

KEEFE PROPERTY TRACT 2 & 3

Detention Calculations

LIBERTY WAY

WEST CHESTER TOWNSHIP, BUTLER COUNTY, OHIO

July 26, 2016

PREPARED BY:

BAYER BECKER

6900 TYLERSVILLE ROAD

MASON, OHIO 45040

P (513) 336-6600

SUMMARY OF DATA

Method of Hydrograph Development: TR-55

Software: Autodesk Storm and Sanitary Stand Alone

44.9

Site Stormwater Summary

Critical Storm = 50yr

calculation

18.3 ac Cabela's

4.3 ac ex pond

16.4 ac Weatherington Residential

5.9 ac "to basin"

Drainage Area Descriptions	Drainage Area (Acres)	CN	Tc (Mins)	Q1 (cfs)	Q1 (Cu. Ft.)	Q10 (cfs)	Q50 (cfs)
On-Site Pre-Dev Areas							
Previously Detained Areas	44.88	71.0	13.80	15.70		71.24	123.57
New Commercial	7.66	71.0	13.80	2.68	9,724	12.64	21.19
New Residential	5.23	71.0	13.80	1.83	6,647	8.63	14.44
On-Site Post Developed to Basin							
Weatherington Pointe Cabelas & Outlots	18.30	94.0	12.00	37.48		73.47	100.72
Tylers Place Blvd to Pond	4.30	90.0	12.00	7.19		15.69	22.18
Keefe Tract 2 to Basin	5.90	94.0	12.00	12.08		24.15	32.49
Weatherington Residential	16.40	74.0	13.80	8.09		30.84	52.33
New Commerical	6.86	96.0	12.00	15.26	44,109	28.60	38.64
Off-Site Areas							
Golf Course	41.60	77.0	22.20	21.29		73.09	119.72
Liberty Way	6.50	90.0	11.00	10.87		23.73	33.53
Bypass Areas							
New Commerical	0.80	95.0	10.00	1.76	4,864	3.43	4.57
New Residential	5.23	81.0	12.00	5.04	13,942	14.48	22.32

Allowable Release Rate=

Q1 On-Site Pre Developed +
Q10 Previously Detained +
Q50 Offsite

223.27 CFS

Note: CN for pre-developed conditions are based on previously developed and approved stormwater calculations for the Keefe Property.

These numbers were based on a composite of B and C soils with open space in fair condition

Post
Q_{on-site} = 37.48 + 7.19 + 12.08 + 8.09 + 15.26 = 80.1

Q₁₀ previous

Q₁ pre-develop 2.68
1.83

Q₁₀ previously detained 71.24
Q₅₀ off-site 119.72
33.53

229.0 cfs



Storm Water Detention/Retention Summary

Date: 7/26/2016 Revised: _____
 Design By: MJL Revised: _____
 Checked By: _____ Revised: _____

Project: Keefe Tract 2 File No.: 15M053-000
 County: Butler City/Township: West Chester Twp

Basin Primary Basin

On-Site Area 29.16 Acres
 Off-Site Area 41.60 Acres
 Bypass Area 6.03 Acres

Primary Basin		
Orifice	Size	Inv Elev
Spillway	60'	863.70
1	16'	861.00
1	66" ø	854.50
1	6" ø	852.50

Primary Basin

A Event	B Inflow	C Outflow	D Elev	E Storage	F Com Byp	G Res Byp	=F+G Bypass	=C+F+G Total	Allowable
Q ₁	79.57	19.39	855.37	458,482	1.76	5.04	6.80	26.19	
Q ₁₀	196.48	108.74	857.99	591,824	3.36	14.47	17.83	126.57	
Q ₅₀	295.15	176.24	859.61	677,892	4.57	22.32	26.89	203.13	223.27
Q ₁₀₀	328.17	206.81	860.07	702,708	5.10	25.22	30.32	237.13	325.08

Basin Existing Pond

On-Site Area 4.30 Acres
 Off-Site Area 0.00 Acres
 Bypass Area 0.00 Acres

Existing Pond		
Orifice	Size	Inv Elev
T/GR	8'	867.30
Spillway	35'	866.80
3	12"X36"	865.50

A Event	B Inflow	C Outflow	D Elev	E Storage
Q ₁	17.85	10.73	864.98	10,583
Q ₁₀	52.24	36.79	865.67	26,321
Q ₅₀	63.93	41.16	866.25	42,017
Q ₁₀₀	67.81	42.67	866.53	49,766

What is the base elev.?

larger area should include Cebeles + residential + ...



Storm Water Detention/Retention Summary

Date: 7/26/2016 Revised: _____
 Design By: MJL Revised: _____
 Checked By: _____ Revised: _____

Project: Keefe Tract 2 File No.: 15M053-000
 County: Butler City/Township: West Chester Twp

Basin Cabelas WQ Basin

On-Site Area 18.30 Acres
 Off-Site Area 6.50 Acres
 Bypass Area 0.00 Acres

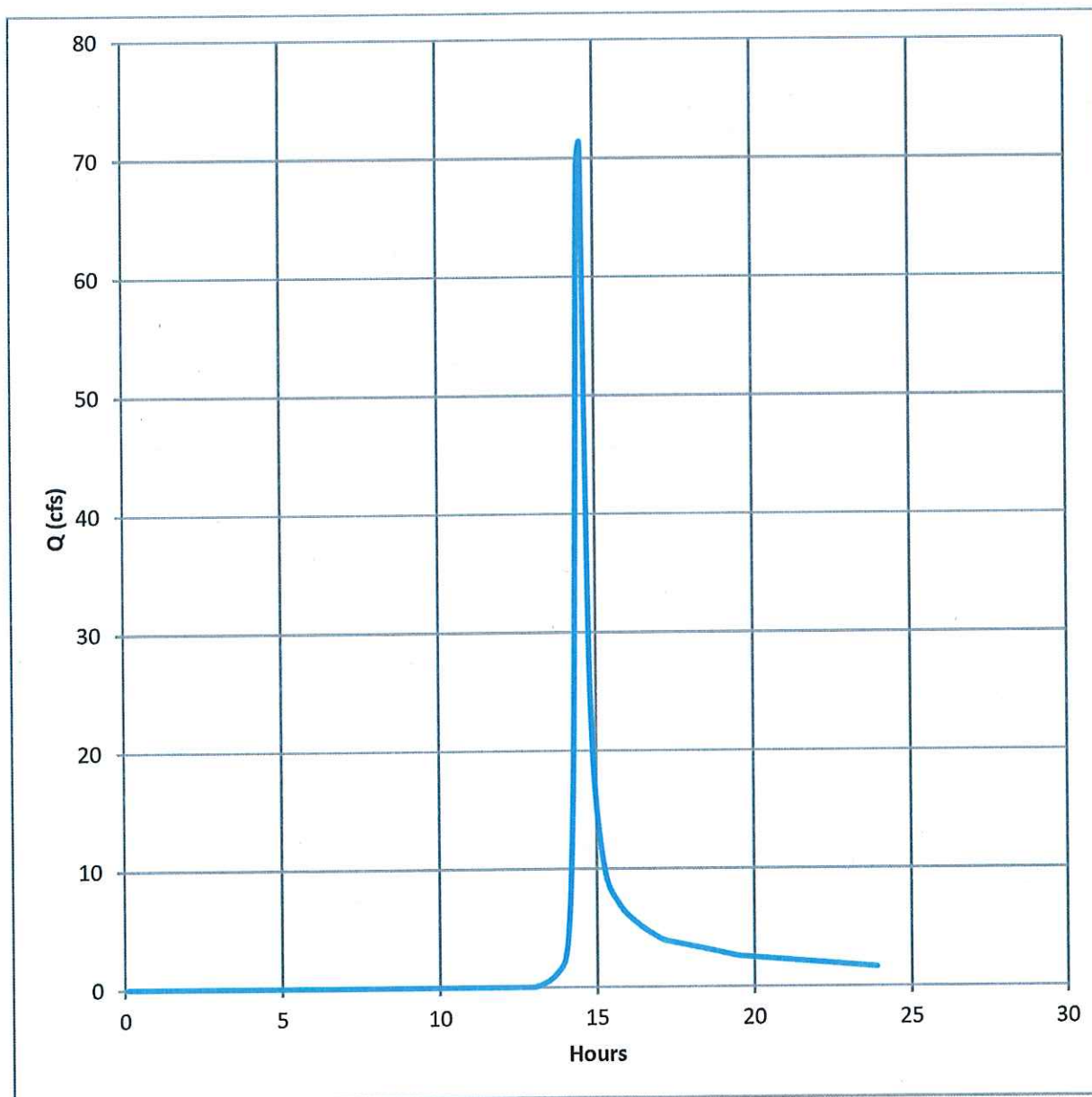
Cabelas WQ		
Orifice	Size	Inv Elev
T/Dike		871.00
South	8'	869.17
North	16'	868.92
1	3.75" ø	866.97

A	B	C	D	E
Event	Inflow	Outflow	Elev	Storage
Q ₁	48.15	43.28	869.72	80,402
Q ₁₀	97.12	84.16	870.48	91,769
Q ₅₀	134.06	102.19	871.41	107,120
Q ₁₀₀	146.85	108.61	871.84	114,387

Previously Detained Areas

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	71.24
Storm Frequency	=	10 yrs	Time to Peak	=	14:36
Time Interval	=	6 min	Hyd. Volume	=	216,358 Ft ³
Drainage Area	=	44.88 Acres	Curve Number	=	71
Tc Method	=	User	Time of conc. (Tc)	=	13.80 Mins
Total precip.	=	3.9 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

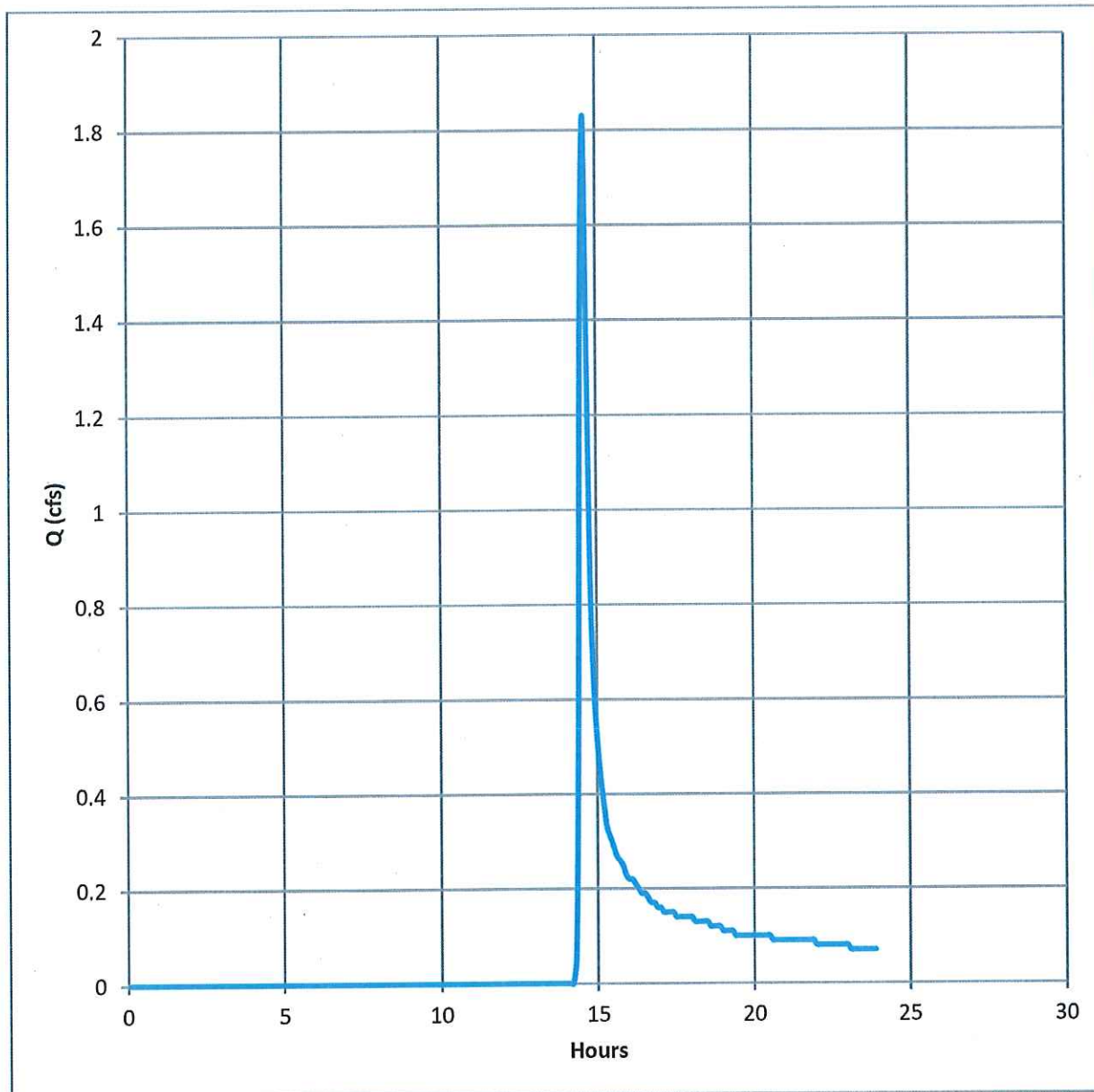
Notes:



Predeveloped Residential Area

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	1.83
Storm Frequency	=	1 yrs	Time to Peak	=	14:36
Time Interval	=	6 min	Hyd. Volume	=	6,647 Ft ³
Drainage Area	=	5.23 Acres	Curve Number	=	71
Tc Method	=	User	Time of conc. (Tc)	=	13.80 Mins
Total precip.	=	2.4 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

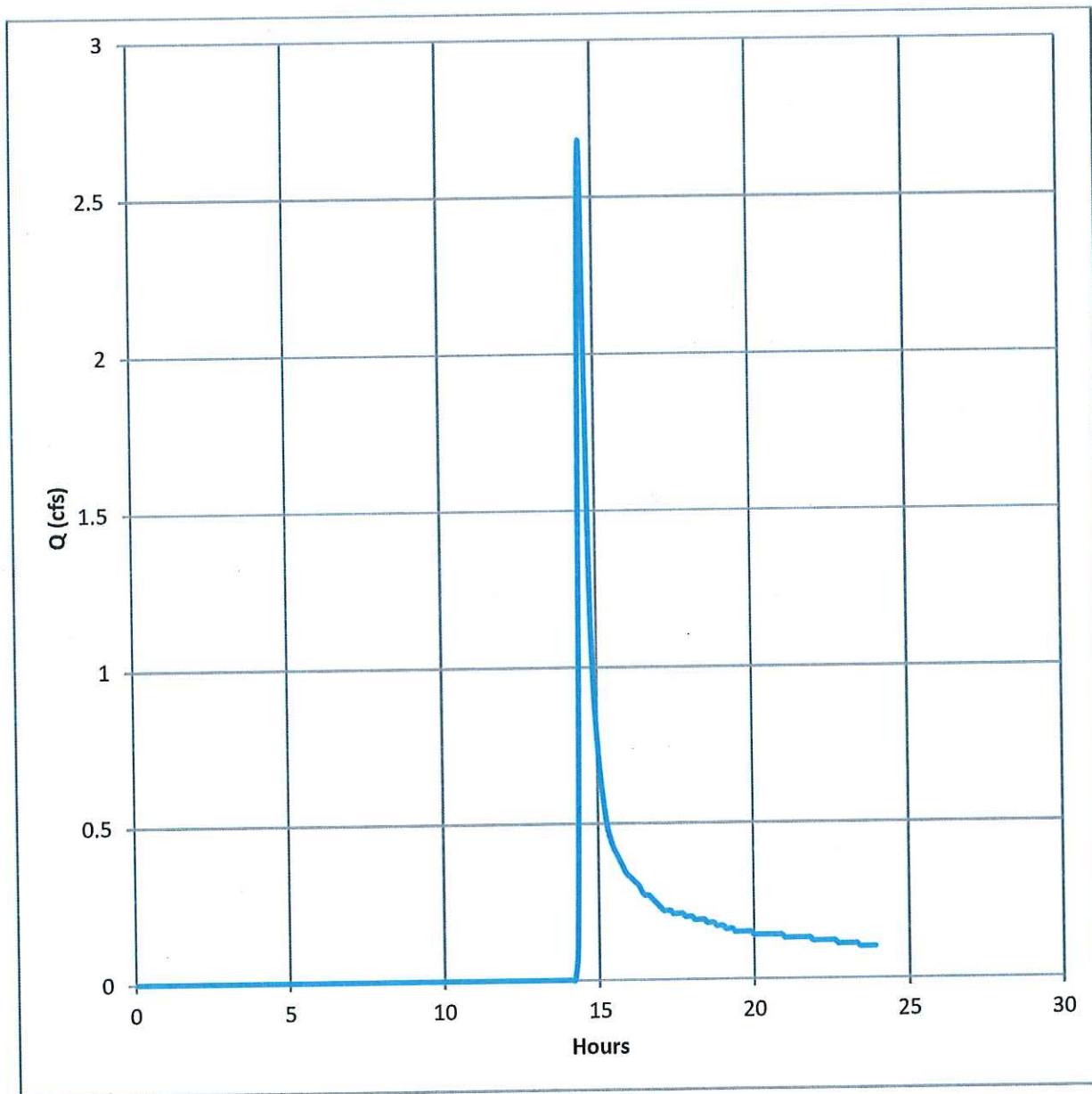
Notes:



Predeveloped Commercial Areas

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	2.68
Storm Frequency	=	1 yrs	Time to Peak	=	14:36
Time Interval	=	6 min	Hyd. Volume	=	9,724 Ft ³
Drainage Area	=	7.66 Acres	Curve Number	=	71
Tc Method	=	User	Time of conc. (Tc)	=	13.80 Mins
Total precip.	=	2.4 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

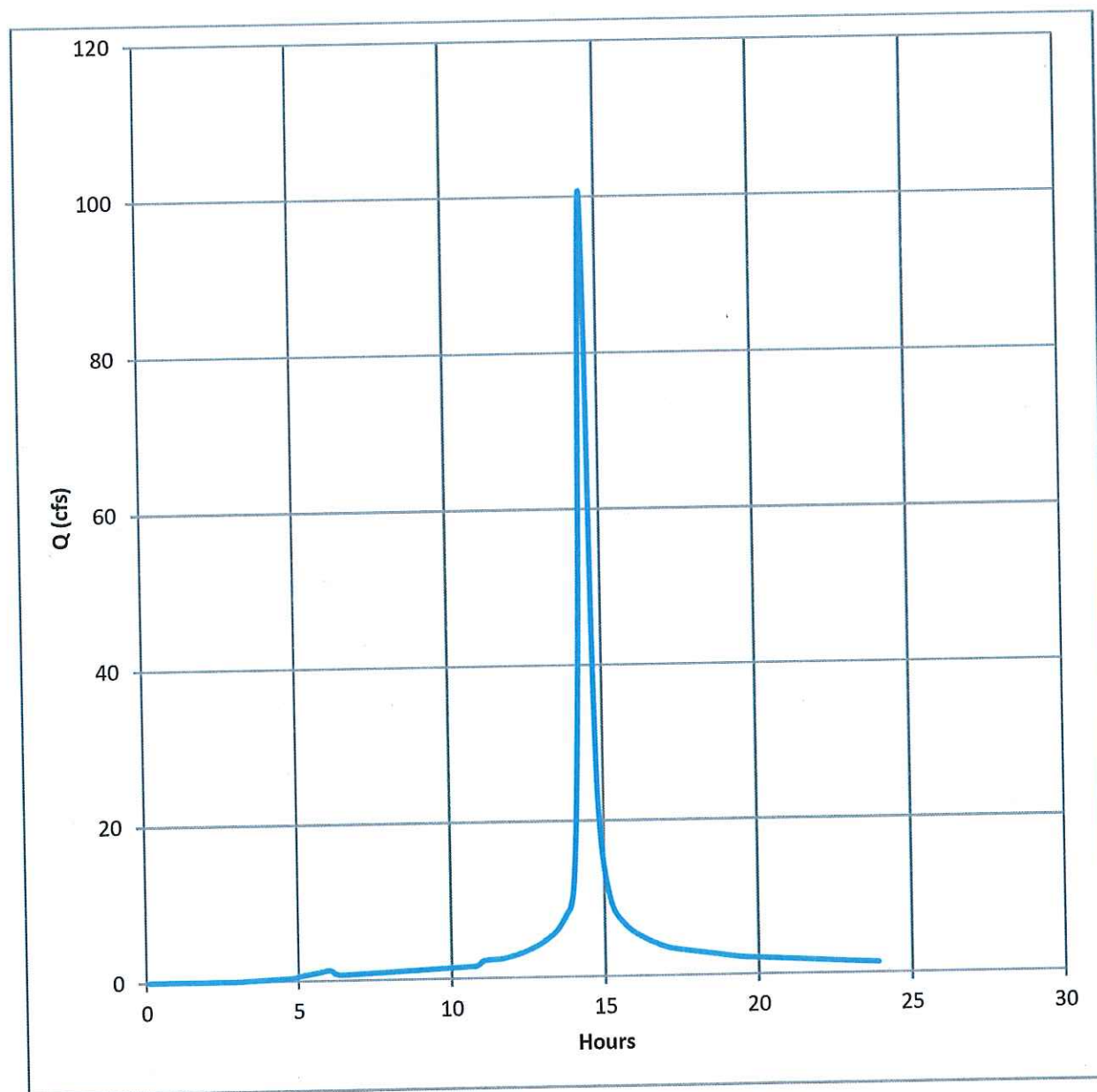
Notes:



Weatherington Pointe Cabelas & Outlots

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	100.72
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	299,066 Ft ³
Drainage Area	=	18.30 Acres	Curve Number	=	94
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

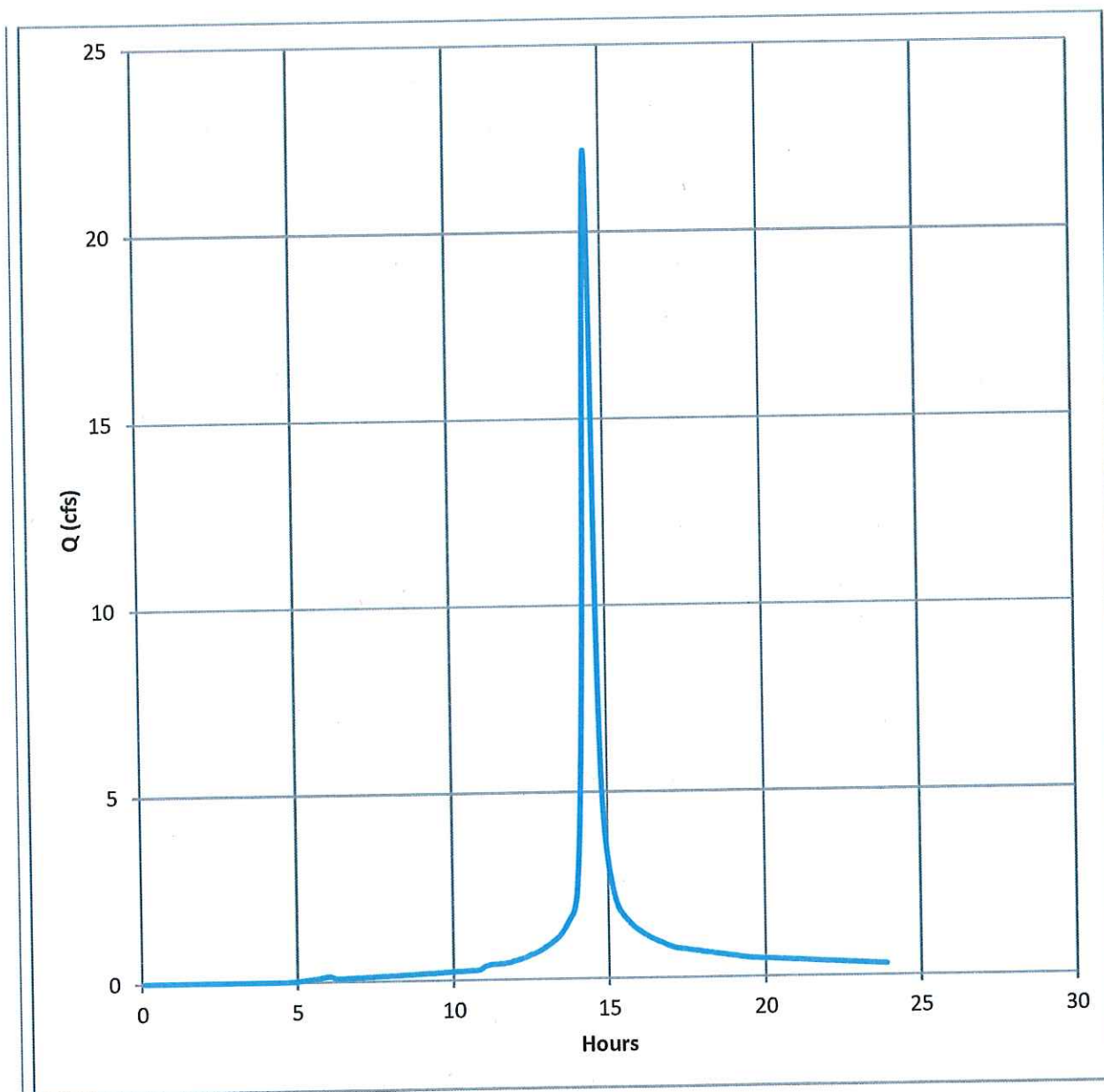
Notes:



Tylers Place Blvd to Pond

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	22.18
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	63,568 Ft ³
Drainage Area	=	4.30 Acres	Curve Number	=	90
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

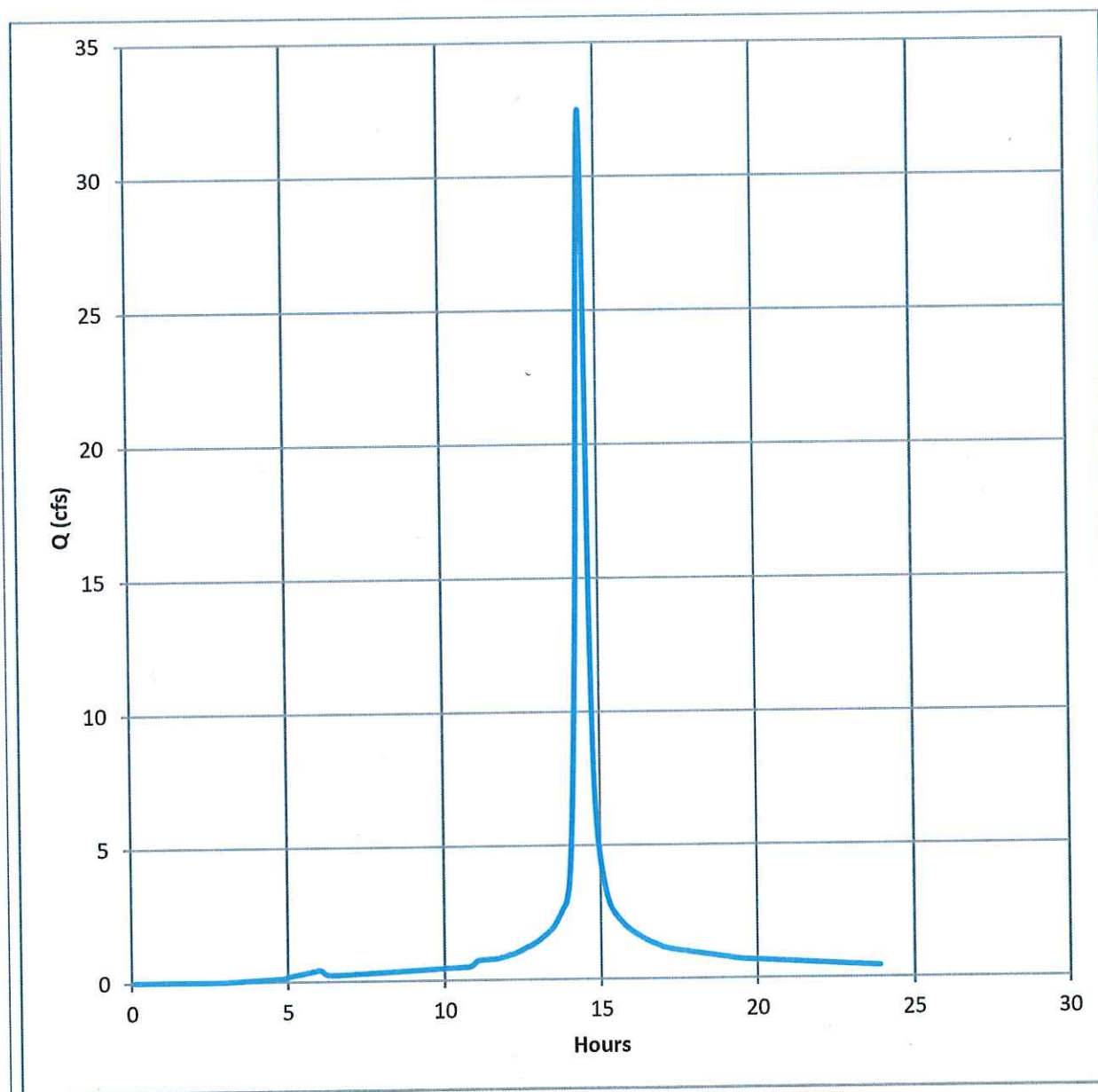
Notes:



Keefe Tract 2 to Basin

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	32.49
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	96,465 Ft ³
Drainage Area	=	5.90 Acres	Curve Number	=	94
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

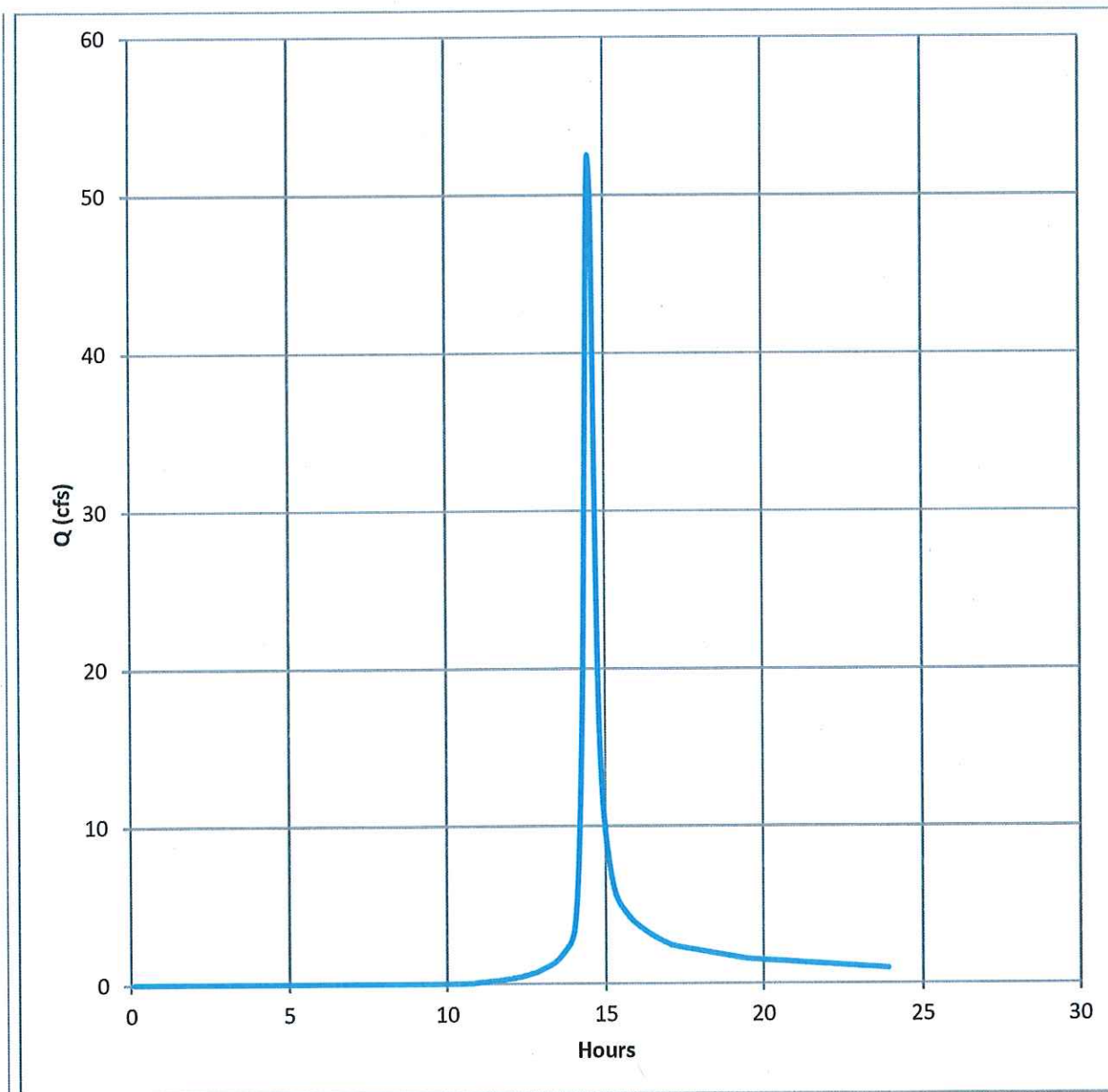
Notes:



Weatherington Residential

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	52.33
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	150,217 Ft ³
Drainage Area	=	16.40 Acres	Curve Number	=	74
Tc Method	=	User	Time of conc. (Tc)	=	13.80 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

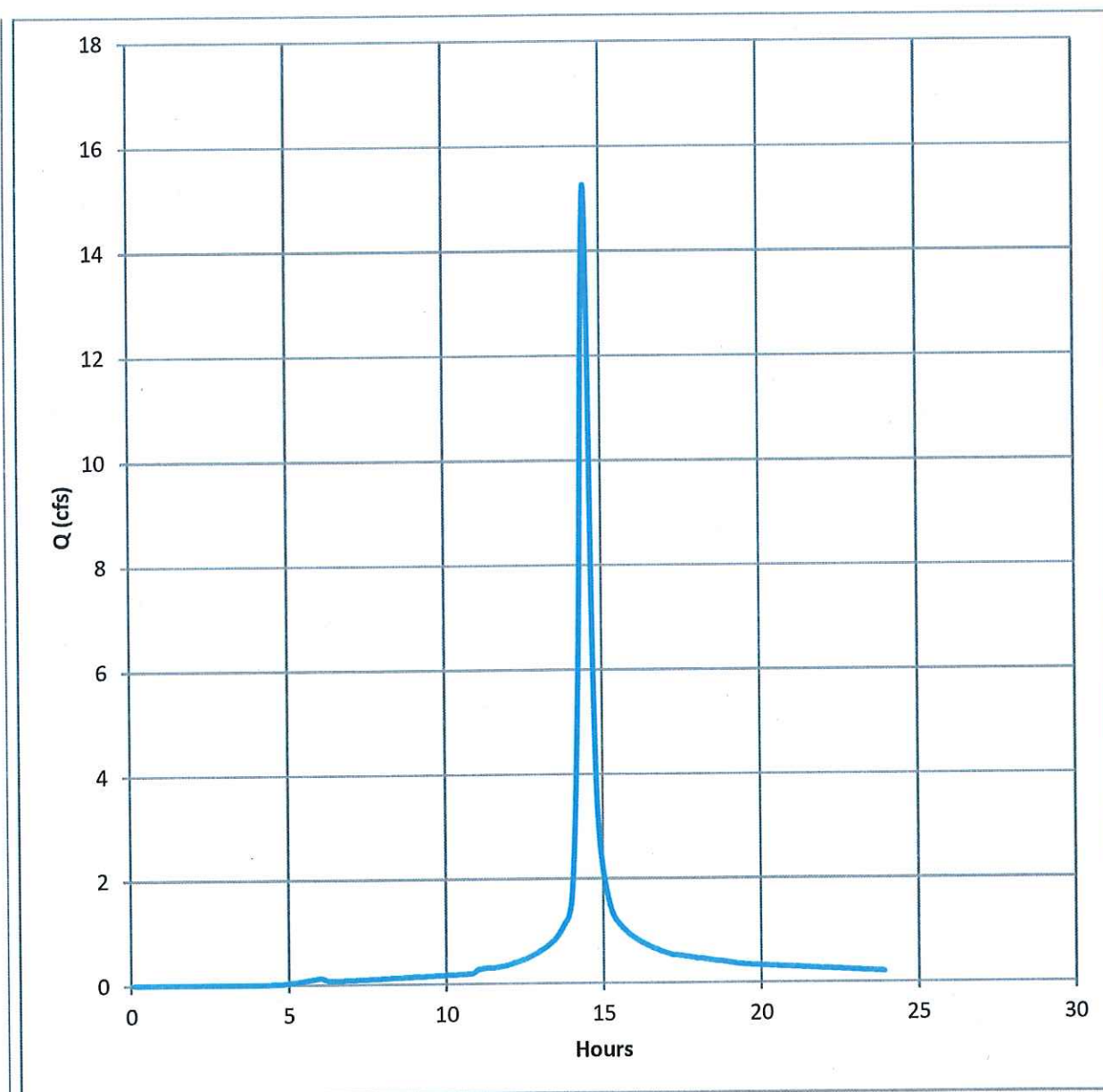
Notes:



Postdeveloped New Commerical to Basin

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	15.26
Storm Frequency	=	1 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	44,109 Ft ³
Drainage Area	=	6.86 Acres	Curve Number	=	96
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	2.4 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

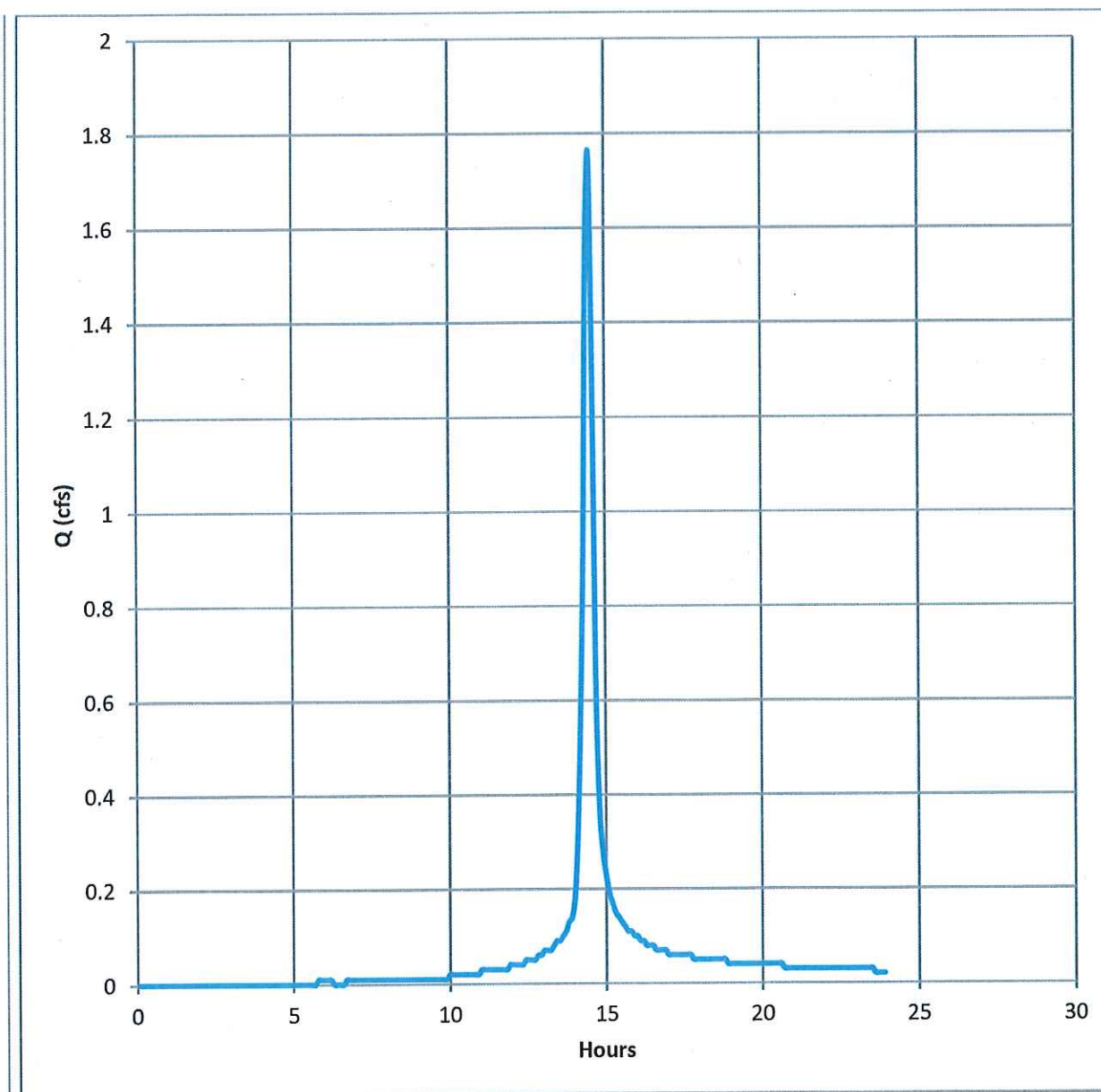
Notes:



Postdeveloped New Commercial to Bypass

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	1.76
Storm Frequency	=	1 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	4,864 Ft ³
Drainage Area	=	0.80 Acres	Curve Number	=	95
Tc Method	=	User	Time of conc. (Tc)	=	10.00 Mins
Total precip.	=	2.4 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

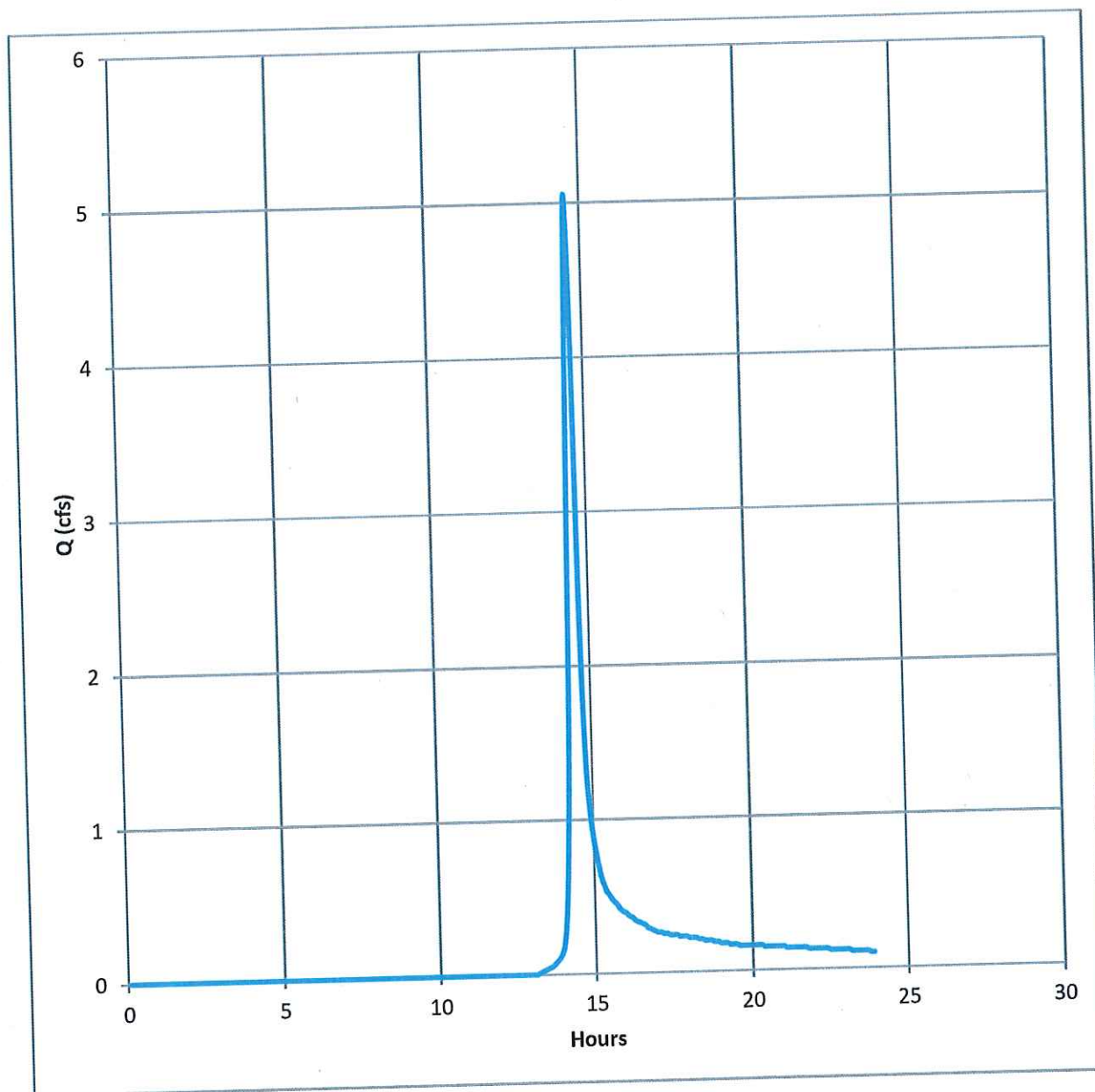
Notes:



Postdeveloped New Residential

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	5.04
Storm Frequency	=	1 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	13,942 Ft ³
Drainage Area	=	5.23 Acres	Curve Number	=	81
Tc Method	=	User	Time of conc. (Tc)	=	10.00 Mins
Total precip.	=	2.4 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

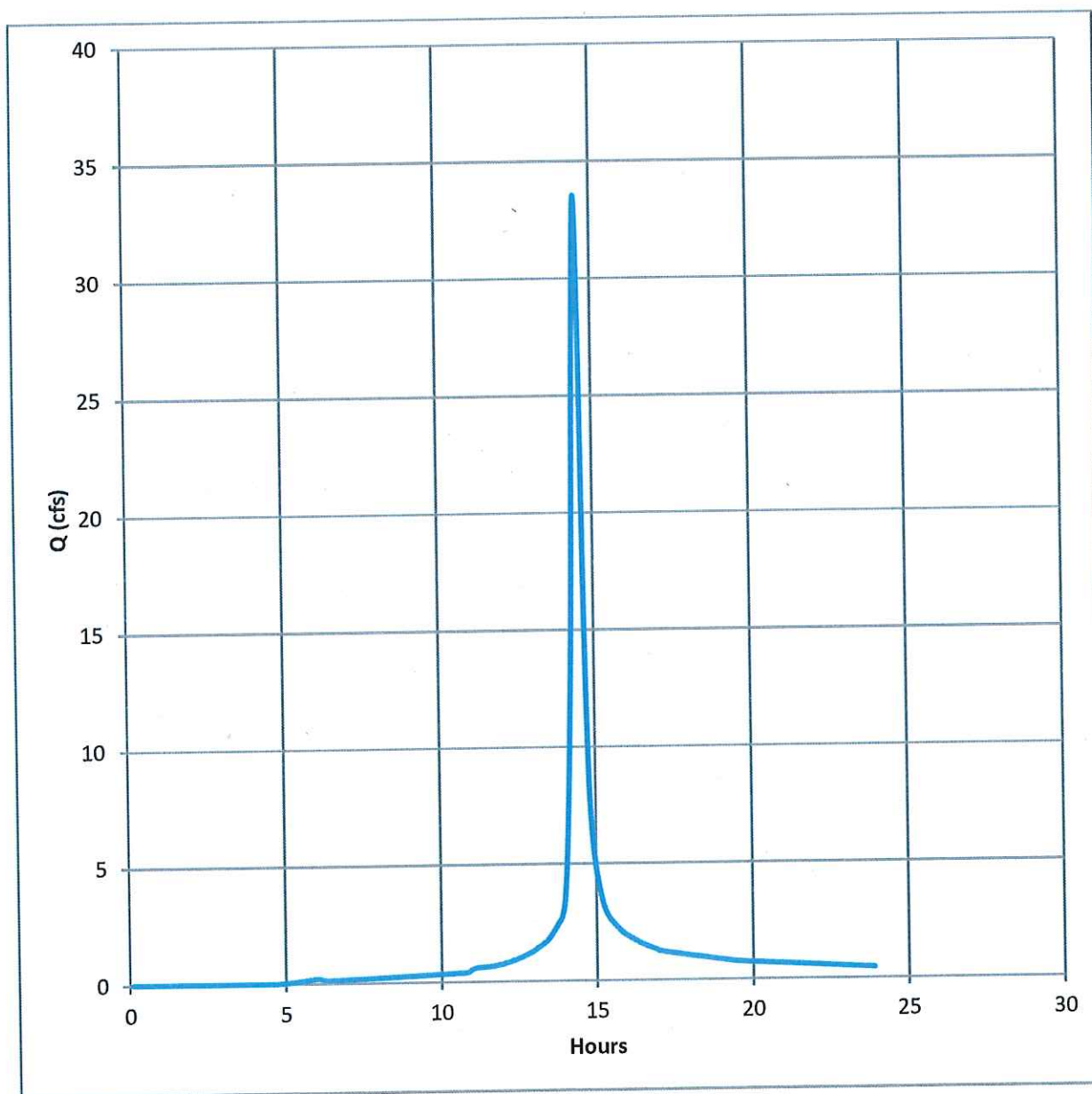
Notes:



Liberty Way Off-Site

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	33.53
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	96,034 Ft ³
Drainage Area	=	6.50 Acres	Curve Number	=	90
Tc Method	=	User	Time of conc. (Tc)	=	11.00 Mins
Total precip.	=	5.20 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

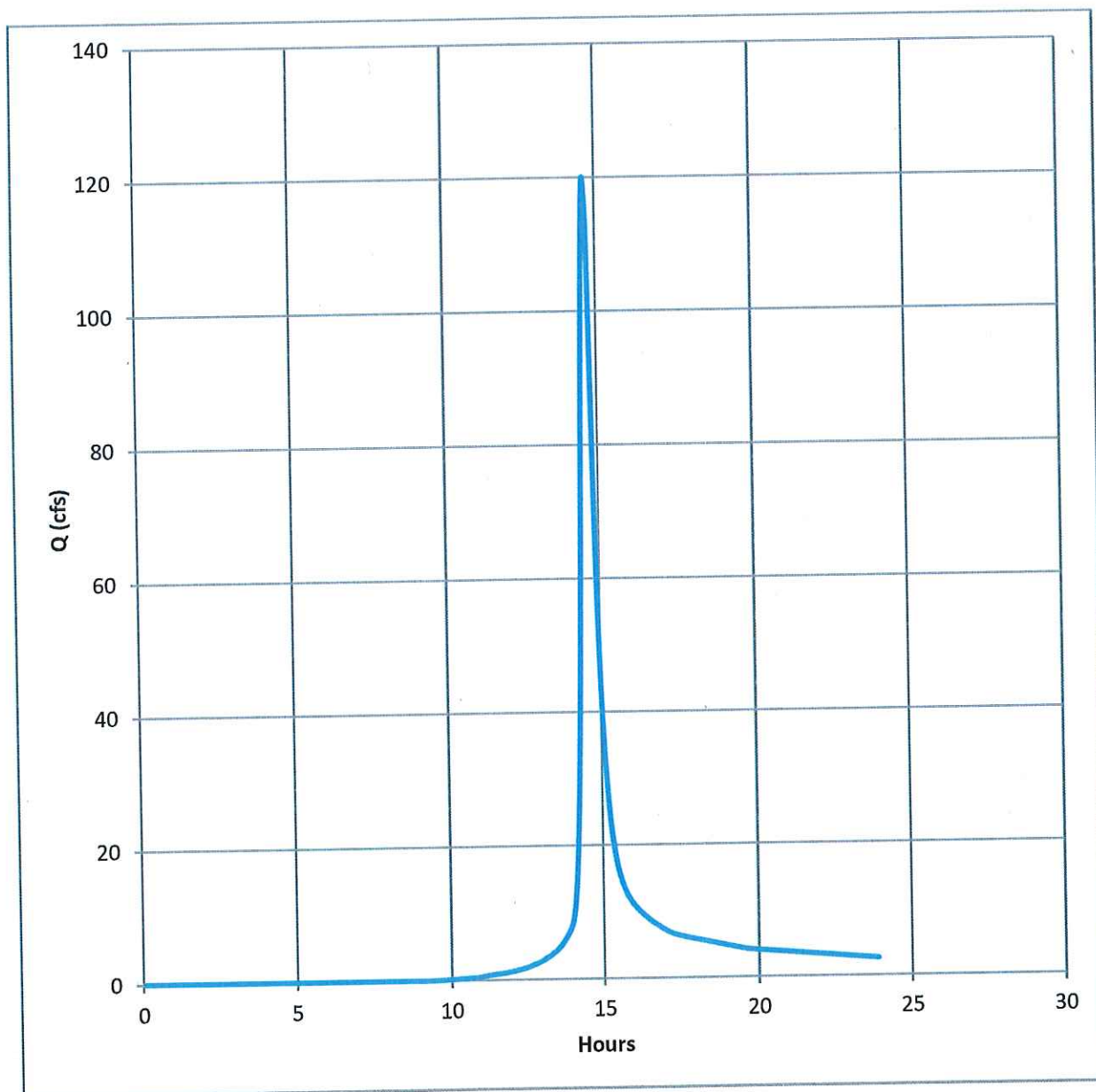
Notes:



Golf Course - Off Site

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	119.72
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	421,422 Ft ³
Drainage Area	=	41.60 Acres	Curve Number	=	77
Tc Method	=	User	Time of conc. (Tc)	=	22.20 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

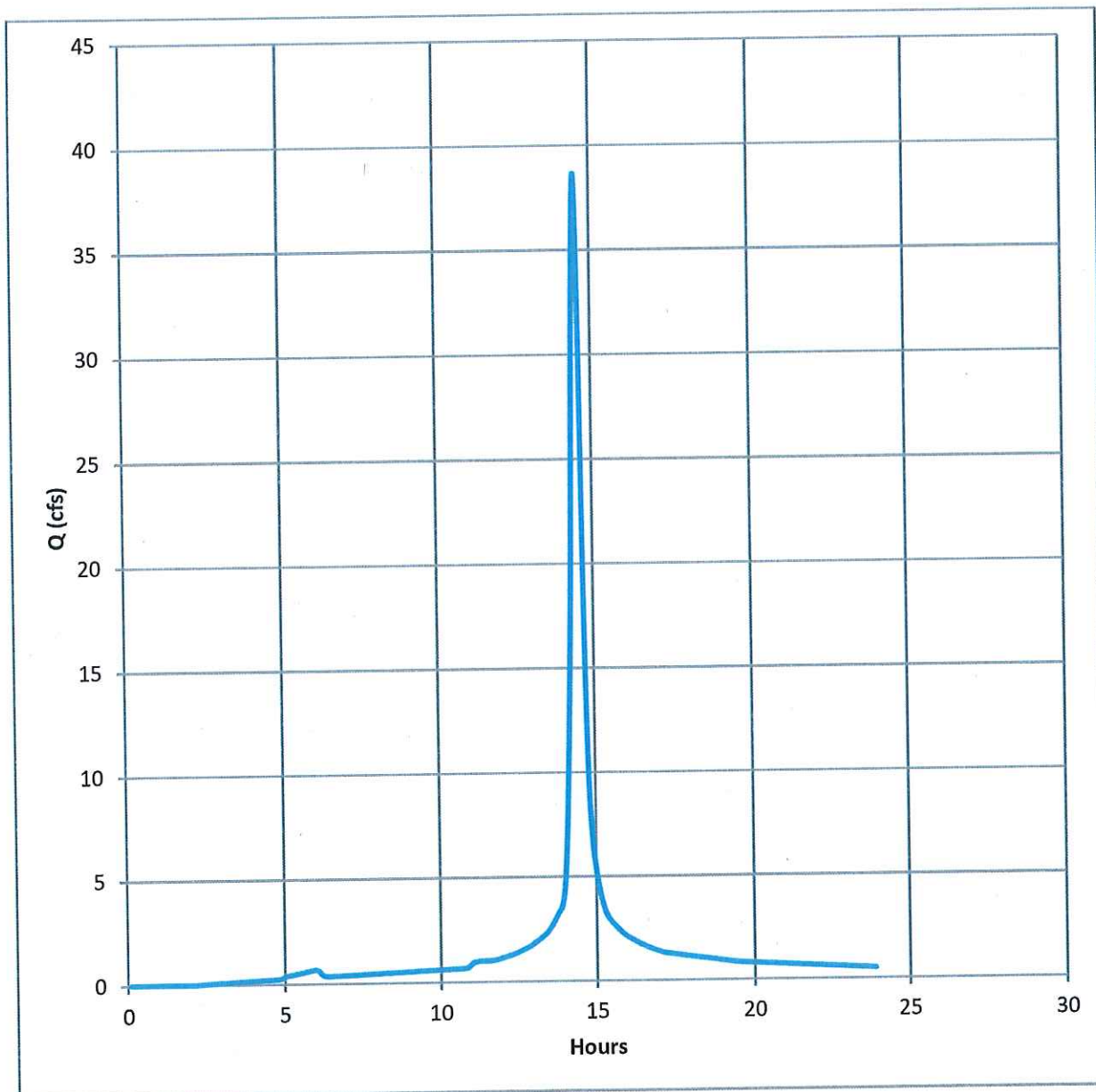
Notes:



Postdeveloped New Commercial

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	38.64
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	117,765 Ft ³
Drainage Area	=	6.86 Acres	Curve Number	=	96
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

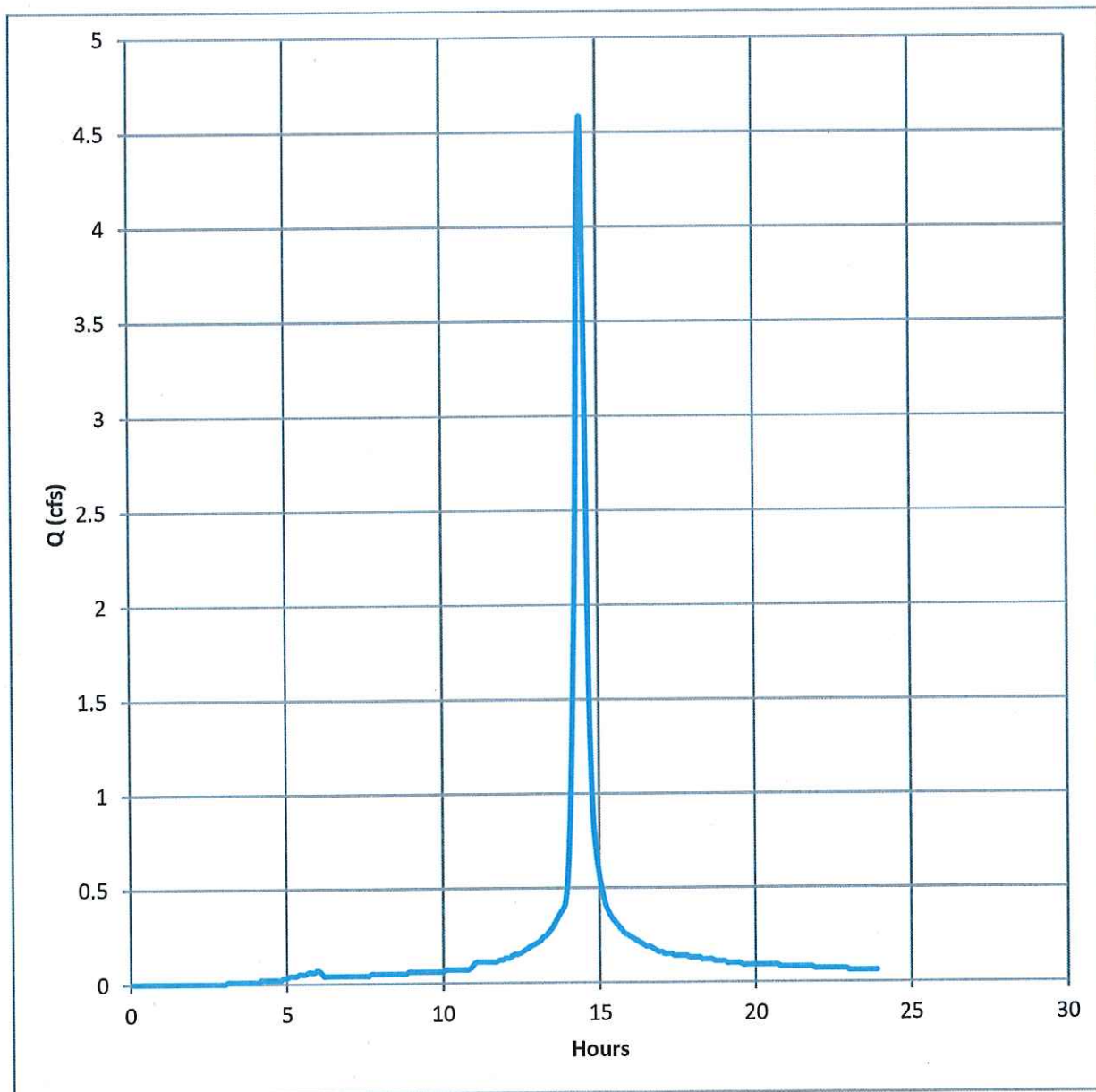
Notes:



Postdeveloped New Commercial to Bypass

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	4.57
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	13,390 Ft ³
Drainage Area	=	0.80 Acres	Curve Number	=	95
Tc Method	=	User	Time of conc. (Tc)	=	10.00 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

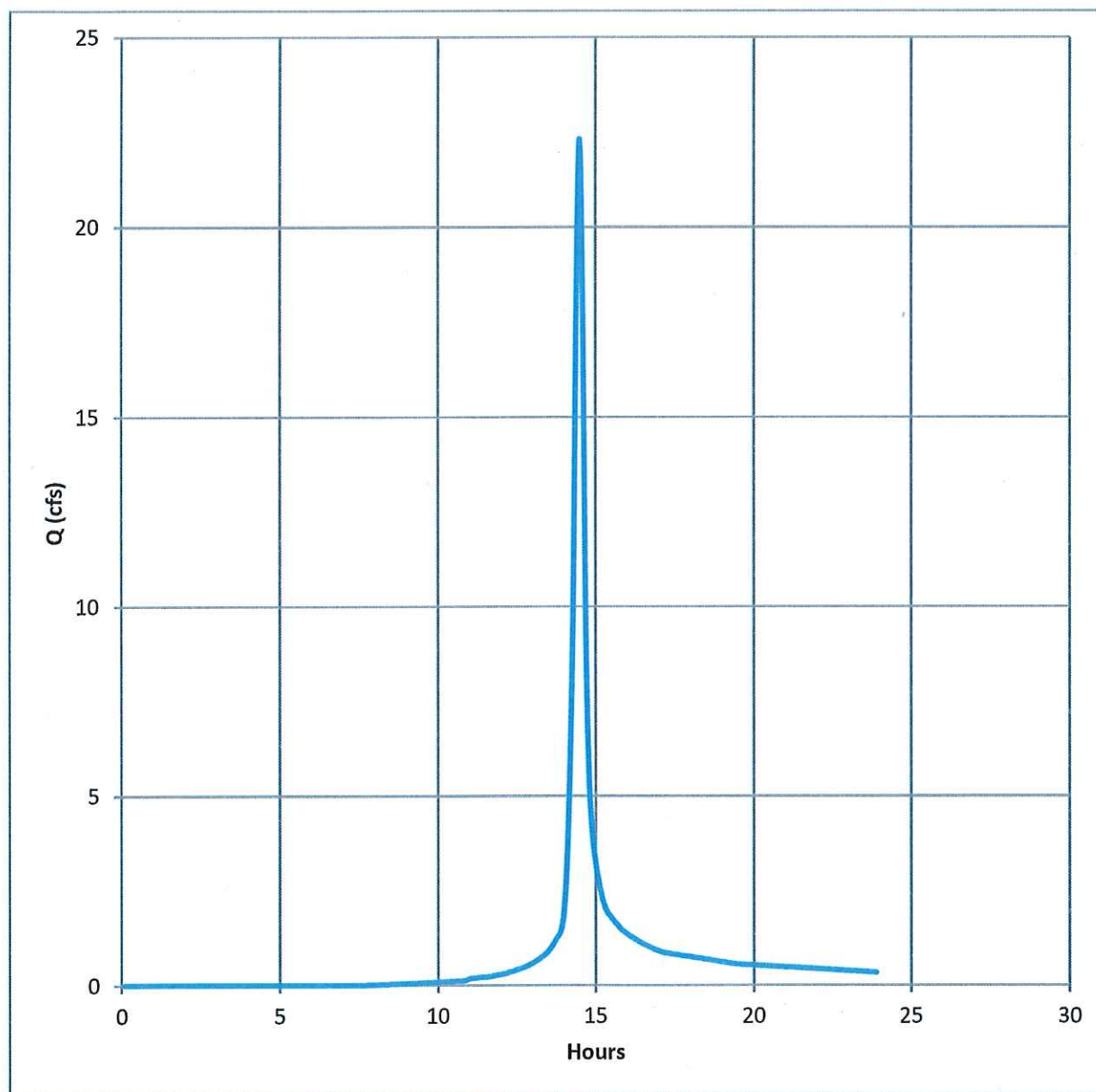
Notes:



Postdeveloped New Residential

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	22.32
Storm Frequency	=	50 yrs	Time to Peak	=	14:30
Time Interval	=	6 min	Hyd. Volume	=	60,036 Ft ³
Drainage Area	=	5.23 Acres	Curve Number	=	81
Tc Method	=	User	Time of conc. (Tc)	=	11.00 Mins
Total precip.	=	5.2 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

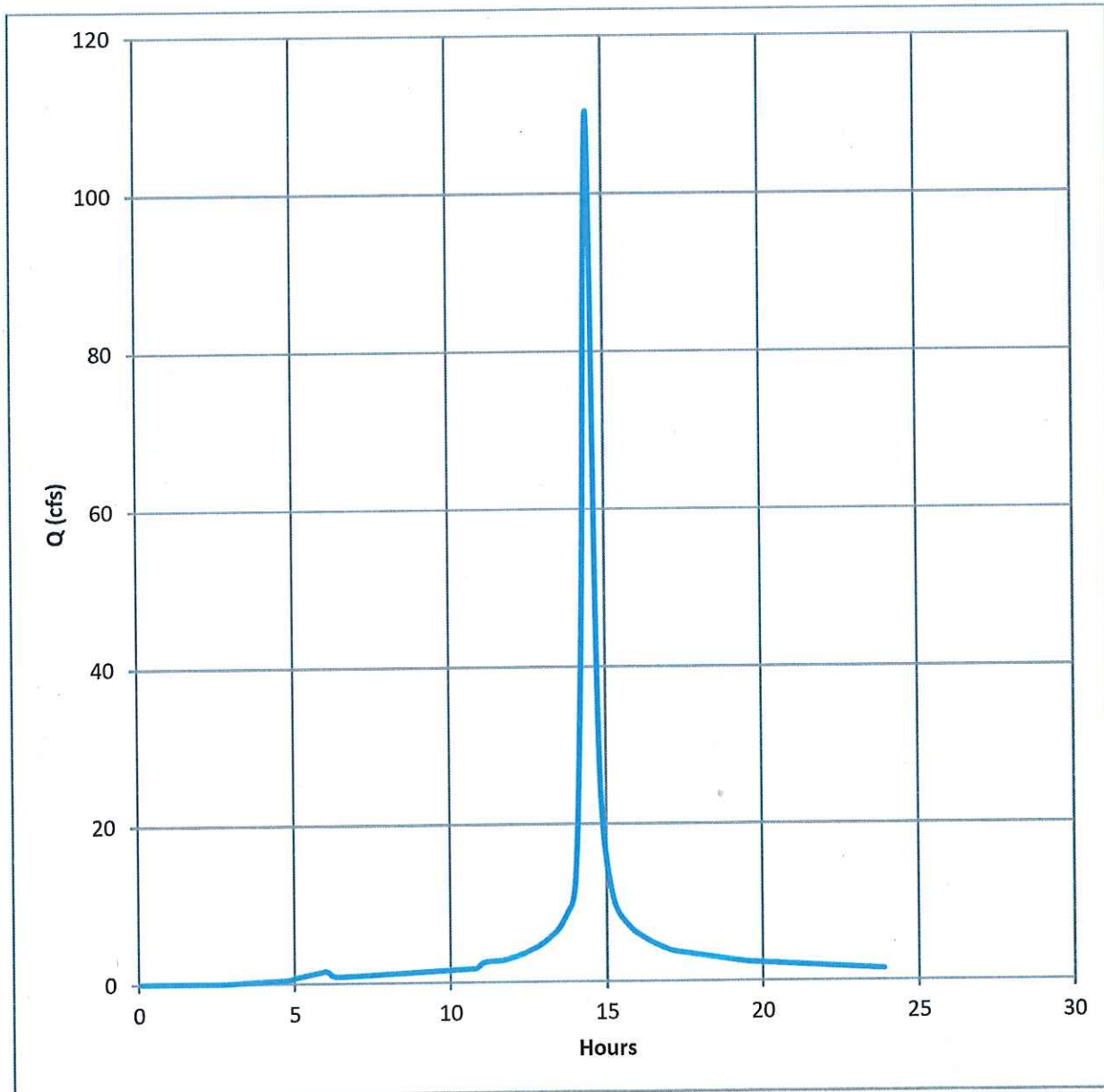
Notes:



Weatherington Pointe Cabelas and Outlots

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	110.43
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	329,991 Ft ³
Drainage Area	=	18.30 Acres	Curve Number	=	94
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

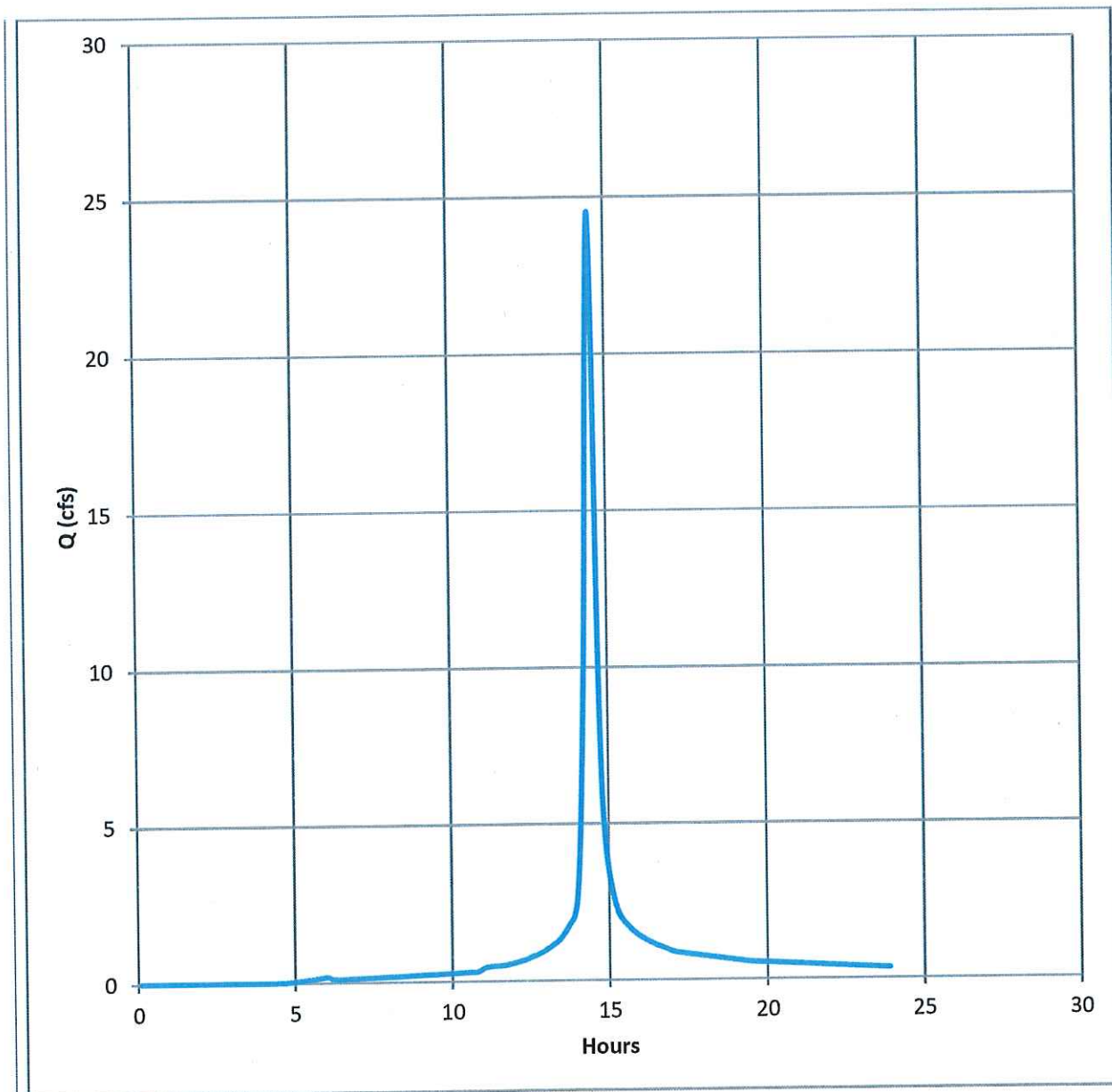
Notes:



Tylers Place Blvd to Pond

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	24.52
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	70,708 Ft ³
Drainage Area	=	4.30 Acres	Curve Number	=	90
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

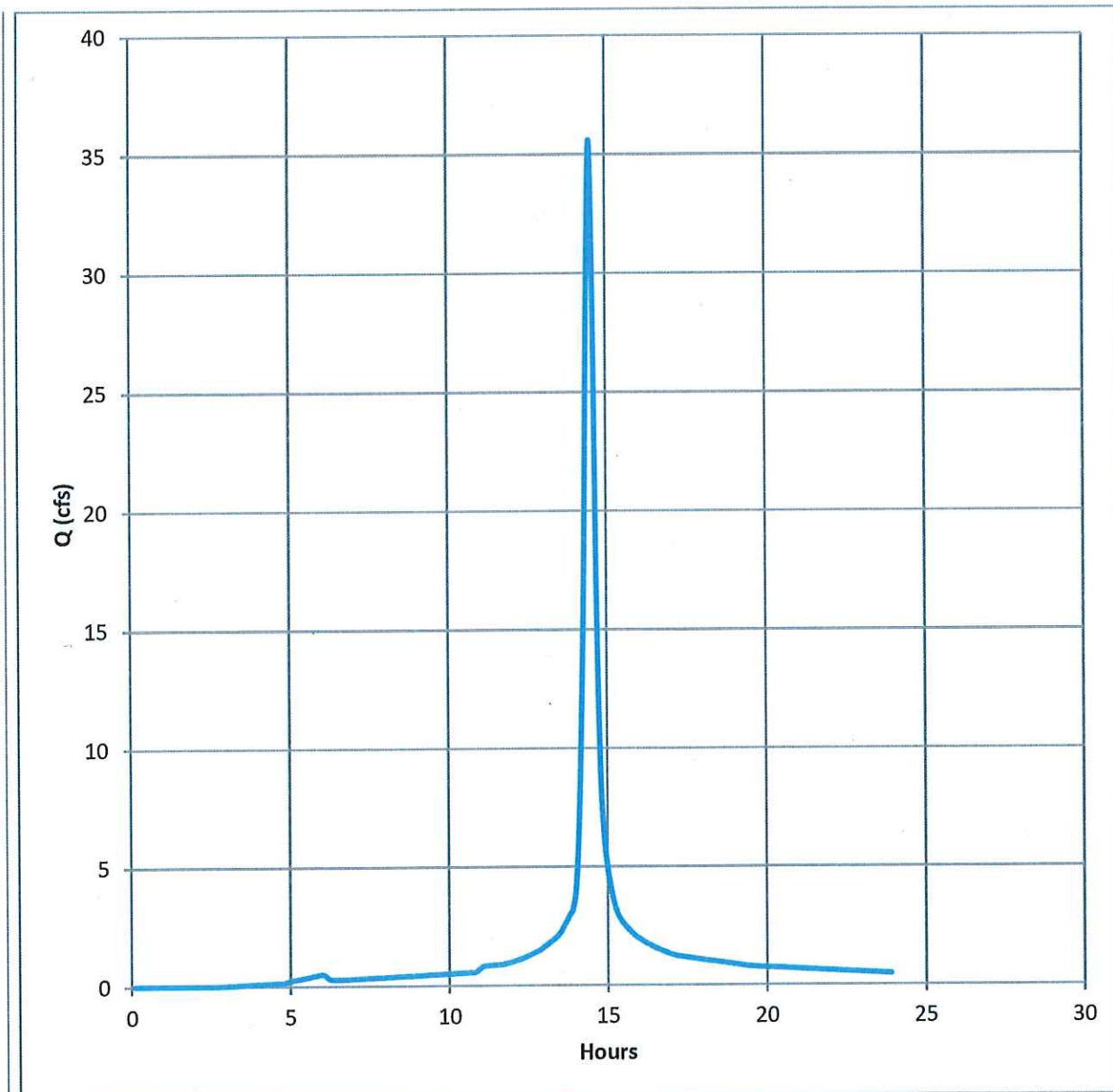
Notes:



Keefe Tract 2 to Basin

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	35.6
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	106,363 Ft ³
Drainage Area	=	5.90 Acres	Curve Number	=	94
Tc Method	=	User	Time of conc. (Tc)	=	12.00 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

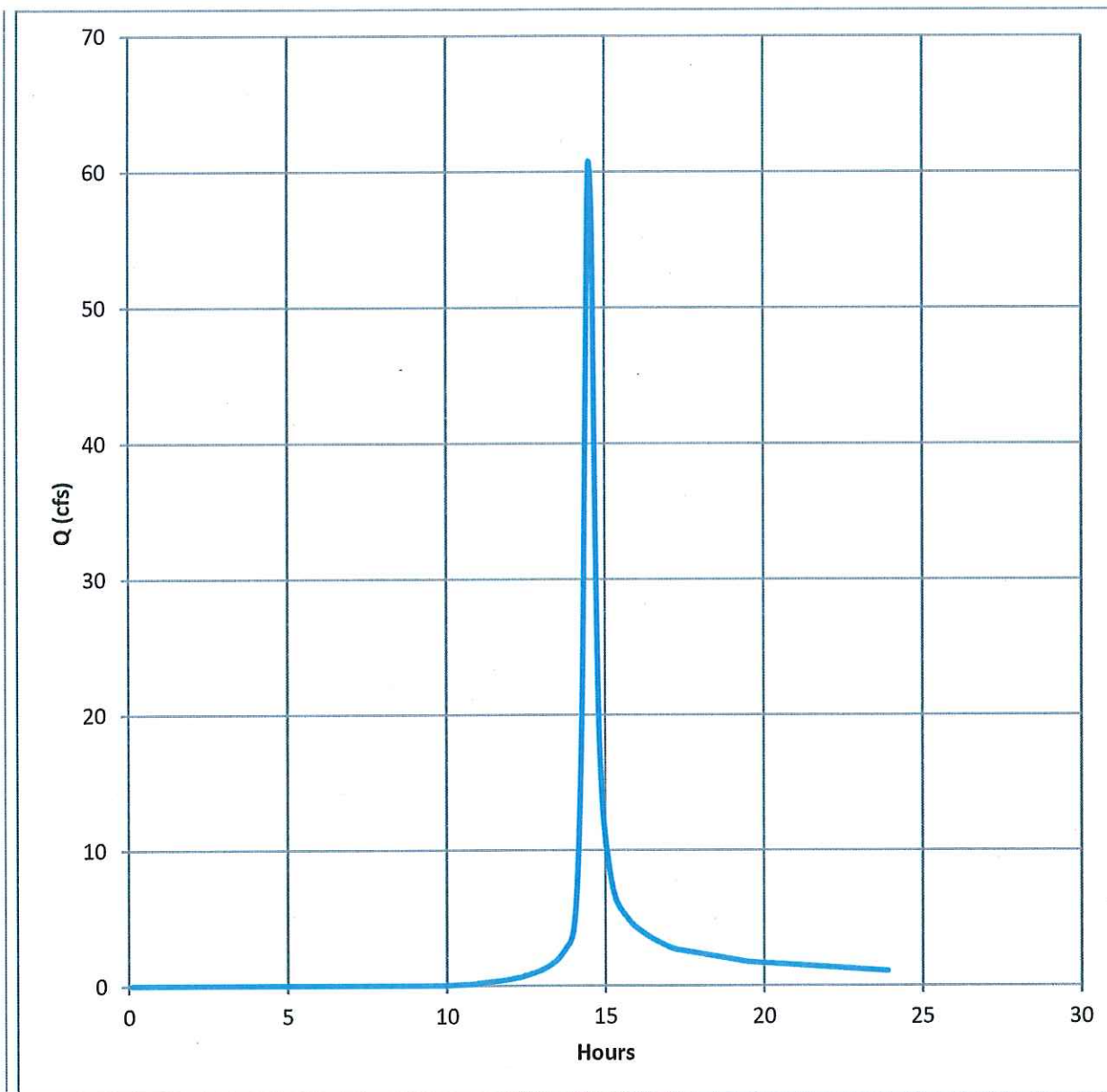
Notes:



Weatherington Residential

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	60.54
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	173,243 Ft ³
Drainage Area	=	16.40 Acres	Curve Number	=	74
Tc Method	=	User	Time of conc. (Tc)	=	13.80 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

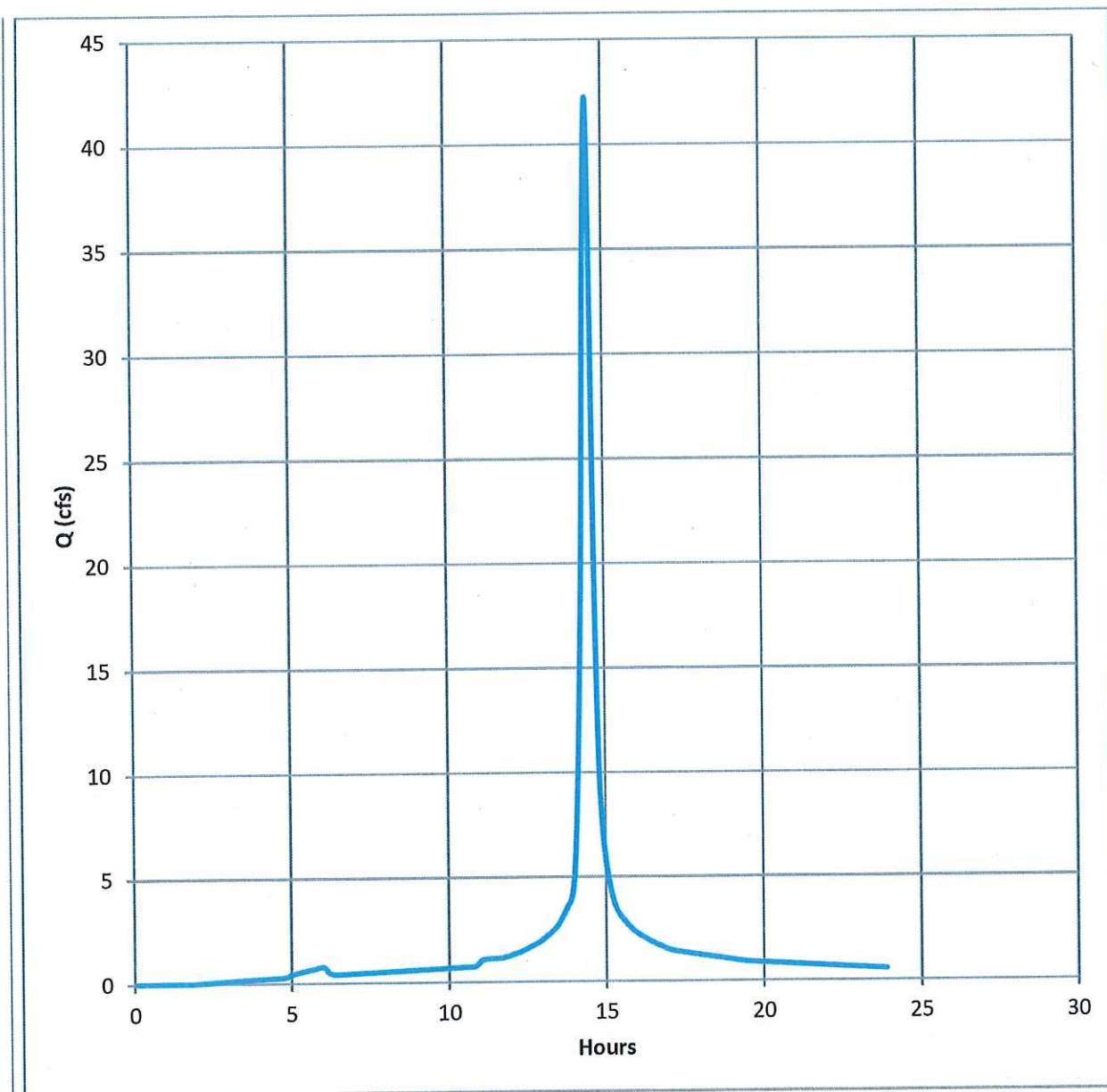
Notes:



Postdeveloped New Commercial to Basin

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	42.24
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	129,653 Ft ³
Drainage Area	=	6.86 Acres	Curve Number	=	96
Tc Method	=	User	Time of conc. (Tc)	=	13.80 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

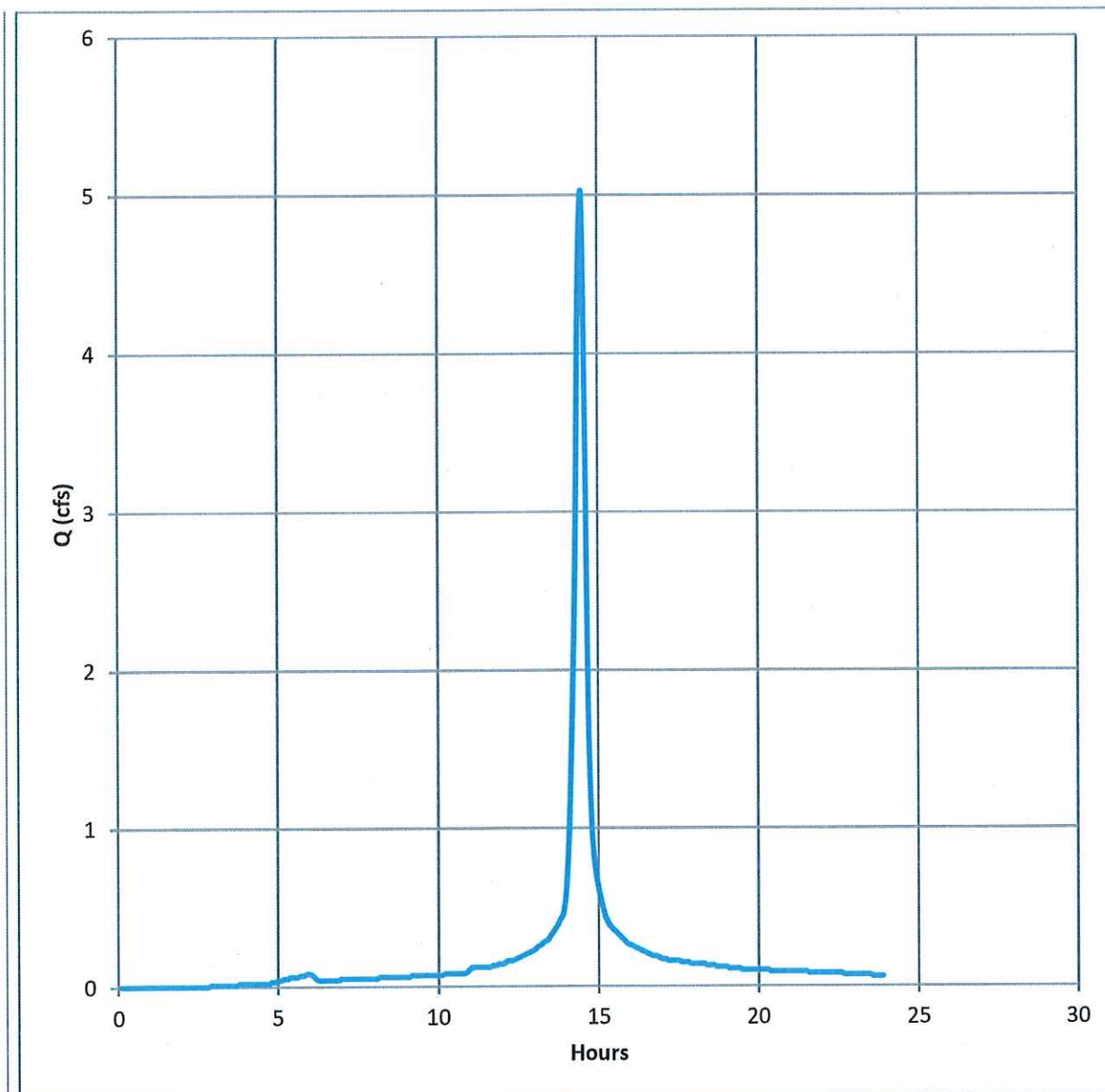
Notes:



Postdeveloped New Commercial to Bypass

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	5.01
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	14,731 Ft ³
Drainage Area	=	0.80 Acres	Curve Number	=	95
Tc Method	=	User	Time of conc. (Tc)	=	10.00 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

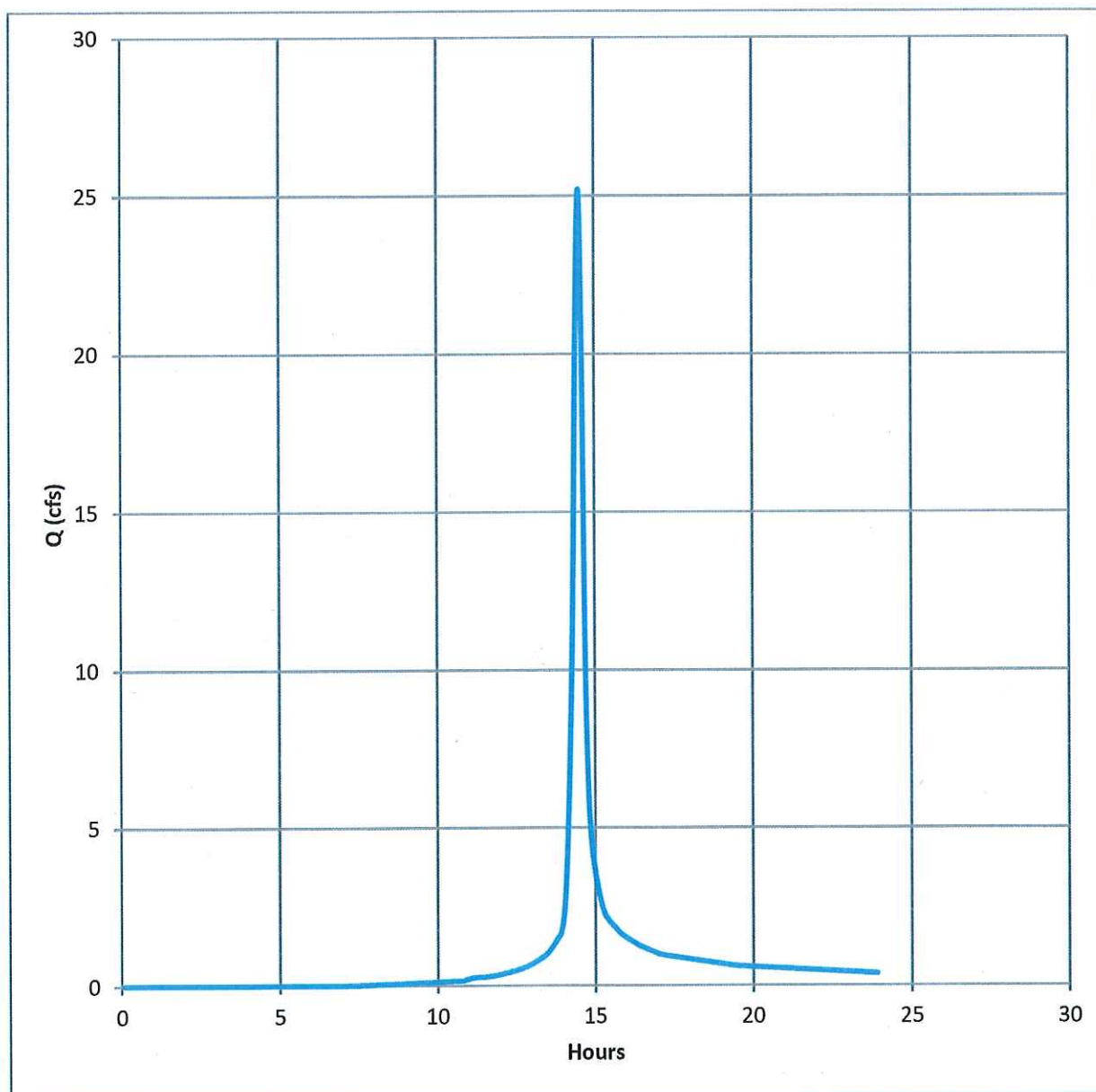
Notes:



Postdeveloped New Residential

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	25.2
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	68,041 Ft ³
Drainage Area	=	5.23 Acres	Curve Number	=	81
Tc Method	=	User	Time of conc. (Tc)	=	10.00 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

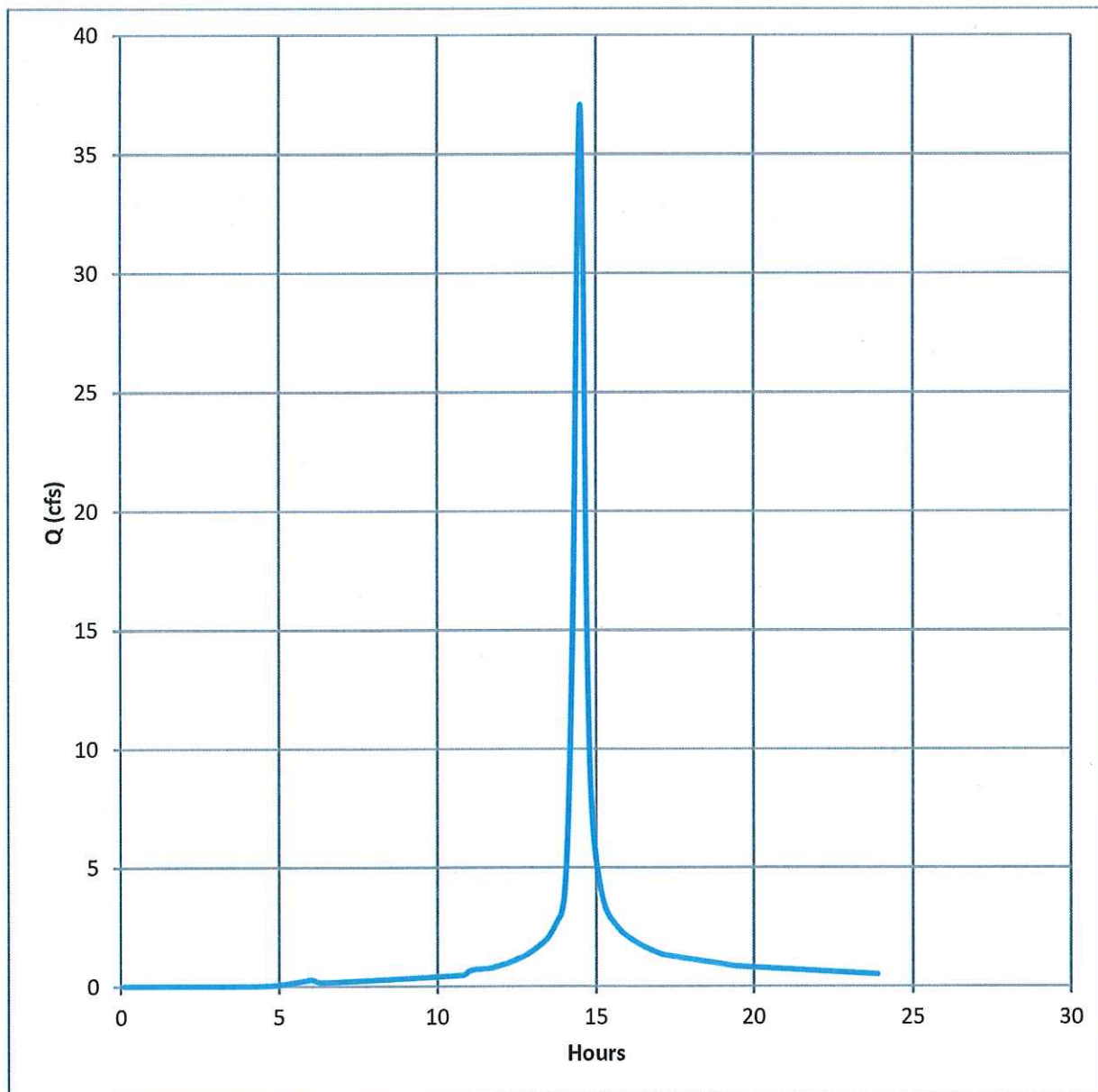
Notes:



Liberty Way Off-Site

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	37.07
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	106,730 Ft ³
Drainage Area	=	6.50 Acres	Curve Number	=	90
Tc Method	=	User	Time of conc. (Tc)	=	11.00 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

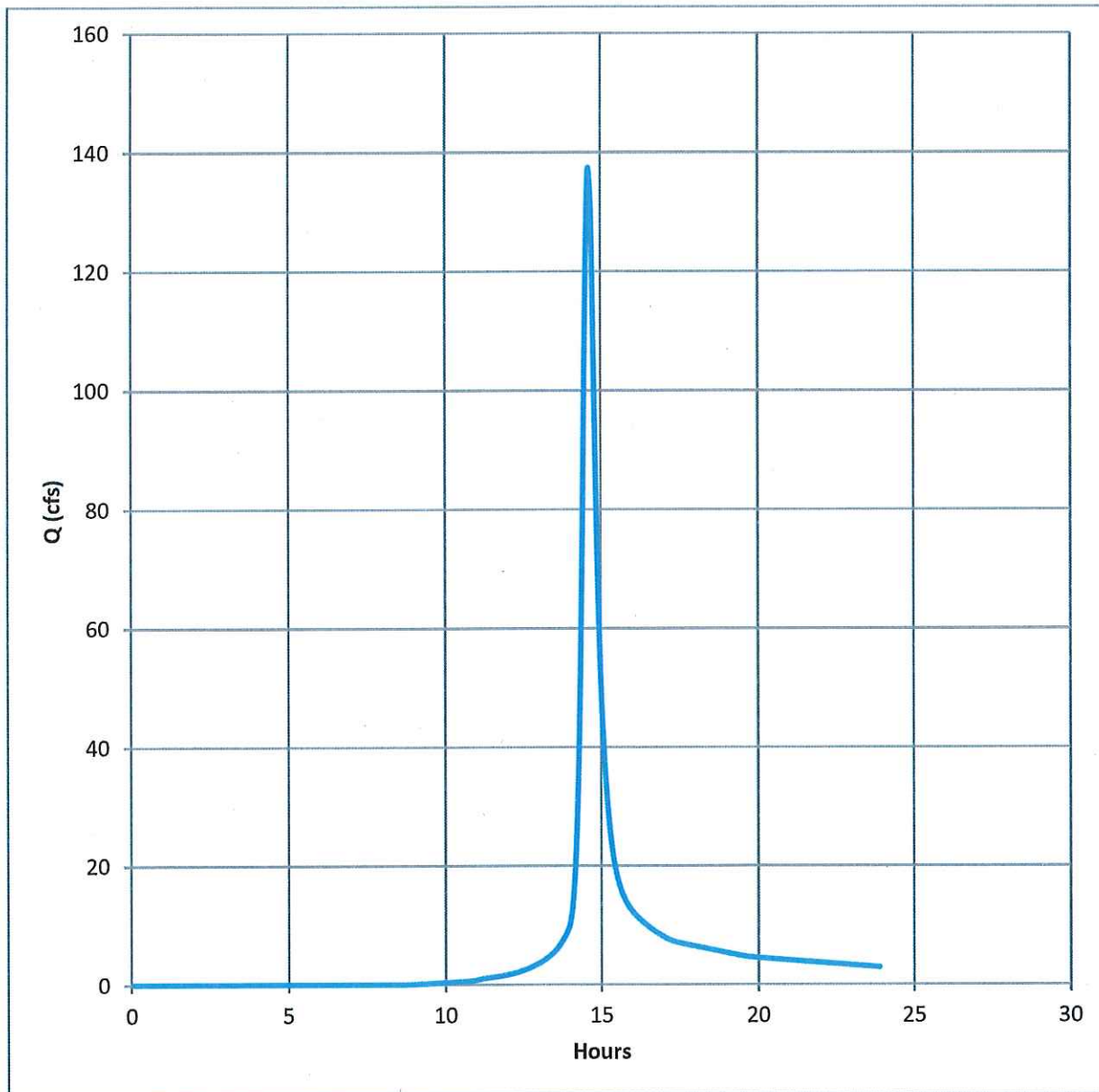
Notes:



Golf Course - Off Site

Hydrograph Type	=	SCS Runoff Type II	Peak Discharge	=	137.07
Storm Frequency	=	100 yrs	Time to Peak	=	12:30
Time Interval	=	6 min	Hyd. Volume	=	482,093 Ft ³
Drainage Area	=	41.60 Acres	Curve Number	=	77
Tc Method	=	User	Time of conc. (Tc)	=	22.20 Mins
Total precip.	=	5.67 in	Date	=	6/2/2016
Storm Duration	=	24 hrs			

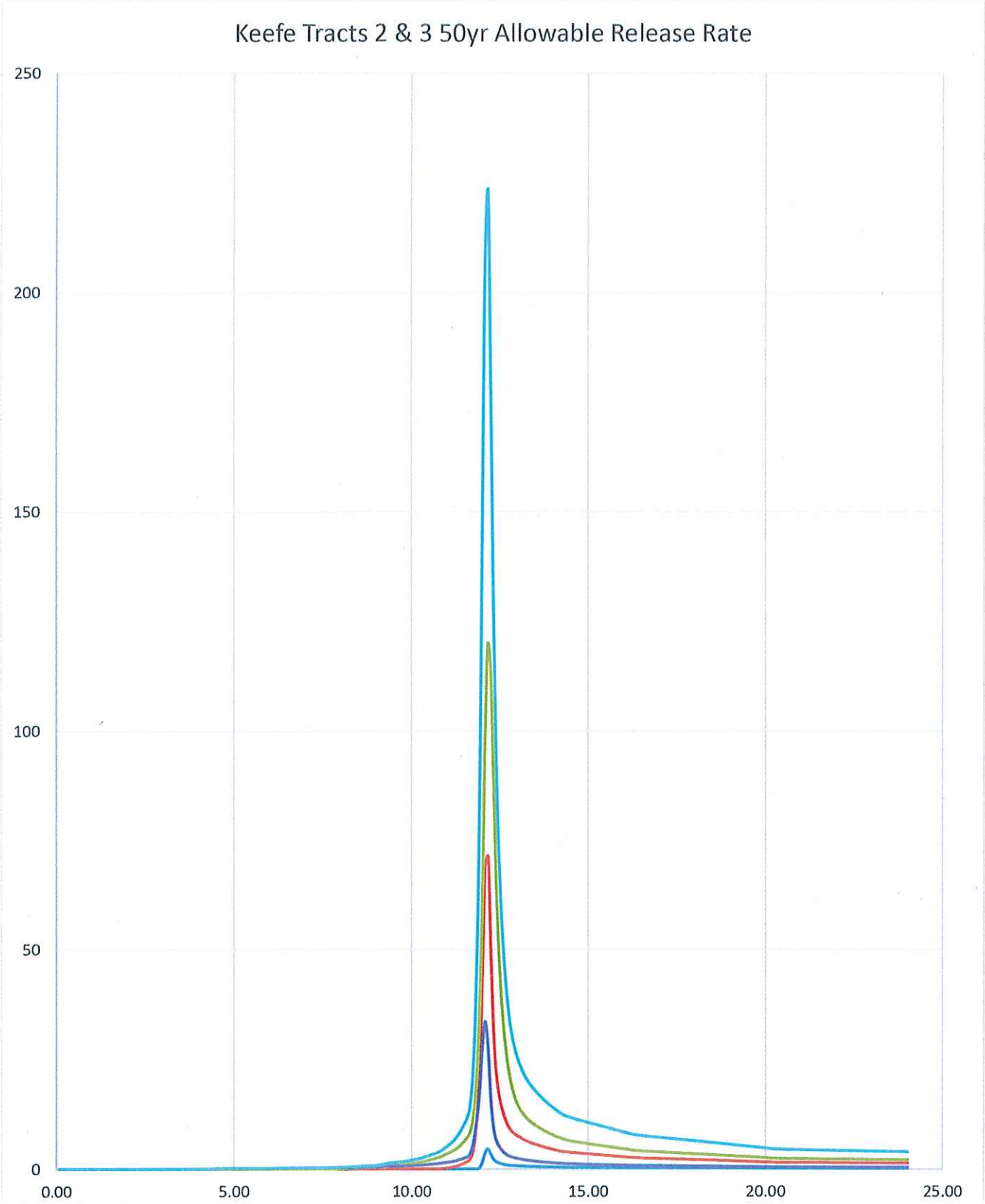
Notes:



Allowable Release Rate Hydrograph

Method of Hydrograph Development: TR-55

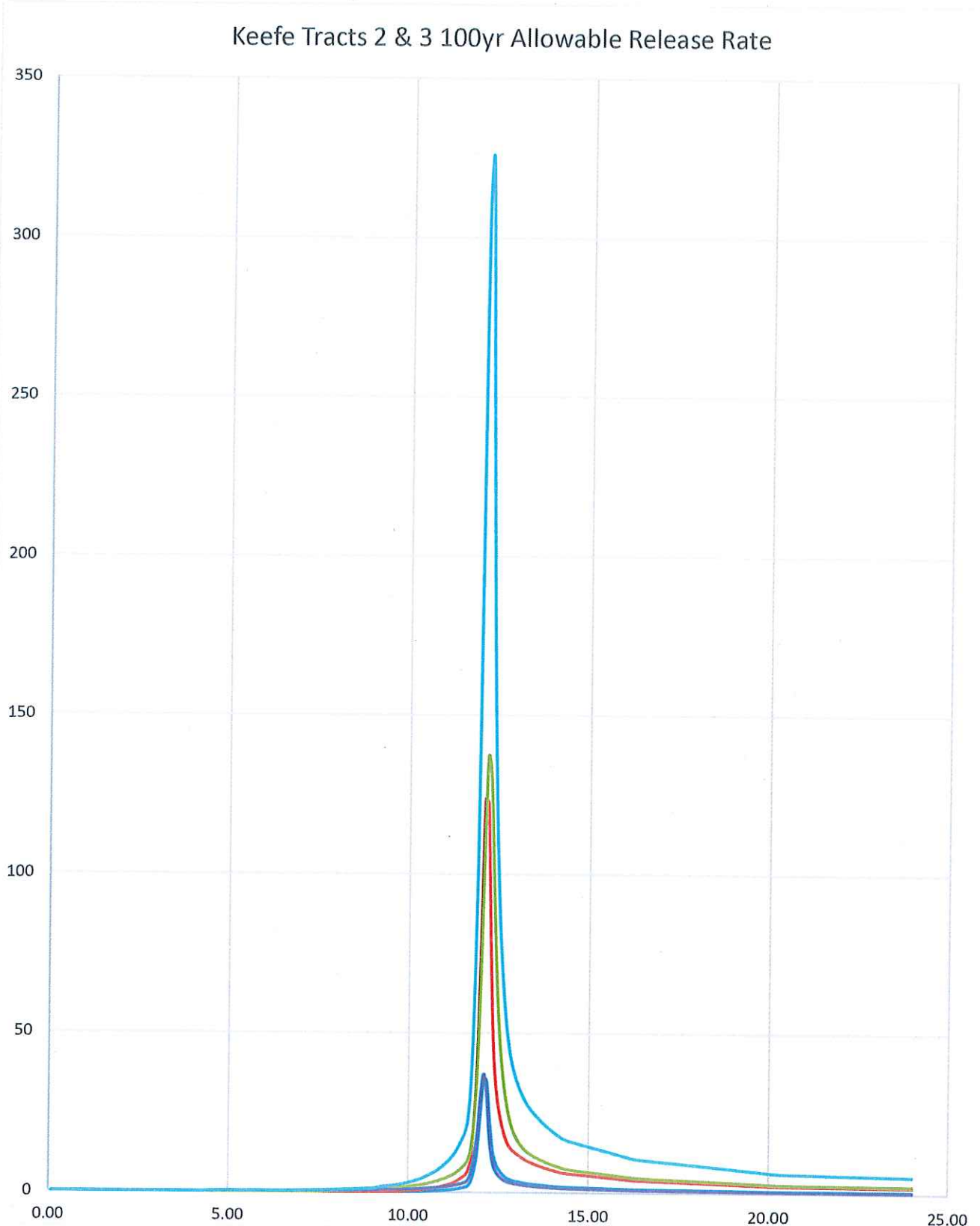
Software: Autodesk Storm and Sanitary Stand Alone



Allowable Release Rate Hydrograph

Method of Hydrograph Development: TR-55

Software: Autodesk Storm and Sanitary Stand Alone





Water Quality Volume

Project: Keefe Tracts 2 & 3 Designed By: MJL Date: 6/2/16
 Job No.: 15M053-000 Checked By: _____ Date: _____
 Basin ID: Primary Basin Revised By: _____ Date: _____

Required Water Quality Volume

$$WQ_v = P C A / 12$$

Site Drainage Area (A) = 81.56 acres (To Basin)
 Rainfall Depth (P) = 0.75 in.
 Runoff Coefficient (C) = 0.46

WQ_v = 2.368 acre-ft.
103,150 cu.ft.

75% Wet Pond 1.78 acre-ft.
77,363 cu.ft.

Residential Area (A) = 16.40 acres
 Residential (C) = 0.40 acres
 Commercial Area (A) = 23.56 acres
 Commercial (C) = 0.80 acres
 Golf Course Area (A) = 41.60 acres
 Golf Course (C) = 0.30 acres

Water Quality Release Rate

$$Q_{wqv} = \text{Total WQ}_v / \text{RT}$$

Retention Time (RT) = 24 hours

Q_{wqv} = 0.90 cfs

Provided Retention Time = 32.93 Hours

Water Quality Outlet Orifice

Contour Areas	Elevation ft	Area ft ²	Volume ft ³	Cum. Vol. ft ³	Elevation at V	Storage at Elev
Basin Inv. =	844.00	28489.55	0.00	0.00		
Contour 1 =	845.00	30463.65	29476.60	29476.60		
Contour 2 =	846.00	32499.50	31481.58	60958.18		
Contour 3 =	847.00	34598.05	33548.78	94506.95	846.49	
Contour 4 =	848.00	36758.35	35678.20	130185.15		
Contour 5 =	849.00	38981.35	37869.85	168055.00		
Contour 6 =	850.00	43490.05	41235.70	209290.70		
Contour 7 =	851.00	44568.30	44029.18	253319.88		
Contour 8 =	852.00	45654.15	45111.23	298431.10		
Contour 9 =	852.50	46200.40	68076.53	0.00		
Contour 10 =	853.00	46746.65	23236.76	23236.76		
Contour 11 =	854.00	47847.70	47297.18	70533.94		
Contour 12 =	855.00	48954.45	48401.08	118935.01	854.14	106139.55
Contour 13 =	856.00	50067.85	49511.15	168446.16		
Contour 14 =	857.00	51187.90	50627.88	219074.04		
Contour 15 =	858.00	52318.40	51753.15	270827.19		
Contour 16 =	859.00	53461.25	52889.83	323717.01		
Contour 17 =	860.00	54628.80	54045.03	377762.04		
Contour 18 =	861.00	55801.10	55214.95	432976.99		
Contour 19 =	862.00	56970.55	56385.83	489362.81		
Contour 20 =	863.00	58149.50	57560.03	546922.84		

Normal Pool elev @ 854.74? set cals below
if detail has pipe @ 854.5 shelf volume provided is 94,734.48 cu. ft.

$$Q = N C_d A_o (2 g \Delta h)^{1/2}$$

$$C_d = \underline{0.61}$$

$$A_o = \pi D^2 / 4 \text{ for circular orifices; } = h * w \text{ for rectangular orifices}$$

$$g = \underline{32.20 \text{ ft/sec}^2}$$

$$Q = Q_{wqv} = \underline{0.895 \text{ cfs}}$$

Required Volume = V = 77363 ft³
 Elevation at V = 854.14

Number of orifices = N = 1

Orifice h = 6.000 inch
 $\Delta h_{min}^{avg} = (\text{Elev at V} - \text{Basin Inv}) / 2 - 1/2 h =$

Orifice w = 0.00 inch (= 0 for circular orifice)
4.82 ft

$$A_{trial} = Q / (N C_d (2 g \Delta h_{min})^{1/2}) =$$

$$\underline{12.00 \text{ in}^2}$$

$$\text{Actual } A = A_o = \underline{28.27 \text{ in}^2}$$

$$\Delta h^{avg} = (Q / (N C_d A_o))^{2/2} / (2 g) =$$

$$\underline{0.87 \text{ ft}}$$

Elev = 854.74 > Elevation at V = 854.14 Good

Storage = 106139.55 ft³ Q = 0.895 cfs



Water Quality Volume

Project:	Keefe Tracts 2 & 3	Designed By:	MJL	Date:	6/2/16
Job No.:	15M053-000	Checked By:		Date:	
Basin ID:	Residential	Revised By:		Date:	

Required Water Quality Volume

$$WQ_v = P C A / 12$$

Site Drainage Area (A) = 5.23 acres (To Basin)

Rainfall Depth (P) = 0.75 in.

Impervious Area = 2.81 acres

i = 0.54

Runoff Coefficient (C) = 0.36

$$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$$

WQ_v = 0.119 acre-ft.
5,180 cu.ft.

20% Sediment 1,036 cu.ft.
Total WQ= 6,215 cu.ft.

Residential Water Quality Volume and Release Rates will be provided per each building in underground storage at building permits

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

Tuesday, 07 / 26 / 2016

Pond No. 2 - Existing Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 853.10 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	853.10	00	0	0
0.90	854.00	109	33	33
1.90	855.00	8,505	3,192	3,225
2.90	856.00	20,179	13,927	17,151
3.90	857.00	34,118	26,843	43,994
4.90	858.00	48,025	40,870	84,864
5.90	859.00	61,936	54,828	139,692
6.90	860.00	71,234	66,524	206,216
7.90	861.00	74,999	73,101	279,317

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 60.00	0.00	0.00	0.00
Span (in)	= 60.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 853.10	0.00	0.00	0.00
Length (ft)	= 92.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .024	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	853.10	0.00	---	---	---	---	---	---	---	---	---	0.000
0.09	3	853.19	0.08 oc	---	---	---	---	---	---	---	---	---	0.077
0.18	7	853.28	0.33 ic	---	---	---	---	---	---	---	---	---	0.329
0.27	10	853.37	0.73 ic	---	---	---	---	---	---	---	---	---	0.731
0.36	13	853.46	1.29 ic	---	---	---	---	---	---	---	---	---	1.288
0.45	16	853.55	2.01 ic	---	---	---	---	---	---	---	---	---	2.015
0.54	20	853.64	2.87 ic	---	---	---	---	---	---	---	---	---	2.875
0.63	23	853.73	3.90 ic	---	---	---	---	---	---	---	---	---	3.896
0.72	26	853.82	5.04 ic	---	---	---	---	---	---	---	---	---	5.041
0.81	29	853.91	6.35 ic	---	---	---	---	---	---	---	---	---	6.346
0.90	33	854.00	7.77 ic	---	---	---	---	---	---	---	---	---	7.768
1.00	352	854.10	9.55 ic	---	---	---	---	---	---	---	---	---	9.547
1.10	671	854.20	11.46 ic	---	---	---	---	---	---	---	---	---	11.46
1.20	990	854.30	13.52 ic	---	---	---	---	---	---	---	---	---	13.52
1.30	1,309	854.40	15.79 ic	---	---	---	---	---	---	---	---	---	15.79
1.40	1,629	854.50	18.13 ic	---	---	---	---	---	---	---	---	---	18.13
1.50	1,948	854.60	20.66 ic	---	---	---	---	---	---	---	---	---	20.66
1.60	2,267	854.70	23.11 oc	---	---	---	---	---	---	---	---	---	23.11
1.70	2,586	854.80	25.54 oc	---	---	---	---	---	---	---	---	---	25.54
1.80	2,905	854.90	28.07 oc	---	---	---	---	---	---	---	---	---	28.07
1.90	3,225	855.00	30.58 oc	---	---	---	---	---	---	---	---	---	30.58
2.00	4,617	855.10	33.15 oc	---	---	---	---	---	---	---	---	---	33.15
2.10	6,010	855.20	35.79 oc	---	---	---	---	---	---	---	---	---	35.79
2.20	7,403	855.30	38.47 oc	---	---	---	---	---	---	---	---	---	38.47
2.30	8,795	855.40	41.09 oc	---	---	---	---	---	---	---	---	---	41.09
2.40	10,188	855.50	43.83 oc	---	---	---	---	---	---	---	---	---	43.83
2.50	11,581	855.60	46.49 oc	---	---	---	---	---	---	---	---	---	46.49
2.60	12,973	855.70	49.25 oc	---	---	---	---	---	---	---	---	---	49.25
2.70	14,366	855.80	51.91 oc	---	---	---	---	---	---	---	---	---	51.91
2.80	15,759	855.90	54.65 oc	---	---	---	---	---	---	---	---	---	54.65
2.90	17,151	856.00	57.37 oc	---	---	---	---	---	---	---	---	---	57.37
3.00	19,836	856.10	60.04 oc	---	---	---	---	---	---	---	---	---	60.04
3.10	22,520	856.20	62.67 oc	---	---	---	---	---	---	---	---	---	62.67
3.20	25,204	856.30	65.24 oc	---	---	---	---	---	---	---	---	---	65.24

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Existing Pond

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.30	27,888	856.40	67.84 oc	---	---	---	---	---	---	---	---	---	67.84
3.40	30,573	856.50	70.35 oc	---	---	---	---	---	---	---	---	---	70.35
3.50	33,257	856.60	72.77 oc	---	---	---	---	---	---	---	---	---	72.77
3.60	35,941	856.70	75.26 oc	---	---	---	---	---	---	---	---	---	75.26
3.70	38,625	856.80	77.54 oc	---	---	---	---	---	---	---	---	---	77.54
3.80	41,310	856.90	79.84 oc	---	---	---	---	---	---	---	---	---	79.84
3.90	43,994	857.00	81.99 oc	---	---	---	---	---	---	---	---	---	81.99
4.00	48,081	857.10	84.04 oc	---	---	---	---	---	---	---	---	---	84.04
4.10	52,168	857.20	86.03 oc	---	---	---	---	---	---	---	---	---	86.03
4.20	56,255	857.30	87.87 oc	---	---	---	---	---	---	---	---	---	87.87
4.30	60,342	857.40	89.53 oc	---	---	---	---	---	---	---	---	---	89.53
4.40	64,429	857.50	91.07 oc	---	---	---	---	---	---	---	---	---	91.07
4.50	68,516	857.60	92.42 oc	---	---	---	---	---	---	---	---	---	92.42
4.60	72,603	857.70	93.53 oc	---	---	---	---	---	---	---	---	---	93.53
4.70	76,690	857.80	94.39 oc	---	---	---	---	---	---	---	---	---	94.39
4.80	80,777	857.90	94.90 oc	---	---	---	---	---	---	---	---	---	94.90
4.90	84,864	858.00	94.87 oc	---	---	---	---	---	---	---	---	---	94.87
5.00	90,347	858.10	92.96 oc	---	---	---	---	---	---	---	---	---	92.96
5.10	95,829	858.20	97.89 oc	---	---	---	---	---	---	---	---	---	97.89
5.20	101,312	858.30	102.57 oc	---	---	---	---	---	---	---	---	---	102.57
5.30	106,795	858.40	107.05 oc	---	---	---	---	---	---	---	---	---	107.05
5.40	112,278	858.50	111.35 oc	---	---	---	---	---	---	---	---	---	111.35
5.50	117,760	858.60	115.49 oc	---	---	---	---	---	---	---	---	---	115.49
5.60	123,243	858.70	119.49 oc	---	---	---	---	---	---	---	---	---	119.49
5.70	128,726	858.80	123.36 oc	---	---	---	---	---	---	---	---	---	123.36
5.80	134,209	858.90	127.11 oc	---	---	---	---	---	---	---	---	---	127.11
5.90	139,692	859.00	130.76 oc	---	---	---	---	---	---	---	---	---	130.76
6.00	146,344	859.10	134.30 oc	---	---	---	---	---	---	---	---	---	134.30
6.10	152,996	859.20	137.75 oc	---	---	---	---	---	---	---	---	---	137.75
6.20	159,649	859.30	141.12 oc	---	---	---	---	---	---	---	---	---	141.12
6.30	166,301	859.40	144.41 oc	---	---	---	---	---	---	---	---	---	144.41
6.40	172,954	859.50	147.62 oc	---	---	---	---	---	---	---	---	---	147.62
6.50	179,606	859.60	150.77 oc	---	---	---	---	---	---	---	---	---	150.77
6.60	186,258	859.70	153.85 oc	---	---	---	---	---	---	---	---	---	153.85
6.70	192,911	859.80	156.88 oc	---	---	---	---	---	---	---	---	---	156.88
6.80	199,563	859.90	159.84 oc	---	---	---	---	---	---	---	---	---	159.84
6.90	206,216	860.00	162.76 oc	---	---	---	---	---	---	---	---	---	162.76
7.00	213,526	860.10	165.62 oc	---	---	---	---	---	---	---	---	---	165.62
7.10	220,836	860.20	168.43 oc	---	---	---	---	---	---	---	---	---	168.43
7.20	228,146	860.30	171.20 oc	---	---	---	---	---	---	---	---	---	171.20
7.30	235,456	860.40	173.92 oc	---	---	---	---	---	---	---	---	---	173.92
7.40	242,766	860.50	176.60 oc	---	---	---	---	---	---	---	---	---	176.60
7.50	250,076	860.60	179.24 oc	---	---	---	---	---	---	---	---	---	179.24
7.60	257,386	860.70	181.84 oc	---	---	---	---	---	---	---	---	---	181.84
7.70	264,697	860.80	184.40 oc	---	---	---	---	---	---	---	---	---	184.40
7.80	272,007	860.90	186.93 oc	---	---	---	---	---	---	---	---	---	186.93
7.90	279,317	861.00	189.43 oc	---	---	---	---	---	---	---	---	---	189.43

