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Detention Analysis
S. A. K. CONSTRUCTION
STORAGE YARD
O'FALLON, MISSOURI
(Musler Engineering Project No. 08-1078)

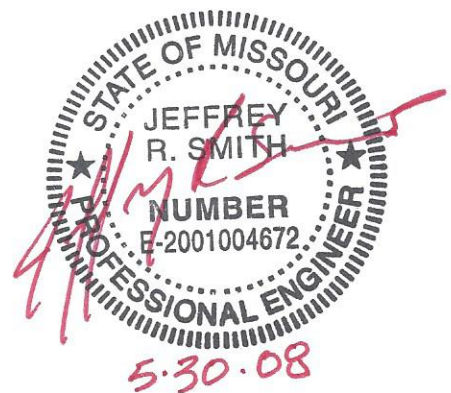
Prepared For:

S. A. K. CONSTRUCTION, L.L.C.
103 North Cool Springs Road
O'Fallon, Missouri 63366

Performed by:

Musler Engineering Company
32 Portwest Court
Saint Charles, MO 63303-5985

May 2008



DETENTION ANALYSIS
S. A. K. CONSTRUCTION STORAGE YARD

INTRODUCTION

At the request of S. A. K. Construction, L.L.C., we have conducted an analysis for a dry detention basin. The detention was designed to detain the 2 year – 20 minute, 15 year – 20 minute, 25 year – 20 minute and 100 year – 20 minute storm events. The basin is required to detain the 100 year – 20 minute storm event due to it being tributary to Belleau Creek.

SITE AND PROJECT DESCRIPTION

The S. A. K. Construction Storage Yard is located at 103 North Cool Springs Road in the City of O'Fallon, Saint Charles County, Missouri. The site is located on the west side of Cool Springs Road, adjacent to the Wabash Railroad Company, Norfolk & Western railroad tracks. The entire site area for S. A. K. Construction is approximately 14.85 acres. The existing buildings and parking have detention provided by an existing detention basin located on site. The proposed gravel storage yard is approximately 2.99 acres, and this report will address only the required detention for the proposed gravel storage yard. The drainage area to the proposed detention basin is approximately 4.76 acres, of which approximately 4.16 acres is on-site.

HYDROLOGIC AND DETENTION ANALYSIS

The storm run-off for the 2 year, 15 year, 25 year and 100 year – 20 minute storm events was determined using the Rational Method. The detention was analyzed using "Hydraflow Hydrographs 2002" (see Appendix).

The project drains to the Belleau Creek watershed through an unnamed tributary

The table below shows the results for the basin.

HYDROLOGIC AND DETENTION SUMMARY TABLE

Storm Event	Pr. Flow to Basin	Max Allow. Outflow	Total Outflow
2 yr.-20 min.	8.04 cfs	5.59 cfs	5.50 cfs
15 yr.-20 min.	13.05 cfs	9.10 cfs	7.04 cfs
25 yr.-20 min.	16.11 cfs	11.24 cfs	8.56 cfs
100 yr.-20 min.	20.60 cfs	14.35 cfs	13.55 cfs

Top of dam = 476.58

100yr. high water = 475.24

Freeboard = 1.34 feet

100yr. high water with low flow blocked = 475.51

Freeboard with low flow blocked = 1.07 feet

Sediment volume (6 month duration) = 1,883 cu. ft.

= 471 cu. ft. (see calculations)

APPENDIX

CALCULATIONS
S. A. K. CONSTRUCTION STORAGE YARD

Overall Site:

$$Q=(PI)A$$

PI Factors:

Grass/Natural Conditions (5% impervious – including City of O'Fallon run-off factors):

$$\begin{aligned}PI &= 1.15 \text{ (2 year – 20 minute)} \\ &= 1.87 \text{ (15 year – 20 minute)} \\ &= 2.31 \text{ (25 year – 20 minute)} \\ &= 2.95 \text{ (100 year – 20 minute)}\end{aligned}$$

Gravel Conditions (65% impervious – including City of O'Fallon run-off factors):

$$\begin{aligned}PI &= 1.75 \text{ (2 year – 20 minute, 50% developed)} \\ &= 2.60 \text{ (15 year – 20 minute, 50% developed)} \\ &= 3.10 \text{ (25 year – 20 minute, 50% developed)} \\ &= 3.58 \text{ (100 year – 20 minute, 50% developed)}\end{aligned}$$

Note: City of O'Fallon Run-off Factors are as follows:

$$\begin{aligned}2 \text{ year} &= 1.0 \\ 15 \text{ year} &= 1.1 \\ 25 \text{ year} &= 1.15 \\ 100 \text{ year} &= 1.25\end{aligned}$$

Drainage Area to detention basin:

On-site: 4.08 acres

Gravel: 2.99 acres
Grass/Natural: 1.09 acres

Off-site: 0.68 acres

Gravel: 0.15 acres
Grass/Natural: 0.53 acres

Total Drainage Area: 4.76 acres

Gravel: 3.14 acres
Grass/Natural: 1.62 acres

Differential Run-off:

$$\begin{aligned} 2 \text{ year: } & (2.99 \text{ Ac})(1.97 - 1.15) = 2.45 \text{ cfs} \\ 15 \text{ year: } & (2.99 \text{ Ac})(3.19 - 1.87) = 3.95 \text{ cfs} \\ 25 \text{ year: } & (2.99 \text{ Ac})(3.94 - 2.31) = 4.87 \text{ cfs} \\ 100 \text{ year: } & (2.99 \text{ Ac.})(5.04 - 2.95) = 6.25 \text{ cfs} \end{aligned}$$

Proposed Run-off (including off-site to proposed detention basin)

$$\begin{aligned} 2 \text{ year: } & (3.14 \text{ Ac})(1.97) + (1.62 \text{ Ac})(1.15) = 8.04 \text{ cfs} \\ 15 \text{ year: } & (3.14 \text{ Ac})(3.19) + (1.62 \text{ Ac})(1.87) = 13.05 \text{ cfs} \\ 25 \text{ year: } & (3.14 \text{ Ac})(3.94) + (1.62 \text{ Ac})(2.31) = 16.11 \text{ cfs} \\ 100 \text{ year: } & (3.14 \text{ Ac.})(5.04) + (1.62 \text{ Ac.})(2.95) = 20.60 \text{ cfs} \end{aligned}$$

Allowable discharge from the detention basin

$$\begin{aligned} 2 \text{ year: } & 8.04 - 2.45 = 5.59 \text{ cfs} \\ 15 \text{ year: } & 13.05 - 3.95 = 9.10 \text{ cfs} \\ 25 \text{ year: } & 16.11 - 4.87 = 11.24 \text{ cfs} \\ 100 \text{ year: } & 20.60 - 6.25 = 14.35 \text{ cfs} \end{aligned}$$

Actual discharge versus allowable discharge for detention basin:

2 year	5.50 cfs < 5.59 cfs
15 year	7.04 cfs < 9.10 cfs
25 year	8.56 cfs < 11.24 cfs
100 year	14.16 cfs < 14.35 cfs

Sediment Calculation (6 month duration)

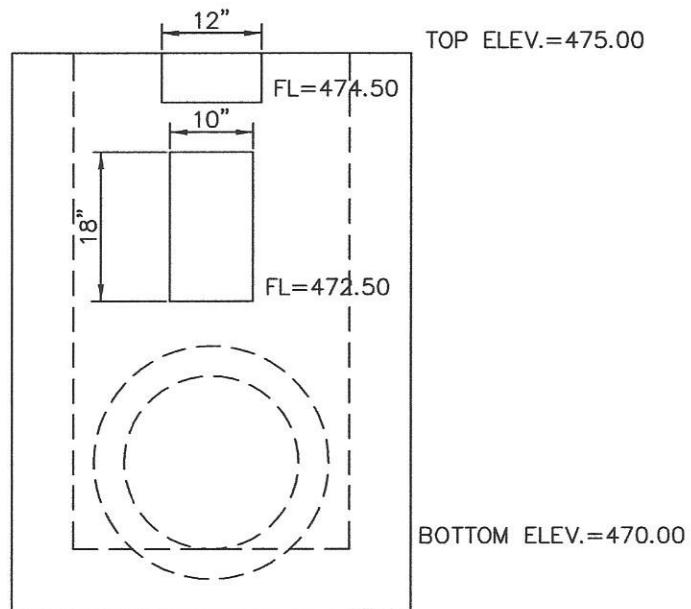
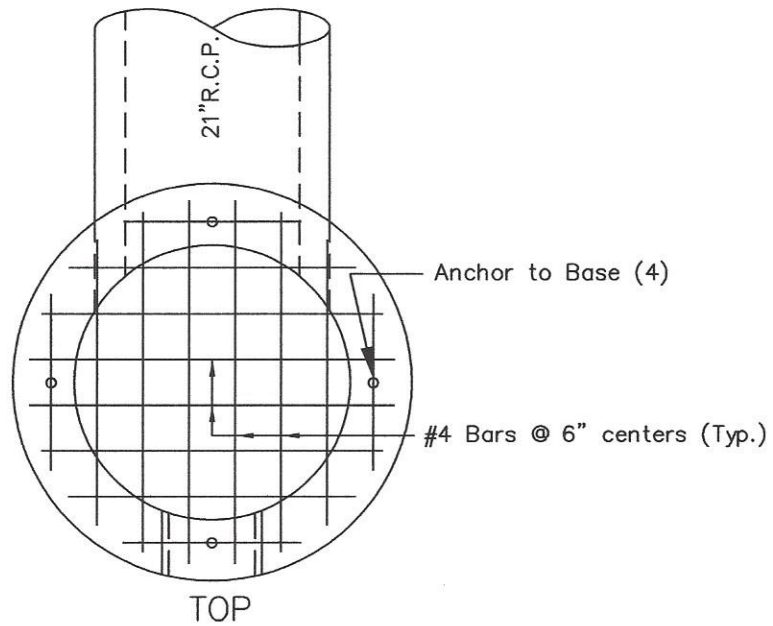
$$\text{Volume} = \text{LS} \times \text{SDR} \times \text{SY} \times \text{Area} \times \text{Duration}$$

$$\begin{aligned} \text{LS} &= 0.59 \\ \text{SDR} &= 0.70 \\ \text{SY} &= 0.048 \\ \text{Area} &= 4.08 \text{ acres (total disturbed)} \\ \text{Duration} &= 2.0 \text{ yr.} \end{aligned}$$

$$\text{Volume} = (0.59)(0.70)(0.048)(4.08)(2.0)(43560) = 7,047 \text{ cu. ft.}$$

Note: After grading operations completed, the storage lot will immediately be rocked. Actual area of bare earth will be 1.09 acres until vegetation is established. The duration will be less than 6 months.

$$\text{Volume} = (0.59)(0.70)(0.048)(1.09)(0.5)(43560) = 471 \text{ cu. ft.}$$



OVERFLOW STRUCTURE
 (PRECAST 48" MANHOLE)
 N.T.S.

SAK CONSTRUCTION
STORAGE YARD

A (70 08 102) (41306)(5.18) + (1.506)(X.87) = 12.89 s.f.a.

DETENTION BASIN USED AS TEMPORARY SLUICING BASIN

BRIDGE AREA (TOTAL) = 4.78 ACRES
 BRIDGE AREA (NET) = 1.05 ACRES
 BRIDGE AREA (GROSS) = 3.73 ACRES
 STORAGE REQUIRED = (4.78)(1.05)(1.05) = 5.27 CU. FT.
 1.05 ACRES
 1.05 ACRES
 1.05 ACRES

STORAGE @ 0.453 = 7247 CU. FT. (MIN. CLEARANCE AT THIS ELEVATION)
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NOTE: AREA UNDER DISCUSSION AND CHANGING OF NAME OF THE CITY OF COOL SPRINGS, ILL. IS SUBJECT TO THE CITY OF COOL SPRINGS, ILL. ZONING ORDINANCE AND THE CITY OF COOL SPRINGS, ILL. ZONING MAP. THE CITY OF COOL SPRINGS, ILL. ZONING ORDINANCE AND THE CITY OF COOL SPRINGS, ILL. ZONING MAP ARE AVAILABLE FOR REVIEW AT THE CITY CLERK'S OFFICE, 100 N. MAIN ST., COOL SPRINGS, ILL. 62422. THE CITY OF COOL SPRINGS, ILL. ZONING ORDINANCE AND THE CITY OF COOL SPRINGS, ILL. ZONING MAP ARE AVAILABLE FOR REVIEW AT THE CITY CLERK'S OFFICE, 100 N. MAIN ST., COOL SPRINGS, ILL. 62422.



Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	Manual	-----	-----	8.04	-----	-----	13.05	16.11	-----	20.60	Proposed to Basin
2	Reservoir	1	-----	5.50	-----	-----	7.04	8.56	-----	13.55	Detention Basin
3	Reservoir	1	-----	0.12	-----	-----	4.40	10.12	-----	16.97	Low Flow Blocked

Proj. file: 08-1078-Detention.gpw

Run date: 05-01-2008

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Manual	8.04	1	1	9,648	---	-----	-----	Proposed to Basin
2	Reservoir	5.50	1	20	9,648	1	474.09	5,125	Detention Basin
Proj. file: 08-1078-Detention.gpw							Return Period: 2 yr		Run date: 04-28-2008

Hydrograph Report

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 2 yrs

Peak discharge = 8.04 cfs
Time interval = 1 min

Hydrograph Volume = 9,648 cuft

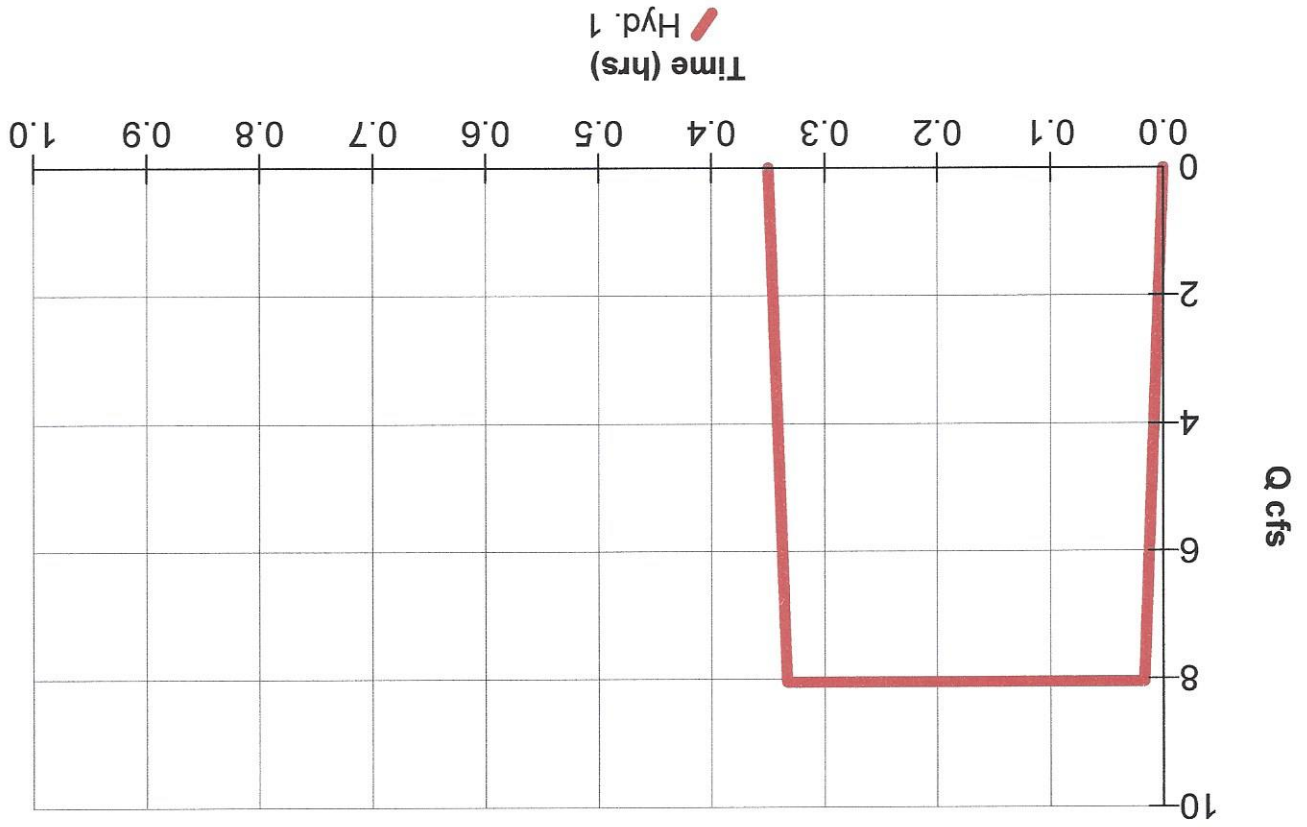
Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02	8.04 <<
0.03	8.04 <<
0.05	8.04 <<
0.07	8.04 <<
0.08	8.04 <<
0.10	8.04 <<
0.12	8.04 <<
0.13	8.04 <<
0.15	8.04 <<
0.17	8.04 <<
0.18	8.04 <<
0.20	8.04 <<
0.22	8.04 <<
0.23	8.04 <<
0.25	8.04 <<
0.27	8.04 <<
0.28	8.04 <<
0.30	8.04 <<
0.32	8.04 <<
0.33	8.04 <<

...End

Hyd. No. 1 - Manual - 2 Yr - Qp = 8.04 cfs - Proposed to Basin



Hydrograph Report

Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
 Storm frequency = 2 yrs
 Inflow hyd. No. = 1
 Max. Elevation = 474.09 ft

Peak discharge = 5.50 cfs
 Time interval = 1 min
 Reservoir name = Detention Basin
 Max. Storage = 5,125 cuft

Storage Indication method used.

Outflow hydrograph volume = 9,648 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.02	8.04 <<	472.89	11.25	0.70	----	----	----	----	----	----	----	0.70
0.03	8.04 <<	473.09	11.25	1.28	----	----	----	----	----	----	----	1.28
0.05	8.04 <<	473.19	11.25	1.61	----	----	----	----	----	----	----	1.61
0.07	8.04 <<	473.28	11.25	1.94	----	----	----	----	----	----	----	1.94
0.08	8.04 <<	473.36	11.25	2.28	----	----	----	----	----	----	----	2.28
0.10	8.04 <<	473.45	11.25	2.61	----	----	----	----	----	----	----	2.61
0.12	8.04 <<	473.52	11.25	2.93	----	----	----	----	----	----	----	2.93
0.13	8.04 <<	473.59	11.25	3.25	----	----	----	----	----	----	----	3.25
0.15	8.04 <<	473.66	11.25	3.56	----	----	----	----	----	----	----	3.56
0.17	8.04 <<	473.73	11.25	3.85	----	----	----	----	----	----	----	3.85
0.18	8.04 <<	473.78	11.25	4.13	----	----	----	----	----	----	----	4.13
0.20	8.04 <<	473.84	11.25	4.40	----	----	----	----	----	----	----	4.40
0.22	8.04 <<	473.89	11.25	4.66	----	----	----	----	----	----	----	4.66
0.23	8.04 <<	473.94	11.25	4.90	----	----	----	----	----	----	----	4.90
0.25	8.04 <<	473.98	11.25	5.13	----	----	----	----	----	----	----	5.13
0.27	8.04 <<	474.01	11.25	5.25	----	----	----	----	----	----	----	5.25
0.28	8.04 <<	474.03	11.25	5.32	----	----	----	----	----	----	----	5.32
0.30	8.04 <<	474.05	11.25	5.38	----	----	----	----	----	----	----	5.38
0.32	8.04 <<	474.07	11.25	5.44	----	----	----	----	----	----	----	5.44
0.33	8.04 <<	474.09 <<	11.25	5.50	----	----	----	----	----	----	----	5.50 <<
0.35	0.00	474.08	11.25	5.47	----	----	----	----	----	----	----	5.47
0.37	0.00	474.04	11.25	5.34	----	----	----	----	----	----	----	5.34
0.38	0.00	474.00	11.25	5.22	----	----	----	----	----	----	----	5.22
0.40	0.00	473.93	11.25	4.85	----	----	----	----	----	----	----	4.85
0.42	0.00	473.86	11.25	4.51	----	----	----	----	----	----	----	4.51
0.43	0.00	473.80	11.25	4.19	----	----	----	----	----	----	----	4.19
0.45	0.00	473.74	11.25	3.91	----	----	----	----	----	----	----	3.91
0.47	0.00	473.68	11.25	3.65	----	----	----	----	----	----	----	3.65
0.48	0.00	473.63	11.25	3.42	----	----	----	----	----	----	----	3.42
0.50	0.00	473.58	11.25	3.20	----	----	----	----	----	----	----	3.20
0.52	0.00	473.54	11.25	3.00	----	----	----	----	----	----	----	3.00
0.53	0.00	473.50	11.25	2.82	----	----	----	----	----	----	----	2.82
0.55	0.00	473.46	11.25	2.65	----	----	----	----	----	----	----	2.65
0.57	0.00	473.42	11.25	2.50	----	----	----	----	----	----	----	2.50
0.58	0.00	473.38	11.25	2.35	----	----	----	----	----	----	----	2.35
0.60	0.00	473.35	11.25	2.22	----	----	----	----	----	----	----	2.22
0.62	0.00	473.32	11.25	2.10	----	----	----	----	----	----	----	2.10
0.63	0.00	473.29	11.25	1.98	----	----	----	----	----	----	----	1.98

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.65	0.00	473.26	11.25	1.88	----	----	----	----	----	----	----	1.88
0.67	0.00	473.23	11.25	1.78	----	----	----	----	----	----	----	1.78
0.68	0.00	473.21	11.25	1.69	----	----	----	----	----	----	----	1.69
0.70	0.00	473.18	11.25	1.60	----	----	----	----	----	----	----	1.60
0.72	0.00	473.16	11.25	1.52	----	----	----	----	----	----	----	1.52
0.73	0.00	473.14	11.25	1.45	----	----	----	----	----	----	----	1.45
0.75	0.00	473.12	11.25	1.38	----	----	----	----	----	----	----	1.38
0.77	0.00	473.10	11.25	1.31	----	----	----	----	----	----	----	1.31
0.78	0.00	473.08	11.25	1.25	----	----	----	----	----	----	----	1.25
0.80	0.00	473.06	11.25	1.20	----	----	----	----	----	----	----	1.20
0.82	0.00	473.04	11.25	1.14	----	----	----	----	----	----	----	1.14
0.83	0.00	473.03	11.25	1.09	----	----	----	----	----	----	----	1.09
0.85	0.00	473.01	11.25	1.04	----	----	----	----	----	----	----	1.04
0.87	0.00	472.98	11.25	0.95	----	----	----	----	----	----	----	0.95
0.88	0.00	472.89	11.25	0.70	----	----	----	----	----	----	----	0.70
0.90	0.00	472.83	11.25	0.53	----	----	----	----	----	----	----	0.53
0.92	0.00	472.78	11.25	0.41	----	----	----	----	----	----	----	0.41
0.93	0.00	472.74	11.25	0.33	----	----	----	----	----	----	----	0.33
0.95	0.00	472.70	11.25	0.26	----	----	----	----	----	----	----	0.26
0.97	0.00	472.68	11.25	0.22	----	----	----	----	----	----	----	0.22
0.98	0.00	472.66	11.25	0.18	----	----	----	----	----	----	----	0.18
1.00	0.00	472.64	11.25	0.15	----	----	----	----	----	----	----	0.15
1.02	0.00	472.63	11.25	0.13	----	----	----	----	----	----	----	0.13
1.03	0.00	472.61	11.25	0.11	----	----	----	----	----	----	----	0.11
1.05	0.00	472.60	11.25	0.09	----	----	----	----	----	----	----	0.09
1.07	0.00	472.59	11.25	0.08	----	----	----	----	----	----	----	0.08
1.08	0.00	472.58	11.25	0.07	----	----	----	----	----	----	----	0.07
1.10	0.00	472.58	11.25	0.06	----	----	----	----	----	----	----	0.06
1.12	0.00	472.57	11.25	0.06	----	----	----	----	----	----	----	0.06

...End

Reservoir Report

Reservoir No. 1 - Detention Basin

Hydraflow Hydrographs by Intelisolve

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	472.50	00	0	0
0.50	473.00	1,115	279	279
1.50	474.00	7,096	4,106	4,384
2.50	475.00	10,271	8,684	13,068
3.50	476.00	11,601	10,936	24,004

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 21.0	18.0	0.0	0.0
Span in	= 21.0	10.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 470.00	472.50	0.00	0.00
Length ft	= 40.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 1.00	11.56	0.00	0.00
Crest El. ft	= 474.50	475.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Rect	Riser	---	---
Multi-Stage	= Yes	Yes	No	No

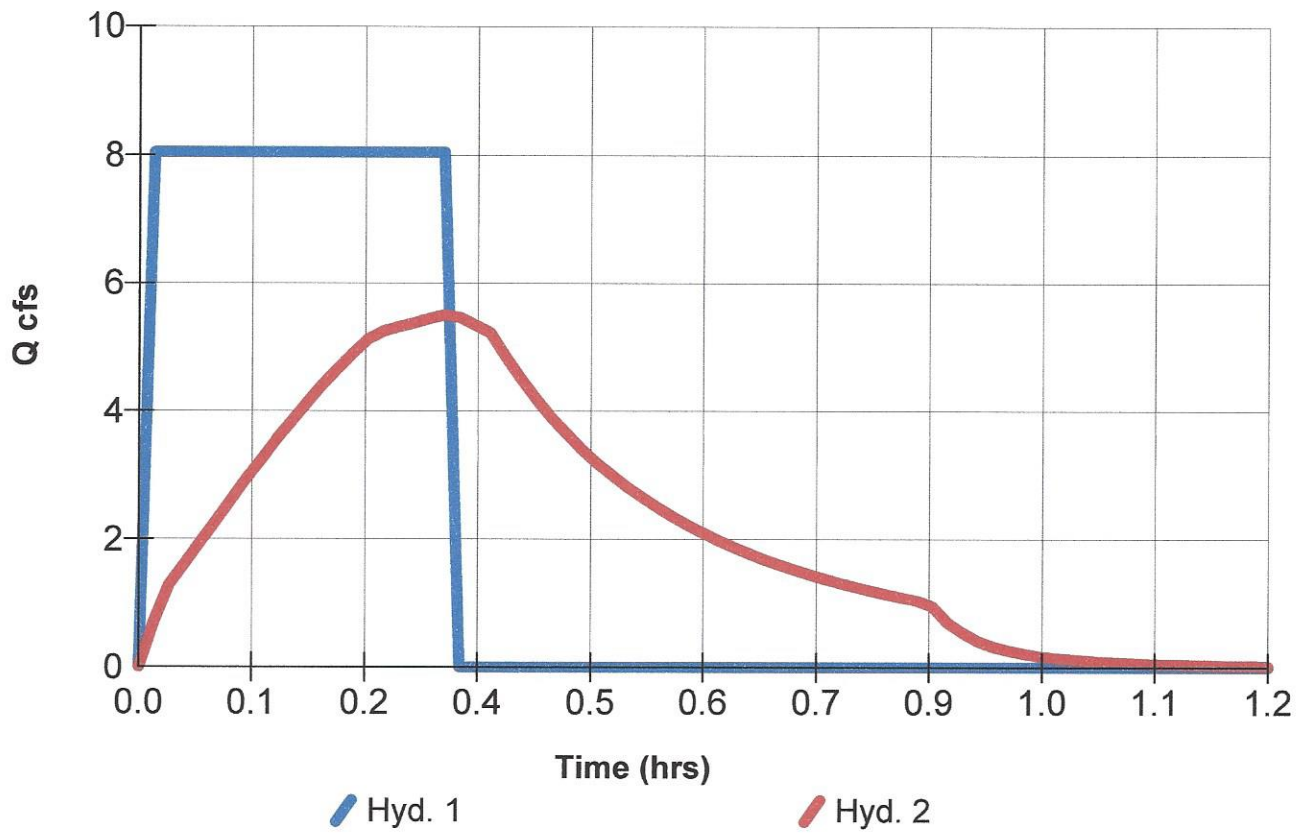
Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 472.58 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Civ D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	472.50	0.00	0.00	---	---	0.00	0.00	---	---	---	0.00
0.50	279	473.00	1.00	1.00	---	---	0.00	0.00	---	---	---	1.00
1.50	4,384	474.00	5.21	5.21	---	---	0.00	0.00	---	---	---	5.21
2.50	13,068	475.00	9.14	7.96	---	---	1.18	0.00	---	---	---	9.14
3.50	24,004	476.00	21.15	1.73	---	---	2.33	17.09	---	---	---	21.15

Hyd. No. 2 - Reservoir - 2 Yr - $Q_p = 5.50$ cfs - Detention Basin



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description	
1	Manual	13.05	1	1	15,660	---	---	---	Proposed to Basin	
2	Reservoir	7.04	1	20	15,660	1	474.58	9,447	Detention Basin	
Proj. file: 08-1078-Detention.gpw					Return Period: 15 yr			Run date: 04-28-2008		

Hydrograph Report

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 15 yrs

Peak discharge = 13.05 cfs
Time interval = 1 min

Hydrograph Volume = 15,660 cuft

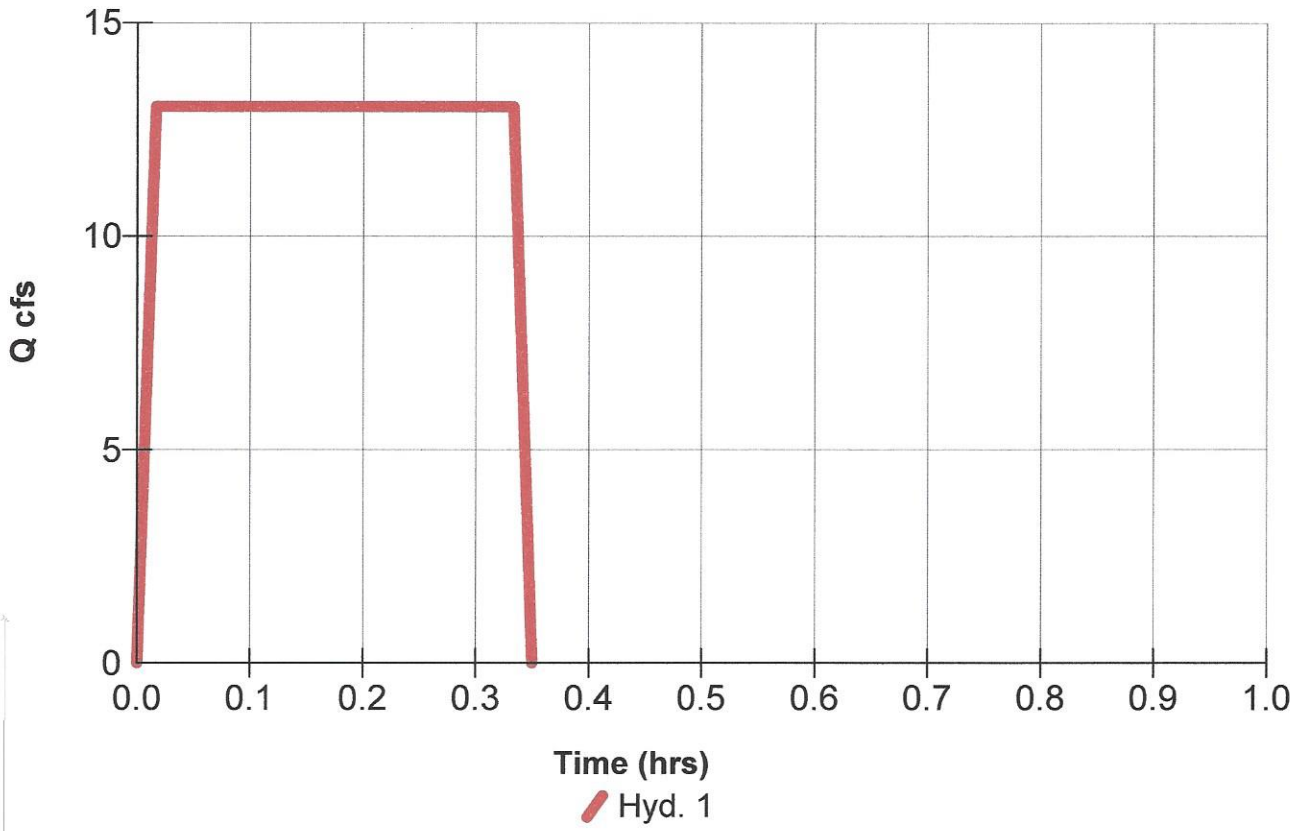
Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02	13.05 <<
0.03	13.05 <<
0.05	13.05 <<
0.07	13.05 <<
0.08	13.05 <<
0.10	13.05 <<
0.12	13.05 <<
0.13	13.05 <<
0.15	13.05 <<
0.17	13.05 <<
0.18	13.05 <<
0.20	13.05 <<
0.22	13.05 <<
0.23	13.05 <<
0.25	13.05 <<
0.27	13.05 <<
0.28	13.05 <<
0.30	13.05 <<
0.32	13.05 <<
0.33	13.05 <<

...End

Hyd. No. 1 - Manual - 15 Yr - Qp = 13.05 cfs - Proposed to Basin



Hydrograph Report

Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
 Storm frequency = 10 yrs
 Inflow hyd. No. = 1
 Max. Elevation = 474.58 ft

Peak discharge = 7.04 cfs
 Time interval = 1 min
 Reservoir name = Detention Basin
 Max. Storage = 9,447 cuft

Storage Indication method used.

Outflow hydrograph volume = 15,632 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.02	13.05 <<	473.02	1.07	1.07	----	----	----	----	----	----	----	1.07
0.03	13.05 <<	473.19	1.63	1.63	----	----	----	----	----	----	----	1.63
0.05	13.05 <<	473.35	2.24	2.24	----	----	----	----	----	----	----	2.24
0.07	13.05 <<	473.51	2.87	2.87	----	----	----	----	----	----	----	2.87
0.08	13.05 <<	473.65	3.51	3.51	----	----	----	----	----	----	----	3.51
0.10	13.05 <<	473.79	4.14	4.14	----	----	----	----	----	----	----	4.14
0.12	13.05 <<	473.91	4.76	4.76	----	----	----	----	----	----	----	4.76
0.13	13.05 <<	474.01	5.26	5.26	----	----	----	----	----	----	----	5.26
0.15	13.05 <<	474.07	5.44	5.44	----	----	----	----	----	----	----	5.44
0.17	13.05 <<	474.12	5.61	5.61	----	----	----	----	----	----	----	5.61
0.18	13.05 <<	474.17	5.77	5.77	----	----	----	----	----	----	----	5.77
0.20	13.05 <<	474.22	5.93	5.93	----	----	----	----	----	----	----	5.93
0.22	13.05 <<	474.27	6.07	6.07	----	----	----	----	----	----	----	6.07
0.23	13.05 <<	474.32	6.21	6.21	----	----	----	----	----	----	----	6.21
0.25	13.05 <<	474.36	6.35	6.35	----	----	----	----	----	----	----	6.35
0.27	13.05 <<	474.41	6.48	6.48	----	----	0.00	----	----	----	----	6.48
0.28	13.05 <<	474.45	6.60	6.60	----	----	0.00	----	----	----	----	6.60
0.30	13.05 <<	474.50	6.72	6.72	----	----	0.00	----	----	----	----	6.72
0.32	13.05 <<	474.54	6.88	6.84	----	----	0.04	----	----	----	----	6.88
0.33	13.05 <<	474.58 <<	7.04	6.95	----	----	0.09	----	----	----	----	7.04 <<
0.35	0.00	474.58	7.02	6.94	----	----	0.08	----	----	----	----	7.02
0.37	0.00	474.53	6.85	6.81	----	----	0.03	----	----	----	----	6.85
0.38	0.00	474.48	6.69	6.69	----	----	0.00	----	----	----	----	6.69
0.40	0.00	474.44	6.56	6.56	----	----	0.00	----	----	----	----	6.56
0.42	0.00	474.39	6.44	6.44	----	----	----	----	----	----	----	6.44
0.43	0.00	474.35	6.31	6.31	----	----	----	----	----	----	----	6.31
0.45	0.00	474.31	6.19	6.19	----	----	----	----	----	----	----	6.19
0.47	0.00	474.26	6.06	6.06	----	----	----	----	----	----	----	6.06
0.48	0.00	474.22	5.94	5.94	----	----	----	----	----	----	----	5.94
0.50	0.00	474.18	5.81	5.81	----	----	----	----	----	----	----	5.81
0.52	0.00	474.14	5.69	5.68	----	----	----	----	----	----	----	5.68
0.53	0.00	474.10	5.56	5.56	----	----	----	----	----	----	----	5.56
0.55	0.00	474.07	5.44	5.43	----	----	----	----	----	----	----	5.43
0.57	0.00	474.03	5.31	5.31	----	----	----	----	----	----	----	5.31
0.58	0.00	473.98	5.14	5.13	----	----	----	----	----	----	----	5.13
0.60	0.00	473.91	4.76	4.76	----	----	----	----	----	----	----	4.76
0.62	0.00	473.85	4.43	4.43	----	----	----	----	----	----	----	4.43
0.63	0.00	473.78	4.12	4.12	----	----	----	----	----	----	----	4.12

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.78	0.00	474.95	1.02	----	----	----	1.02	----	----	----	----	1.02
0.80	0.00	474.95	1.00	----	----	----	0.99	----	----	----	----	0.99
0.82	0.00	474.94	0.98	----	----	----	0.97	----	----	----	----	0.97
0.83	0.00	474.93	0.95	----	----	----	0.95	----	----	----	----	0.95
0.85	0.00	474.93	0.93	----	----	----	0.93	----	----	----	----	0.93
0.87	0.00	474.92	0.91	----	----	----	0.91	----	----	----	----	0.91
0.88	0.00	474.91	0.89	----	----	----	0.89	----	----	----	----	0.89
0.90	0.00	474.91	0.87	----	----	----	0.87	----	----	----	----	0.87
0.92	0.00	474.90	0.85	----	----	----	0.85	----	----	----	----	0.85
0.93	0.00	474.90	0.83	----	----	----	0.83	----	----	----	----	0.83
0.95	0.00	474.89	0.82	----	----	----	0.81	----	----	----	----	0.81
0.97	0.00	474.88	0.80	----	----	----	0.80	----	----	----	----	0.80
0.98	0.00	474.88	0.78	----	----	----	0.78	----	----	----	----	0.78
1.00	0.00	474.87	0.77	----	----	----	0.76	----	----	----	----	0.76
1.02	0.00	474.87	0.75	----	----	----	0.75	----	----	----	----	0.75
1.03	0.00	474.86	0.74	----	----	----	0.73	----	----	----	----	0.73
1.05	0.00	474.86	0.72	----	----	----	0.72	----	----	----	----	0.72
1.07	0.00	474.85	0.71	----	----	----	0.70	----	----	----	----	0.70
1.08	0.00	474.85	0.69	----	----	----	0.69	----	----	----	----	0.69
1.10	0.00	474.84	0.68	----	----	----	0.68	----	----	----	----	0.68
1.12	0.00	474.84	0.67	----	----	----	0.66	----	----	----	----	0.66
1.13	0.00	474.83	0.65	----	----	----	0.65	----	----	----	----	0.65
1.15	0.00	474.83	0.64	----	----	----	0.64	----	----	----	----	0.64
1.17	0.00	474.83	0.63	----	----	----	0.62	----	----	----	----	0.62
1.18	0.00	474.82	0.61	----	----	----	0.61	----	----	----	----	0.61
1.20	0.00	474.82	0.60	----	----	----	0.60	----	----	----	----	0.60
1.22	0.00	474.81	0.59	----	----	----	0.59	----	----	----	----	0.59
1.23	0.00	474.81	0.58	----	----	----	0.57	----	----	----	----	0.57
1.25	0.00	474.81	0.57	----	----	----	0.56	----	----	----	----	0.56
1.27	0.00	474.80	0.55	----	----	----	0.55	----	----	----	----	0.55
1.28	0.00	474.80	0.54	----	----	----	0.54	----	----	----	----	0.54
1.30	0.00	474.79	0.53	----	----	----	0.53	----	----	----	----	0.53
1.32	0.00	474.79	0.53	----	----	----	0.52	----	----	----	----	0.52
1.33	0.00	474.79	0.52	----	----	----	0.51	----	----	----	----	0.51
1.35	0.00	474.78	0.51	----	----	----	0.50	----	----	----	----	0.50
1.37	0.00	474.78	0.50	----	----	----	0.50	----	----	----	----	0.50
1.38	0.00	474.78	0.49	----	----	----	0.49	----	----	----	----	0.49
1.40	0.00	474.77	0.48	----	----	----	0.48	----	----	----	----	0.48
1.42	0.00	474.77	0.48	----	----	----	0.47	----	----	----	----	0.47
1.43	0.00	474.77	0.47	----	----	----	0.46	----	----	----	----	0.46
1.45	0.00	474.76	0.46	----	----	----	0.46	----	----	----	----	0.46
1.47	0.00	474.76	0.45	----	----	----	0.45	----	----	----	----	0.45
1.48	0.00	474.76	0.45	----	----	----	0.44	----	----	----	----	0.44
1.50	0.00	474.75	0.44	----	----	----	0.43	----	----	----	----	0.43
1.52	0.00	474.75	0.43	----	----	----	0.42	----	----	----	----	0.42
1.53	0.00	474.75	0.42	----	----	----	0.42	----	----	----	----	0.42
1.55	0.00	474.75	0.42	----	----	----	0.41	----	----	----	----	0.41
1.57	0.00	474.74	0.41	----	----	----	0.40	----	----	----	----	0.40
1.58	0.00	474.74	0.40	----	----	----	0.40	----	----	----	----	0.40
1.60	0.00	474.74	0.40	----	----	----	0.39	----	----	----	----	0.39
1.62	0.00	474.73	0.39	----	----	----	0.38	----	----	----	----	0.38

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1.63	0.00	474.73	0.38	----	----	----	0.38	----	----	----	----	0.38
1.65	0.00	474.73	0.38	----	----	----	0.37	----	----	----	----	0.37
1.67	0.00	474.73	0.37	----	----	----	0.36	----	----	----	----	0.36
1.68	0.00	474.72	0.37	----	----	----	0.36	----	----	----	----	0.36
1.70	0.00	474.72	0.36	----	----	----	0.35	----	----	----	----	0.35
1.72	0.00	474.72	0.35	----	----	----	0.35	----	----	----	----	0.35
1.73	0.00	474.72	0.35	----	----	----	0.34	----	----	----	----	0.34
1.75	0.00	474.71	0.34	----	----	----	0.33	----	----	----	----	0.33
1.77	0.00	474.71	0.34	----	----	----	0.33	----	----	----	----	0.33
1.78	0.00	474.71	0.33	----	----	----	0.32	----	----	----	----	0.32
1.80	0.00	474.71	0.33	----	----	----	0.32	----	----	----	----	0.32
1.82	0.00	474.71	0.32	----	----	----	0.31	----	----	----	----	0.31
1.83	0.00	474.70	0.31	----	----	----	0.31	----	----	----	----	0.31
1.85	0.00	474.70	0.31	----	----	----	0.30	----	----	----	----	0.30
1.87	0.00	474.70	0.31	----	----	----	0.30	----	----	----	----	0.30
1.88	0.00	474.70	0.30	----	----	----	0.29	----	----	----	----	0.29
1.90	0.00	474.70	0.30	----	----	----	0.29	----	----	----	----	0.29
1.92	0.00	474.69	0.30	----	----	----	0.28	----	----	----	----	0.28
1.93	0.00	474.69	0.29	----	----	----	0.28	----	----	----	----	0.28
1.95	0.00	474.69	0.29	----	----	----	0.28	----	----	----	----	0.28
1.97	0.00	474.69	0.29	----	----	----	0.27	----	----	----	----	0.27
1.98	0.00	474.69	0.28	----	----	----	0.27	----	----	----	----	0.27
2.00	0.00	474.68	0.28	----	----	----	0.27	----	----	----	----	0.27
2.02	0.00	474.68	0.28	----	----	----	0.26	----	----	----	----	0.26
2.03	0.00	474.68	0.27	----	----	----	0.26	----	----	----	----	0.26
2.05	0.00	474.68	0.27	----	----	----	0.26	----	----	----	----	0.26
2.07	0.00	474.68	0.27	----	----	----	0.25	----	----	----	----	0.25
2.08	0.00	474.67	0.27	----	----	----	0.25	----	----	----	----	0.25
2.10	0.00	474.67	0.26	----	----	----	0.25	----	----	----	----	0.25
2.12	0.00	474.67	0.26	----	----	----	0.24	----	----	----	----	0.24
2.13	0.00	474.67	0.26	----	----	----	0.24	----	----	----	----	0.24
2.15	0.00	474.67	0.25	----	----	----	0.24	----	----	----	----	0.24
2.17	0.00	474.67	0.25	----	----	----	0.23	----	----	----	----	0.23
2.18	0.00	474.66	0.25	----	----	----	0.23	----	----	----	----	0.23
2.20	0.00	474.66	0.25	----	----	----	0.23	----	----	----	----	0.23
2.22	0.00	474.66	0.24	----	----	----	0.22	----	----	----	----	0.22
2.23	0.00	474.66	0.24	----	----	----	0.22	----	----	----	----	0.22
2.25	0.00	474.66	0.24	----	----	----	0.22	----	----	----	----	0.22
2.27	0.00	474.66	0.24	----	----	----	0.22	----	----	----	----	0.22
2.28	0.00	474.66	0.23	----	----	----	0.21	----	----	----	----	0.21
2.30	0.00	474.65	0.23	----	----	----	0.21	----	----	----	----	0.21
2.32	0.00	474.65	0.23	----	----	----	0.21	----	----	----	----	0.21
2.33	0.00	474.65	0.23	----	----	----	0.20	----	----	----	----	0.20
2.35	0.00	474.65	0.22	----	----	----	0.20	----	----	----	----	0.20
2.37	0.00	474.65	0.22	----	----	----	0.20	----	----	----	----	0.20
2.38	0.00	474.65	0.22	----	----	----	0.20	----	----	----	----	0.20
2.40	0.00	474.65	0.22	----	----	----	0.19	----	----	----	----	0.19
2.42	0.00	474.64	0.22	----	----	----	0.19	----	----	----	----	0.19
2.43	0.00	474.64	0.21	----	----	----	0.19	----	----	----	----	0.19
2.45	0.00	474.64	0.21	----	----	----	0.19	----	----	----	----	0.19
2.47	0.00	474.64	0.21	----	----	----	0.18	----	----	----	----	0.18

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
2.48	0.00	474.64	0.21	----	----	----	0.18	----	----	----	----	0.18
2.50	0.00	474.64	0.21	----	----	----	0.18	----	----	----	----	0.18
2.52	0.00	474.64	0.20	----	----	----	0.18	----	----	----	----	0.18
2.53	0.00	474.64	0.20	----	----	----	0.17	----	----	----	----	0.17
2.55	0.00	474.63	0.20	----	----	----	0.17	----	----	----	----	0.17

...End

Reservoir Report

Reservoir No. 2 - Detention Basin - LFB

Hydraflow Hydrographs by Intelisolve

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	472.50	00	0	0
0.50	473.00	1,115	279	279
1.50	474.00	7,096	4,106	4,384
2.50	475.00	10,271	8,684	13,068
3.50	476.00	11,601	10,936	24,004

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 21.0	0.0	0.0	0.0
Span in	= 21.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 470.00	0.00	0.00	0.00
Length ft	= 40.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 1.00	11.56	0.00	0.00
Crest El. ft	= 474.50	475.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Rect	Riser	---	---
Multi-Stage	= Yes	Yes	No	No

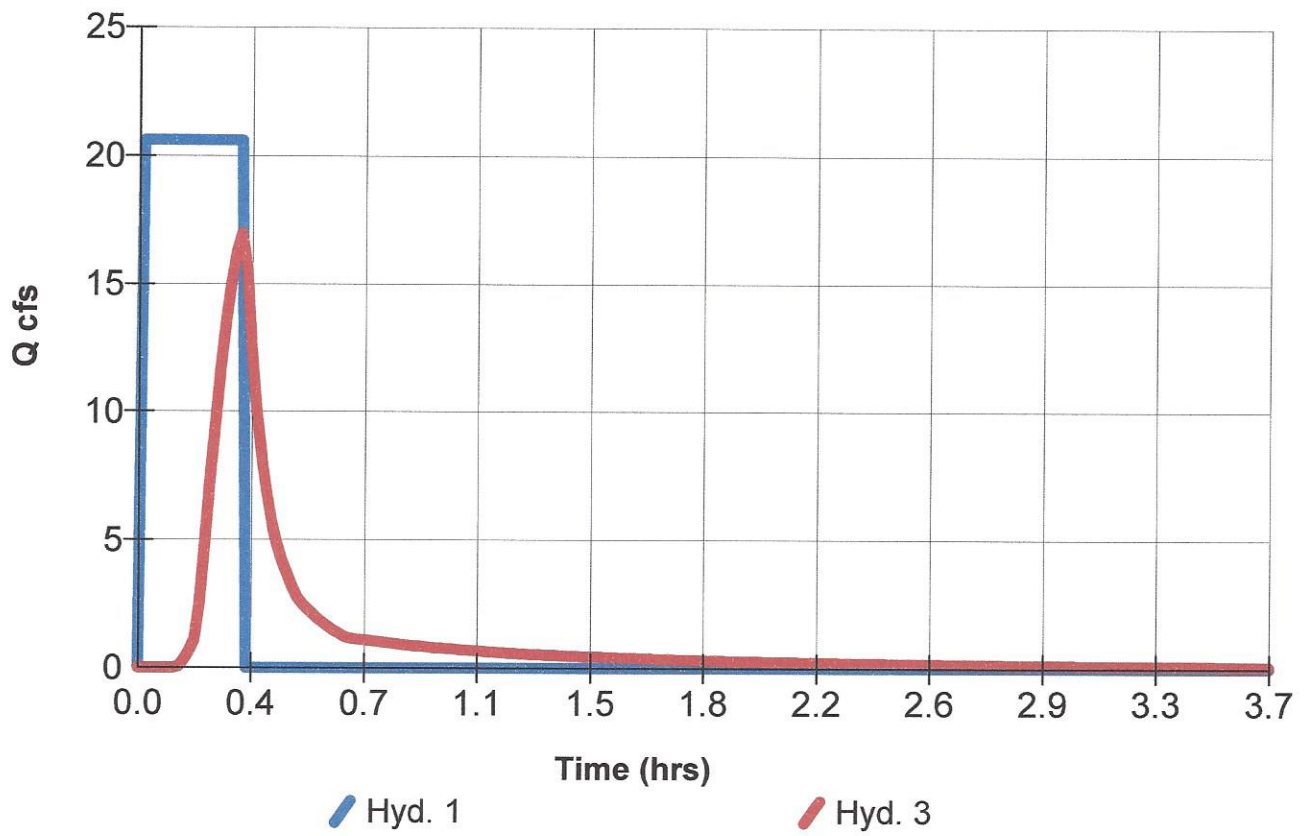
Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 472.58 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Civ D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	472.50	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.50	279	473.00	0.00	---	---	---	0.00	0.00	---	---	---	0.00
1.50	4,384	474.00	0.00	---	---	---	0.00	0.00	---	---	---	0.00
2.50	13,068	475.00	1.18	---	---	---	1.18	0.00	---	---	---	1.18
3.50	24,004	476.00	21.09	---	---	---	2.53	18.56	---	---	---	21.09

Hyd. No. 3 - Reservoir - 100 Yr - $Q_p = 16.97$ cfs - Low Flow Blocked



Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.65	0.00	473.72	3.85	3.85	----	----	----	----	----	----	----	3.85
0.67	0.00	473.67	3.59	3.59	----	----	----	----	----	----	----	3.59
0.68	0.00	473.62	3.36	3.36	----	----	----	----	----	----	----	3.36
0.70	0.00	473.57	3.15	3.15	----	----	----	----	----	----	----	3.15
0.72	0.00	473.53	2.96	2.96	----	----	----	----	----	----	----	2.96
0.73	0.00	473.49	2.78	2.78	----	----	----	----	----	----	----	2.78
0.75	0.00	473.45	2.61	2.61	----	----	----	----	----	----	----	2.61
0.77	0.00	473.41	2.46	2.46	----	----	----	----	----	----	----	2.46
0.78	0.00	473.37	2.32	2.32	----	----	----	----	----	----	----	2.32
0.80	0.00	473.34	2.19	2.19	----	----	----	----	----	----	----	2.19
0.82	0.00	473.31	2.07	2.07	----	----	----	----	----	----	----	2.07
0.83	0.00	473.28	1.96	1.96	----	----	----	----	----	----	----	1.96
0.85	0.00	473.25	1.86	1.86	----	----	----	----	----	----	----	1.86
0.87	0.00	473.23	1.76	1.76	----	----	----	----	----	----	----	1.76
0.88	0.00	473.20	1.67	1.67	----	----	----	----	----	----	----	1.67
0.90	0.00	473.18	1.58	1.58	----	----	----	----	----	----	----	1.58
0.92	0.00	473.15	1.51	1.51	----	----	----	----	----	----	----	1.51
0.93	0.00	473.13	1.43	1.43	----	----	----	----	----	----	----	1.43
0.95	0.00	473.11	1.36	1.36	----	----	----	----	----	----	----	1.36
0.97	0.00	473.09	1.30	1.30	----	----	----	----	----	----	----	1.30
0.98	0.00	473.07	1.24	1.24	----	----	----	----	----	----	----	1.24
1.00	0.00	473.06	1.18	1.18	----	----	----	----	----	----	----	1.18
1.02	0.00	473.04	1.13	1.13	----	----	----	----	----	----	----	1.13
1.03	0.00	473.02	1.08	1.08	----	----	----	----	----	----	----	1.08
1.05	0.00	473.01	1.03	1.03	----	----	----	----	----	----	----	1.03
1.07	0.00	472.96	0.89	0.89	----	----	----	----	----	----	----	0.89
1.08	0.00	472.88	0.66	0.66	----	----	----	----	----	----	----	0.66
1.10	0.00	472.81	0.51	0.50	----	----	----	----	----	----	----	0.50
1.12	0.00	472.77	0.40	0.39	----	----	----	----	----	----	----	0.39
1.13	0.00	472.73	0.33	0.31	----	----	----	----	----	----	----	0.31
1.15	0.00	472.70	0.27	0.25	----	----	----	----	----	----	----	0.25
1.17	0.00	472.67	0.23	0.20	----	----	----	----	----	----	----	0.20
1.18	0.00	472.65	0.20	0.17	----	----	----	----	----	----	----	0.17
1.20	0.00	472.64	0.17	0.13	----	----	----	----	----	----	----	0.13
1.22	0.00	472.62	0.15	0.11	----	----	----	----	----	----	----	0.11
1.23	0.00	472.61	0.13	0.09	----	----	----	----	----	----	----	0.09

...End

Reservoir Report

Reservoir No. 1 - Detention Basin

Hydraflow Hydrographs by Intelisolve

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	472.50	00	0	0
0.50	473.00	1,115	279	279
1.50	474.00	7,096	4,106	4,384
2.50	475.00	10,271	8,684	13,068
3.50	476.00	11,601	10,936	24,004

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 21.0	18.0	0.0	0.0
Span in	= 21.0	10.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 470.00	472.50	0.00	0.00
Length ft	= 40.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 1.00	11.56	0.00	0.00
Crest El. ft	= 474.50	475.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Rect	Riser	---	---
Multi-Stage	= Yes	Yes	No	No

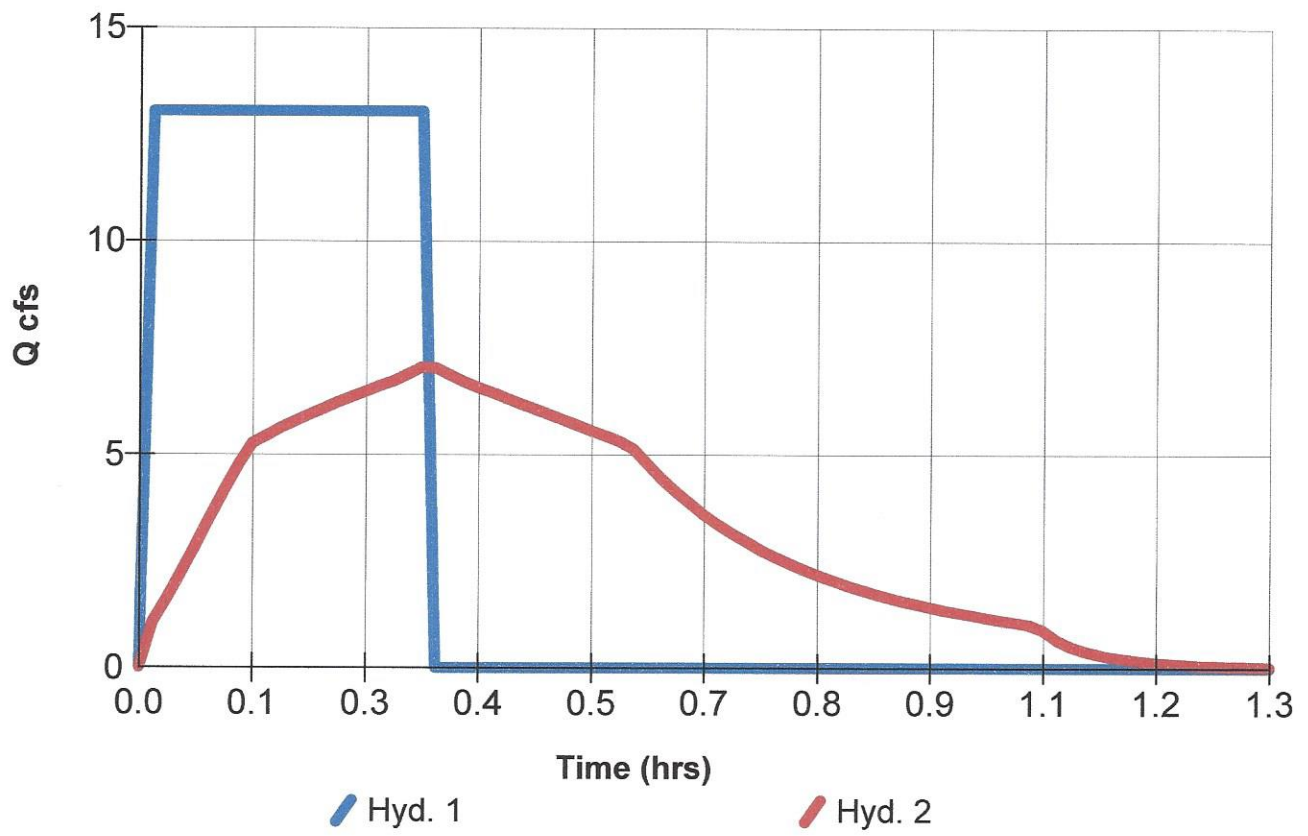
Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 472.58 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	472.50	0.00	0.00	---	---	0.00	0.00	---	---	---	0.00
0.50	279	473.00	1.00	1.00	---	---	0.00	0.00	---	---	---	1.00
1.50	4,384	474.00	5.21	5.21	---	---	0.00	0.00	---	---	---	5.21
2.50	13,068	475.00	9.14	7.96	---	---	1.18	0.00	---	---	---	9.14
3.50	24,004	476.00	21.15	1.73	---	---	2.33	17.09	---	---	---	21.15

Hyd. No. 2 - Reservoir - 10 Yr - Qp = 7.04 cfs - Detention Basin



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description	
1	Manual	16.11	1	1	19,332	---	-----	-----	Proposed to Basin	
2	Reservoir	8.56	1	20	19,332	1	474.90	12,182	Detention Basin	
Proj. file: 08-1078-Detention.gpw			Return Period: 25 yr				Run date: 04-28-2008			

Hydrograph Report

Hyd. No. 1

Proposed to Basin

Hydrograph type = Manual
Storm frequency = 25 yrs

Peak discharge = 16.11 cfs
Time interval = 1 min

Hydrograph Volume = 19,332 cuft

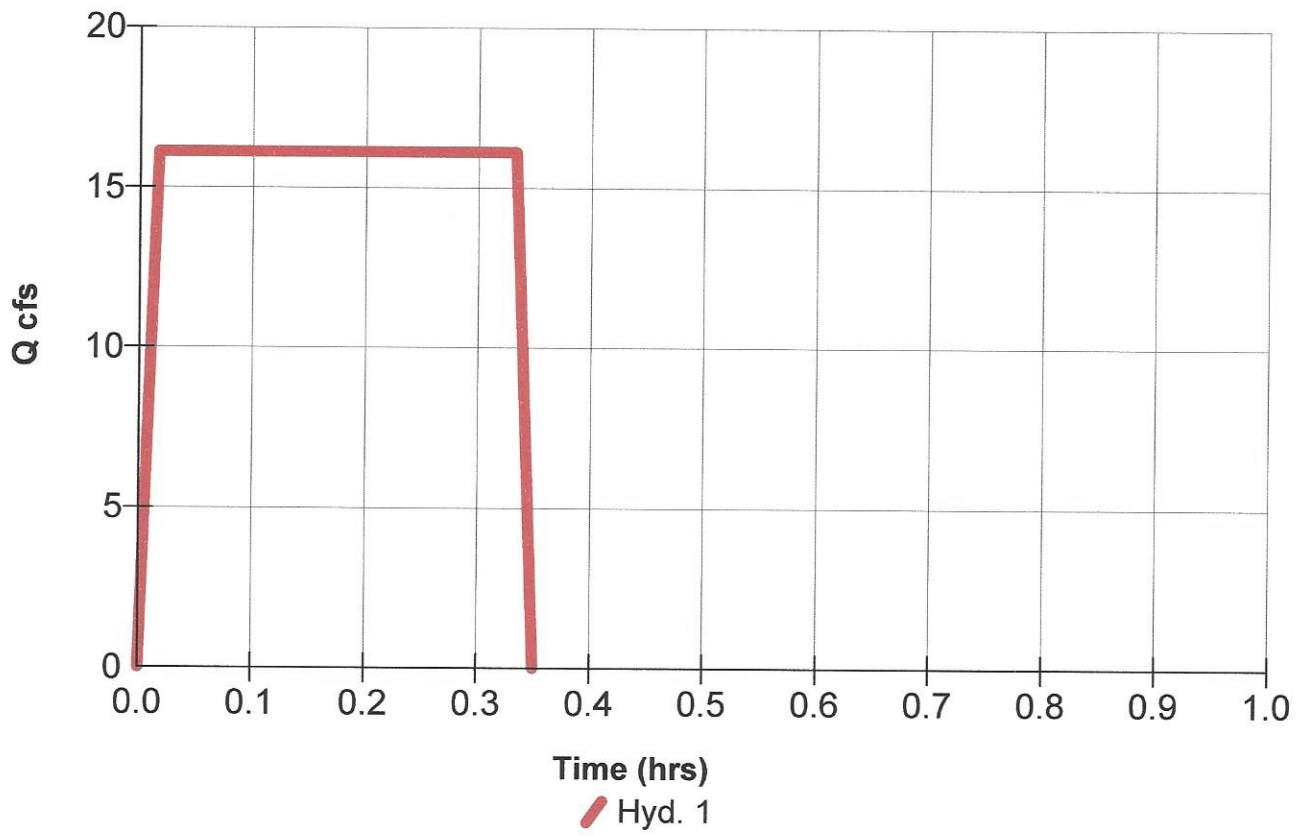
Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02	16.11 <<
0.03	16.11 <<
0.05	16.11 <<
0.07	16.11 <<
0.08	16.11 <<
0.10	16.11 <<
0.12	16.11 <<
0.13	16.11 <<
0.15	16.11 <<
0.17	16.11 <<
0.18	16.11 <<
0.20	16.11 <<
0.22	16.11 <<
0.23	16.11 <<
0.25	16.11 <<
0.27	16.11 <<
0.28	16.11 <<
0.30	16.11 <<
0.32	16.11 <<
0.33	16.11 <<

...End

Hyd. No. 1 - Manual - 25 Yr - $Q_p = 16.11$ cfs - Proposed to Basin



Hydrograph Report

Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
 Storm frequency = 25 yrs
 Inflow hyd. No. = 1
 Max. Elevation = 474.90 ft

Peak discharge = 8.56 cfs
 Time interval = 1 min
 Reservoir name = Detention Basin
 Max. Storage = 12,182 cuft

Storage Indication method used.

Outflow hydrograph volume = 19,332 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.02	16.11 <<	473.04	11.25	1.13	----	----	----	----	----	----	----	1.13
0.03	16.11 <<	473.26	11.25	1.86	----	----	----	----	----	----	----	1.86
0.05	16.11 <<	473.46	11.25	2.66	----	----	----	----	----	----	----	2.66
0.07	16.11 <<	473.65	11.25	3.49	----	----	----	----	----	----	----	3.49
0.08	16.11 <<	473.83	11.25	4.34	----	----	----	----	----	----	----	4.34
0.10	16.11 <<	473.99	11.25	5.17	----	----	----	----	----	----	----	5.17
0.12	16.11 <<	474.07	11.25	5.45	----	----	----	----	----	----	----	5.45
0.13	16.11 <<	474.14	11.25	5.69	----	----	----	----	----	----	----	5.69
0.15	16.11 <<	474.21	11.25	5.91	----	----	----	----	----	----	----	5.91
0.17	16.11 <<	474.28	11.25	6.12	----	----	----	----	----	----	----	6.12
0.18	16.11 <<	474.35	11.25	6.32	----	----	----	----	----	----	----	6.32
0.20	16.11 <<	474.42	11.25	6.51	----	----	0.00	----	----	----	----	6.51
0.22	16.11 <<	474.49	11.25	6.69	----	----	0.00	----	----	----	----	6.69
0.23	16.11 <<	474.55	11.25	6.86	----	----	0.05	----	----	----	----	6.91
0.25	16.11 <<	474.61	11.25	7.03	----	----	0.13	----	----	----	----	7.16
0.27	16.11 <<	474.67	11.25	7.18	----	----	0.25	----	----	----	----	7.43
0.28	16.11 <<	474.73	11.25	7.33	----	----	0.38	----	----	----	----	7.71
0.30	16.11 <<	474.79	11.25	7.47	----	----	0.52	----	----	----	----	7.99
0.32	16.11 <<	474.84	11.25	7.60	----	----	0.68	----	----	----	----	8.28
0.33	16.11 <<	474.90 <<	11.25	7.73	----	----	0.84	----	----	----	----	8.56 <<
0.35	0.00	474.89	11.25	7.72	----	----	0.83	----	----	----	----	8.55
0.37	0.00	474.84	11.25	7.58	----	----	0.66	----	----	----	----	8.24
0.38	0.00	474.78	11.25	7.45	----	----	0.50	----	----	----	----	7.95
0.40	0.00	474.73	11.25	7.31	----	----	0.36	----	----	----	----	7.68
0.42	0.00	474.67	11.25	7.18	----	----	0.25	----	----	----	----	7.43
0.43	0.00	474.62	11.25	7.05	----	----	0.15	----	----	----	----	7.21
0.45	0.00	474.57	11.25	6.93	----	----	0.08	----	----	----	----	7.01
0.47	0.00	474.53	11.25	6.80	----	----	0.03	----	----	----	----	6.83
0.48	0.00	474.48	11.25	6.68	----	----	0.00	----	----	----	----	6.68
0.50	0.00	474.43	11.25	6.55	----	----	0.00	----	----	----	----	6.55
0.52	0.00	474.39	11.25	6.43	----	----	----	----	----	----	----	6.43
0.53	0.00	474.35	11.25	6.30	----	----	----	----	----	----	----	6.30
0.55	0.00	474.30	11.25	6.18	----	----	----	----	----	----	----	6.18
0.57	0.00	474.26	11.25	6.05	----	----	----	----	----	----	----	6.05
0.58	0.00	474.22	11.25	5.92	----	----	----	----	----	----	----	5.92
0.60	0.00	474.18	11.25	5.80	----	----	----	----	----	----	----	5.80
0.62	0.00	474.14	11.25	5.67	----	----	----	----	----	----	----	5.67
0.63	0.00	474.10	11.25	5.55	----	----	----	----	----	----	----	5.55

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.65	0.00	474.06	11.25	5.42	----	----	----	----	----	----	----	5.42
0.67	0.00	474.03	11.25	5.30	----	----	----	----	----	----	----	5.30
0.68	0.00	473.98	11.25	5.10	----	----	----	----	----	----	----	5.10
0.70	0.00	473.91	11.25	4.73	----	----	----	----	----	----	----	4.73
0.72	0.00	473.84	11.25	4.40	----	----	----	----	----	----	----	4.40
0.73	0.00	473.78	11.25	4.10	----	----	----	----	----	----	----	4.10
0.75	0.00	473.72	11.25	3.82	----	----	----	----	----	----	----	3.82
0.77	0.00	473.67	11.25	3.57	----	----	----	----	----	----	----	3.57
0.78	0.00	473.61	11.25	3.34	----	----	----	----	----	----	----	3.34
0.80	0.00	473.57	11.25	3.13	----	----	----	----	----	----	----	3.13
0.82	0.00	473.52	11.25	2.94	----	----	----	----	----	----	----	2.94
0.83	0.00	473.48	11.25	2.76	----	----	----	----	----	----	----	2.76
0.85	0.00	473.44	11.25	2.60	----	----	----	----	----	----	----	2.60
0.87	0.00	473.41	11.25	2.45	----	----	----	----	----	----	----	2.45
0.88	0.00	473.37	11.25	2.31	----	----	----	----	----	----	----	2.31
0.90	0.00	473.34	11.25	2.18	----	----	----	----	----	----	----	2.18
0.92	0.00	473.31	11.25	2.06	----	----	----	----	----	----	----	2.06
0.93	0.00	473.28	11.25	1.95	----	----	----	----	----	----	----	1.95
0.95	0.00	473.25	11.25	1.85	----	----	----	----	----	----	----	1.85
0.97	0.00	473.22	11.25	1.75	----	----	----	----	----	----	----	1.75
0.98	0.00	473.20	11.25	1.66	----	----	----	----	----	----	----	1.66
1.00	0.00	473.18	11.25	1.58	----	----	----	----	----	----	----	1.58
1.02	0.00	473.15	11.25	1.50	----	----	----	----	----	----	----	1.50
1.03	0.00	473.13	11.25	1.43	----	----	----	----	----	----	----	1.43
1.05	0.00	473.11	11.25	1.36	----	----	----	----	----	----	----	1.36
1.07	0.00	473.09	11.25	1.29	----	----	----	----	----	----	----	1.29
1.08	0.00	473.07	11.25	1.23	----	----	----	----	----	----	----	1.23
1.10	0.00	473.06	11.25	1.18	----	----	----	----	----	----	----	1.18
1.12	0.00	473.04	11.25	1.13	----	----	----	----	----	----	----	1.13
1.13	0.00	473.02	11.25	1.07	----	----	----	----	----	----	----	1.07
1.15	0.00	473.01	11.25	1.03	----	----	----	----	----	----	----	1.03
1.17	0.00	472.95	11.25	0.86	----	----	----	----	----	----	----	0.86
1.18	0.00	472.87	11.25	0.64	----	----	----	----	----	----	----	0.64
1.20	0.00	472.81	11.25	0.49	----	----	----	----	----	----	----	0.49
1.22	0.00	472.76	11.25	0.38	----	----	----	----	----	----	----	0.38
1.23	0.00	472.73	11.25	0.31	----	----	----	----	----	----	----	0.31
1.25	0.00	472.70	11.25	0.25	----	----	----	----	----	----	----	0.25
1.27	0.00	472.67	11.25	0.20	----	----	----	----	----	----	----	0.20
1.28	0.00	472.65	11.25	0.17	----	----	----	----	----	----	----	0.17
1.30	0.00	472.64	11.25	0.14	----	----	----	----	----	----	----	0.14
1.32	0.00	472.62	11.25	0.12	----	----	----	----	----	----	----	0.12
1.33	0.00	472.61	11.25	0.10	----	----	----	----	----	----	----	0.10
1.35	0.00	472.60	11.25	0.09	----	----	----	----	----	----	----	0.09

...End

Reservoir Report

Reservoir No. 1 - Detention Basin

Hydraflow Hydrographs by Intelisolve

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	472.50	00	0	0
0.50	473.00	1,115	279	279
1.50	474.00	7,096	4,106	4,384
2.50	475.00	10,271	8,684	13,068
3.50	476.00	11,601	10,936	24,004

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 18.0	18.0	0.0	0.0
Span in	= 18.0	10.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 470.00	472.50	0.00	0.00
Length ft	= 40.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 1.00	11.56	0.00	0.00
Crest El. ft	= 474.50	475.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Rect	Riser	---	---
Multi-Stage	= Yes	Yes	No	No

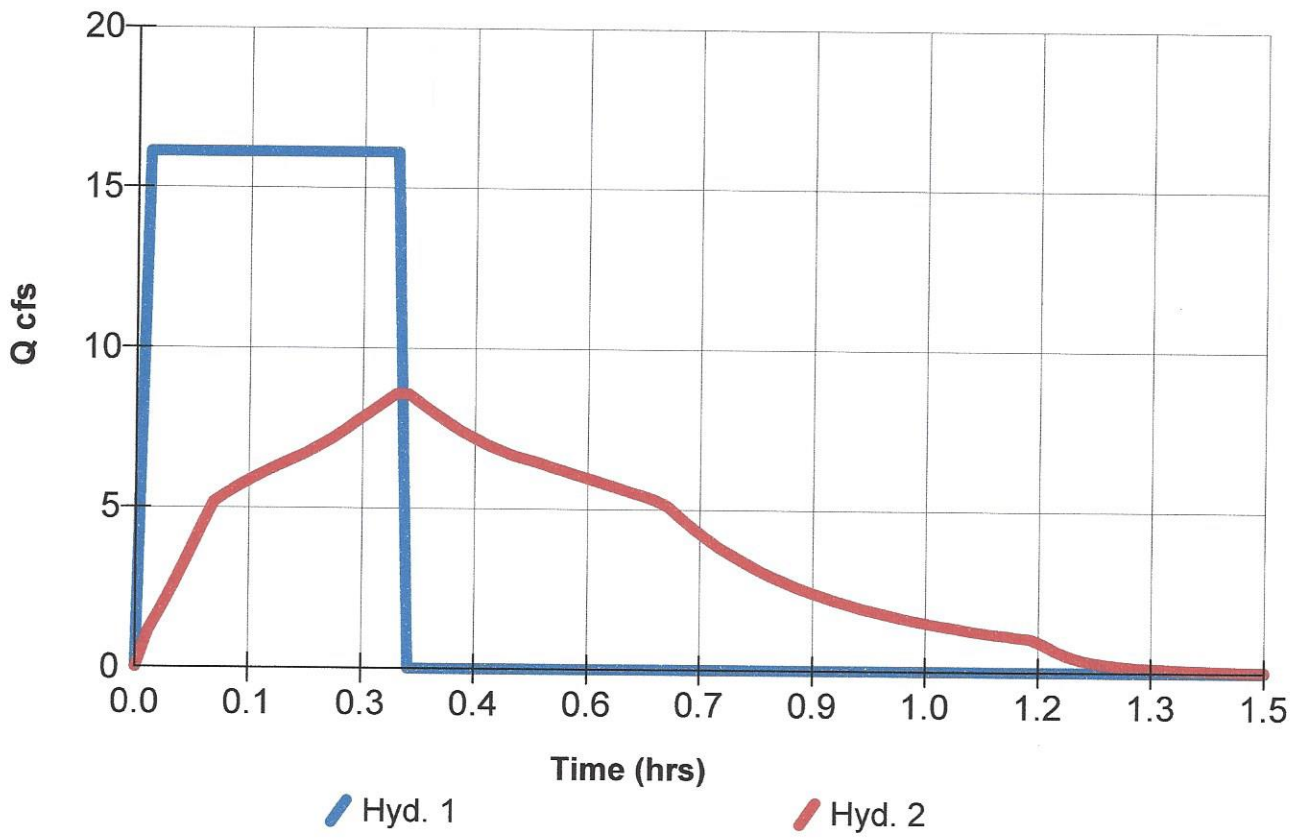
Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	472.50	0.00	0.00	---	---	0.00	0.00	---	---	---	0.00
0.50	279	473.00	11.25	1.00	---	---	0.00	0.00	---	---	---	1.00
1.50	4,384	474.00	11.25	5.21	---	---	0.00	0.00	---	---	---	5.21
2.50	13,068	475.00	11.25	7.96	---	---	1.18	0.00	---	---	---	9.14
3.50	24,004	476.00	19.37	1.54	---	---	2.14	15.68	---	---	---	19.36

Hyd. No. 2 - Reservoir - 25 Yr - $Q_p = 8.56$ cfs - Detention Basin



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description	
1	Manual	20.60	1	1	24,720	---	-----	-----	Proposed to Basin	
2	Reservoir	13.55	1	20	24,692	1	475.24	15,702	Detention Basin	
3	Reservoir	16.97	1	20	15,994	1	475.51	18,610	Low Flow Blocked	
Proj. file: 08-1078-Detention.gpw			Return Period: 100 yr				Run date: 05-01-2008			

Hydrograph Report

Hyd. No. 2

Detention Basin

Hydrograph type = Reservoir
 Storm frequency = 100 yrs
 Inflow hyd. No. = 1
 Max. Elevation = 475.24 ft

Peak discharge = 13.55 cfs
 Time interval = 1 min
 Reservoir name = Detention Basin
 Max. Storage = 15,702 cuft

Storage Indication method used.

Outflow hydrograph volume = 24,692 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.02	20.60 <<	473.07	1.24	1.24	----	----	----	----	----	----	----	1.24
0.03	20.60 <<	473.35	2.23	2.22	----	----	----	----	----	----	----	2.22
0.05	20.60 <<	473.61	3.32	3.32	----	----	----	----	----	----	----	3.32
0.07	20.60 <<	473.85	4.47	4.47	----	----	----	----	----	----	----	4.47
0.08	20.60 <<	474.04	5.35	5.35	----	----	----	----	----	----	----	5.35
0.10	20.60 <<	474.14	5.69	5.69	----	----	----	----	----	----	----	5.69
0.12	20.60 <<	474.25	6.00	6.00	----	----	----	----	----	----	----	6.00
0.13	20.60 <<	474.35	6.30	6.30	----	----	----	----	----	----	----	6.30
0.15	20.60 <<	474.44	6.57	6.57	----	----	0.00	----	----	----	----	6.57
0.17	20.60 <<	474.54	6.87	6.83	----	----	0.04	----	----	----	----	6.87
0.18	20.60 <<	474.63	7.25	7.08	----	----	0.17	----	----	----	----	7.24
0.20	20.60 <<	474.72	7.66	7.31	----	----	0.36	----	----	----	----	7.66
0.22	20.60 <<	474.81	8.10	7.52	----	----	0.58	----	----	----	----	8.10
0.23	20.60 <<	474.90	8.55	7.72	----	----	0.83	----	----	----	----	8.55
0.25	20.60 <<	474.98	9.01	7.91	----	----	1.10	----	----	----	----	9.01
0.27	20.60 <<	475.04	9.77	7.90	----	----	1.34	0.53	----	----	----	9.77
0.28	20.60 <<	475.10	10.60	7.81	----	----	1.55	1.24	----	----	----	10.60
0.30	20.60 <<	475.15	11.65	7.49	----	----	1.76	2.40	----	----	----	11.65
0.32	20.60 <<	475.20	12.60	7.21	----	----	1.95	3.43	----	----	----	12.60
0.33	20.60 <<	475.24 <<	13.55	6.80	----	----	2.13	4.62	----	----	----	13.55 <<
0.35	0.00	475.22	13.16	6.97	----	----	2.05	4.14	----	----	----	13.16
0.37	0.00	475.16	11.71	7.48	----	----	1.77	2.46	----	----	----	11.71
0.38	0.00	475.09	10.51	7.82	----	----	1.53	1.16	----	----	----	10.51
0.40	0.00	475.04	9.71	7.90	----	----	1.32	0.48	----	----	----	9.71
0.42	0.00	474.98	9.05	7.93	----	----	1.13	----	----	----	----	9.05
0.43	0.00	474.92	8.71	7.79	----	----	0.92	----	----	----	----	8.71
0.45	0.00	474.86	8.38	7.65	----	----	0.74	----	----	----	----	8.38
0.47	0.00	474.81	8.08	7.51	----	----	0.57	----	----	----	----	8.08
0.48	0.00	474.75	7.81	7.38	----	----	0.43	----	----	----	----	7.81
0.50	0.00	474.70	7.54	7.25	----	----	0.30	----	----	----	----	7.54
0.52	0.00	474.65	7.32	7.12	----	----	0.20	----	----	----	----	7.31
0.53	0.00	474.60	7.09	6.99	----	----	0.10	----	----	----	----	7.09
0.55	0.00	474.55	6.92	6.86	----	----	0.05	----	----	----	----	6.91
0.57	0.00	474.50	6.74	6.74	----	----	0.00	----	----	----	----	6.74
0.58	0.00	474.46	6.61	6.61	----	----	0.00	----	----	----	----	6.61
0.60	0.00	474.41	6.49	6.49	----	----	0.00	----	----	----	----	6.49
0.62	0.00	474.37	6.36	6.36	----	----	----	----	----	----	----	6.36
0.63	0.00	474.32	6.24	6.24	----	----	----	----	----	----	----	6.24

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.65	0.00	474.28	6.11	6.11	----	----	----	----	----	----	----	6.11
0.67	0.00	474.24	5.99	5.98	----	----	----	----	----	----	----	5.98
0.68	0.00	474.20	5.86	5.86	----	----	----	----	----	----	----	5.86
0.70	0.00	474.16	5.73	5.73	----	----	----	----	----	----	----	5.73
0.72	0.00	474.12	5.61	5.61	----	----	----	----	----	----	----	5.61
0.73	0.00	474.08	5.49	5.48	----	----	----	----	----	----	----	5.48
0.75	0.00	474.04	5.36	5.36	----	----	----	----	----	----	----	5.36
0.77	0.00	474.01	5.24	5.24	----	----	----	----	----	----	----	5.24
0.78	0.00	473.94	4.91	4.91	----	----	----	----	----	----	----	4.91
0.80	0.00	473.87	4.56	4.56	----	----	----	----	----	----	----	4.56
0.82	0.00	473.81	4.24	4.24	----	----	----	----	----	----	----	4.24
0.83	0.00	473.75	3.95	3.95	----	----	----	----	----	----	----	3.95
0.85	0.00	473.69	3.69	3.69	----	----	----	----	----	----	----	3.69
0.87	0.00	473.64	3.45	3.45	----	----	----	----	----	----	----	3.45
0.88	0.00	473.59	3.23	3.23	----	----	----	----	----	----	----	3.23
0.90	0.00	473.54	3.03	3.03	----	----	----	----	----	----	----	3.03
0.92	0.00	473.50	2.84	2.84	----	----	----	----	----	----	----	2.84
0.93	0.00	473.46	2.68	2.68	----	----	----	----	----	----	----	2.68
0.95	0.00	473.42	2.52	2.52	----	----	----	----	----	----	----	2.52
0.97	0.00	473.39	2.37	2.37	----	----	----	----	----	----	----	2.37
0.98	0.00	473.35	2.24	2.24	----	----	----	----	----	----	----	2.24
1.00	0.00	473.32	2.12	2.12	----	----	----	----	----	----	----	2.12
1.02	0.00	473.29	2.00	2.00	----	----	----	----	----	----	----	2.00
1.03	0.00	473.26	1.90	1.89	----	----	----	----	----	----	----	1.89
1.05	0.00	473.24	1.80	1.80	----	----	----	----	----	----	----	1.80
1.07	0.00	473.21	1.70	1.70	----	----	----	----	----	----	----	1.70
1.08	0.00	473.19	1.62	1.62	----	----	----	----	----	----	----	1.62
1.10	0.00	473.16	1.54	1.54	----	----	----	----	----	----	----	1.54
1.12	0.00	473.14	1.46	1.46	----	----	----	----	----	----	----	1.46
1.13	0.00	473.12	1.39	1.39	----	----	----	----	----	----	----	1.39
1.15	0.00	473.10	1.32	1.32	----	----	----	----	----	----	----	1.32
1.17	0.00	473.08	1.26	1.26	----	----	----	----	----	----	----	1.26
1.18	0.00	473.06	1.21	1.21	----	----	----	----	----	----	----	1.21
1.20	0.00	473.05	1.15	1.15	----	----	----	----	----	----	----	1.15
1.22	0.00	473.03	1.10	1.10	----	----	----	----	----	----	----	1.10
1.23	0.00	473.01	1.05	1.05	----	----	----	----	----	----	----	1.05
1.25	0.00	473.00	1.00	1.00	----	----	----	----	----	----	----	1.00
1.27	0.00	472.90	0.73	0.73	----	----	----	----	----	----	----	0.73
1.28	0.00	472.84	0.56	0.55	----	----	----	----	----	----	----	0.55
1.30	0.00	472.78	0.44	0.43	----	----	----	----	----	----	----	0.43
1.32	0.00	472.74	0.35	0.34	----	----	----	----	----	----	----	0.34
1.33	0.00	472.71	0.29	0.27	----	----	----	----	----	----	----	0.27
1.35	0.00	472.68	0.24	0.22	----	----	----	----	----	----	----	0.22
1.37	0.00	472.66	0.21	0.18	----	----	----	----	----	----	----	0.18
1.38	0.00	472.64	0.18	0.15	----	----	----	----	----	----	----	0.15

...End

Reservoir Report

Reservoir No. 1 - Detention Basin

Hydraflow Hydrographs by Intelisolve

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	472.50	00	0	0
0.50	473.00	1,115	279	279
1.50	474.00	7,096	4,106	4,384
2.50	475.00	10,271	8,684	13,068
3.50	476.00	11,601	10,936	24,004

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 21.0	18.0	0.0	0.0
Span in	= 21.0	10.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 470.00	472.50	0.00	0.00
Length ft	= 40.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 1.00	11.56	0.00	0.00
Crest El. ft	= 474.50	475.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Rect	Riser	---	---
Multi-Stage	= Yes	Yes	No	No

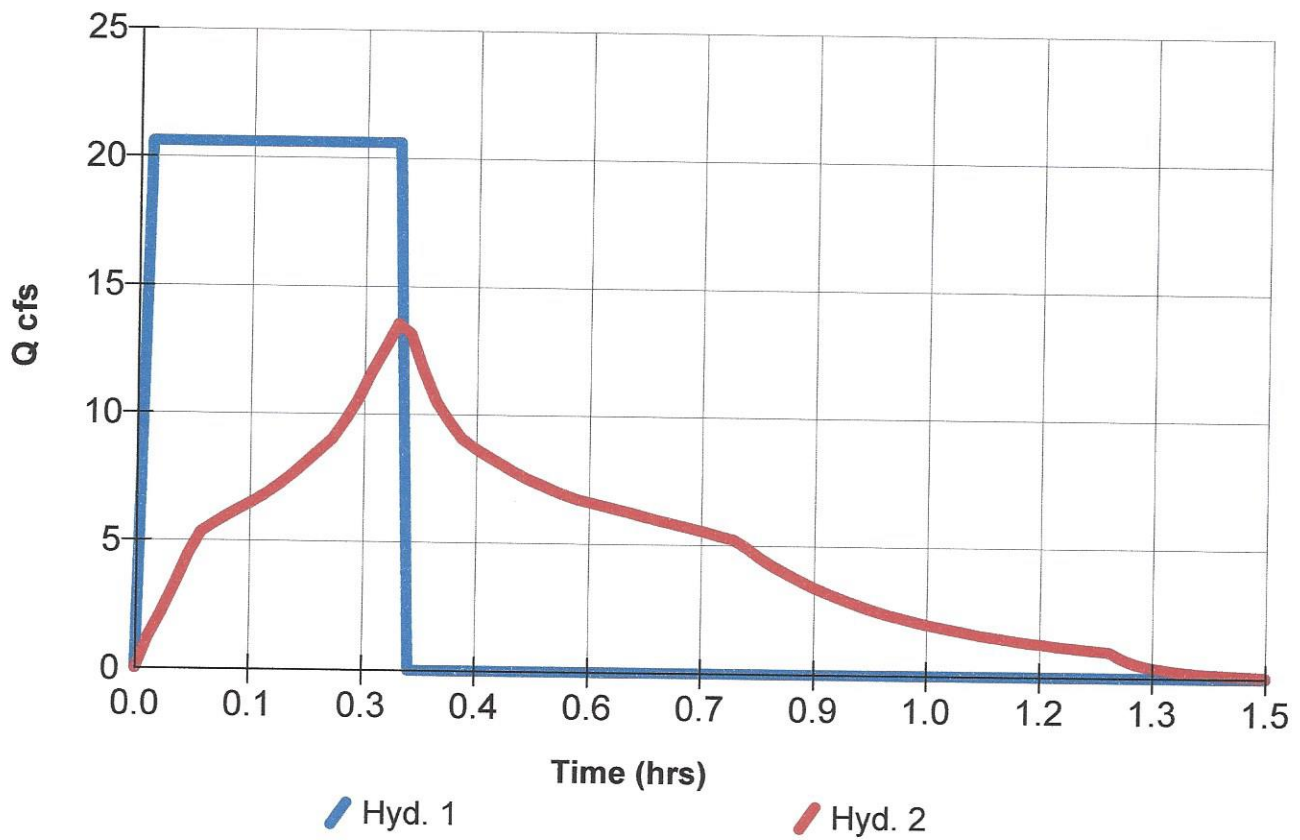
Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 472.58 ft

Stage / Storage / Discharge Table

Note: All outflows have been analyzed under inlet and outlet control.

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	472.50	0.00	0.00	---	---	0.00	0.00	---	---	---	0.00
0.50	279	473.00	1.00	1.00	---	---	0.00	0.00	---	---	---	1.00
1.50	4,384	474.00	5.21	5.21	---	---	0.00	0.00	---	---	---	5.21
2.50	13,068	475.00	9.14	7.96	---	---	1.18	0.00	---	---	---	9.14
3.50	24,004	476.00	21.15	1.73	---	---	2.33	17.09	---	---	---	21.15

Hyd. No. 2 - Reservoir - 100 Yr - $Q_p = 13.55$ cfs - Detention Basin



Hydrograph Report

Hyd. No. 3

Low Flow Blocked

Hydrograph type = Reservoir
 Storm frequency = 100 yrs
 Inflow hyd. No. = 1
 Max. Elevation = 475.51 ft

Peak discharge = 16.97 cfs
 Time interval = 1 min
 Reservoir name = Detention Basin -
 Max. Storage = 18,610 cuft

Storage Indication method used.

Outflow hydrograph volume = 15,994 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.15	20.60 <<	474.70	0.32	----	----	----	0.31	----	----	----	----	0.31
0.17	20.60 <<	474.84	0.68	----	----	----	0.67	----	----	----	----	0.67
0.18	20.60 <<	474.98	1.11	----	----	----	1.11	----	----	----	----	1.11
0.20	20.60 <<	475.09	2.54	----	----	----	1.50	1.05	----	----	----	2.54
0.22	20.60 <<	475.18	4.84	----	----	----	1.87	2.97	----	----	----	4.84
0.23	20.60 <<	475.26	7.33	----	----	----	2.20	5.13	----	----	----	7.33
0.25	20.60 <<	475.32	9.67	----	----	----	2.50	7.17	----	----	----	9.67
0.27	20.60 <<	475.38	11.77	----	----	----	2.75	9.02	----	----	----	11.77
0.28	20.60 <<	475.42	13.54	----	----	----	2.93	10.61	----	----	----	13.54
0.30	20.60 <<	475.46	15.02	----	----	----	3.06	11.96	----	----	----	15.02
0.32	20.60 <<	475.48	16.18	----	----	----	3.16	13.02	----	----	----	16.18
0.33	20.60 <<	475.51 <<	16.97	----	----	----	3.19	13.78	----	----	----	16.97 <<
0.35	0.00	475.47	15.71	----	----	----	3.12	12.59	----	----	----	15.71
0.37	0.00	475.40	12.44	----	----	----	2.83	9.62	----	----	----	12.44
0.38	0.00	475.33	10.05	----	----	----	2.54	7.51	----	----	----	10.05
0.40	0.00	475.28	8.20	----	----	----	2.32	5.88	----	----	----	8.20
0.42	0.00	475.24	6.83	----	----	----	2.14	4.69	----	----	----	6.83
0.43	0.00	475.21	5.69	----	----	----	1.99	3.70	----	----	----	5.69
0.45	0.00	475.18	4.87	----	----	----	1.87	3.00	----	----	----	4.87
0.47	0.00	475.16	4.22	----	----	----	1.77	2.44	----	----	----	4.21
0.48	0.00	475.13	3.65	----	----	----	1.68	1.96	----	----	----	3.65
0.50	0.00	475.11	3.16	----	----	----	1.61	1.55	----	----	----	3.16
0.52	0.00	475.10	2.75	----	----	----	1.54	1.20	----	----	----	2.74
0.53	0.00	475.08	2.52	----	----	----	1.49	1.03	----	----	----	2.52
0.55	0.00	475.07	2.31	----	----	----	1.44	0.87	----	----	----	2.31
0.57	0.00	475.06	2.12	----	----	----	1.40	0.72	----	----	----	2.11
0.58	0.00	475.05	1.94	----	----	----	1.35	0.58	----	----	----	1.94
0.60	0.00	475.04	1.78	----	----	----	1.32	0.46	----	----	----	1.78
0.62	0.00	475.03	1.63	----	----	----	1.28	0.34	----	----	----	1.63
0.63	0.00	475.02	1.49	----	----	----	1.25	0.24	----	----	----	1.49
0.65	0.00	475.01	1.37	----	----	----	1.22	0.15	----	----	----	1.37
0.67	0.00	475.00	1.26	----	----	----	1.19	0.06	----	----	----	1.25
0.68	0.00	475.00	1.17	----	----	----	1.17	----	----	----	----	1.17
0.70	0.00	474.99	1.15	----	----	----	1.14	----	----	----	----	1.14
0.72	0.00	474.98	1.12	----	----	----	1.12	----	----	----	----	1.12
0.73	0.00	474.97	1.10	----	----	----	1.09	----	----	----	----	1.09
0.75	0.00	474.97	1.07	----	----	----	1.07	----	----	----	----	1.07
0.77	0.00	474.96	1.05	----	----	----	1.04	----	----	----	----	1.04

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