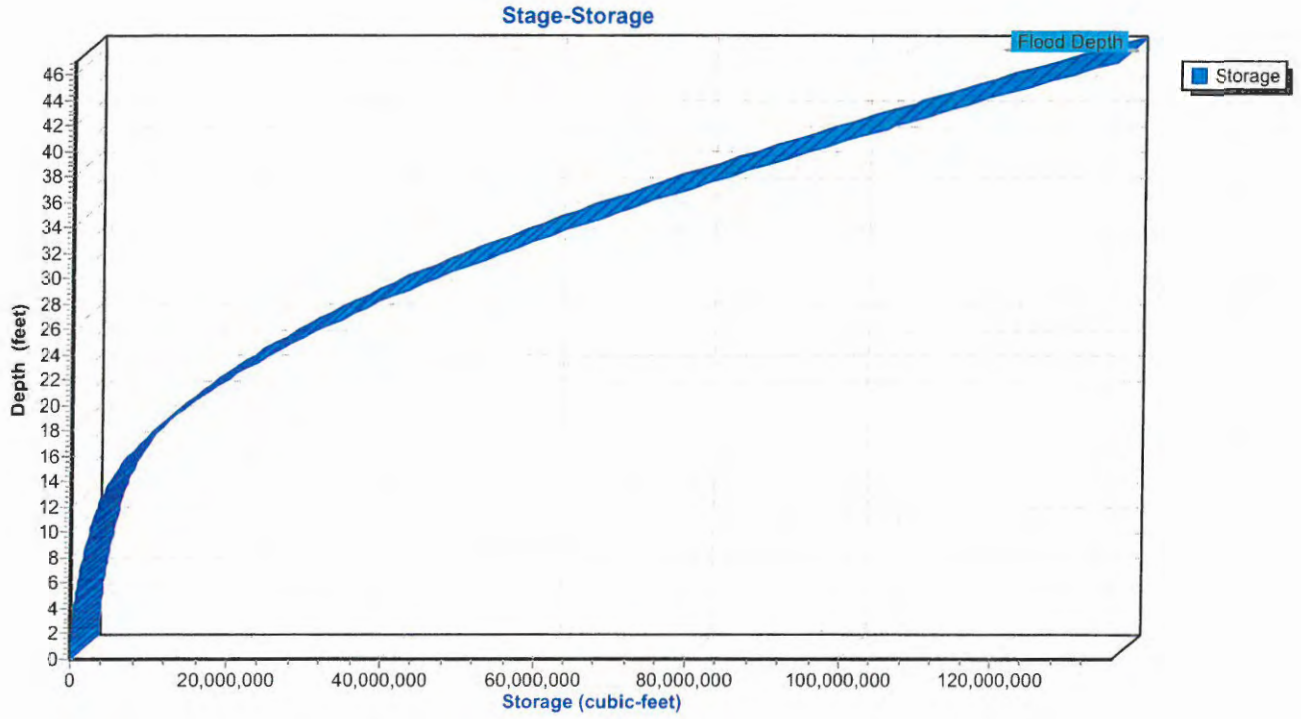
Reach 7R: Channel 7



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 > 1.30" for 500 year-FEMA event
Inflow = 125.92 cfs @ 25.70 hrs, Volume= 212.745 af
Outflow = 125.92 cfs @ 25.77 hrs, Volume= 211.885 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= 2.56 fps, Min. Travel Time= 5.9 min
Avg. Velocity = 2.45 fps, Avg. Travel Time= 6.1 min

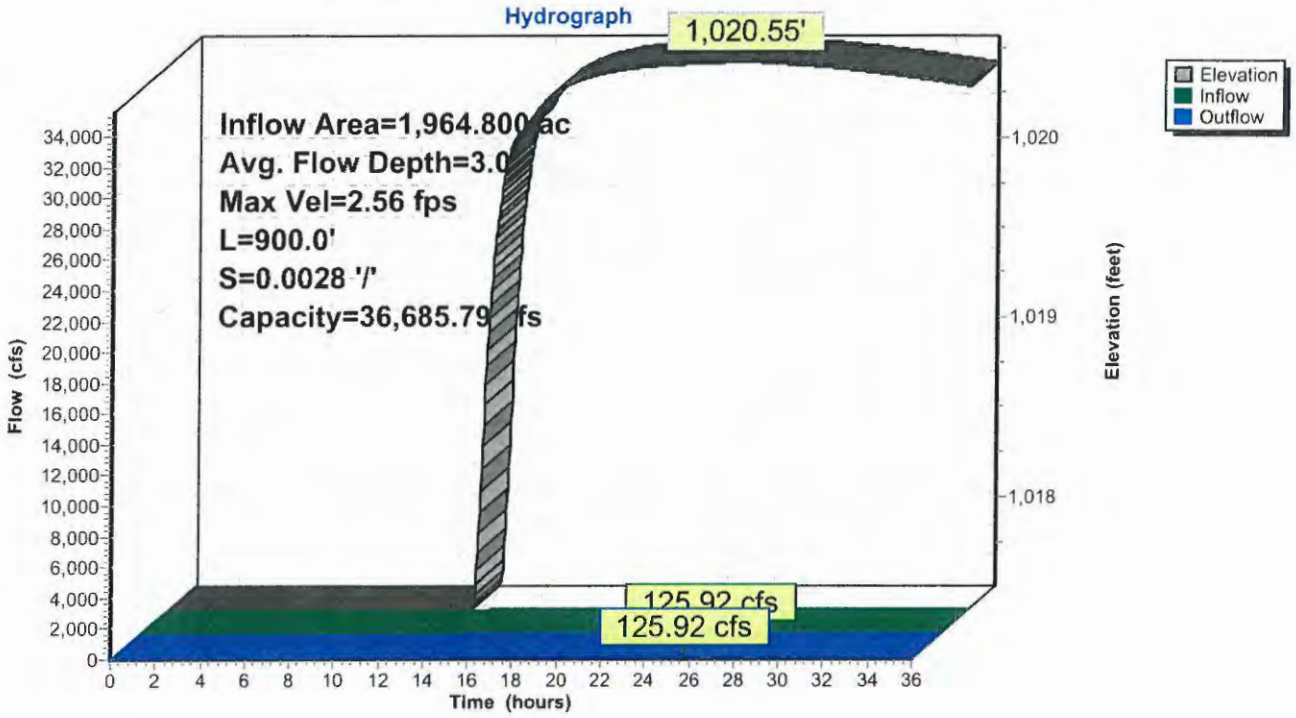
Peak Storage= 44,274 cf @ 25.77 hrs
Average Depth at Peak Storage= 3.05'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 36,685.79 cfs
Bank-Full Depth= 15.00', Capacity at Bank-Full= 36,685.79 cfs

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'

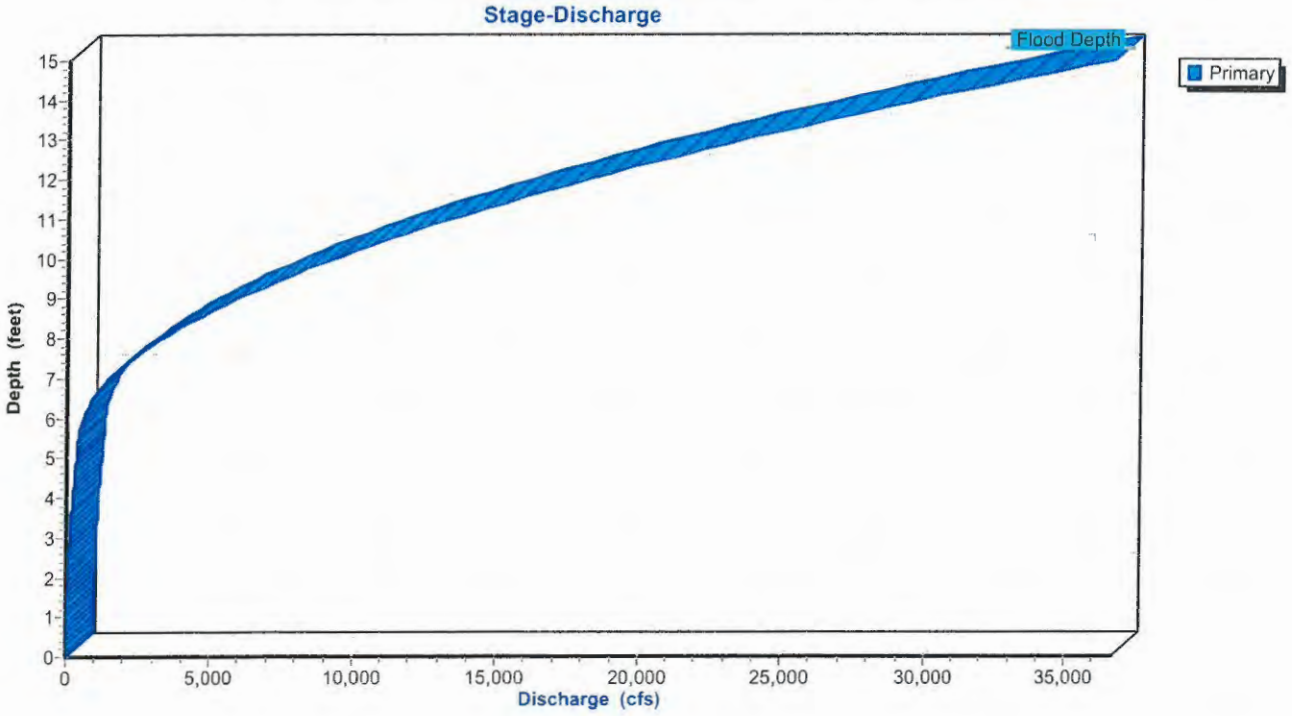
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,032.00	0.00		
190.00	1,024.00	8.00	0.060	
485.00	1,022.00	10.00	0.060	
495.00	1,017.00	15.00	0.050	
505.00	1,017.00	15.00	0.050	
515.00	1,022.00	10.00	0.060	
820.00	1,024.00	8.00	0.060	
900.00	1,027.00	5.00	0.060	
1,000.00	1,032.00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

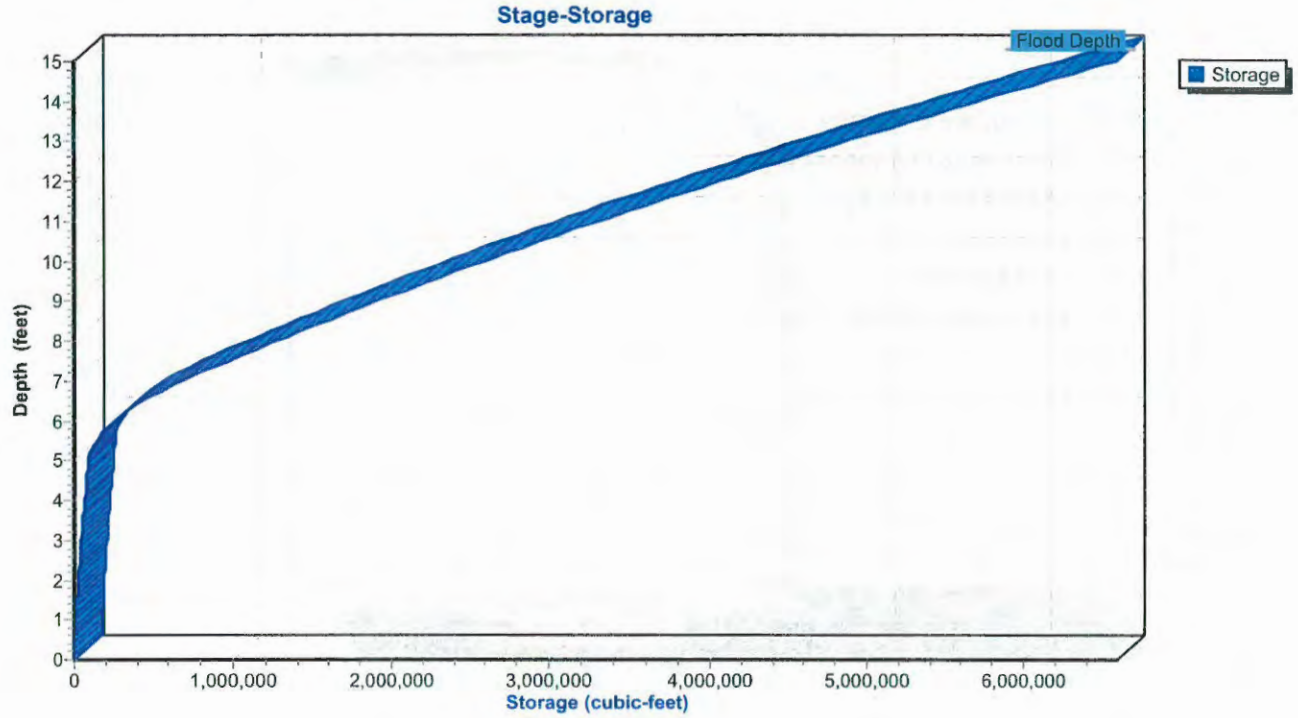
Reach 10Ra: Channel 10 (Reach West of Genoa Rd)



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 > 2.55" for 500 year-FEMA event
Inflow = 2,625.57 cfs @ 13.94 hrs, Volume= 1,553.384 af
Outflow = 2,019.70 cfs @ 14.80 hrs, Volume= 1,513.312 af, Atten= 23%, Lag= 51.8 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.10 fps, Min. Travel Time= 70.0 min
Avg. Velocity = 1.52 fps, Avg. Travel Time= 96.5 min

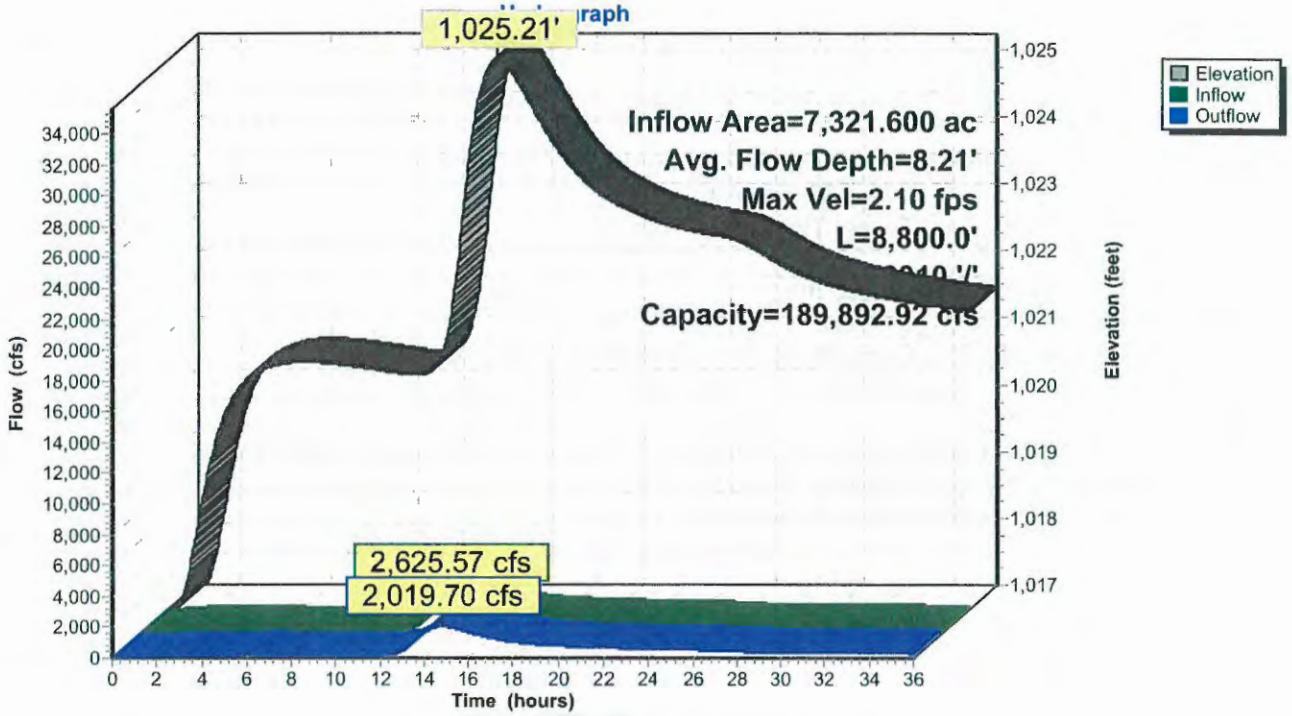
Peak Storage= 8,485,057 cf @ 14.80 hrs
Average Depth at Peak Storage= 8.21'
Defined Flood Depth= 43.00', Capacity at Flood Depth= 189,892.92 cfs
Bank-Full Depth= 43.00', Capacity at Bank-Full= 189,892.92 cfs

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'

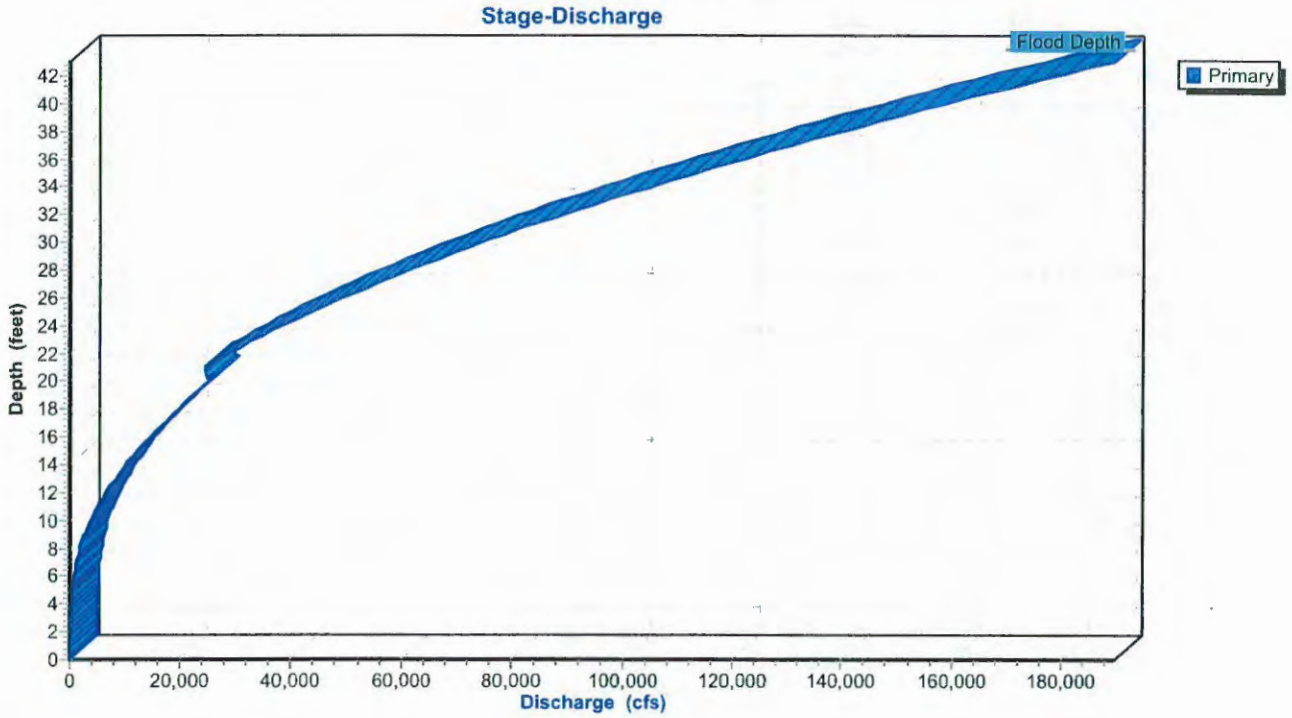
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,060.00	0.00		
300.00	1,026.00	34.00	0.060	
470.00	1,023.00	37.00	0.060	
493.00	1,017.00	43.00	0.050	
507.00	1,017.00	43.00	0.050	
520.00	1,020.00	40.00	0.060	
630.00	1,022.00	38.00	0.060	
750.00	1,037.00	23.00	0.060	
1,000.00	1,038.00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

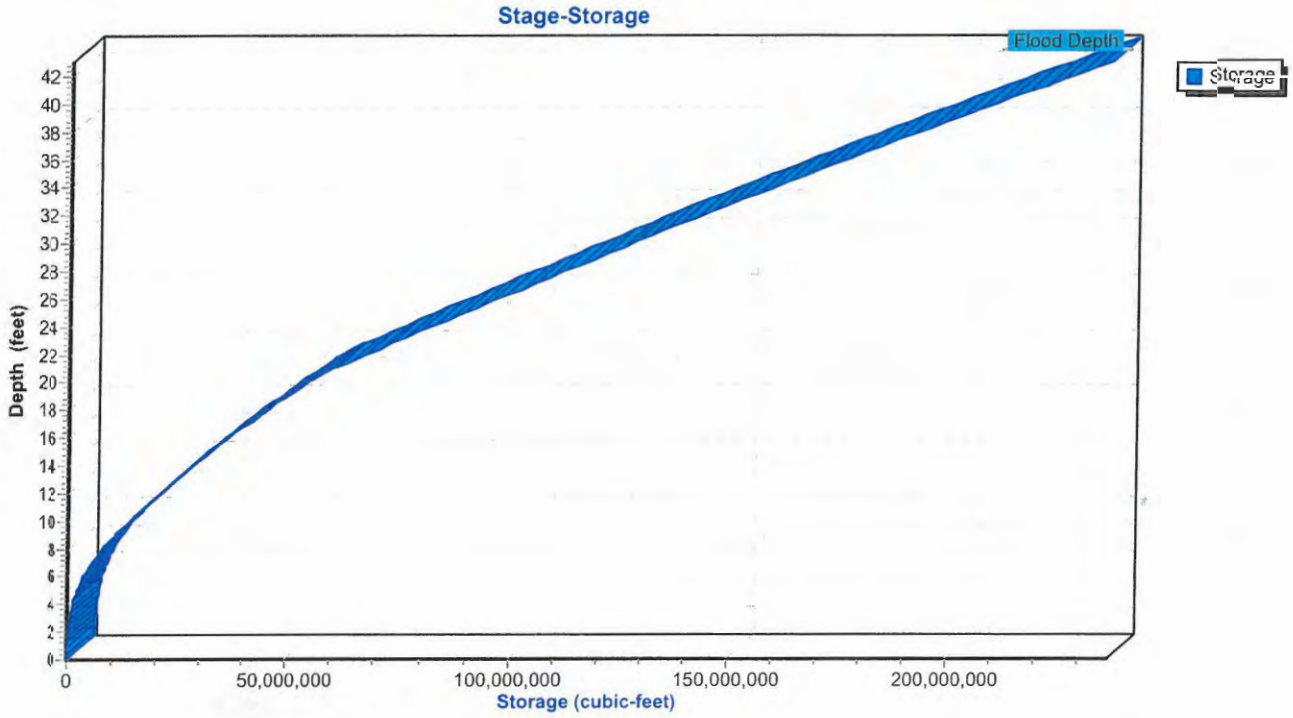
Reach 15R: Channel 15



Reach 15R: Channel 15



Reach 15R: Channel 15



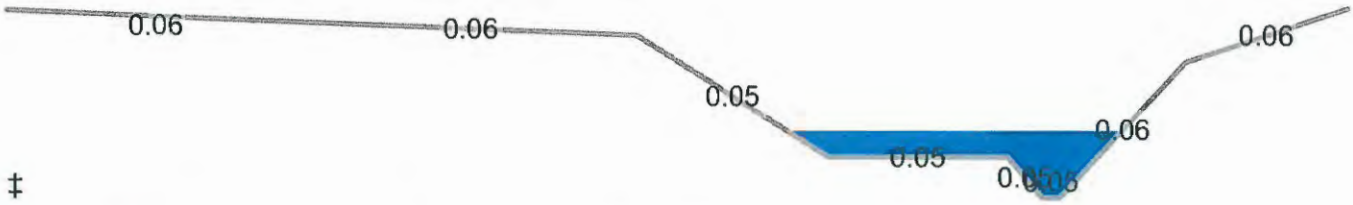
Summary for Reach 16R: Channel 16

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.62" for 500 year-FEMA event
Inflow = 2,567.85 cfs @ 14.38 hrs, Volume= 1,914.335 af
Outflow = 2,454.79 cfs @ 14.95 hrs, Volume= 1,872.029 af, Atten= 4%, Lag= 34.2 min

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.44 fps, Min. Travel Time= 51.2 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 80.5 min

Peak Storage= 7,538,218 cf @ 14.95 hrs
Average Depth at Peak Storage= 9.88'
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

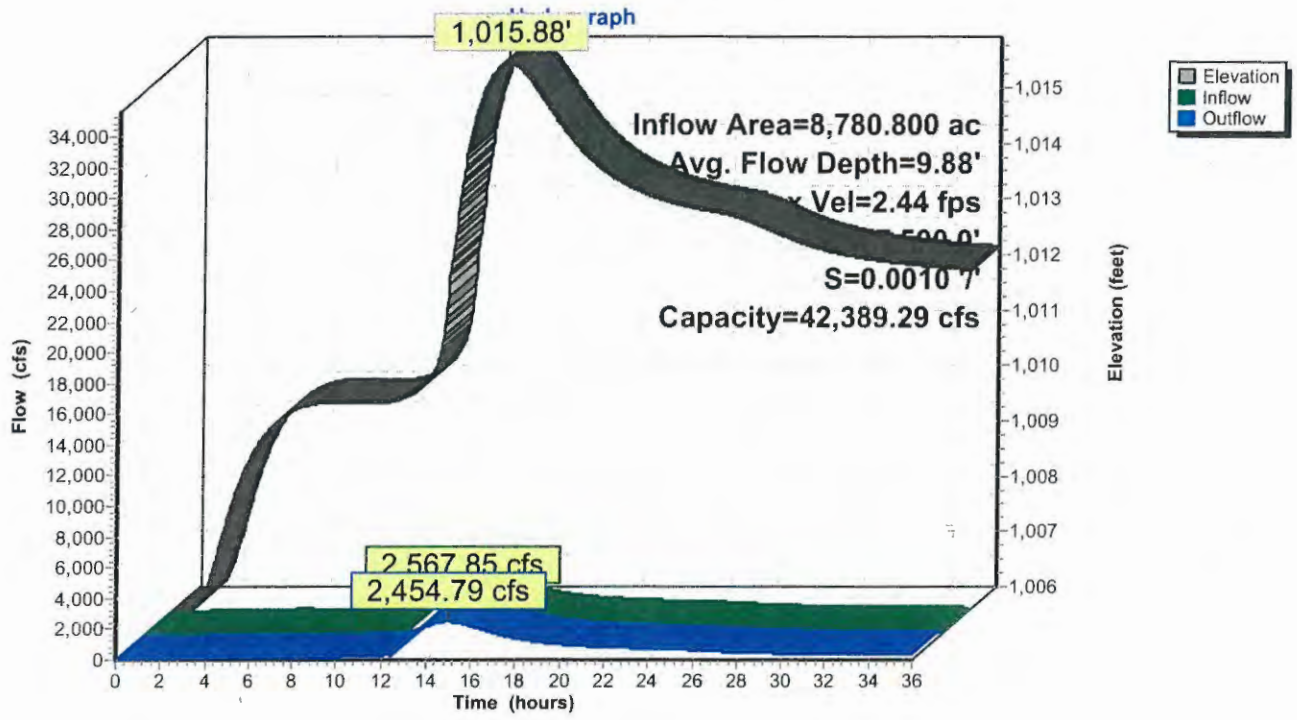
Custom cross-section, Length= 7,500.0' Slope= 0.0010 '/' (104 Elevation Intervals)
Flow calculated by Manning's Subdivision method
Inlet Invert= 1,006.00', Outlet Invert= 998.50'



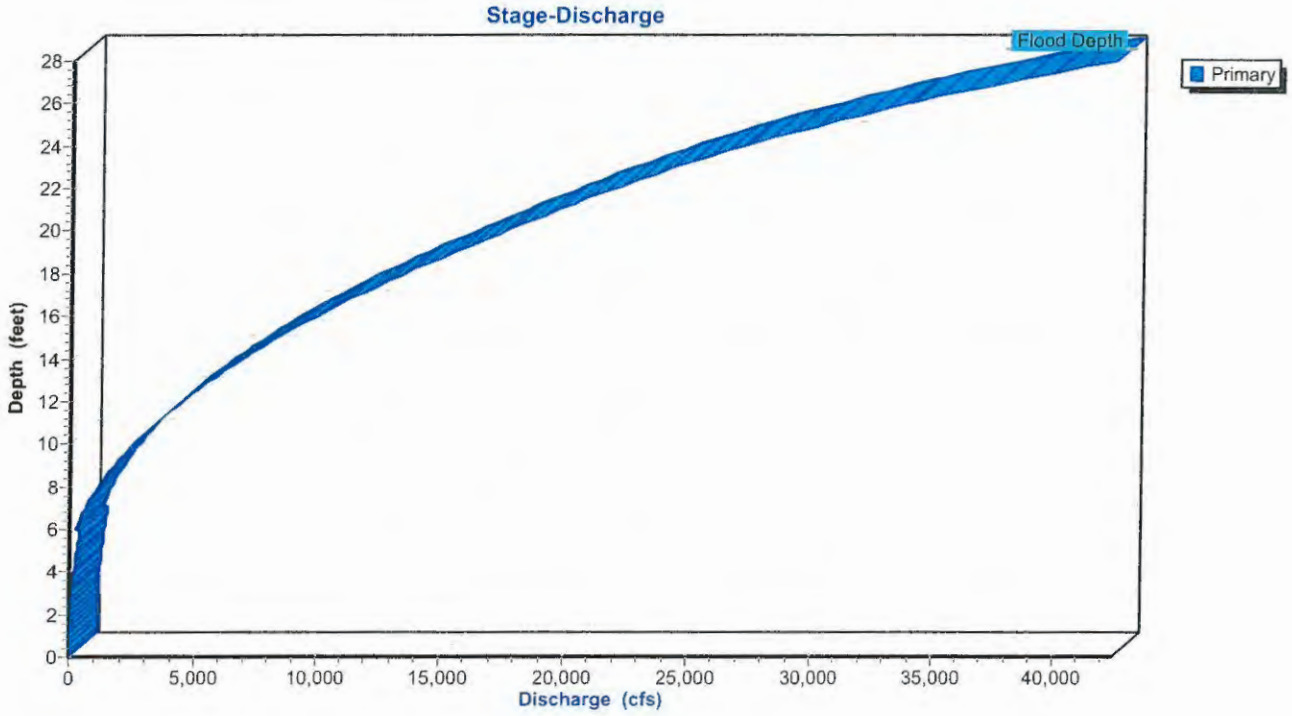
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,034.00	0.00		
200.00	1,032.00	2.00	0.060	
420.00	1,030.00	4.00	0.060	
550.00	1,012.00	22.00	0.050	
670.00	1,012.00	22.00	0.050	
693.00	1,006.00	28.00	0.050	
705.00	1,006.00	28.00	0.050	
790.00	1,026.00	8.00	0.060	
900.00	1,034.00	0.00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

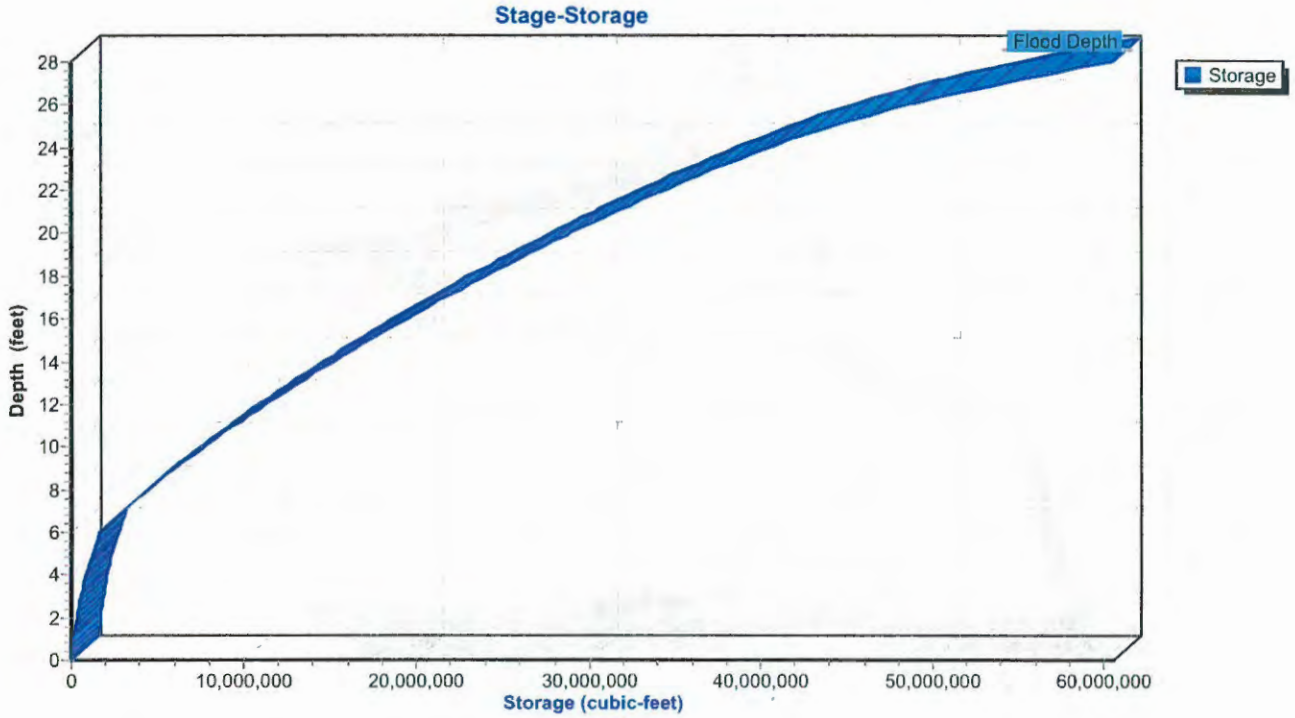
Reach 16R: Channel 16



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 > 2.63" for 500 year-FEMA event
Inflow = 2,509.12 cfs @ 15.67 hrs, Volume= 2,074.811 af
Outflow = 2,509.11 cfs @ 15.68 hrs, Volume= 2,074.686 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= 9.45 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 8.19 fps, Avg. Travel Time= 0.9 min

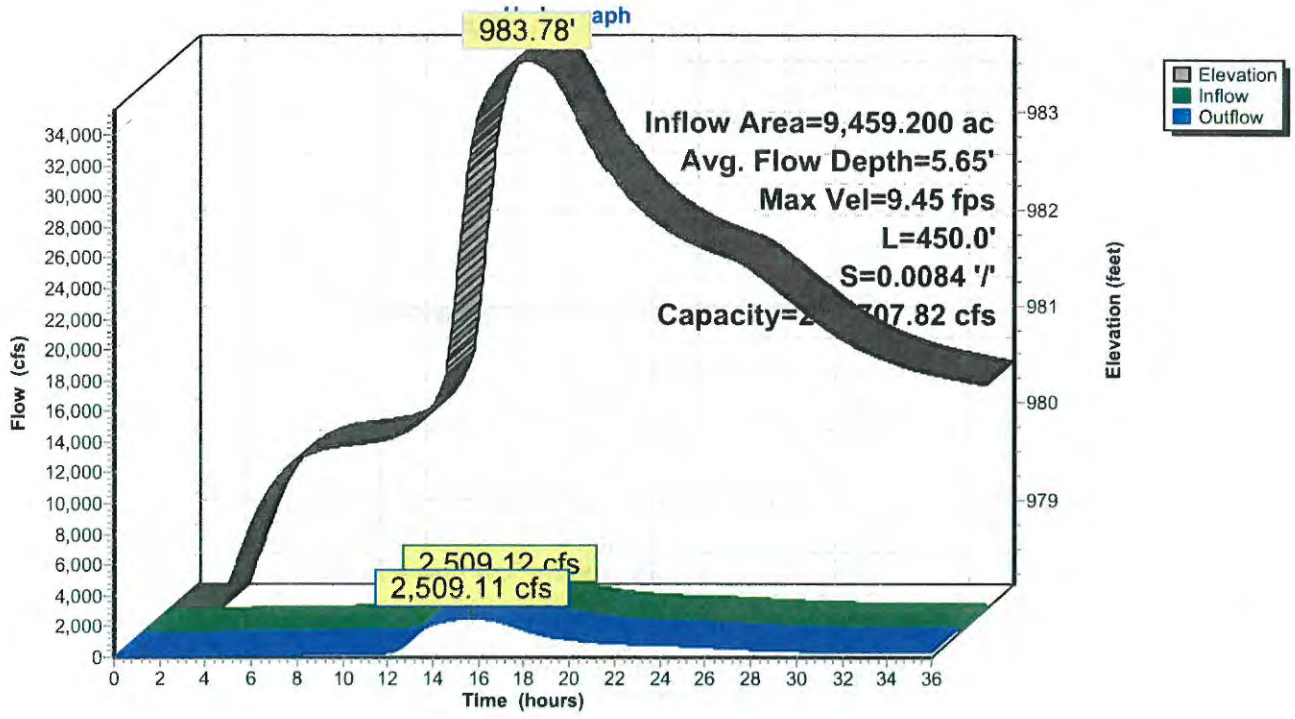
Peak Storage= 119,546 cf @ 15.68 hrs
Average Depth at Peak Storage= 5.65'
Defined Flood Depth= 15.00', Capacity at Flood Depth= 28,360.41 cfs
Bank-Full Depth= 40.50', Capacity at Bank-Full= 200,707.82 cfs

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'

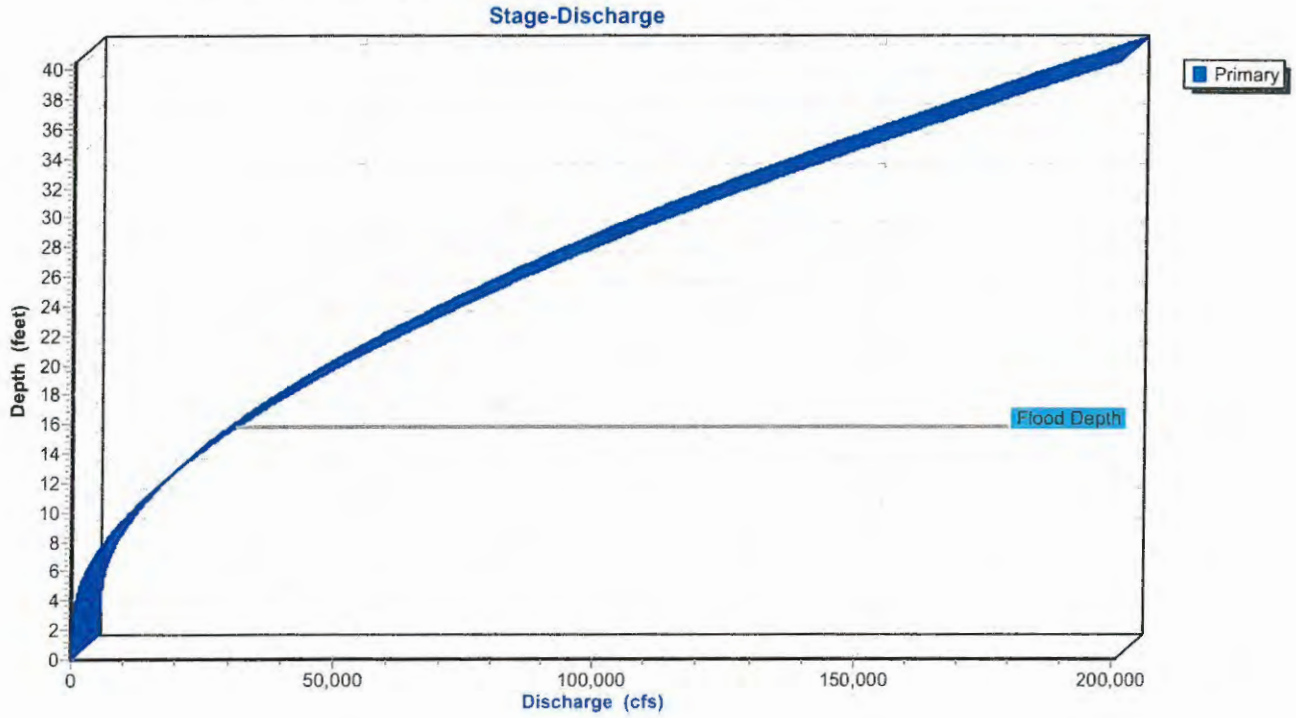
Offset (feet)	Elevation (feet)	Chan.Depth (feet)	n	Description
0.00	1,012.00	0.00		
20.00	1,008.00	4.00	0.100	Heavy timber, flow below branches
51.00	980.00	32.00	0.100	Heavy timber, flow below branches
74.00	978.00	34.00	0.100	Heavy timber, flow below branches
121.00	976.00	36.00	0.100	Heavy timber, 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

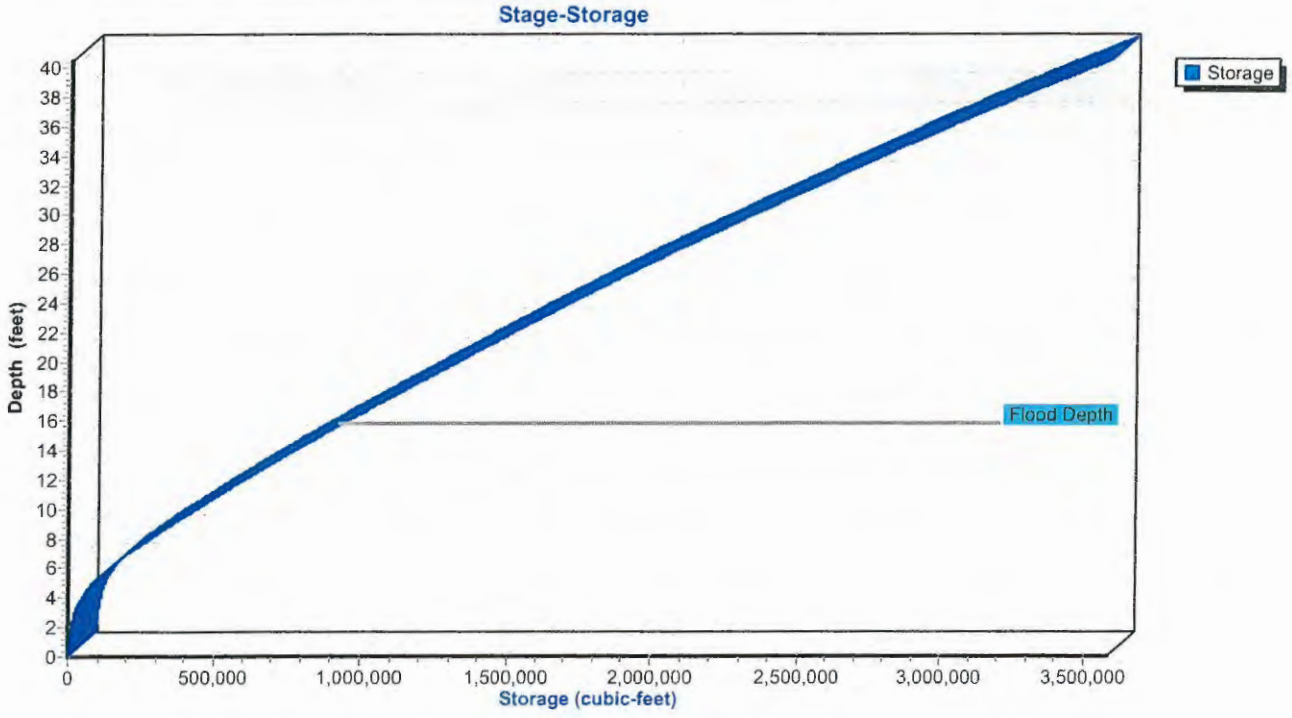
Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way



Reach 18R: Sippo Creek Channel Downstream of Lincoln Way

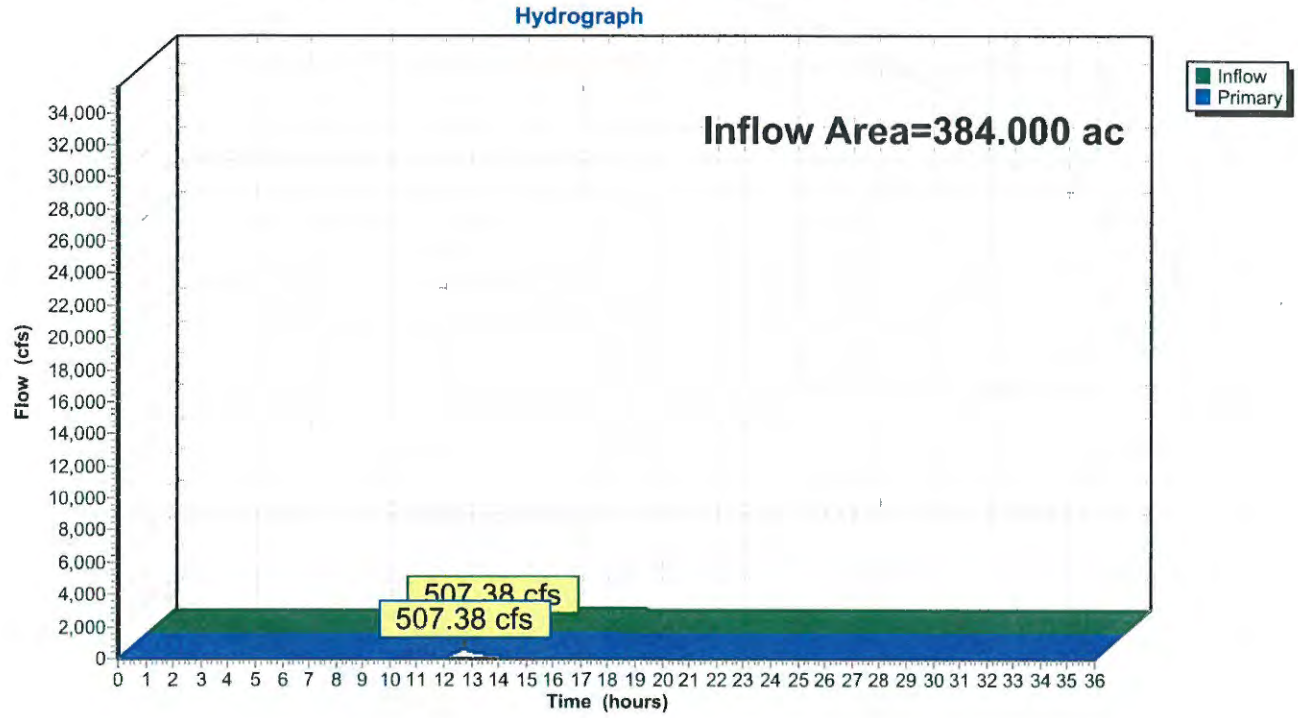


Summary for Pond 1C: CONF 1 Combined O'Springs and Eric

Inflow Area = 384.000 ac, 26.60% Impervious, Inflow Depth > 3.30" for 500 year-FEMA event
Inflow = 507.38 cfs @ 12.71 hrs, Volume= 105.601 af
Primary = 507.38 cfs @ 12.72 hrs, Volume= 105.601 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 > 2.65" for 500 year-FEMA event
Inflow = 2,650.69 cfs @ 14.79 hrs, Volume= 2,089.394 af
Outflow = 2,643.72 cfs @ 14.94 hrs, Volume= 2,076.338 af, Atten= 0%, Lag= 9.0 min
Primary = 1,979.97 cfs @ 14.94 hrs, Volume= 1,854.317 af
Secondary = 663.74 cfs @ 14.94 hrs, Volume= 222.021 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= 1,006.86' @ 14.94 hrs Surf.Area= 18.373 ac Storage= 120.616 af (59.654 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= 73.9 min calculated for 2,015.376 af (96% of inflow)
Center-of-Mass det. time= 16.0 min (1,146.4 - 1,130.5)

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

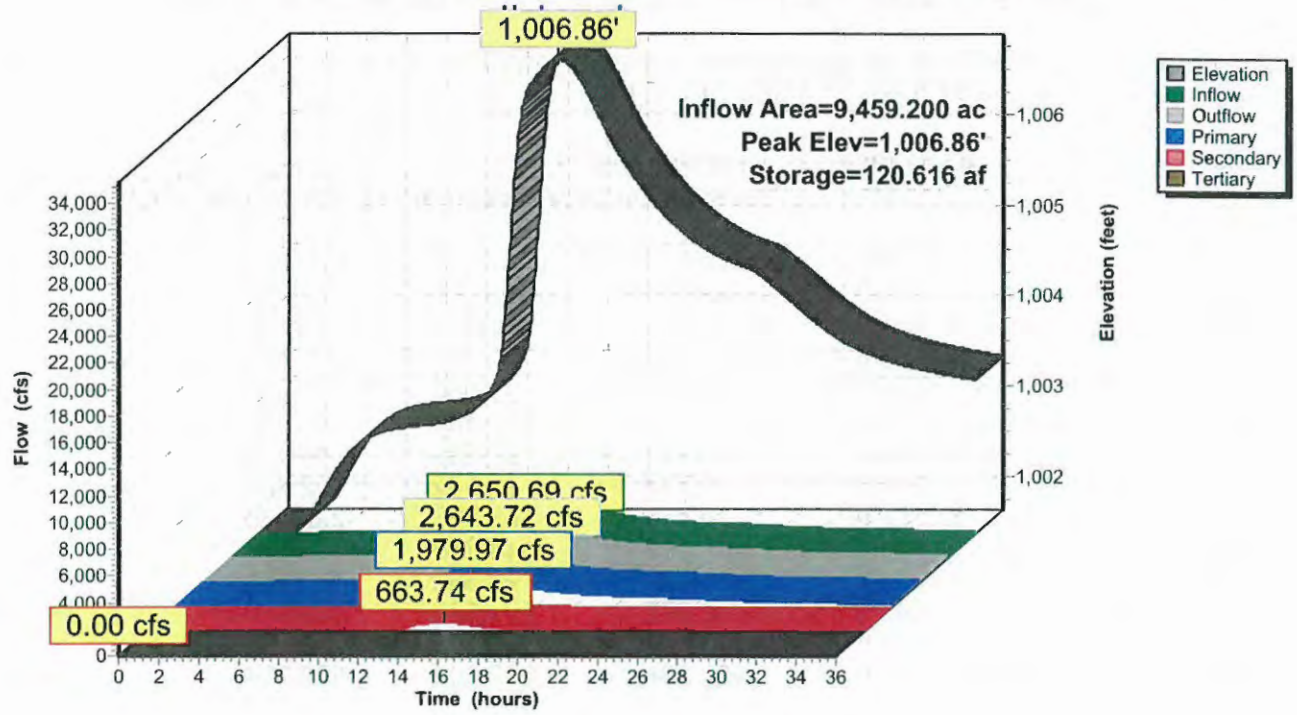
Device	Routing	Invert	Outlet Devices
#1	Primary	1,001.64'	**50.0' long x 2.9' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.45 2.58 2.66 2.66 2.65 2.64 2.65 2.69 2.69 2.73 2.83 2.95 3.01 3.12 3.32
#2	Secondary	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=1,979.97 cfs @ 14.94 hrs HW=1,006.86' TW=996.69' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1,979.97 cfs @ 7.59 fps)

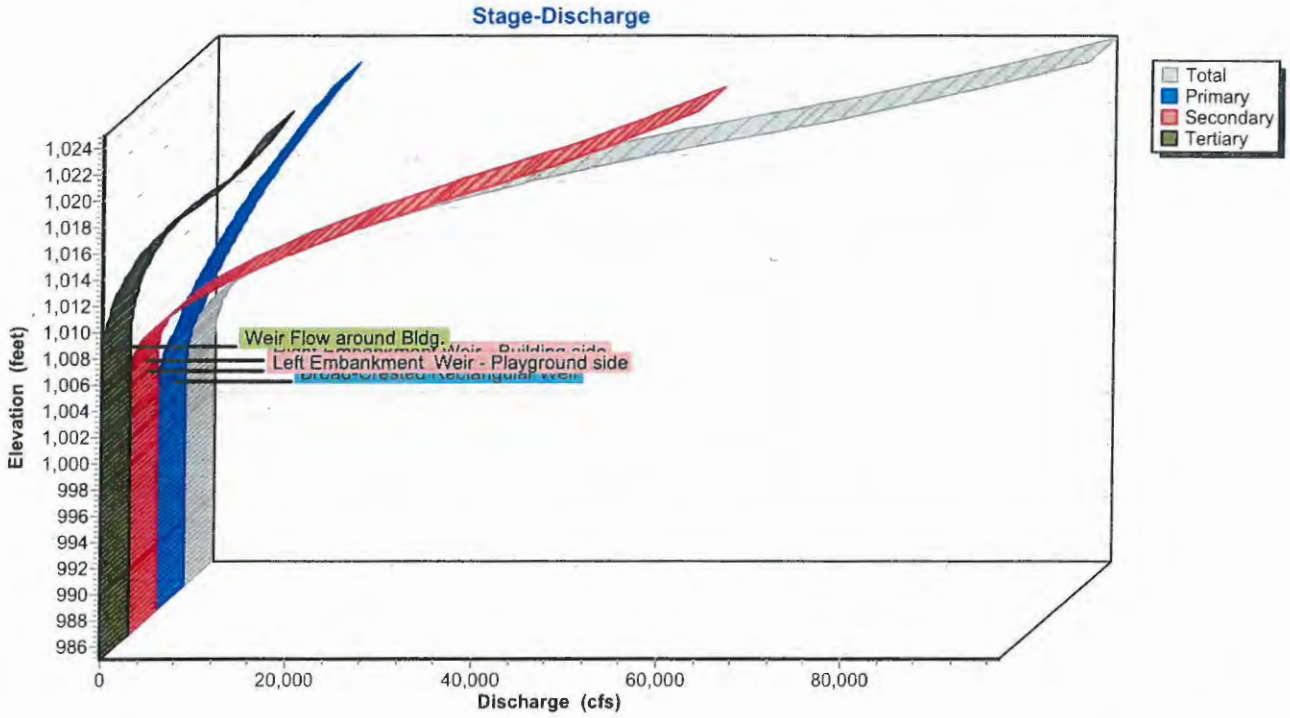
Secondary OutFlow Max=663.74 cfs @ 14.94 hrs HW=1,006.86' TW=996.69' (Dynamic Tailwater)
├─**2=Right Embankment Weir - Building side** (Weir Controls 249.85 cfs @ 3.57 fps)
└─**3=Left Embankment Weir - Playground side** (Weir Controls 413.89 cfs @ 4.26 fps)

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)

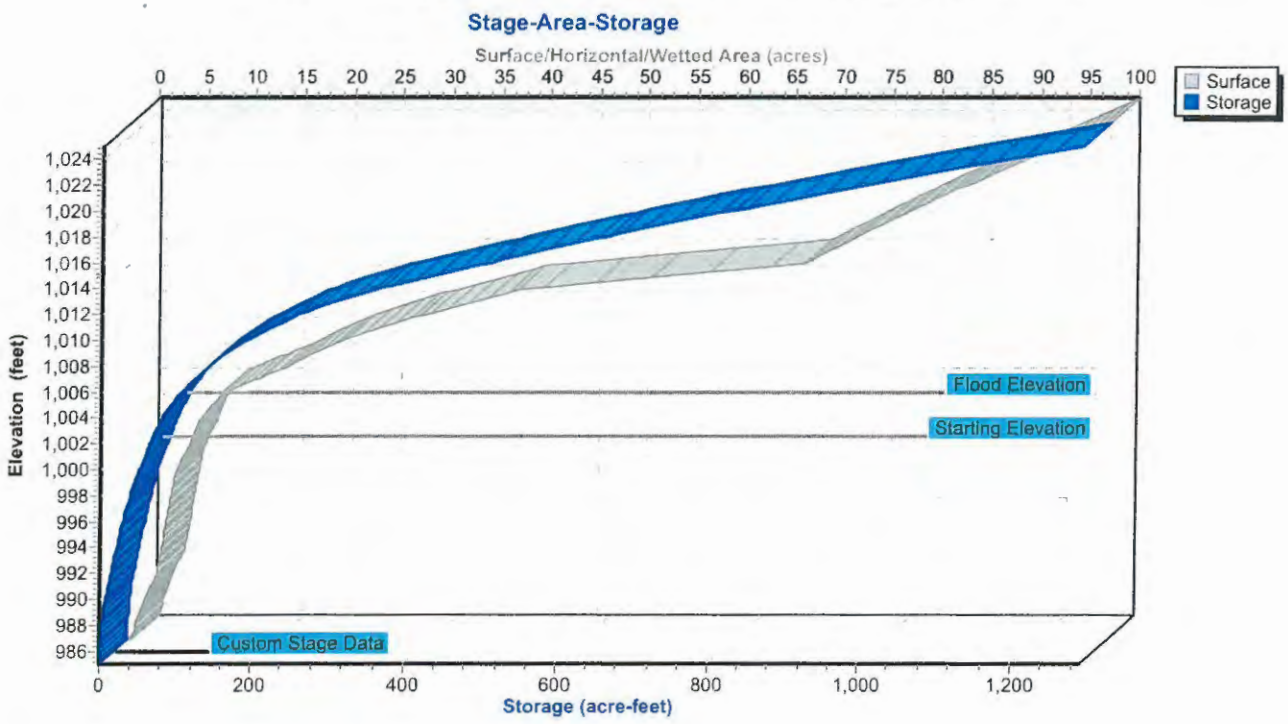
Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions



Pond 1P: Sippo Creek Reservoir - Existing Conditions

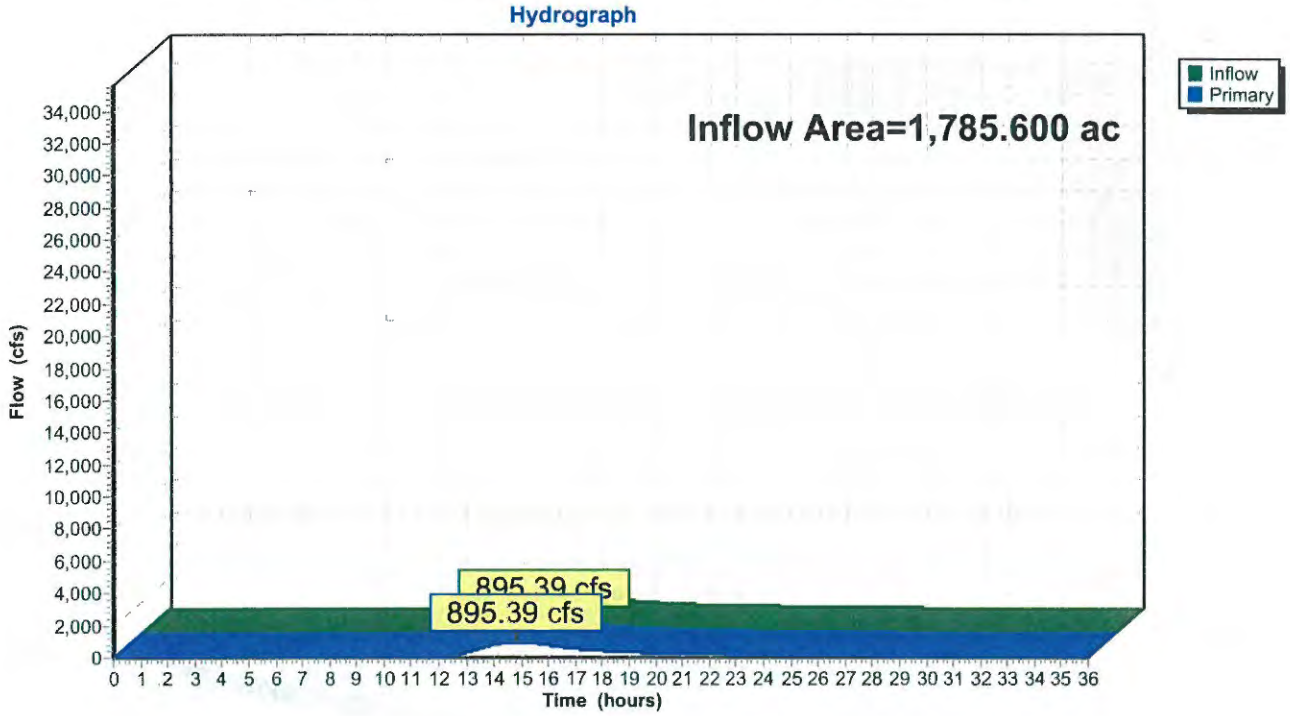


Summary for Pond 2C: CONF 2 Combined Cable and O'Springs

Inflow Area = 1,785.600 ac, 25.34% Impervious, Inflow Depth > 2.94" for 500 year-FEMA event
Inflow = 895.39 cfs @ 14.82 hrs, Volume= 437.273 af
Primary = 895.39 cfs @ 14.83 hrs, Volume= 437.273 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 > 2.94" for 500 year-FEMA event
Inflow = 895.39 cfs @ 14.83 hrs, Volume= 437.267 af
Outflow = 246.72 cfs @ 19.93 hrs, Volume= 563.376 af, Atten= 72%, Lag= 306.2 min
Primary = 246.72 cfs @ 19.93 hrs, Volume= 563.376 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= 1,097.56' @ 19.93 hrs Surf.Area= 225.783 ac Storage= 1,949.614 af (35.614 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= 31.5 min (1,102.4 - 1,070.9)

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

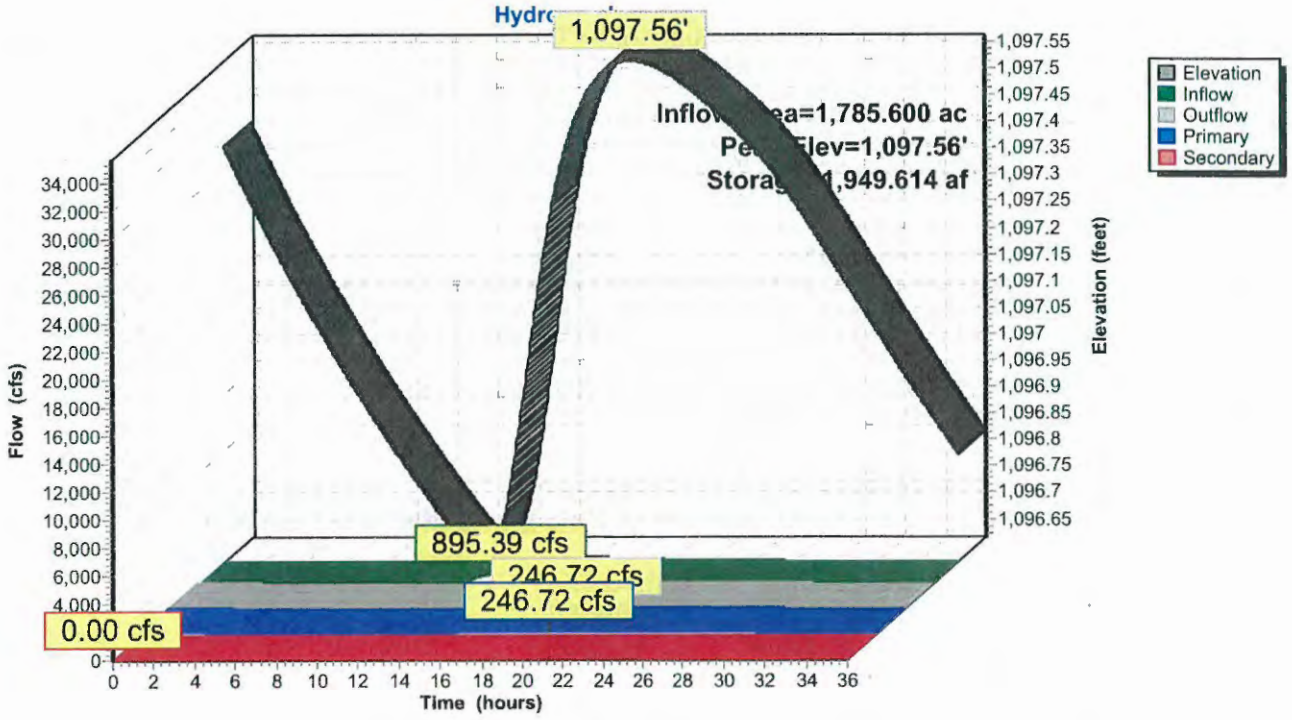
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,080.00	0.000	0.000	0.000
1,097.40	220.000	1,914.000	1,914.000
1,099.50	296.000	541.800	2,455.800
1,100.00	316.700	153.175	2,608.975
1,103.00	405.000	1,082.550	3,691.525
1,104.00	500.000	452.500	4,144.025

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

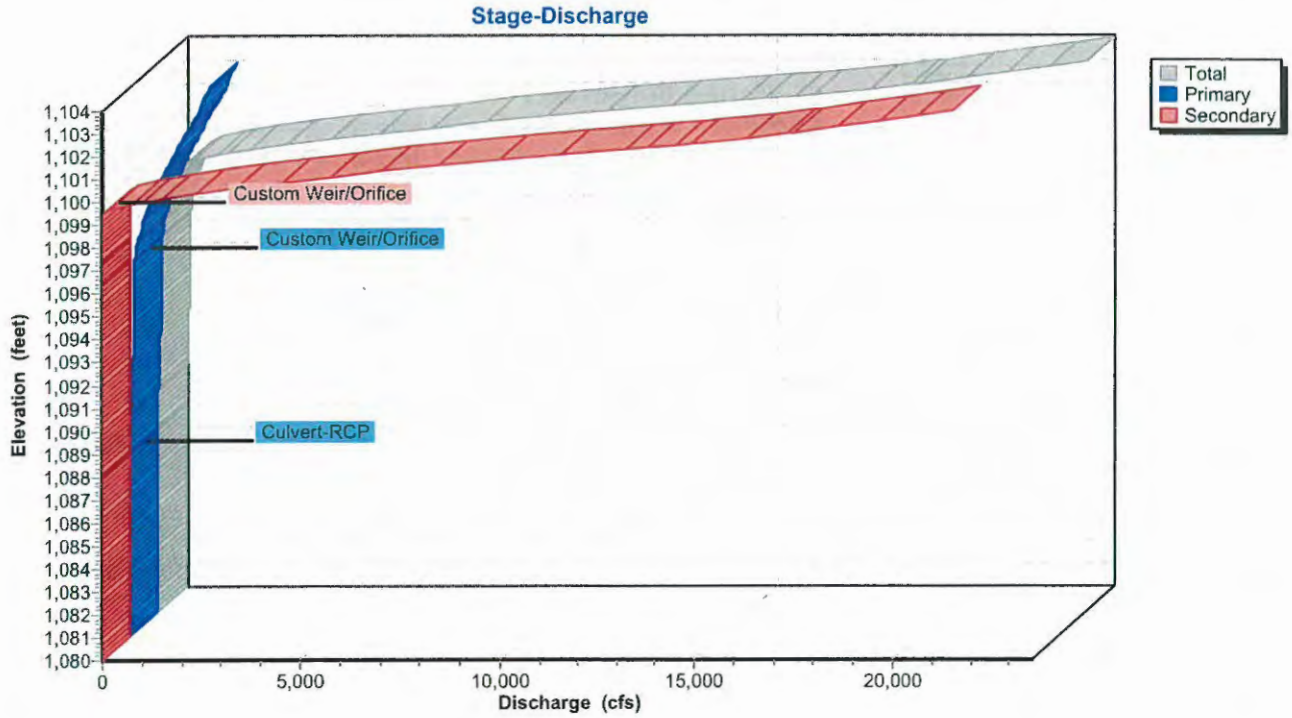
Primary OutFlow Max=246.72 cfs @ 19.93 hrs HW=1,097.56' TW=1,071.62' (Dynamic Tailwater)
↑—**1=Culvert-RCP** (Barrel Controls 124.01 cfs @ 17.54 fps)
└—**2=Custom Weir/Orifice** (Weir Controls 122.71 cfs @ 3.53 fps)

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)

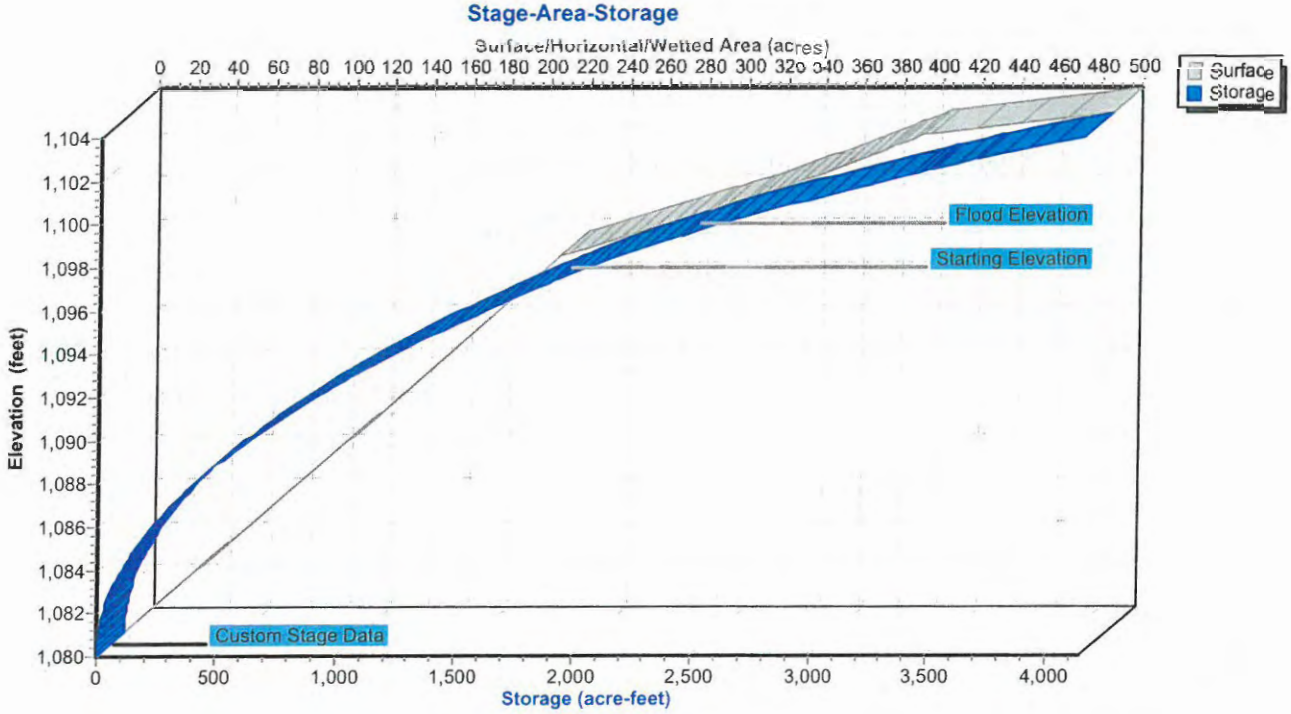
Pond 3P: Lake Cable



Pond 3P: Lake Cable



Pond 3P: Lake Cable

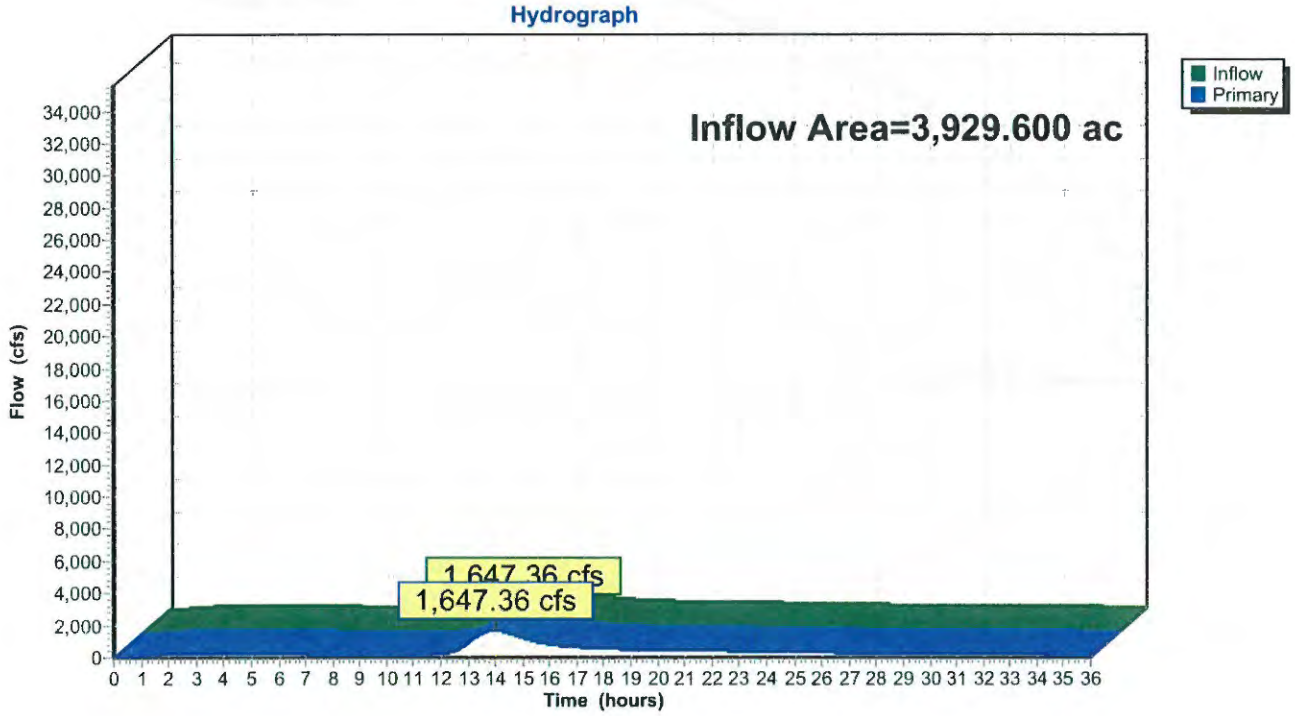


Summary for Pond 4C: Confluence 4

Inflow Area = 3,929.600 ac, 16.99% Impervious, Inflow Depth > 3.16" for 500 year-FEMA event
Inflow = 1,647.36 cfs @ 13.95 hrs, Volume= 1,034.062 af
Primary = 1,647.36 cfs @ 13.96 hrs, Volume= 1,034.062 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 > 3.30" for 500 year-FEMA event
Inflow = 507.38 cfs @ 12.72 hrs, Volume= 105.600 af
Outflow = 132.66 cfs @ 14.42 hrs, Volume= 102.204 af, Atten= 74%, Lag= 101.6 min
Primary = 132.66 cfs @ 14.42 hrs, Volume= 102.204 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= 1,107.61' @ 14.42 hrs Surf.Area= 28.784 ac Storage= 69.079 af (44.779 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= 477.4 min calculated for 77.882 af (74% of inflow)
Center-of-Mass det. time= 252.1 min (1,178.1 - 926.0)

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

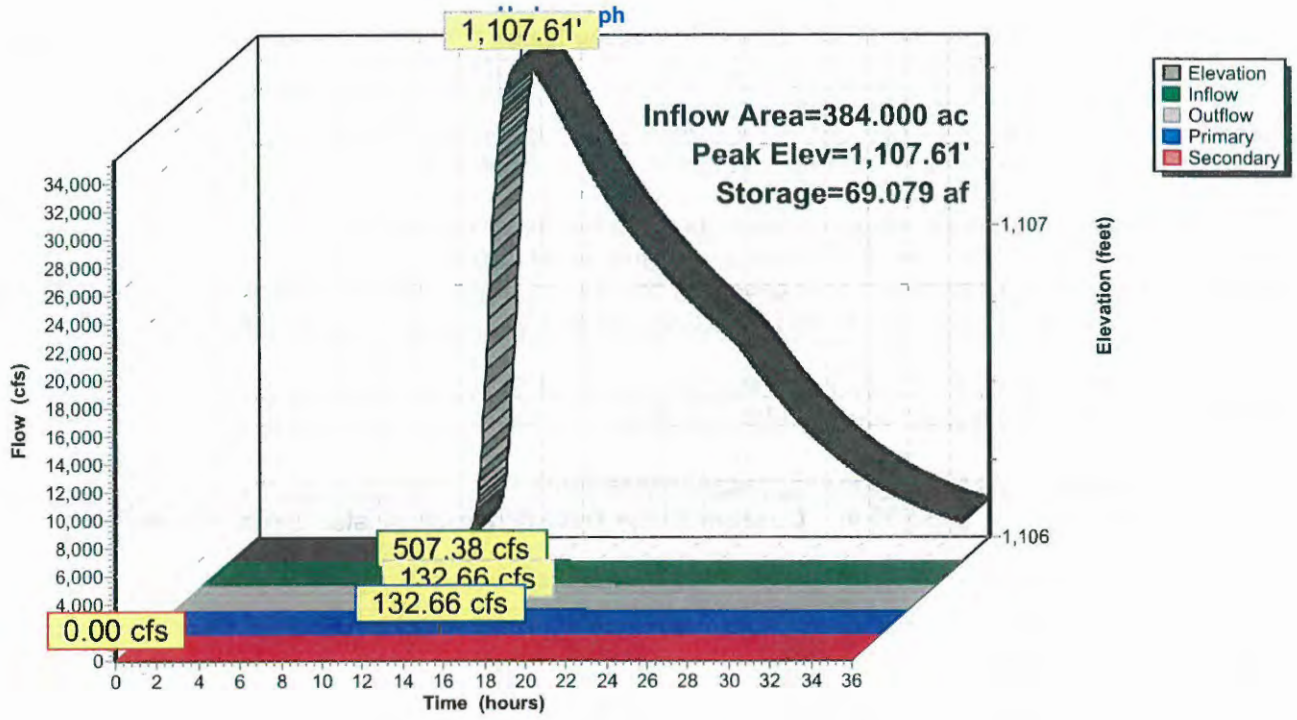
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,104.20	0.000	0.000	0.000
1,106.00	27.000	24.300	24.300
1,108.70	30.000	76.950	101.250
1,110.00	40.000	45.500	146.750
1,112.90	44.000	121.800	268.550

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

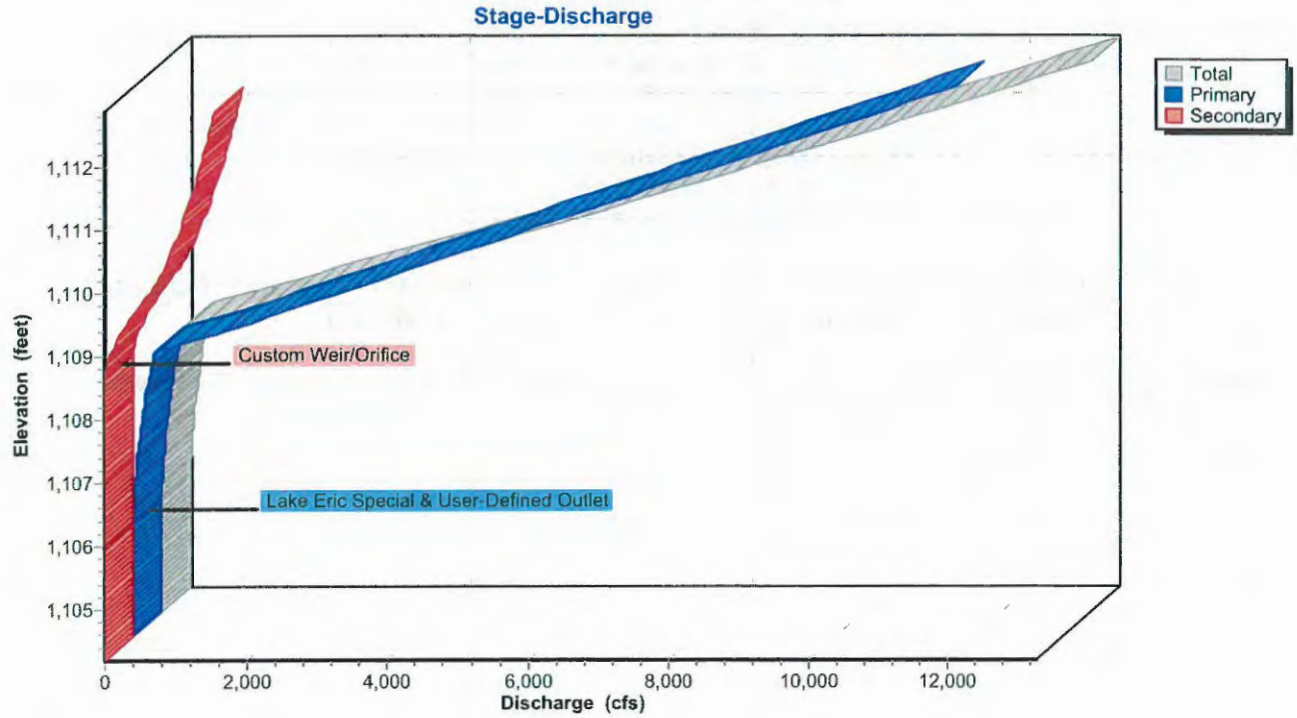
Primary OutFlow Max=132.66 cfs @ 14.42 hrs HW=1,107.61' TW=0.00' (Dynamic Tailwater)
↑—**1=Lake Eric Special & User-Defined Outlet** (Custom Controls 132.66 cfs)

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)

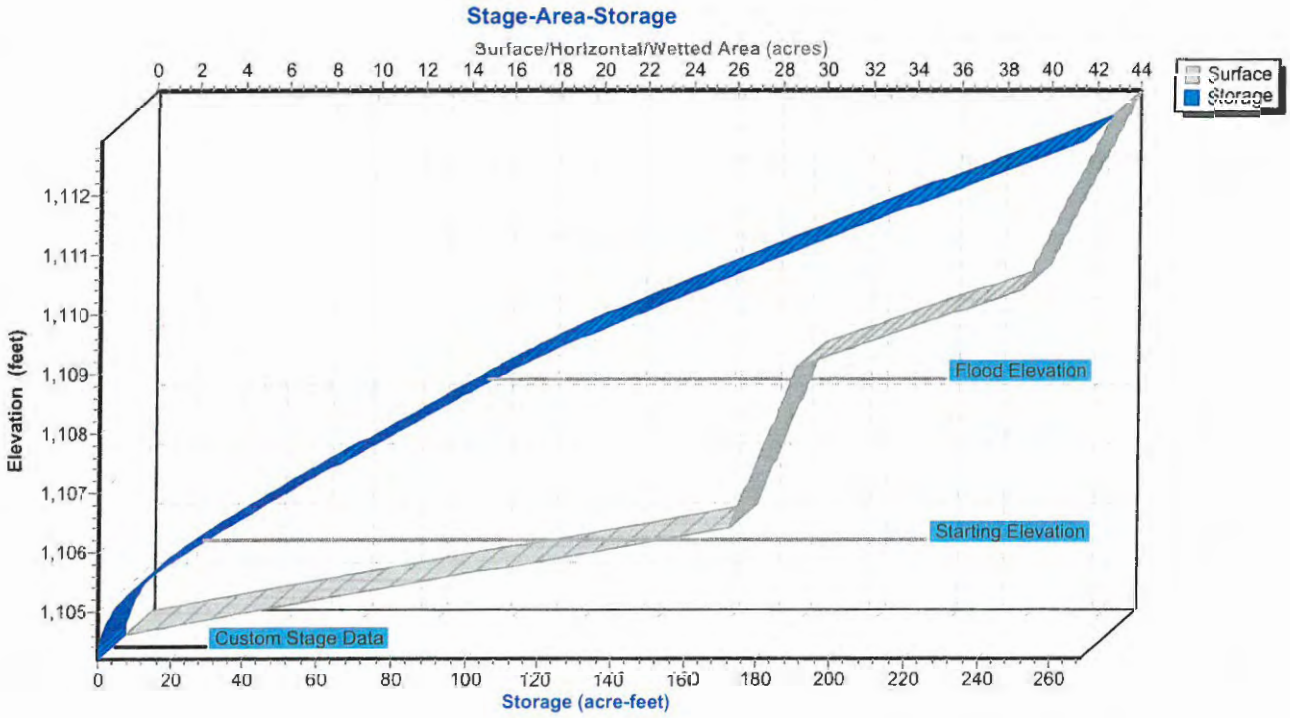
Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs



Pond 4P: Lake O'Springs

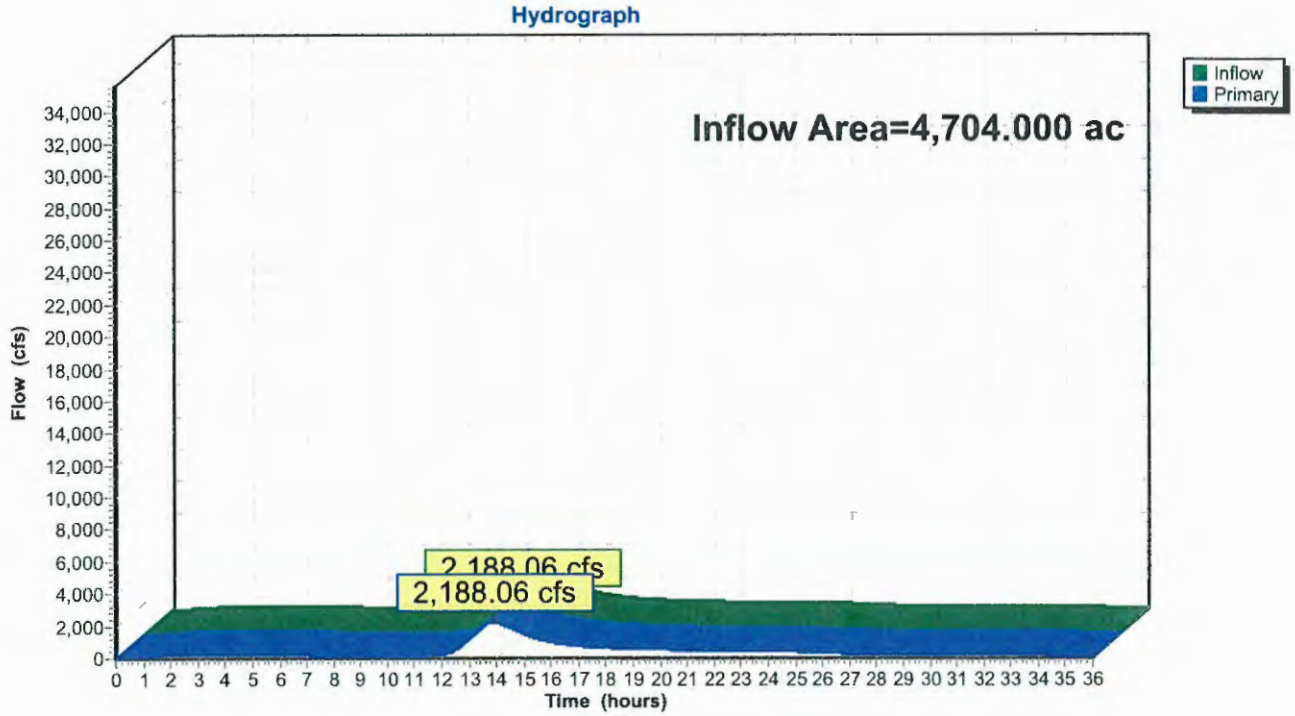


Summary for Pond 5C: Confluence 5

Inflow Area = 4,704.000 ac, 14.19% Impervious, Inflow Depth > 3.06" for 500 year-FEMA event
Inflow = 2,188.06 cfs @ 13.90 hrs, Volume= 1,201.113 af
Primary = 2,188.06 cfs @ 13.91 hrs, Volume= 1,201.113 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 = 3.25" for 500 year-FEMA event
Inflow = 249.04 cfs @ 12.42 hrs, Volume= 31.222 af
Outflow = 70.98 cfs @ 13.21 hrs, Volume= 30.554 af, Atten= 71%, Lag= 47.2 min
Primary = 70.89 cfs @ 13.21 hrs, Volume= 30.554 af
Secondary = 0.09 cfs @ 13.21 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= 1,120.00' @ 13.21 hrs Surf.Area= 4.201 ac Storage= 27.505 af (13.815 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= 482.9 min calculated for 16.864 af (54% of inflow)
Center-of-Mass det. time= 182.9 min (1,043.2 - 860.3)

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

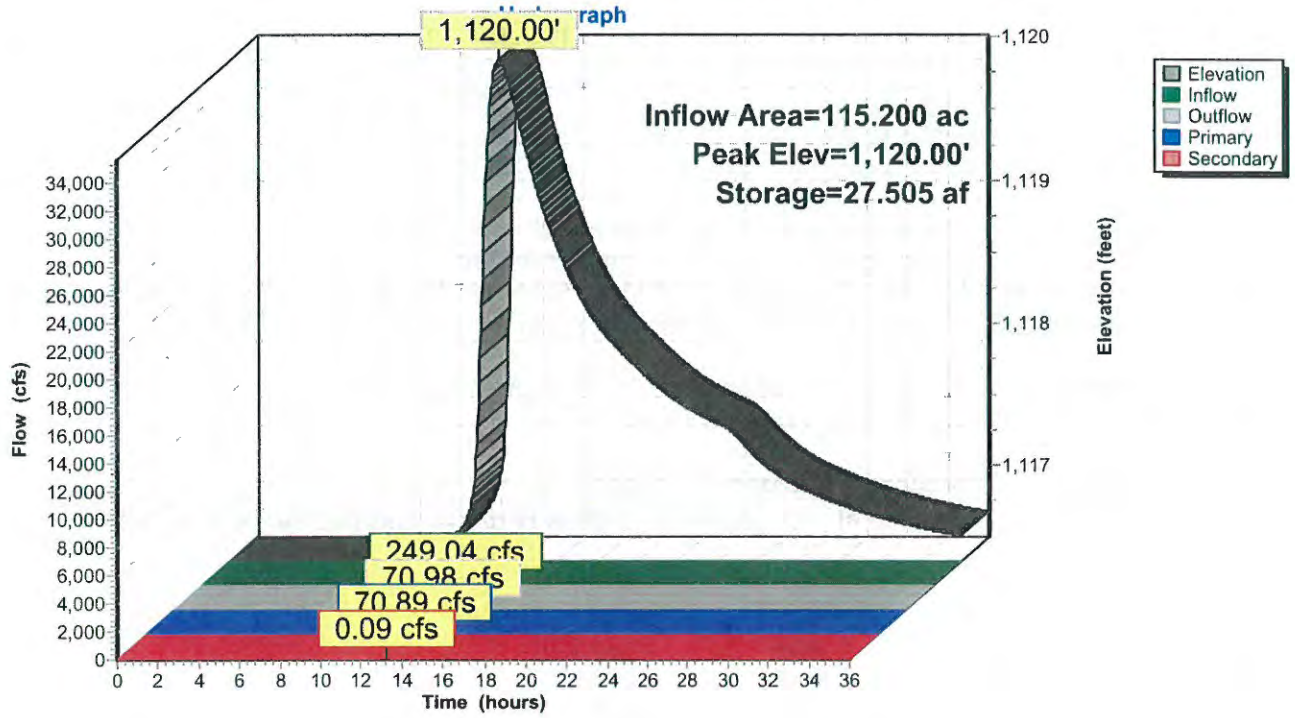
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,109.10	0.000	0.000	0.000
1,116.50	3.700	13.690	13.690
1,118.00	3.900	5.700	19.390
1,120.00	4.200	8.100	27.490
1,130.00	8.100	61.500	88.990

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

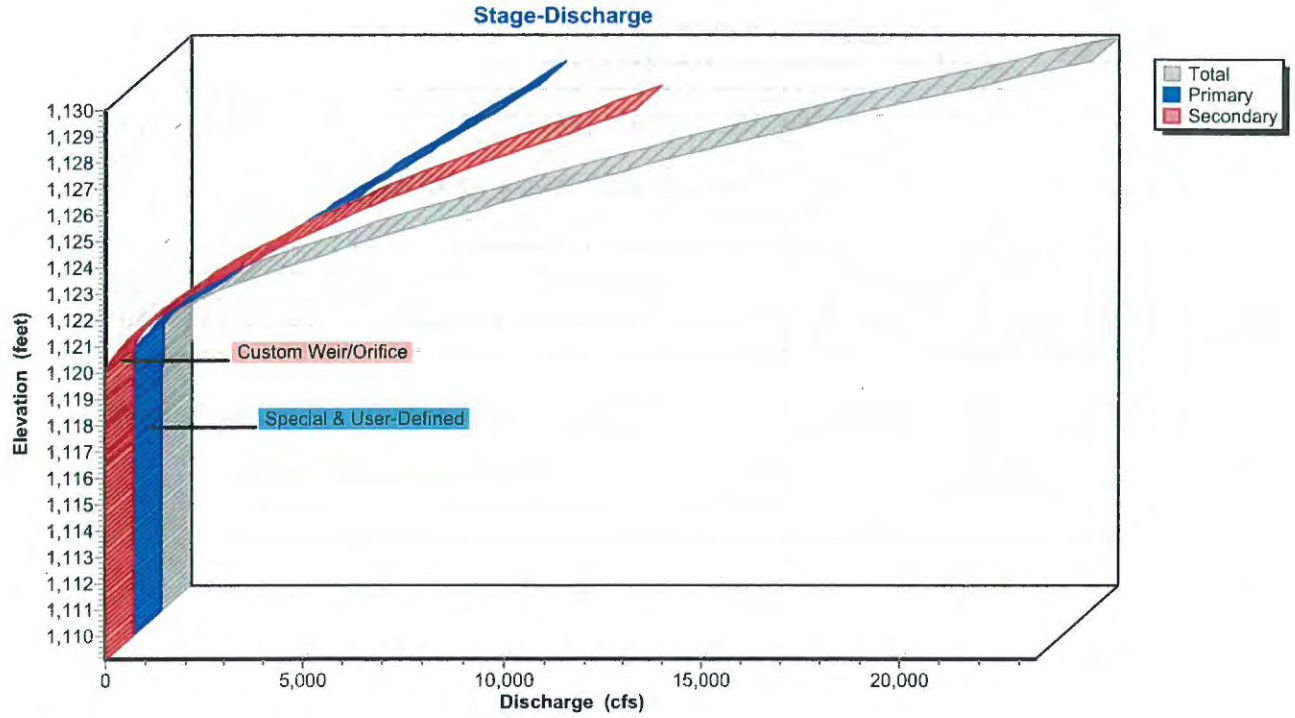
Primary OutFlow Max=70.88 cfs @ 13.21 hrs HW=1,120.00' TW=0.00' (Dynamic Tailwater)
↑**1=Special & User-Defined** (Custom Controls 70.88 cfs)

Secondary OutFlow Max=0.09 cfs @ 13.21 hrs HW=1,120.00' TW=0.00' (Dynamic Tailwater)
↑**2=Custom Weir/Orifice** (Weir Controls 0.09 cfs @ 0.17 fps)

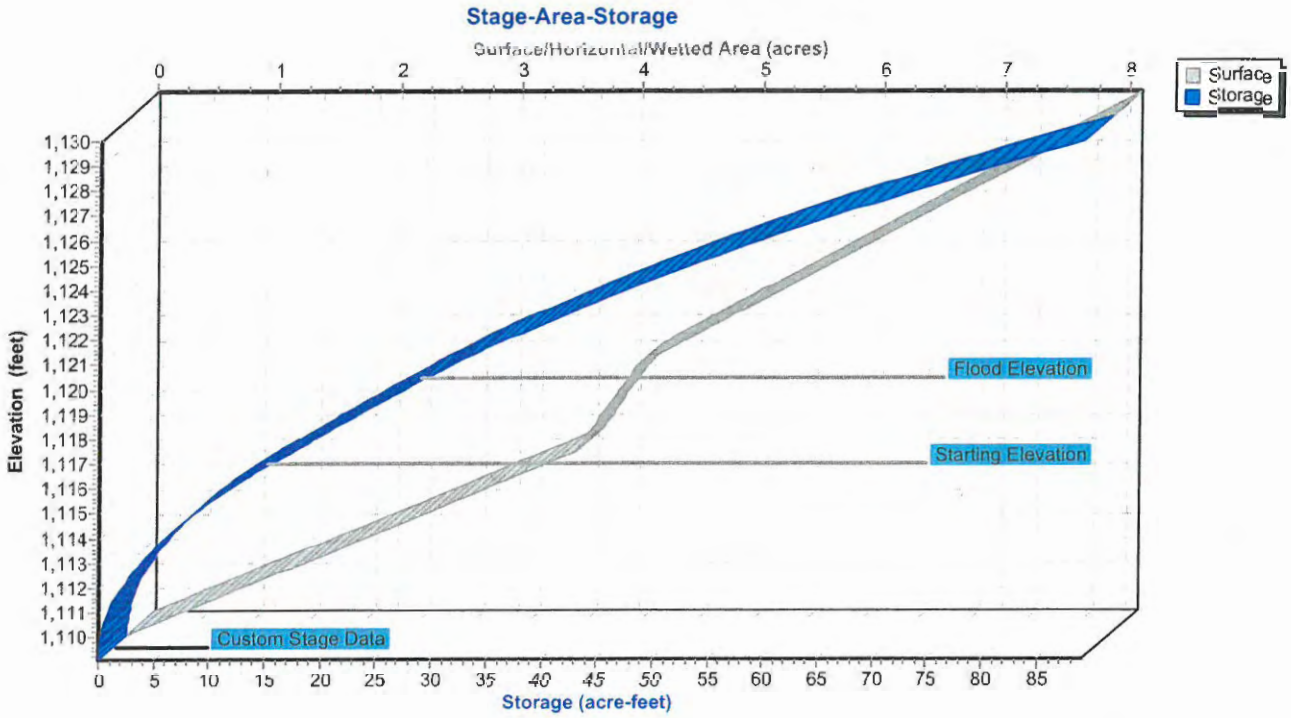
Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)



Pond 5P: Lake Eric (Slagle)

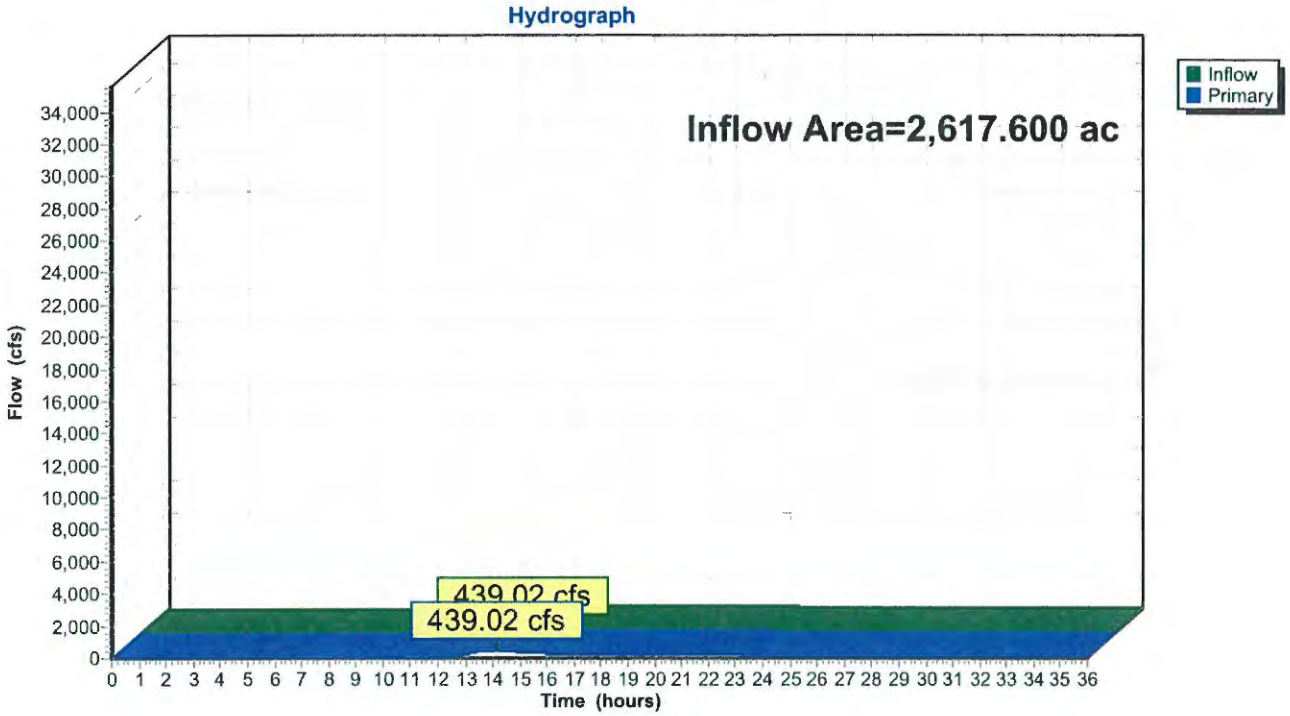


Summary for Pond 6C: Confluence 6

Inflow Area = 2,617.600 ac, 28.52% Impervious, Inflow Depth > 1.62" for 500 year-FEMA event
Inflow = 439.02 cfs @ 14.10 hrs, Volume= 352.717 af
Primary = 439.02 cfs @ 14.11 hrs, Volume= 352.717 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

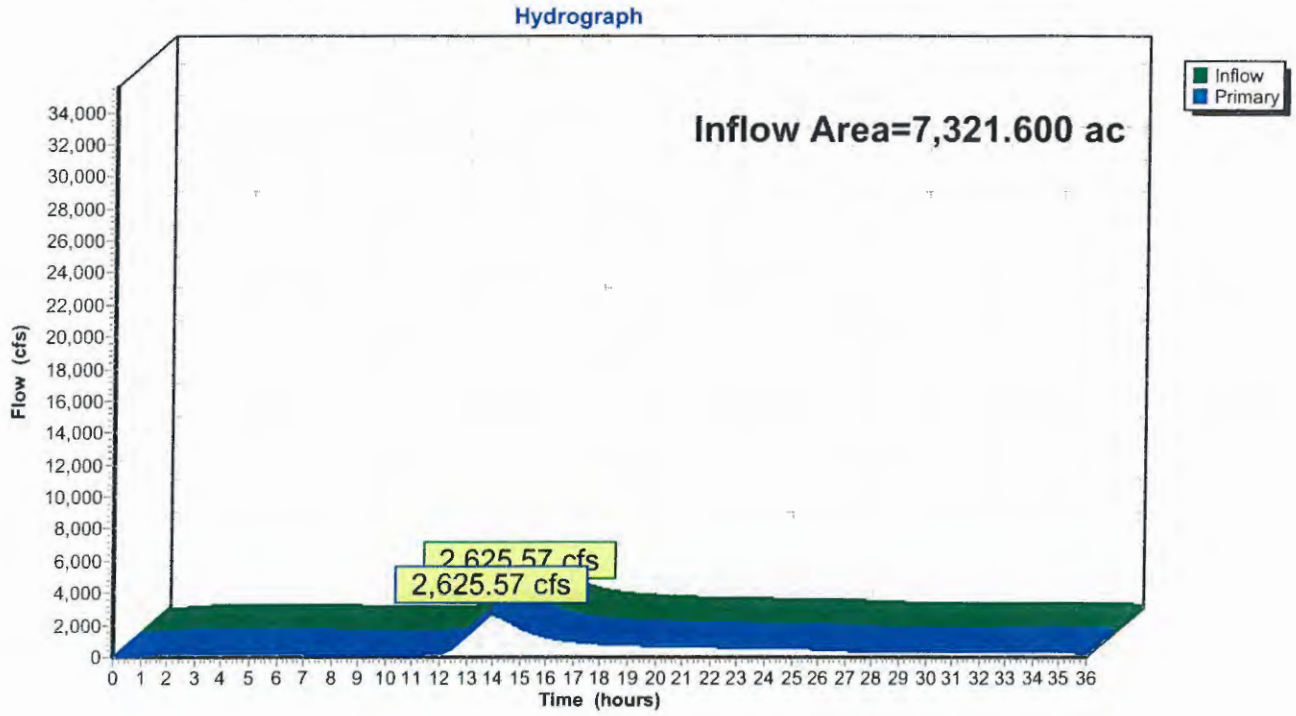


Summary for Pond 7C: Confluence 7 - Combined North Watershed and Sippo Lake

Inflow Area = 7,321.600 ac, 19.32% Impervious, Inflow Depth > 2.55" for 500 year-FEMA event
Inflow = 2,625.57 cfs @ 13.93 hrs, Volume= 1,553.607 af
Primary = 2,625.57 cfs @ 13.94 hrs, Volume= 1,553.607 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

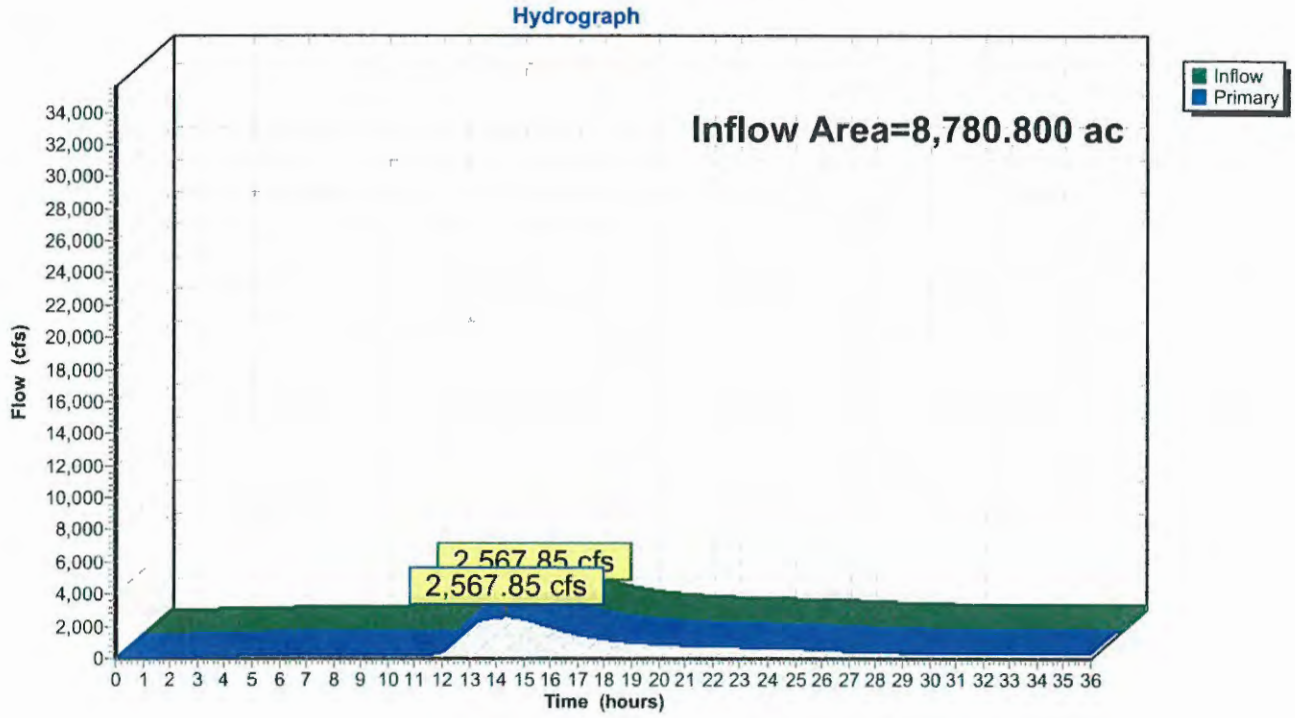


Summary for Pond 8C: Confluence 8

Inflow Area = 8,780.800 ac, 19.29% Impervious, Inflow Depth > 2.62" for 500 year-FEMA event
Inflow = 2,567.85 cfs @ 14.37 hrs, Volume= 1,914.569 af
Primary = 2,567.85 cfs @ 14.38 hrs, Volume= 1,914.569 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 > 2.77" for 500 year-FEMA event
Inflow = 1,208.68 cfs @ 14.89 hrs, Volume= 452.817 af
Outflow = 125.92 cfs @ 25.70 hrs, Volume= 212.841 af, Atten= 90%, Lag= 648.4 min
Primary = 125.34 cfs @ 25.70 hrs, Volume= 212.762 af
Secondary = 0.59 cfs @ 25.70 hrs, Volume= 0.079 af

Routing by Sim-Route method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 1,025.01' @ 25.70 hrs Surf.Area= 130.605 ac Storage= 311.088 af
Flood Elev= 1,028.00' Surf.Area= 213.745 ac Storage= 851.153 af

Plug-Flow detention time= 613.2 min calculated for 212.782 af (47% of inflow)
Center-of-Mass det. time= 428.6 min (1,524.1 - 1,095.6)

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

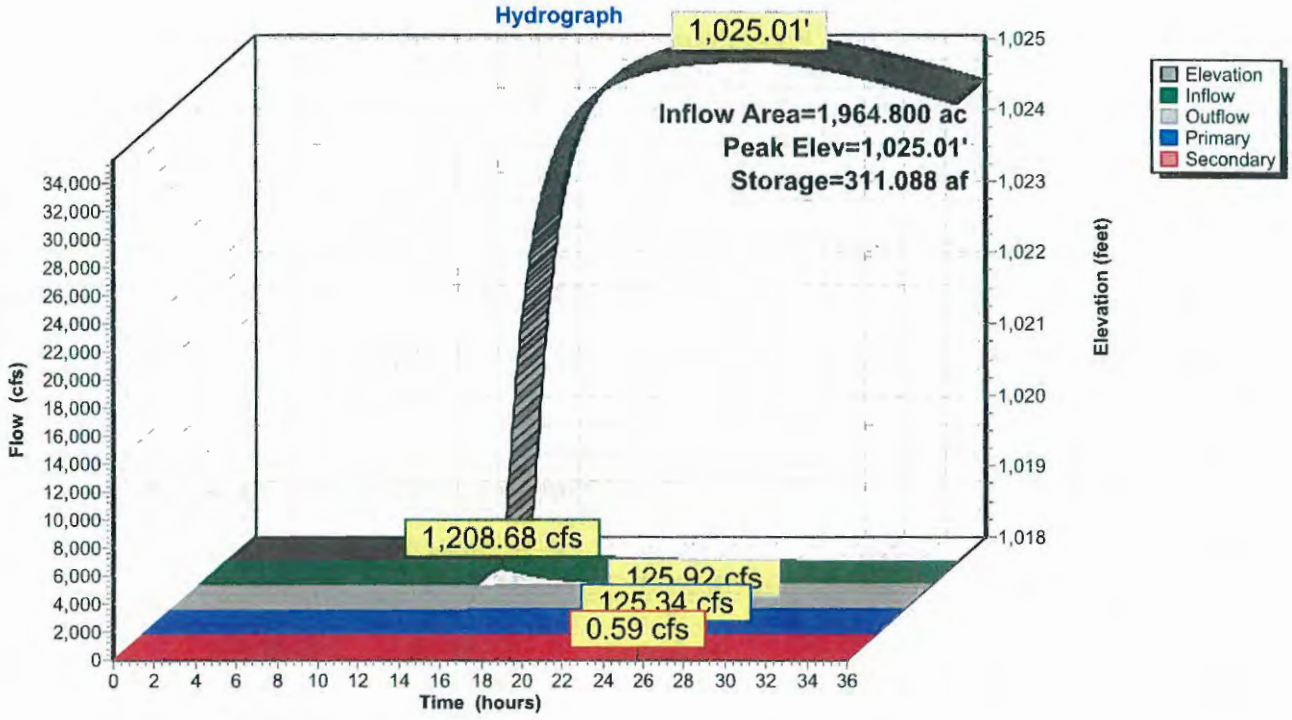
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
1,018.00	1.828	9,236.2	0.000	0.000	1.828
1,020.00	12.667	15,179.0	12.871	12.871	266.894
1,022.00	44.456	16,532.1	53.902	66.773	345.285
1,024.00	91.000	31,384.9	132.707	199.480	1,645.455
1,026.00	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

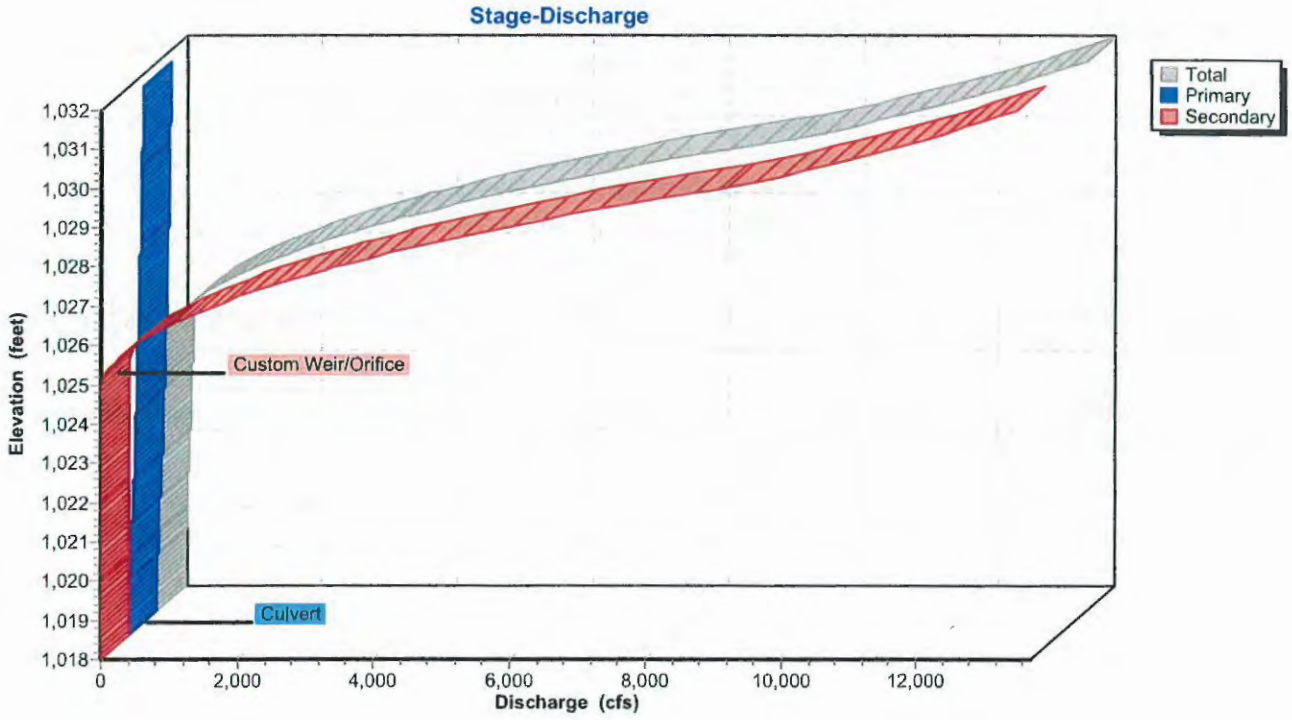
Primary OutFlow Max=125.34 cfs @ 25.70 hrs HW=1,025.01' TW=1,020.55' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 125.34 cfs @ 9.97 fps)

Secondary OutFlow Max=0.59 cfs @ 25.70 hrs HW=1,025.01' TW=1,020.55' (Dynamic Tailwater)
↑—**2=Custom Weir/Orifice** (Weir Controls 0.59 cfs @ 0.37 fps)

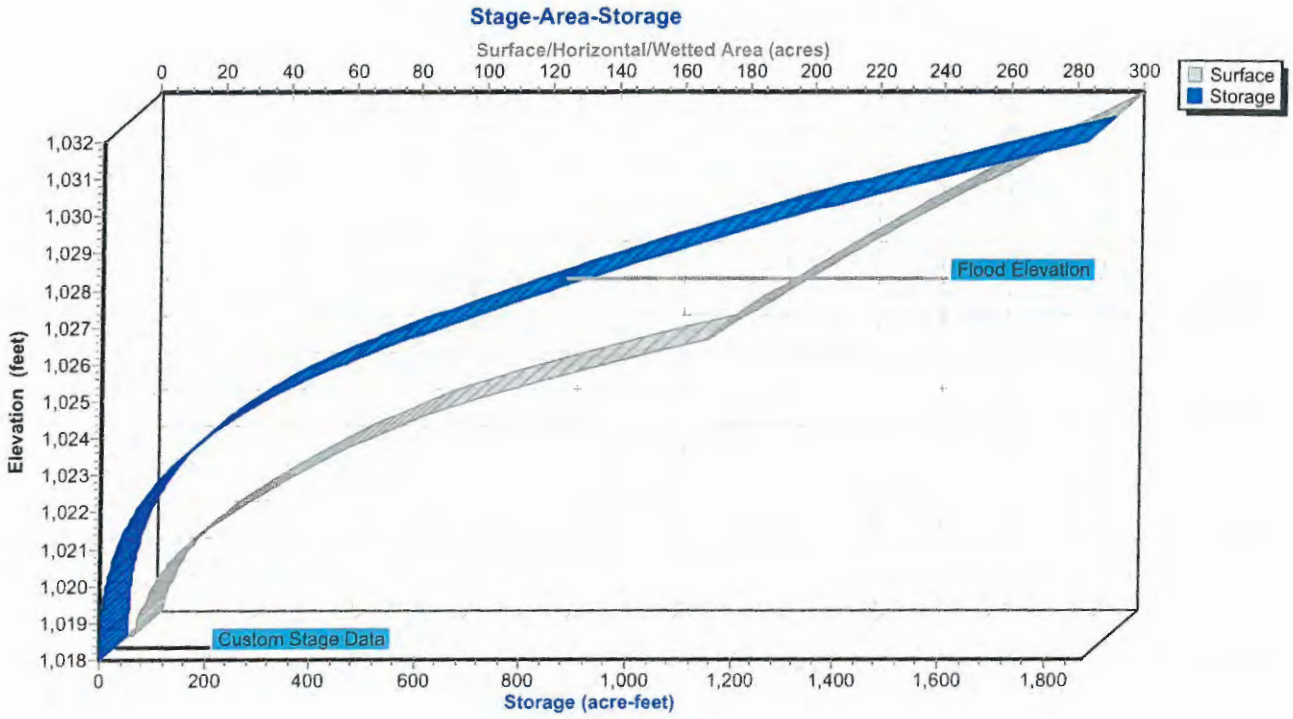
Pond 8P: Storage Area Genoa Rd



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 = 3.35" for 500 year-FEMA event
Inflow = 1,695.56 cfs @ 14.03 hrs, Volume= 548.560 af
Outflow = 1,208.68 cfs @ 14.89 hrs, Volume= 452.822 af, Atten= 29%, Lag= 51.9 min
Primary = 1,208.68 cfs @ 14.89 hrs, Volume= 452.822 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= 1,029.05' @ 14.89 hrs Surf.Area= 104.028 ac Storage= 416.635 af (196.635 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= 456.4 min calculated for 232.758 af (42% of inflow)
Center-of-Mass det. time= 133.0 min (1,095.6 - 962.5)

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

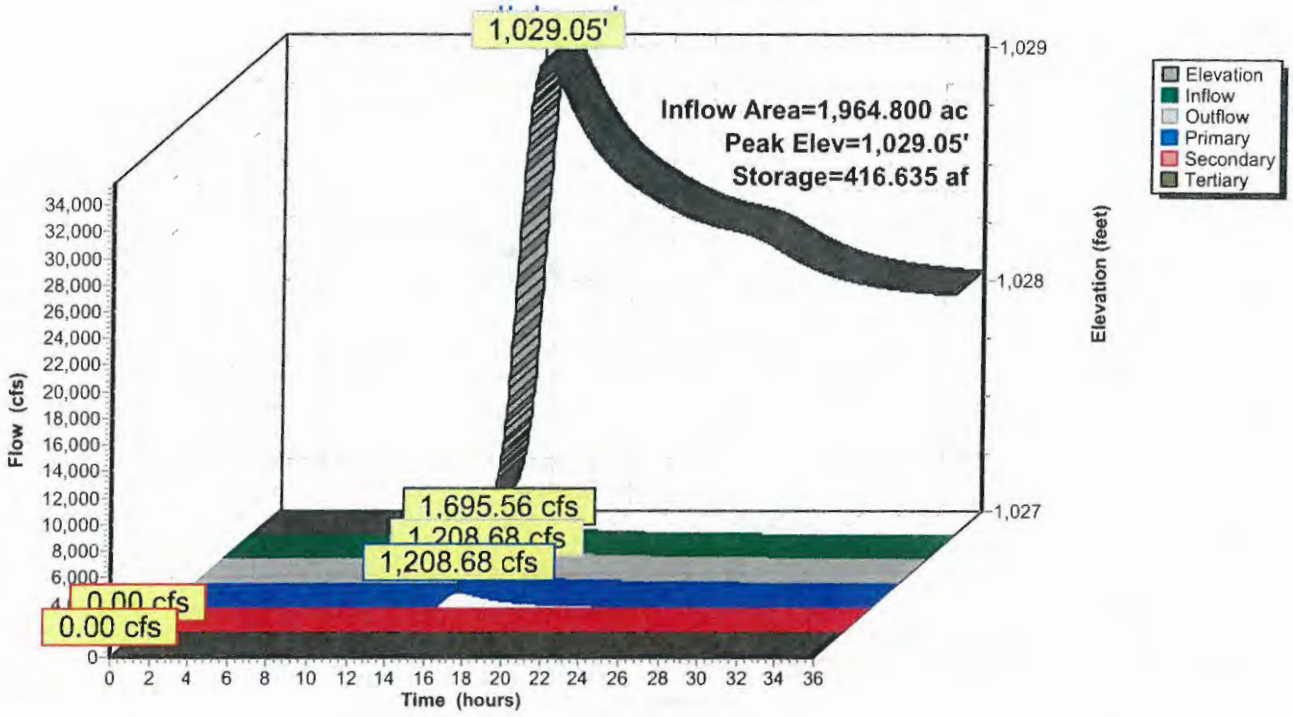
Device	Routing	Invert	Outlet Devices
#1	Primary	1,028.00'	**300.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	1,028.50'	**330.0' long x 30.0' breadth Broad-Crested Rectangular 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=1,208.67 cfs @ 14.89 hrs HW=1,029.05' TW=1,022.20' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 847.23 cfs @ 2.69 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 361.43 cfs @ 2.00 fps)

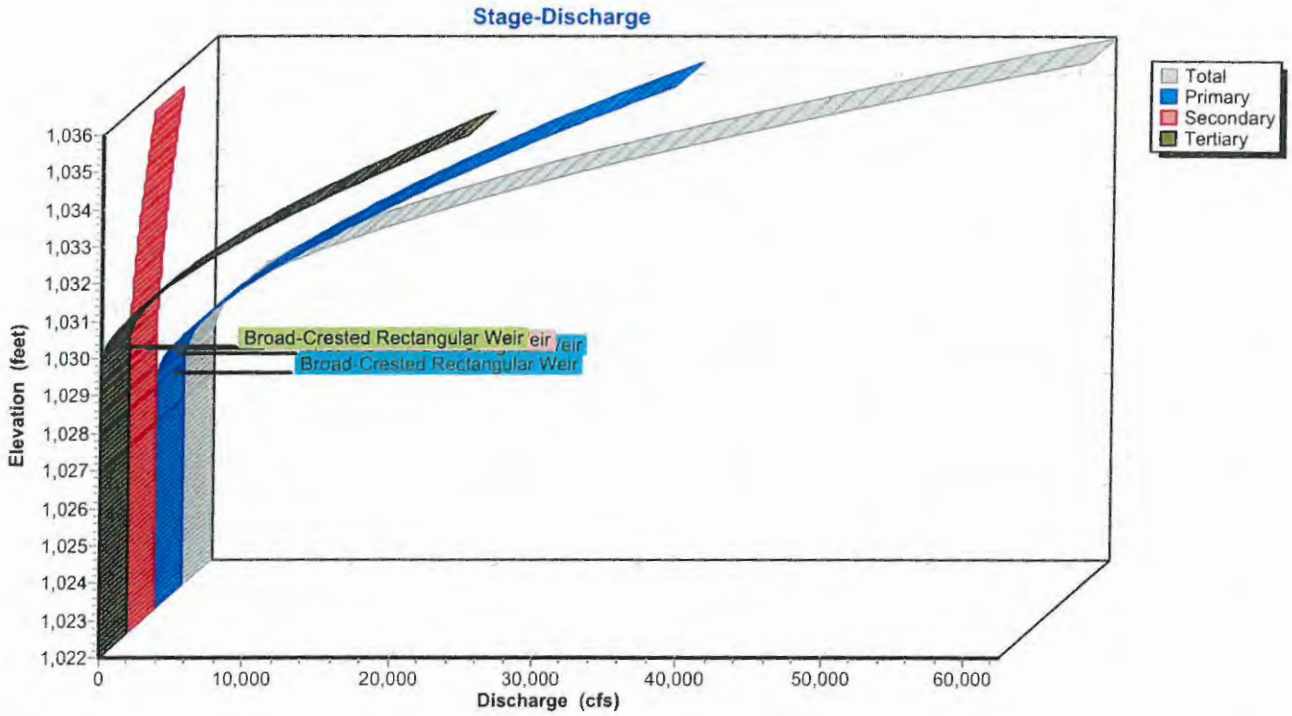
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,027.00' TW=1,018.00' (Dynamic Tailwater)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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)

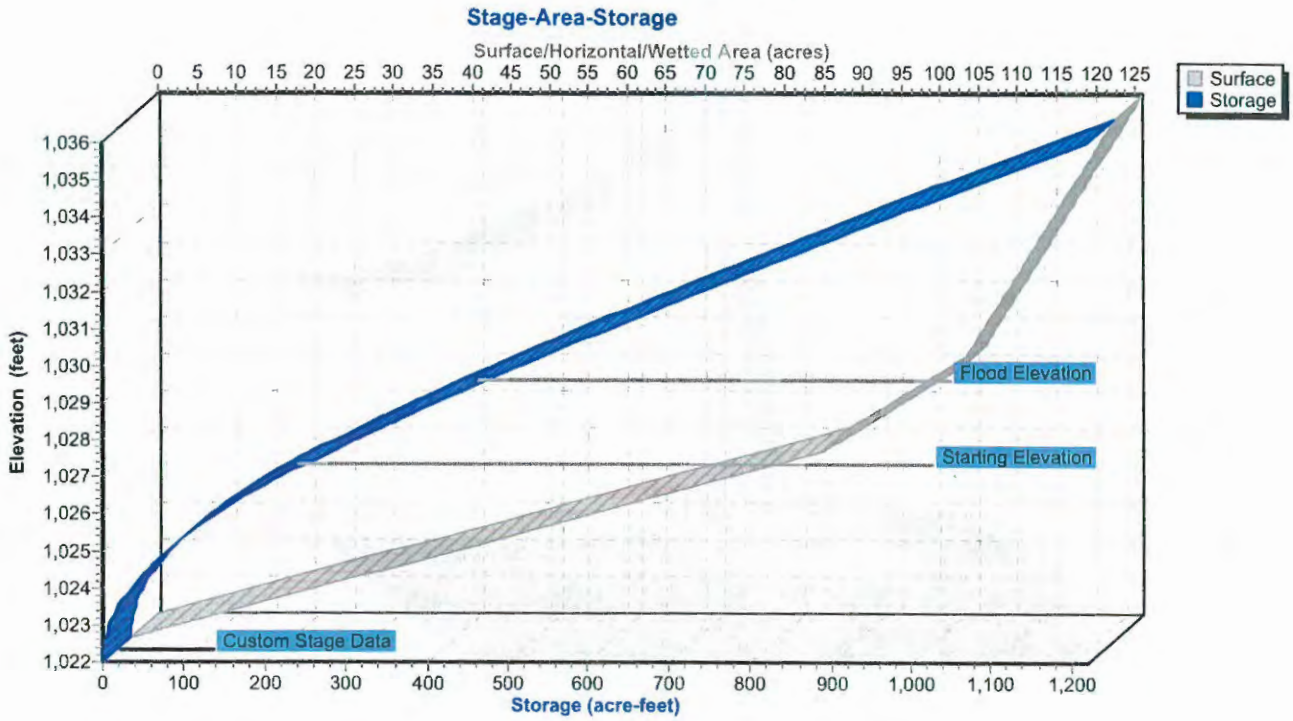
Pond 9P: Sippo Lake



Pond 9P: Sippo Lake



Pond 9P: Sippo Lake

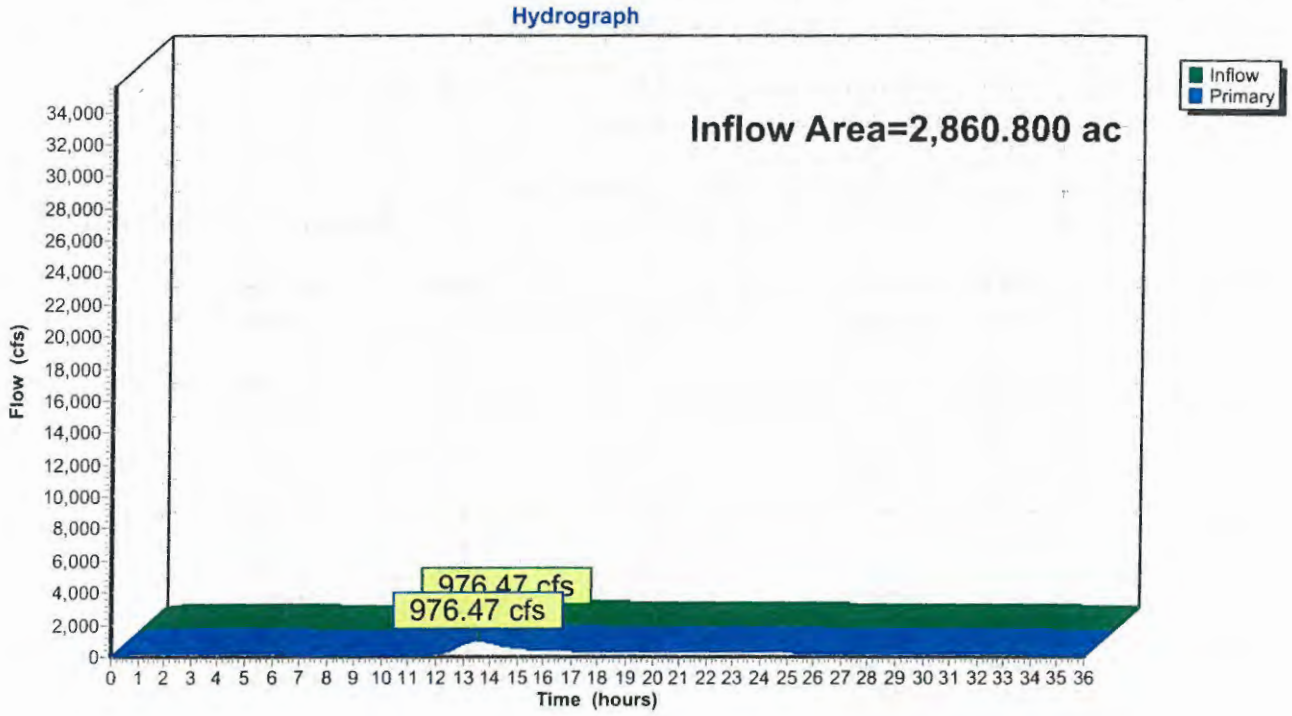


Summary for Pond 13P: Confluence 3 - Combined Watershed NW and North Watershed

Inflow Area = 2,860.800 ac, 23.34% Impervious, Inflow Depth > 3.34" for 500 year-FEMA event
Inflow = 976.47 cfs @ 13.51 hrs, Volume= 797.319 af
Primary = 976.47 cfs @ 13.52 hrs, Volume= 797.319 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 > 2.63" for 500 year-FEMA event
Inflow = 2,643.72 cfs @ 14.94 hrs, Volume= 2,076.092 af
Outflow = 2,509.12 cfs @ 15.67 hrs, Volume= 2,075.058 af, Atten= 5%, Lag= 43.9 min
Primary = 2,509.12 cfs @ 15.67 hrs, Volume= 2,075.058 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= 997.51' @ 15.67 hrs Surf.Area= 8.632 ac Storage= 83.995 af
Flood Elev= 1,008.00' Surf.Area= 13.465 ac Storage= 197.028 af

Plug-Flow detention time= 13.5 min calculated for 2,074.481 af (100% of inflow)
Center-of-Mass det. time= 13.0 min (1,159.4 - 1,146.3)

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

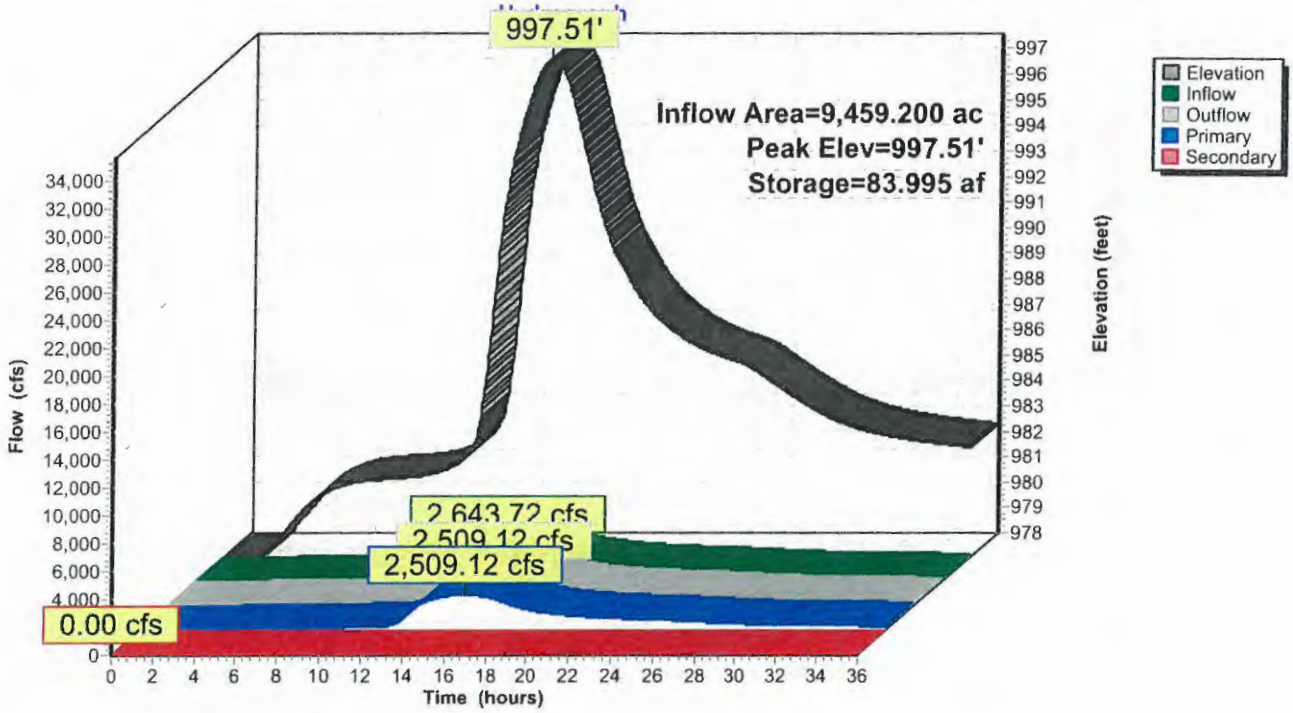
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
978.00	0.100	200.0	0.000	0.000	0.100
981.00	0.300	500.0	0.573	0.573	0.484
982.00	0.659	1,392.9	0.468	1.041	3.572
984.00	2.018	2,470.7	2.553	3.595	11.180
986.00	3.584	3,300.7	5.528	9.122	19.932
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

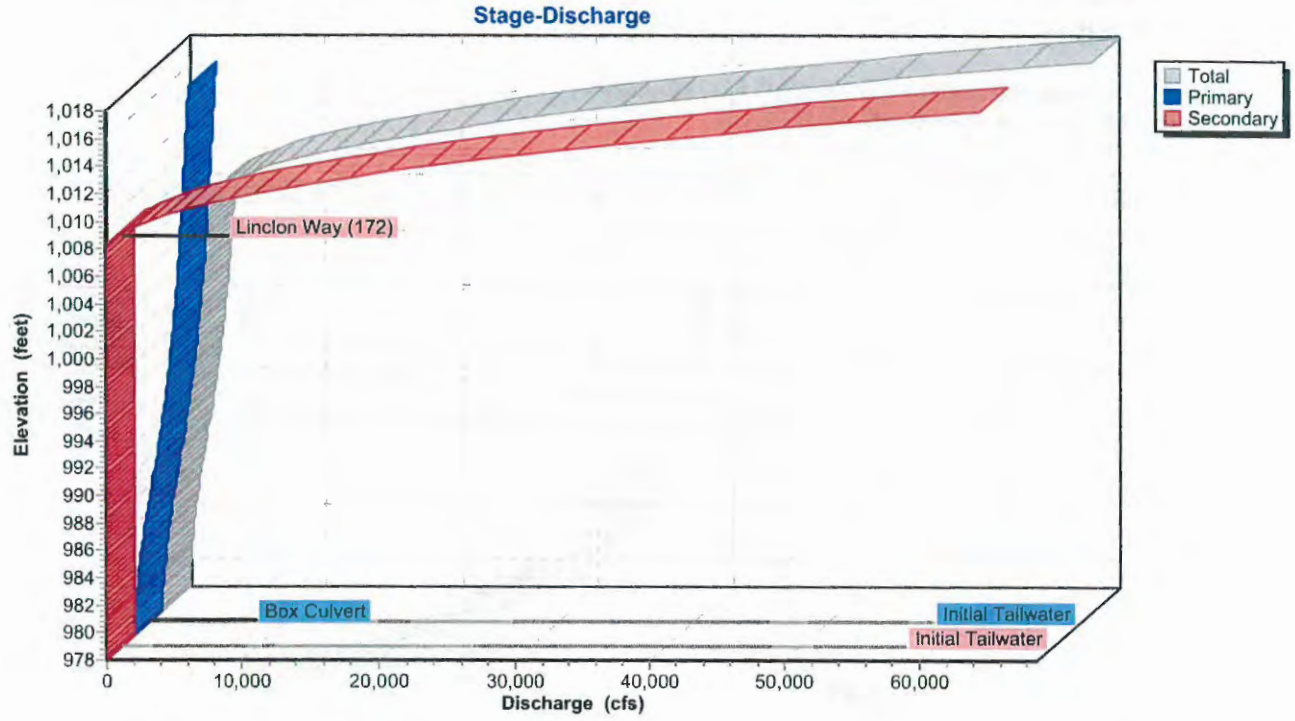
Primary OutFlow Max=2,509.11 cfs @ 15.67 hrs HW=997.51' TW=983.78' (Dynamic Tailwater)
└─**1=Box Culvert** (Inlet Controls 2,509.11 cfs @ 21.95 fps)

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)

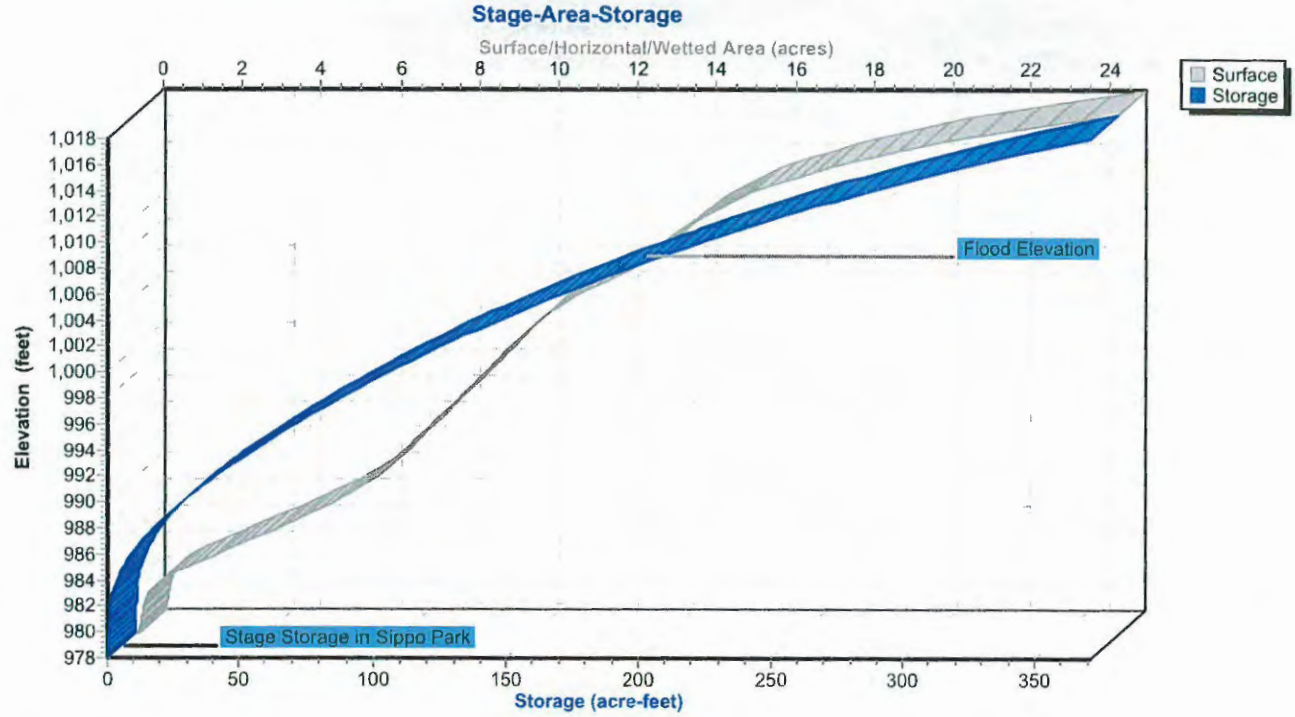
Pond 16P: Lincoln Way Box Culvert-Weir - Sippo Park Storage-



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 > 2.65" for 500 year-FEMA event
Inflow = 2,650.69 cfs @ 14.78 hrs, Volume= 2,089.638 af
Primary = 2,650.69 cfs @ 14.79 hrs, Volume= 2,089.638 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