...End

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

Tuesday, 07 / 26 / 2016

Pond No. 1 - Walled Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 844.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	844.00	28,490	0	0
1.00	845.00	30,464	29,469	29,469
2.00	846.00	32,499	31,473	60,941
3.00	847.00	34,598	33,540	94,481
4.00	848.00	36,758	35,669	130,150
5.00	849.00	38,981	37,860	168,010
6.00	850.00	43,490	41,211	209,221
7.00	851.00	44,568	44,024	253,245
8.00	852.00	45,654	45,105	298,350
8.50	852.50	46,200	22,961	321,311
9.00	853.00	46,746	23,234	344,545
10.00	854.00	47,848	47,291	391,836
11.00	855.00	48,954	48,395	440,232
12.00	856.00	50,067	49,505	489,736
13.00	857.00	51,188	50,621	540,357
14.00	858.00	52,318	51,747	592,104
15.00	859.00	53,461	52,883	644,987
16.00	860.00	54,629	54,039	699,026
17.00	861.00	55,801	55,209	754,234
18.00	862.00	56,971	56,379	810,614
19.00	863.00	58,149	57,553	868,167

NO storage
below N.W.-E
REMOVE

20,961
46,195

400,676

512,264

Q&D says
306,971.81 cu ft
for wet basin

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 48.00	6.00	66.00	0.00
Span (in)	= 96.00	6.00	66.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 852.00	852.50	854.50	0.00
Length (ft)	= 364.00	0.00	0.00	0.00
Slope (%)	= 0.30	0.00	0.00	n/a
N-Value	= .015	.015	.015	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	60.00	0.00	0.00
Crest El. (ft)	= 861.00	863.70	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	844.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	2,947	844.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	5,894	844.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	8,841	844.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	11,787	844.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	14,734	844.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	17,681	844.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	20,628	844.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	23,575	844.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	26,522	844.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	29,469	845.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	32,616	845.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.20	35,763	845.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.30	38,910	845.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.40	42,058	845.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.50	45,205	845.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.60	48,352	845.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.70	51,500	845.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.80	54,647	845.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.90	57,794	845.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.00	60,941	846.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.10	64,295	846.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000

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Walled Pond

Stage / Storage / Discharge Table

Stage ft	Storage cuf	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.20	67,649	846.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.30	71,003	846.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.40	74,357	846.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.50	77,711	846.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.60	81,065	846.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.70	84,419	846.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.80	87,773	846.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.90	91,127	846.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.00	94,481	847.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.10	98,048	847.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.20	101,615	847.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.30	105,182	847.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.40	108,749	847.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.50	112,316	847.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.60	115,883	847.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.70	119,449	847.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.80	123,016	847.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.90	126,583	847.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.00	130,150	848.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.10	133,936	848.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.20	137,722	848.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.30	141,508	848.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.40	145,294	848.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.50	149,080	848.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.60	152,866	848.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.70	156,652	848.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.80	160,438	848.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
4.90	164,224	848.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.00	168,010	849.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.10	172,131	849.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.20	176,253	849.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.30	180,374	849.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.40	184,495	849.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.50	188,616	849.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.60	192,737	849.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.70	196,858	849.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.80	200,979	849.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
5.90	205,100	849.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.00	209,221	850.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.10	213,624	850.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.20	218,026	850.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.30	222,428	850.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.40	226,831	850.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.50	231,233	850.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.60	235,635	850.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.70	240,038	850.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.80	244,440	850.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
6.90	248,842	850.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.00	253,245	851.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.10	257,755	851.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.20	262,266	851.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.30	266,776	851.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.40	271,287	851.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.50	275,797	851.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.60	280,308	851.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.70	284,818	851.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.80	289,329	851.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
7.90	293,840	851.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.00	298,350	852.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.05	300,646	852.05	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.10	302,942	852.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.15	305,238	852.15	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.20	307,534	852.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.25	309,831	852.25	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.30	312,127	852.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.35	314,423	852.35	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.40	316,719	852.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.45	319,015	852.45	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.50	321,311	852.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
8.55	323,635	852.55	0.01 oc	0.01 ic	0.00	---	0.00	0.00	---	---	---	---	0.008
8.60	325,958	852.60	0.03 oc	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.031
8.65	328,281	852.65	0.07 oc	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.066

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Walled Pond

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
8.70	330,605	852.70	0.11 oc	0.11 ic	0.00	---	0.00	0.00	---	---	---	---	0.114
8.75	332,928	852.75	0.17 oc	0.17 ic	0.00	---	0.00	0.00	---	---	---	---	0.167
8.80	335,252	852.80	0.23 oc	0.23 ic	0.00	---	0.00	0.00	---	---	---	---	0.230
8.85	337,575	852.85	0.30 oc	0.30 ic	0.00	---	0.00	0.00	---	---	---	---	0.298
8.90	339,898	852.90	0.36 oc	0.36 ic	0.00	---	0.00	0.00	---	---	---	---	0.363
8.95	342,222	852.95	0.43 oc	0.43 ic	0.00	---	0.00	0.00	---	---	---	---	0.425
9.00	344,545	853.00	0.47 ic	0.47 ic	0.00	---	0.00	0.00	---	---	---	---	0.473
9.10	349,274	853.10	0.56 ic	0.56 ic	0.00	---	0.00	0.00	---	---	---	---	0.559
9.20	354,003	853.20	0.63 ic	0.63 ic	0.00	---	0.00	0.00	---	---	---	---	0.634
9.30	358,733	853.30	0.70 ic	0.70 ic	0.00	---	0.00	0.00	---	---	---	---	0.701
9.40	363,462	853.40	0.76 ic	0.76 ic	0.00	---	0.00	0.00	---	---	---	---	0.762
9.50	368,191	853.50	0.82 ic	0.82 ic	0.00	---	0.00	0.00	---	---	---	---	0.819
9.60	372,920	853.60	0.87 ic	0.87 ic	0.00	---	0.00	0.00	---	---	---	---	0.871
9.70	377,649	853.70	0.92 ic	0.92 ic	0.00	---	0.00	0.00	---	---	---	---	0.921
9.80	382,378	853.80	0.97 ic	0.97 ic	0.00	---	0.00	0.00	---	---	---	---	0.969
9.90	387,107	853.90	1.01 ic	1.01 ic	0.00	---	0.00	0.00	---	---	---	---	1.014
10.00	391,836	854.00	1.06 ic	1.06 ic	0.00	---	0.00	0.00	---	---	---	---	1.057
10.10	396,676	854.10	1.10 ic	1.10 ic	0.00	---	0.00	0.00	---	---	---	---	1.098
10.20	401,515	854.20	1.14 ic	1.14 ic	0.00	---	0.00	0.00	---	---	---	---	1.138
10.30	406,355	854.30	1.18 ic	1.18 ic	0.00	---	0.00	0.00	---	---	---	---	1.177
10.40	411,194	854.40	1.22 ic	1.21 ic	0.00	---	0.00	0.00	---	---	---	---	1.214
10.50	416,034	854.50	1.25 ic	1.25 ic	0.00	---	0.00	0.00	---	---	---	---	1.250
10.60	420,873	854.60	1.41 ic	1.29 ic	0.12 ic	---	0.00	0.00	---	---	---	---	1.406
10.70	425,713	854.70	1.77 ic	1.32 ic	0.45 ic	---	0.00	0.00	---	---	---	---	1.771
10.80	430,552	854.80	2.39 ic	1.35 ic	1.03 ic	---	0.00	0.00	---	---	---	---	2.388
10.90	435,392	854.90	3.08 ic	1.39 ic	1.70 ic	---	0.00	0.00	---	---	---	---	3.084
11.00	440,232	855.00	4.01 ic	1.42 ic	2.59 ic	---	0.00	0.00	---	---	---	---	4.006
11.10	445,182	855.10	5.19 ic	1.45 ic	3.74 ic	---	0.00	0.00	---	---	---	---	5.188
11.20	450,132	855.20	6.66 ic	1.48 ic	5.18 ic	---	0.00	0.00	---	---	---	---	6.660
11.30	455,083	855.30	8.08 ic	1.51 ic	6.57 ic	---	0.00	0.00	---	---	---	---	8.082
11.40	460,033	855.40	10.14 ic	1.54 ic	8.60 ic	---	0.00	0.00	---	---	---	---	10.14
11.50	464,984	855.50	12.06 ic	1.57 ic	10.49 ic	---	0.00	0.00	---	---	---	---	12.06
11.60	469,934	855.60	14.21 ic	1.60 ic	12.61 ic	---	0.00	0.00	---	---	---	---	14.20
11.70	474,885	855.70	15.98 ic	1.62 ic	14.36 ic	---	0.00	0.00	---	---	---	---	15.98
11.80	479,835	855.80	18.54 ic	1.64 ic	16.89 ic	---	0.00	0.00	---	---	---	---	18.54
11.90	484,785	855.90	21.33 ic	1.65 ic	19.68 ic	---	0.00	0.00	---	---	---	---	21.33
12.00	489,736	856.00	23.58 ic	1.66 ic	21.92 ic	---	0.00	0.00	---	---	---	---	23.58
12.10	494,798	856.10	26.80 ic	1.67 ic	25.13 ic	---	0.00	0.00	---	---	---	---	26.80
12.20	499,860	856.20	30.26 ic	1.67 ic	28.59 ic	---	0.00	0.00	---	---	---	---	30.26
12.30	504,922	856.30	33.00 ic	1.68 ic	31.31 ic	---	0.00	0.00	---	---	---	---	33.00
12.40	509,985	856.40	35.86 ic	1.69 ic	34.17 ic	---	0.00	0.00	---	---	---	---	35.86
12.50	515,047	856.50	39.90 ic	1.69 ic	38.21 ic	---	0.00	0.00	---	---	---	---	39.90
12.60	520,109	856.60	43.05 ic	1.70 ic	41.35 ic	---	0.00	0.00	---	---	---	---	43.05
12.70	525,171	856.70	47.47 ic	1.70 ic	45.76 ic	---	0.00	0.00	---	---	---	---	47.46
12.80	530,233	856.80	50.88 ic	1.71 ic	49.17 ic	---	0.00	0.00	---	---	---	---	50.88
12.90	535,295	856.90	54.41 ic	1.72 ic	52.68 ic	---	0.00	0.00	---	---	---	---	54.40
13.00	540,357	857.00	59.29 ic	1.72 ic	57.57 ic	---	0.00	0.00	---	---	---	---	59.29
13.10	545,532	857.10	63.04 ic	1.73 ic	61.31 ic	---	0.00	0.00	---	---	---	---	63.04
13.20	550,707	857.20	66.87 ic	1.74 ic	65.13 ic	---	0.00	0.00	---	---	---	---	66.87
13.30	555,881	857.30	72.12 oc	1.74 ic	70.38 ic	---	0.00	0.00	---	---	---	---	72.12
13.40	561,056	857.40	76.12 oc	1.74 ic	74.38 ic	---	0.00	0.00	---	---	---	---	76.12
13.50	566,231	857.50	80.18 oc	1.75 ic	78.43 ic	---	0.00	0.00	---	---	---	---	80.18
13.60	571,406	857.60	85.69 oc	1.74 ic	83.94 ic	---	0.00	0.00	---	---	---	---	85.68
13.70	576,580	857.70	89.85 oc	1.74 ic	88.11 ic	---	0.00	0.00	---	---	---	---	89.85
13.80	581,755	857.80	94.06 oc	1.75 ic	92.31 ic	---	0.00	0.00	---	---	---	---	94.06
13.90	586,930	857.90	99.69 oc	1.74 ic	97.94 ic	---	0.00	0.00	---	---	---	---	99.68
14.00	592,104	858.00	103.94 oc	1.74 ic	102.19 ic	---	0.00	0.00	---	---	---	---	103.94
14.10	597,393	858.10	109.57 oc	1.74 ic	107.83 ic	---	0.00	0.00	---	---	---	---	109.57
14.20	602,681	858.20	113.81 oc	1.74 ic	112.07 ic	---	0.00	0.00	---	---	---	---	113.81
14.30	607,969	858.30	118.05 oc	1.75 ic	116.30 ic	---	0.00	0.00	---	---	---	---	118.04
14.40	613,257	858.40	123.57 oc	1.74 ic	121.82 ic	---	0.00	0.00	---	---	---	---	123.57
14.50	618,546	858.50	129.00 oc	1.74 ic	127.26 ic	---	0.00	0.00	---	---	---	---	129.00
14.60	623,834	858.60	133.10 oc	1.74 ic	131.36 ic	---	0.00	0.00	---	---	---	---	133.10
14.70	629,122	858.70	138.34 oc	1.74 ic	136.60 ic	---	0.00	0.00	---	---	---	---	138.34
14.80	634,411	858.80	143.43 oc	1.74 ic	141.69 ic	---	0.00	0.00	---	---	---	---	143.43
14.90	639,699	858.90	147.30 oc	1.74 ic	145.55 ic	---	0.00	0.00	---	---	---	---	147.29
15.00	644,987	859.00	152.12 oc	1.74 ic	150.37 ic	---	0.00	0.00	---	---	---	---	152.12
15.10	650,391	859.10	156.75 oc	1.74 ic	155.00 ic	---	0.00	0.00	---	---	---	---	156.75
15.20	655,795	859.20	162.04 oc	1.74 ic	160.30 ic	---	0.00	0.00	---	---	---	---	162.04
15.30	661,199	859.30	166.19 oc	1.75 ic	164.44 ic	---	0.00	0.00	---	---	---	---	166.19
15.40	666,603	859.40	170.80 oc	1.75 ic	169.06 ic	---	0.00	0.00	---	---	---	---	170.80
15.50	672,007	859.50	174.37 oc	1.68 ic	172.69 ic	---	0.00	0.00	---	---	---	---	174.37

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Walled Pond

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
15.60	677,411	859.60	178.78 oc	1.69 ic	177.10 ic	---	0.00	0.00	---	---	---	---	178.78
15.70	682,815	859.70	182.24 oc	1.70 ic	180.54 ic	---	0.00	0.00	---	---	---	---	182.23
15.80	688,218	859.80	185.87 oc	1.71 ic	184.16 ic	---	0.00	0.00	---	---	---	---	185.87
15.90	693,622	859.90	188.94 oc	1.72 ic	187.22 ic	---	0.00	0.00	---	---	---	---	188.94
16.00	699,026	860.00	191.42 oc	1.73 ic	189.68 ic	---	0.00	0.00	---	---	---	---	191.41
16.10	704,547	860.10	194.84 oc	1.74 ic	193.10 ic	---	0.00	0.00	---	---	---	---	194.84
16.20	710,068	860.20	198.21 oc	1.75 ic	196.45 ic	---	0.00	0.00	---	---	---	---	198.21
16.30	715,589	860.30	201.52 oc	1.76 ic	199.76 ic	---	0.00	0.00	---	---	---	---	201.52
16.40	721,109	860.40	204.78 oc	1.77 ic	203.00 ic	---	0.00	0.00	---	---	---	---	204.77
16.50	726,630	860.50	207.98 oc	1.78 ic	206.20 ic	---	0.00	0.00	---	---	---	---	207.98
16.60	732,151	860.60	211.14 oc	1.79 ic	209.35 ic	---	0.00	0.00	---	---	---	---	211.14
16.70	737,672	860.70	214.25 oc	1.80 ic	212.45 ic	---	0.00	0.00	---	---	---	---	214.25
16.80	743,193	860.80	217.32 oc	1.81 ic	215.51 ic	---	0.00	0.00	---	---	---	---	217.31
16.90	748,714	860.90	220.34 oc	1.82 ic	218.52 ic	---	0.00	0.00	---	---	---	---	220.34
17.00	754,234	861.00	223.01 oc	1.83 ic	221.17 ic	---	0.00	0.00	---	---	---	---	223.00
17.10	759,872	861.10	225.86 oc	1.84 ic	222.34 ic	---	1.68	0.00	---	---	---	---	225.86
17.20	765,510	861.20	229.55 oc	1.84 ic	222.94 ic	---	4.76	0.00	---	---	---	---	229.54
17.30	771,148	861.30	233.76 oc	1.84 ic	223.16 ic	---	8.75	0.00	---	---	---	---	233.76
17.40	776,786	861.40	238.39 oc	1.84 ic	223.07 ic	---	13.47	0.00	---	---	---	---	238.38
17.50	782,424	861.50	243.35 oc	1.84 ic	222.68 ic	---	18.83	0.00	---	---	---	---	243.35
17.60	788,062	861.60	248.61 oc	1.83 ic	222.02 ic	---	24.75	0.00	---	---	---	---	248.61
17.70	793,700	861.70	254.12 oc	1.83 ic	221.10 ic	---	31.19	0.00	---	---	---	---	254.12
17.80	799,338	861.80	259.86 oc	1.82 ic	219.93 ic	---	38.11	0.00	---	---	---	---	259.86
17.90	804,976	861.90	265.79 oc	1.81 ic	218.51 ic	---	45.47	0.00	---	---	---	---	265.79
18.00	810,614	862.00	271.91 oc	1.79 ic	216.84 ic	---	53.28	0.00	---	---	---	---	271.91
18.10	816,369	862.10	278.18 oc	1.78 ic	214.93 ic	---	61.47	0.00	---	---	---	---	278.17
18.20	822,124	862.20	284.57 oc	1.76 ic	212.78 ic	---	70.03	0.00	---	---	---	---	284.57
18.30	827,880	862.30	291.09 oc	1.74 ic	210.38 ic	---	78.97	0.00	---	---	---	---	291.09
18.40	833,635	862.40	297.71 oc	1.72 ic	207.74 ic	---	88.25	0.00	---	---	---	---	297.71
18.50	839,390	862.50	304.42 oc	1.69 ic	204.85 ic	---	97.87	0.00	---	---	---	---	304.41
18.60	845,146	862.60	311.20 oc	1.67 ic	201.71 ic	---	107.82	0.00	---	---	---	---	311.20
18.70	850,901	862.70	318.04 oc	1.64 ic	198.32 ic	---	118.08	0.00	---	---	---	---	318.04
18.80	856,656	862.80	324.93 oc	1.61 ic	194.67 ic	---	128.65	0.00	---	---	---	---	324.93
18.90	862,412	862.90	331.86 oc	1.58 ic	190.76 ic	---	139.51	0.00	---	---	---	---	331.85
19.00	868,167	863.00	338.82 oc	1.54 ic	186.57 ic	---	150.70	0.00	---	---	---	---	338.82

...End

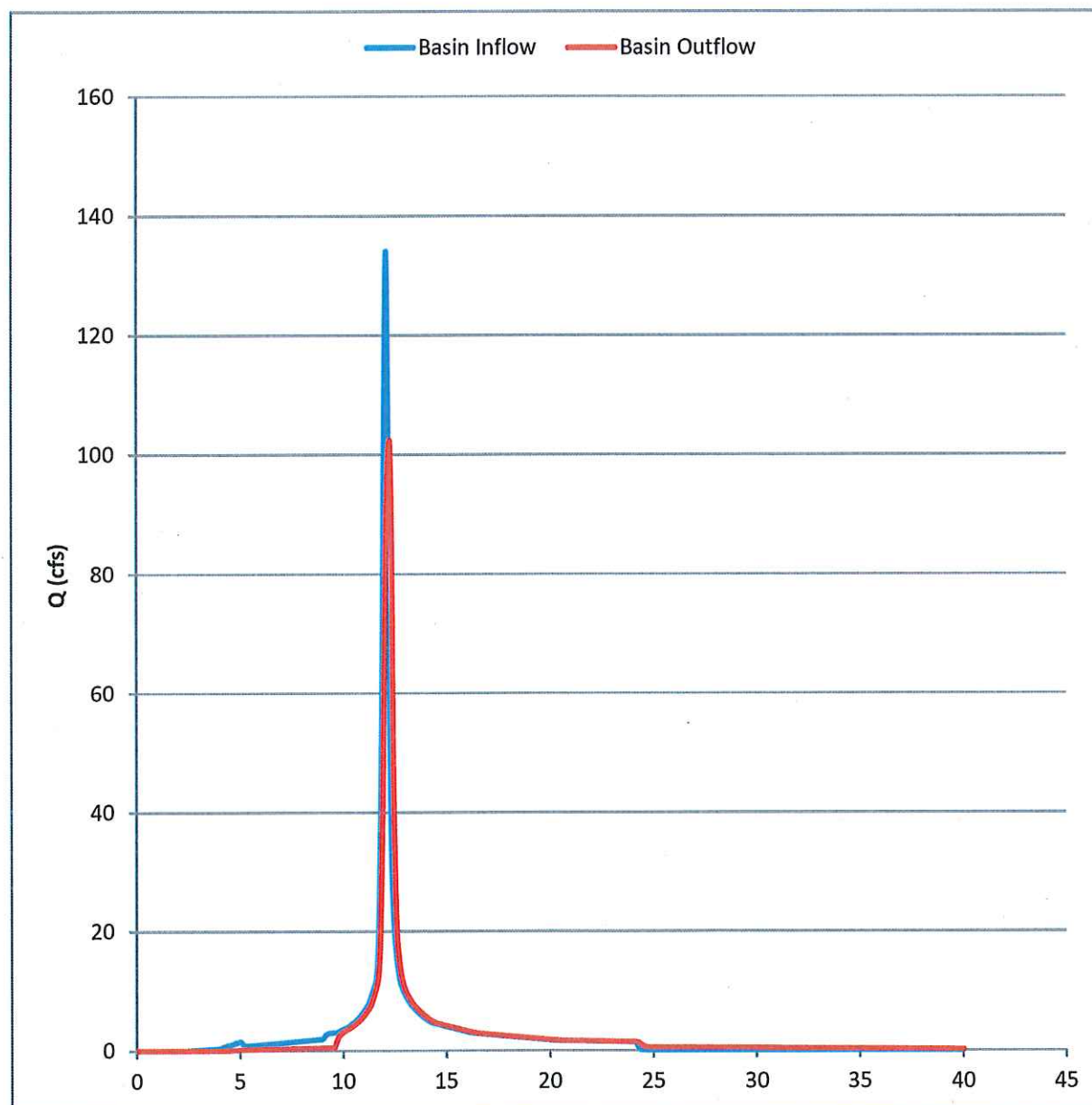
Cabelas Basin

Hydrograph Type = Reservoir
Storm Frequency = 50 yrs
Time Interval = 6 min

Peak Discharge = 102.19
Time to Peak = 12:10 hrs

Max Elevation = 871.41
Max Storage = 107,120 Ft³
Date = 6/2/2016

Notes:



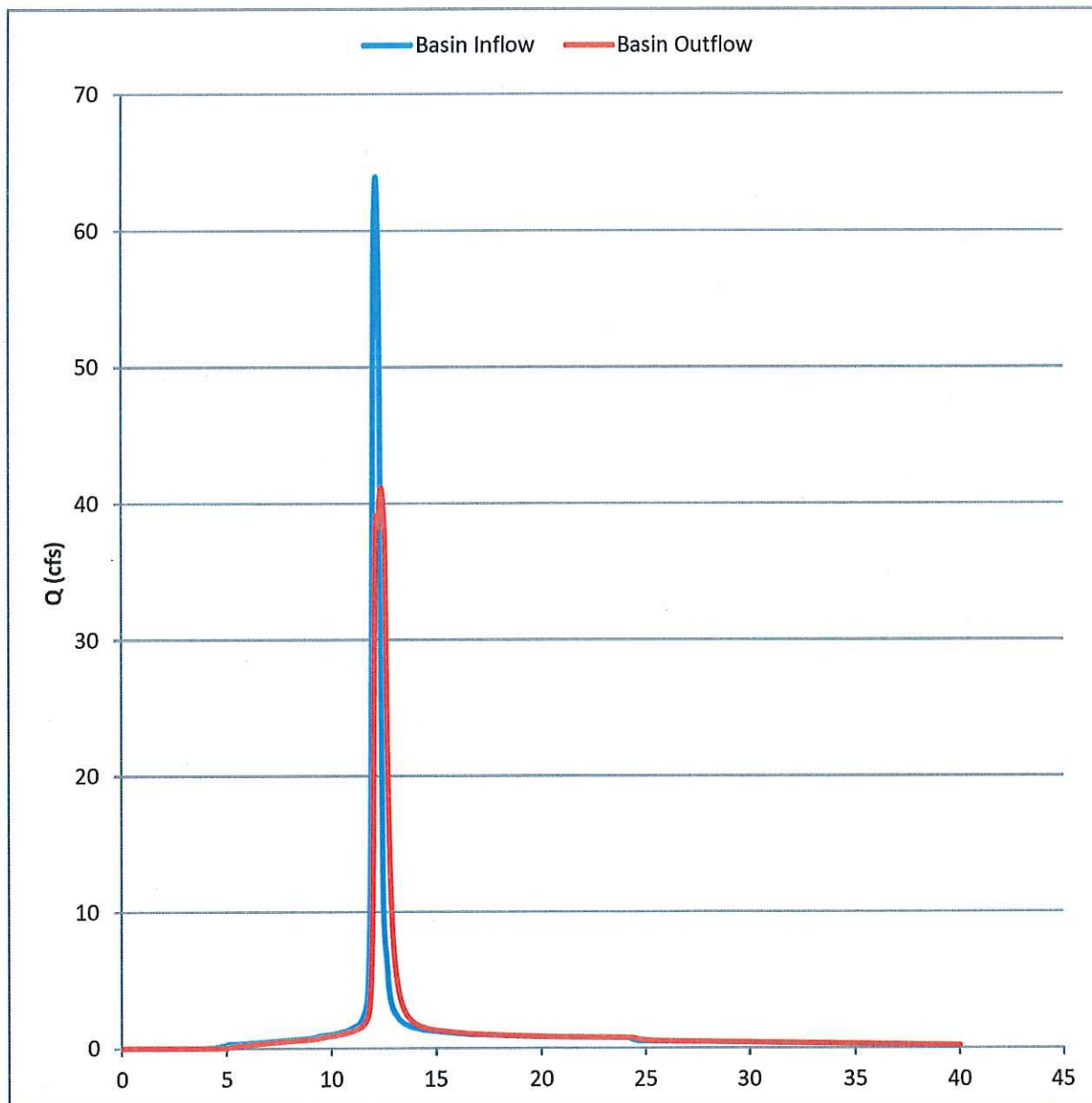
Existing Pond

Hydrograph Type = Reservoir
Storm Frequency = 50 yrs
Time Interval = 6 min

Peak Discharge = 41.16
Time to Peak = 12:25 hrs

Max Elevation = 866.25
Max Storage = 42,017 Ft³
Date = 6/2/2016

Notes:

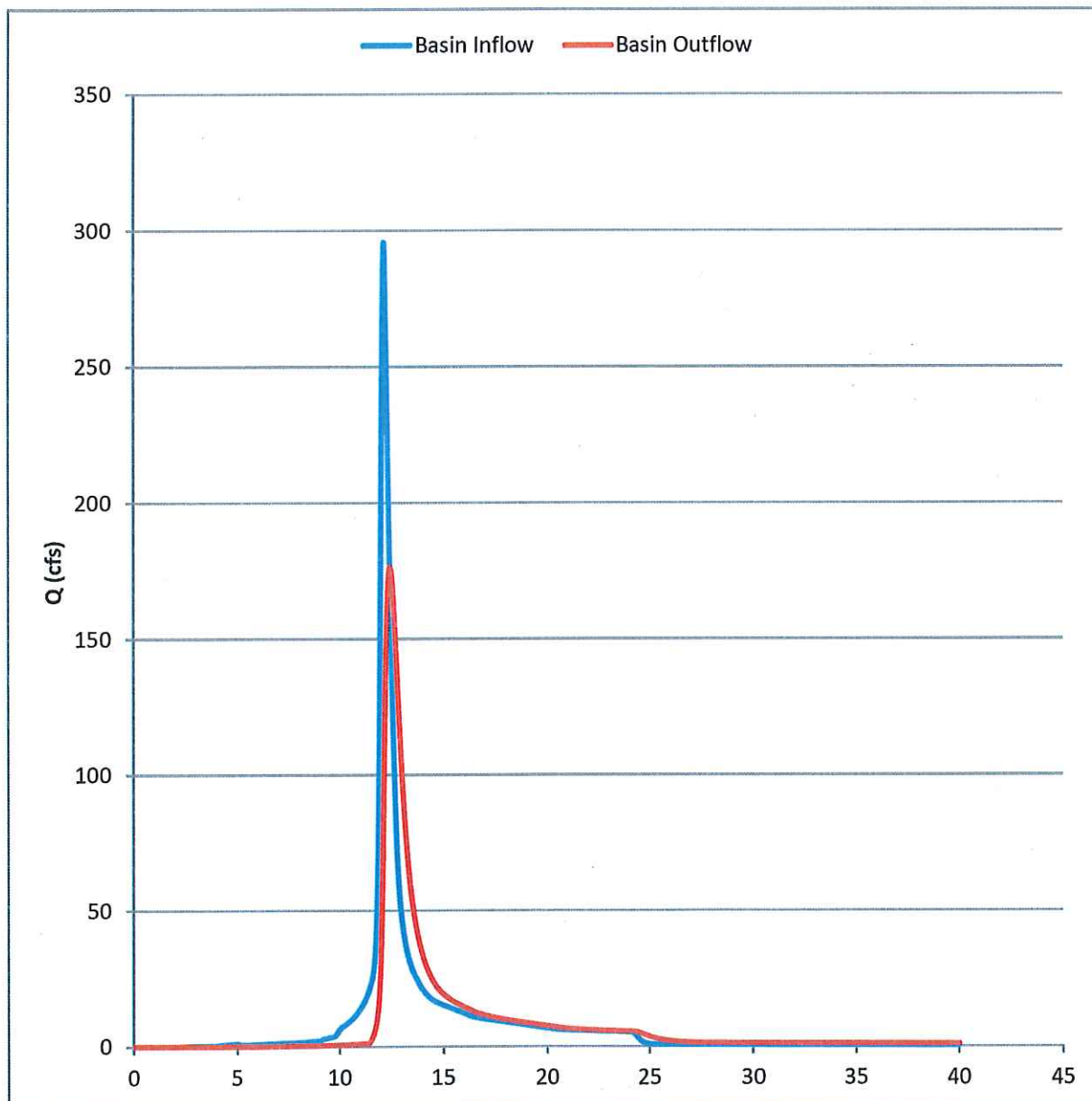


Primary Basin

Hydrograph Type = Reservoir
Storm Frequency = 50 yrs
Time Interval = 6 min

Peak Discharge = 176.24
Time to Peak = 12:25 hrs
Max Elevation = 859.61
Max Storage = 677,892 Ft³
Date = 6/2/2016

Notes:



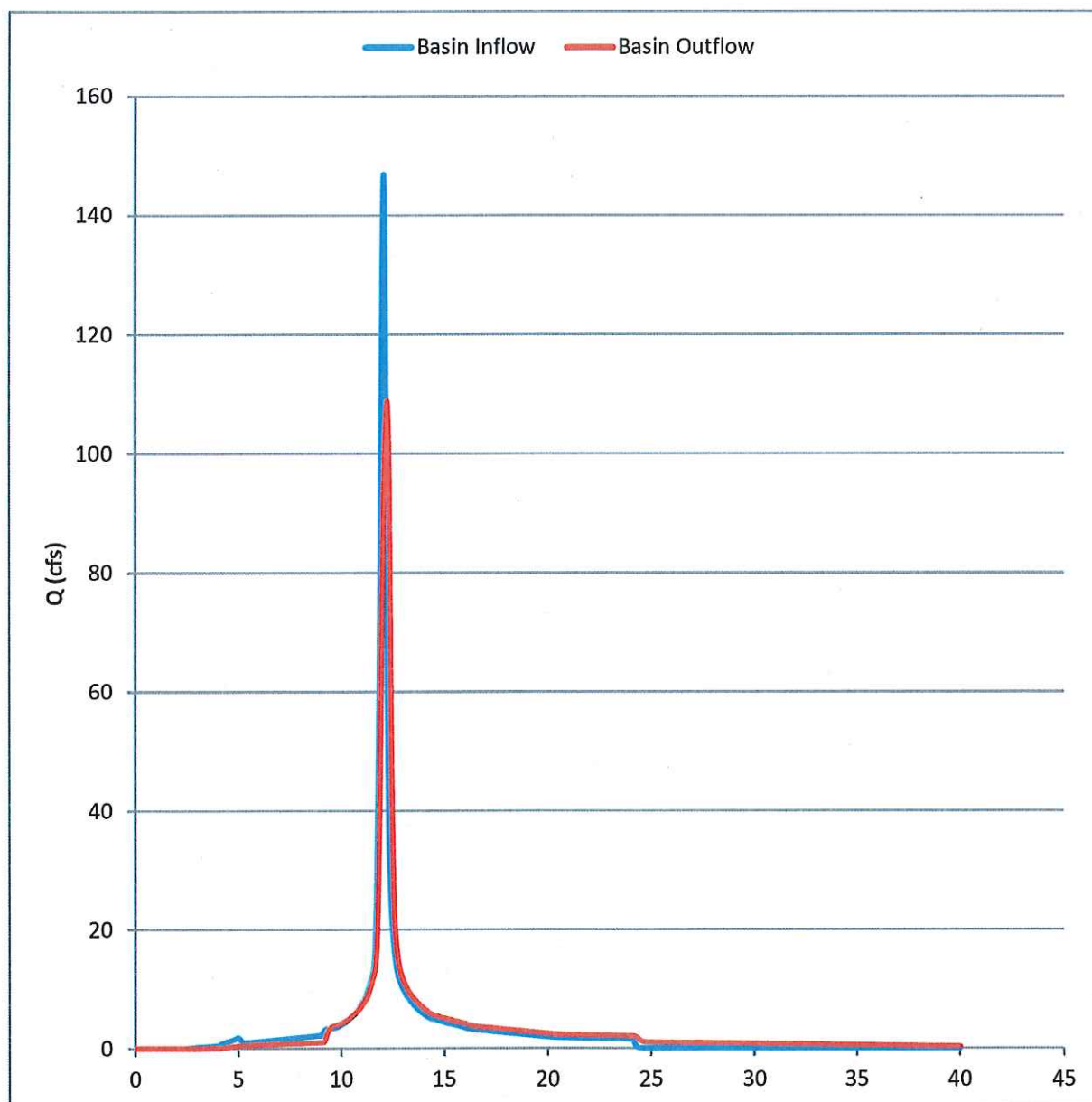
Cabelas Basin

Hydrograph Type = Reservoir
Storm Frequency = 100 yrs
Time Interval = 6 min

Peak Discharge = 108.61
Time to Peak = 12:10 hrs

Max Elevation = 871.84
Max Storage = 114,387 Ft³
Date = 6/2/2016

Notes:



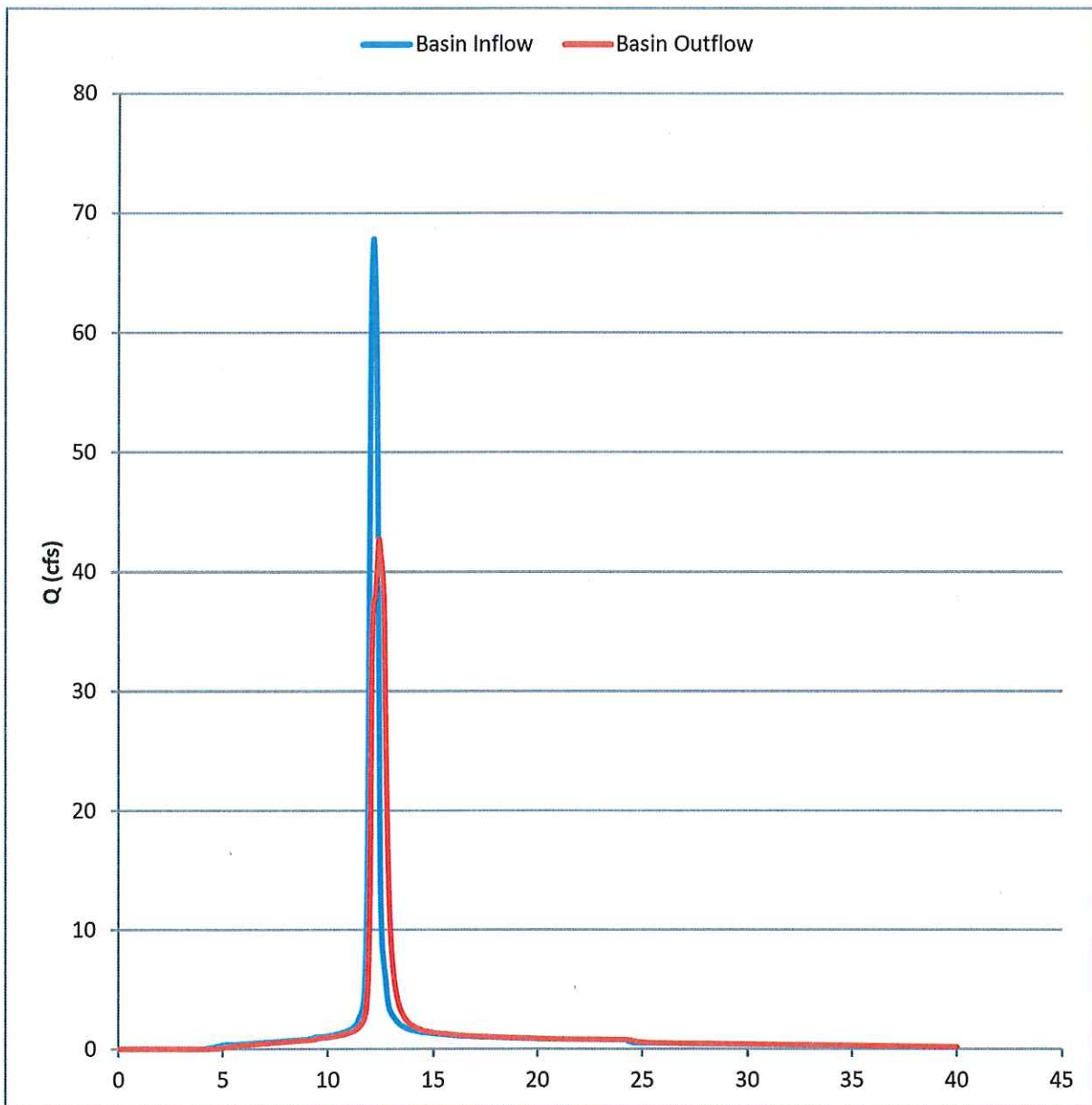
Existing Pond

Hydrograph Type = Reservoir
Storm Frequency = 100 yrs
Time Interval = 6 min

Peak Discharge = 42.67
Time to Peak = 12:25 hrs

Max Elevation = 866.53
Max Storage = 49,766 Ft³
Date = 6/2/2016

Notes:



Primary Basin

Hydrograph Type = Reservoir
Storm Frequency = 100 yrs
Time Interval = 6 min

Peak Discharge = 206.81
Time to Peak = 12:25 hrs
Max Elevation = 860.07
Max Storage = 702,708 Ft³
Date = 6/2/2016

Notes:

