

ENGINEERING SUCCESS



411 N. Webb Rd.
Wichita, KS 67206
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PRELIMINARY DRAINAGE REPORT FOR

Greenwich Business Center Addition
Wichita, Kansas

PROJECT NUMBER: 0501010039
DATE: September 2014



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General Information

Location

The subject property is located in the City of Wichita, Sedgwick County, Kansas. The proposed development is located on the southeast corner of 29th Street North and Greenwich Road, and generally comprises the north half of the northwest quarter and the west half of the northeast quarter of Section 3, Township 27 South, Range 2 East. The plat has an area of 187 acres. The site is shown on the Andover, Kansas Quadrangle, located in Appendix A. The site is shown on the Aerial Photograph, Appendix B.

Datum

The site and plans from the original reports have been modified and are shown in NAVD 88 datum.

Soils

According to the NRCS (SCS) Sedgwick County Soil Survey, Appendix C, soils on the site are:

- Rosehill silty clay, 1-3% slopes, (Rd – HSG “D”),
- Goessel silty clay, 1-2% slopes (Gb – HSG “D”),
- Irwin silty clay loam 1-3% slopes, (Ia – HSG “D”),
- Irwin silty clay loam 2-6% slopes, (Ic – HSG “D”).

The Hydraulic Soil Group (HSG) used to select runoff coefficients onsite is “D”.

Flood Insurance Rate Map (FIRM)

The site is shown on the FEMA FIRM Panels 20173C0377E effective February 2, 2007, Appendix D. The site is in Zone X (unshaded), areas outside of the of 0.2% annual chance flood. The nearest Zone A floodplain is approximately ¼ mile southwest of the site.

Groundwater

According to the Kansas Geological Survey Water Well Completion Records (<http://www.kgs.ku.edu/Magellan/WaterWell/index.html>) the static water level of existing water wells in the vicinity is approximately 20-40 feet deep.

Previous Reports

The first drainage report for this development was submitted by MKEC in 2005. There have been multiple revisions with the most recent revision by MKEC in January 2007 and a supplemental report submitted on November 4, 2011 documenting the construction of the stormwater improvements associated with the construction of a portion of 27th Street and the Surgicare facility. A portion of the Greenwich Business Center Addition was re-platted to Stoney Pointe Addition and is described in a drainage report by KE Miller Engineering dated November 2010 and a drainage plan that was revised on November 30, 2010.

Hydrologic Analysis

The rainfall depths used for various design storms are shown in Table 1. The hydrologic analysis was completed using Hydraflow Hydrographs for AutoCAD 2009, Appendix E.

Table 1. Rainfall Depths (inches) for 24-Hour Design Storms.

Design Storm	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Sedgwick County	2.8	3.5	4.5	5.2	6.1	6.9	7.8	9.4

The time of concentration for each drainage basin were calculated in previous versions of the report. The time of concentration concentrations were calculated using the FAA method.

The curve numbers for each drainage basin were determined with the previous drainage reports.

Existing Development

Description

Before the Greenwich Business Center Development, the site was unplatted, undeveloped land. The area is currently platted as Greenwich Business Center Addition, Appendix E. There is an existing medical office on Lot 4 Block 1. A detention pond and outlet structure has been constructed in Reserve "A". The street south of Greenwich Business Center, 27th Street, is constructed. These improvements were made per the modified drainage report dated November 2011.

Multi-family apartment buildings are under construction on Lots 7, 8, 14-17, Block 1. These lots have been re-platted as Stoney Pointe Addition. This area was covered by the drainage report by KE Miller dated November 2010 and the drainage plan that was revised on November 30, 2010.

Land Use

The site is currently developing. A portion is multi-family residential and the remaining will develop as commercial and office space. In all existing calculations, the entire site is modeled as undeveloped with no impervious area.

Drainage Patterns

The existing conditions from the previous drainage report, site was modeled using HEC-HMS software. The site is divided into three basins under Existing Conditions. Offsite Areas A1, A2, B, and C drain onto the site, Appendix F. Flow from offsite combines with Basins D1 and D2 onsite and then to the south into Basin E. Basin E flows under an existing 2-6'x3' RCB under K-96 Highway. The structure under K-96 highway was designed for approximately 232 cfs. According to the January 2007 Greenwich Business Center Drainage Report, the 100-year peak flow rate is approximately 930 cfs.

Table 2. Existing Conditions Drainage Basins.

Basin	Location	Area (sq. mi.)	Area (ac)	Lag (min.)	Tc (min.)	CN
Basin A1	Offsite to the northeast	0.031	19.8	15	21.7	80
Basin A2	Offsite to the north	0.035	22.4	23	38.3	80
Basin B	Onsite to the northwest	0.027	17.3	17	28.3	80
Basin C	Offsite to the west	0.038	24.3	23	38.3	80
Basin D1	Onsite east	0.020	12.8	18	30.0	80
Basin D2	Onsite west	0.087	55.7	20	33.3	80
Basin E	Offsite to the south	0.098	62.7	23	38.3	80

* From January 2007 Drainage Report.

Proposed Development

Description

The proposed site will continue to develop as commercial and office space.

Land Use

The land use for the proposed site will be approximately 95 percent impervious for the commercial development. The curve number used for the residential and commercial is 93 to represent 85% impervious commercial development for the Greenwich Business Center development.

Time of Concentration

The time of concentration for the Greenwich Business Center portions of the watershed was assumed to be 10 minutes.

Drainage Patterns

The Greenwich Business Center Drainage Report by MKEC Engineering, January 2007 specifies maximum 100-year peak flow rates and the approximate detention requirements for each of the drainage basins in the West Watershed, Table 3. The November 4, 2011 Drainage Report by MKEC Engineering further refined the development for the construction of the first phase. The peak flow rate at 27th Street was limited to 28.8 cfs according to the January 2007 drainage report.

Table 3. Proposed Conditions Drainage Basins.

Basin	Location	Area (sq. mi.)	Area (ac)	Lag (min.)	Tc (min.)	CN
GBC – Area 2	Onsite to Middle Pond	0.025	16.2	17	29	93
GBC – Area 3	Onsite to South Pond	0.025	16.0	17	29	93

The construction of the south pond with the development of Surgicare in November 2011 limited the peak flow rate from the development and provided water quality for the development that was planned at that time.

The proposed Middle Pond was been constructed in 2014 to provide fill for the K-96 ramps at Greenwich Road, Table 4. The outlet structures for the South pond remain as was constructed with the first phase, Table 5.

Table 4. Proposed Middle Pond.

Design Storm	1.2"	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
W.S. Elev. (ft)	1376.6	1378.0	1379.2	1381.0	1381.4	1381.7	1382.0	1382.2
Storage (ac-ft)	1.2	4.1	7.0	12.0	13.2	14.1	15.2	15.7
Primary Outlet	4'x4.5' Riser at 1381.0 into a 24" RCP with a 12" orifice at 1376.0							
Secondary Outlet	Earthen weir with a 45' wide opening at 1381.9							

Table 5. Proposed South Pond.

Design Storm	1.2"	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Flow Out (cfs)	1.2	5.2	6.9	13.2	16.4	21.8	24.3	27.2
W.S. Elev. (ft)	1376.0	1376.2	1376.4	1377.3	1378.0	1379.6	1380.4	1381.5
Storage (ac-ft)	2.1	2.2	2.3	2.9	3.4	4.5	5.3	6.4
Primary Outlet	4'x4' Riser at 1372.9 into 2-15" RCP with a 6" orifice at 1371.9							
Secondary Outlet	Earthen weir with a 50' wide opening at 1381.6							

Flow rates from North of 27th Street have been limited to 27.2 cfs, less than the 28.8 cfs required by the January 2007 Drainage Report, Table 6. With the construction of the ponds in the Greenwich Business Center the detention requirement is met for the property. Detention will still be required on offsite properties within the drainage basin north and northwest of Greenwich Business Center along with detention constructed by Stoney Pointe Addition. Detention in offsite basins will need to provide additional detention for the under sizing of K-96 structures and for development.

Table 6. Flow from Greenwich Business Center Comparison.

Design Storm	1.2"	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
Existing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	28.8
Proposed	1.2	5.2	6.9	13.2	16.4	21.8	24.3	27.2

The offsite area north of 29th Street will drain under 29th Street through existing 3-36" RCP. A trapezoidal channel with 10' bottom width will be constructed to convey flow to the middle pond. The channel may be replaced by SWS in the future once the final site layout is determined.

Downstream Peak Discharge Assessment (10% Rule)

The area of the site is 32.2 acres. Due to the existing culvert sizes under K-96 Highway, peak flow rates from the site are limited for this drainage basin. Due to the undersized culverts, the peak flow rate at the 10% point will be less than existing conditions. The peak flow rate at K-96 has been reduced from 933.5 cfs to approximately 226.8 cfs.

The flow rate along Greenwich Road has not changed with the development.

Water Quality

Greenwich Business Center is approximately 32.2 acres that will be approximately 85% impervious. The Water Quality Volume required is 2.7 acre-feet, calculated using an Excel Spreadsheet, Appendix H. The proposed detention pond will provide 3.4 acre-feet above the normal pool in the 1.2" rainfall event, which is in excess of the Water Quality Volume required. The water quality volume will be provided in the proposed detention facility. The proposed ponds will remove 80% of the total suspended solids.

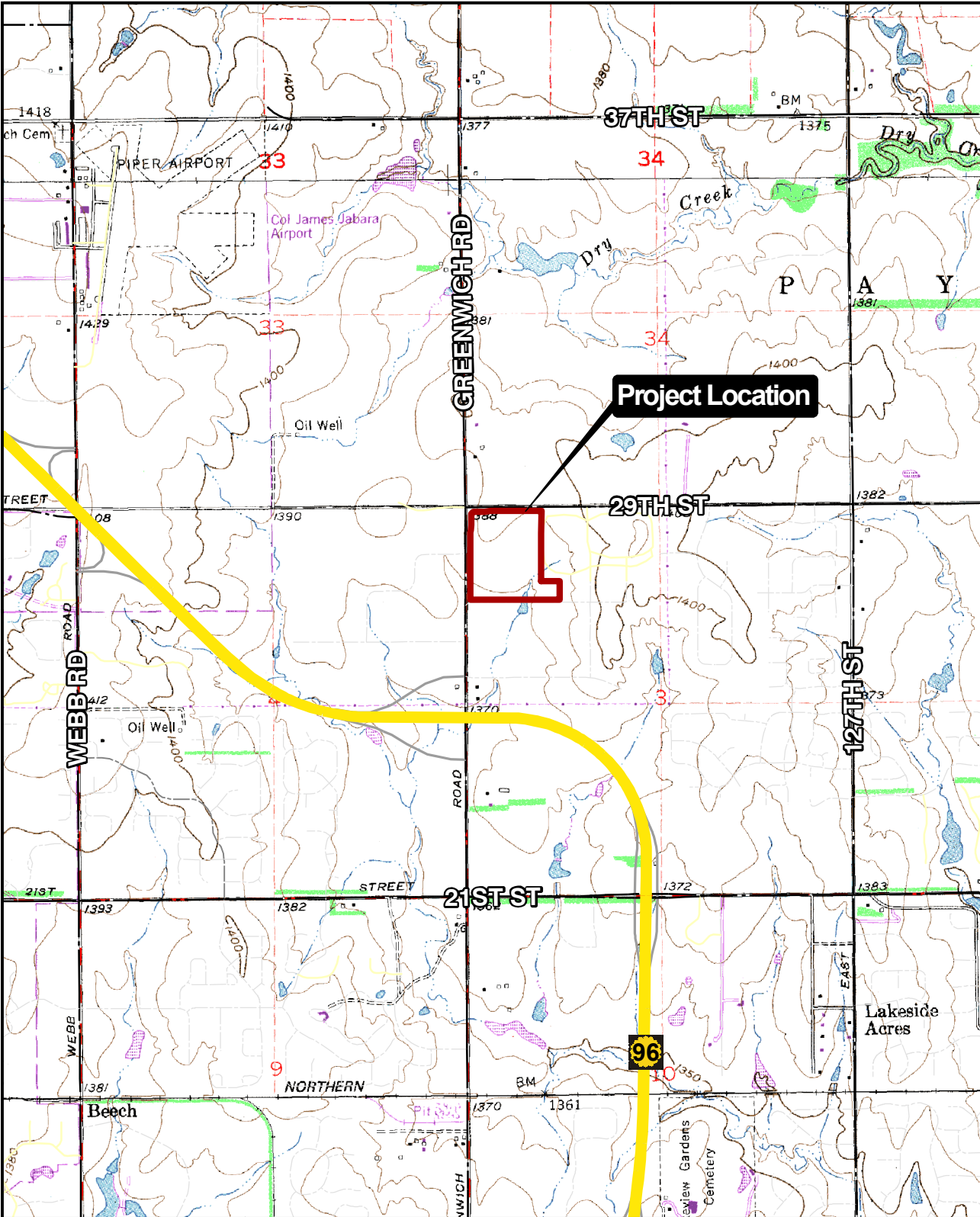
Channel Protection

The 32.2 acre site with approximately 85% impervious will require 3.6 acre-feet of volume for channel protection, Appendix H. Since the site is designed to provide additional detention due to the structures under K-96 Highway, the site has more channel protection volume than is required. The site provides 6.3 acre-feet of volume in the 1-year design storm.

Summary

Greenwich Business Center was platted previously. A portion of the site was platted as Stoney Pointe Addition and detention required for Stoney Pointe Addition was provide on Stoney Pointe Addition. A pond was constructed at the south end of Greenwich Business Center in 2011 to provide a portion of the required detention, water quality, and channel protection volume for the first phase of the development. The existing pond and the proposed pond will provide the detention, additional detention due to the K-96 culverts, water quality, and channel protection volumes needed for the Greenwich Business Center development occurring north of 27th Street and west of Stoney Pointe Additions.

Appendix A - USGS Quadrangle Map



USGS QUAD EXHIBIT
GREENWICH BUSINESS CENTER ADDITION

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SEC: 3
TWP: T27S
RNG: R2E

PROJECT NO. 05039

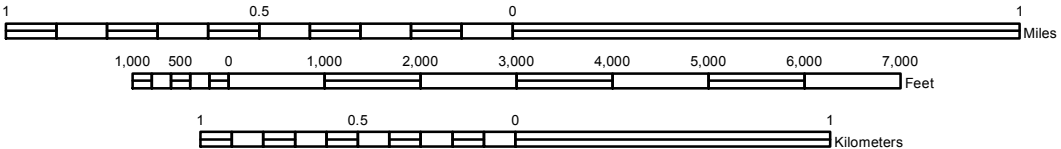
DATE 9/4/2014

SCALE 1"=2000'

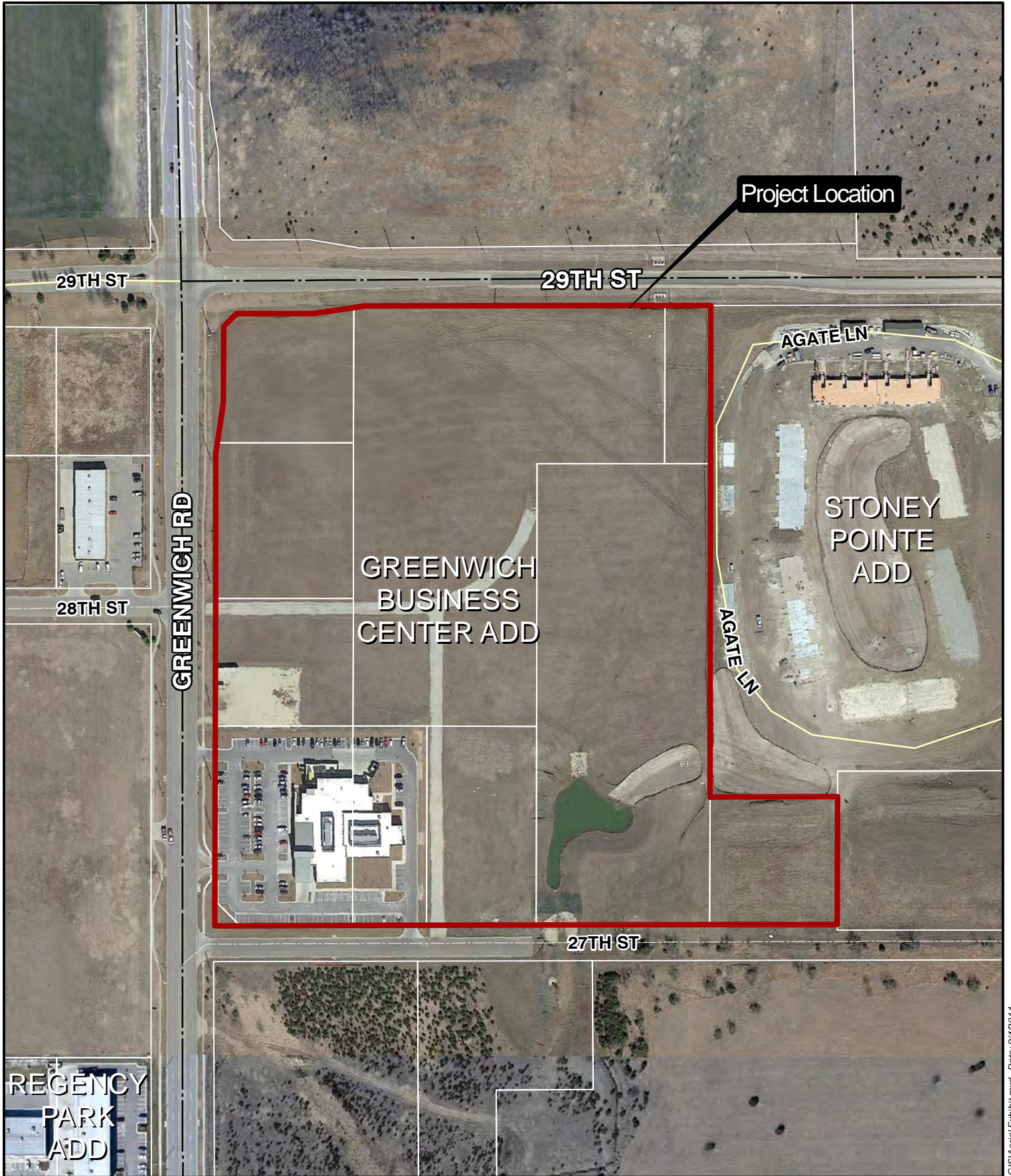
DESIGNED	DRAWN	CHECKED
JGD	JGD	KLA

NO.	REVISION	DATE

SHEET NO.



Appendix B - Aerial Photograph



Project Location

29TH ST

29TH ST

AGATE LN

STONEY
POINTE
ADD

GREENWICH
BUSINESS
CENTER ADD

AGATE LN

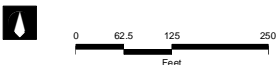
28TH ST

GREENWICH RD

27TH ST

REGENCY
PARK
ADD

SEC: 3
TWP: T27S
RNG: R2E



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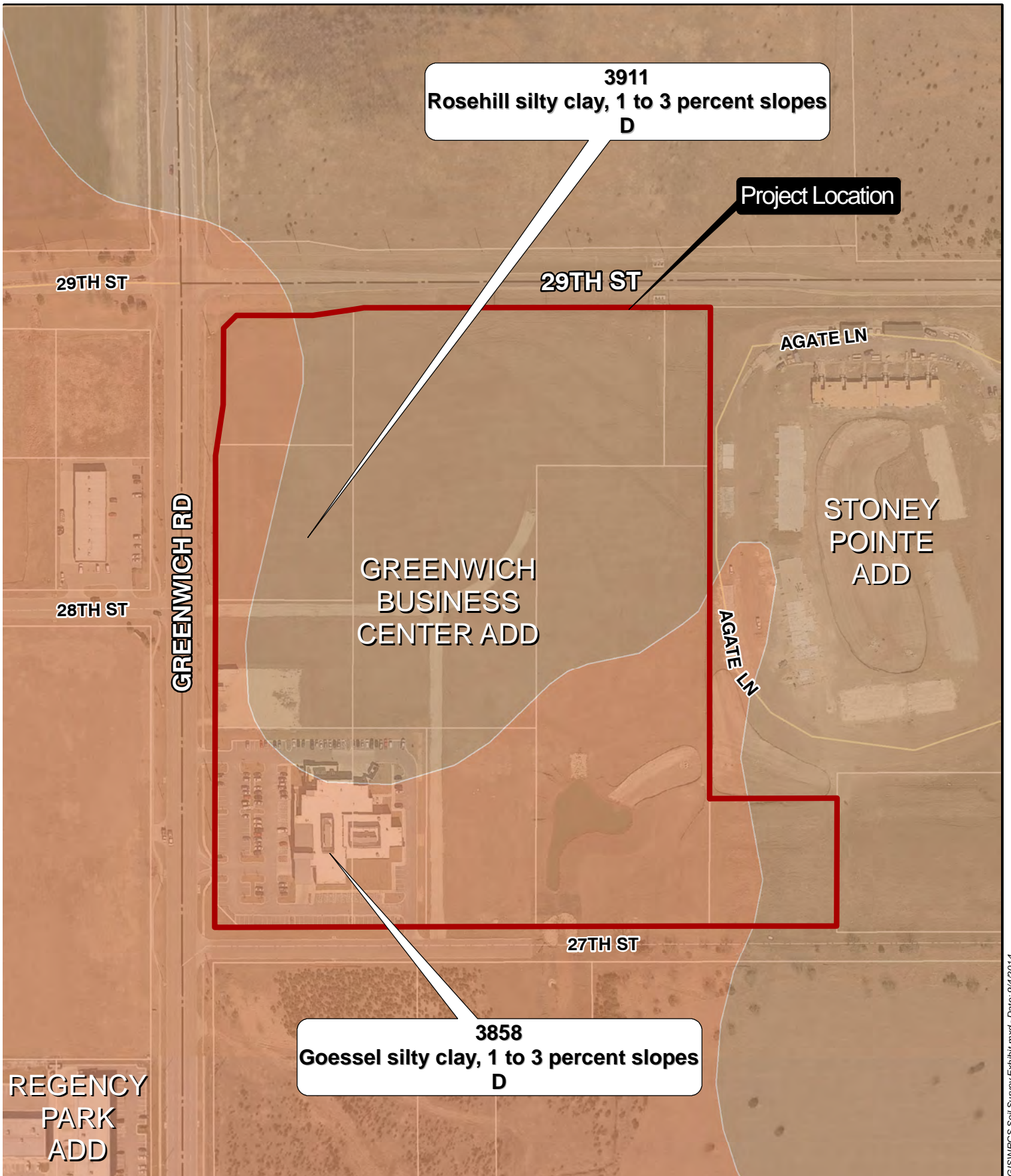


AERIAL EXHIBIT
GREENWICH BUSINESS CENTER ADDITION

PROJECT NO. 05039	DATE: 9/4/2014	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		1 OF 1

Path: J:\Civil\05039\dwg\Civil\3D\GIS\Aerial Exhibit.mxd - Date: 9/4/2014

Appendix C - Soil Survey



3911
 Rosehill silty clay, 1 to 3 percent slopes
 D

Project Location

**GREENWICH
 BUSINESS
 CENTER ADD**

**STONEY
 POINTE
 ADD**

3858
 Goessel silty clay, 1 to 3 percent slopes
 D

**REGENCY
 PARK
 ADD**

SEC: 3
 TWP: T27S
 RNG: R2E

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NRCS SOIL SURVEY EXHIBIT			
GREENWICH BUSINESS CENTER ADDITION			
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Appendix D - Flood Insurance Rate Map (FIRM)



NFP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0377E

FIRM
FLOOD INSURANCE RATE MAP

**SEDGWICK COUNTY,
KANSAS
AND INCORPORATED AREAS**

PANEL 377 OF 700
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)


CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEDGWICK COUNTY	200321	0377	E
WICHITA, CITY OF	200328	0377	E



Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
20173C0377E

EFFECTIVE DATE
FEBRUARY 2, 2007
Federal Emergency Management Agency



SEC: 3
TWP: T27S
RNG: R2E

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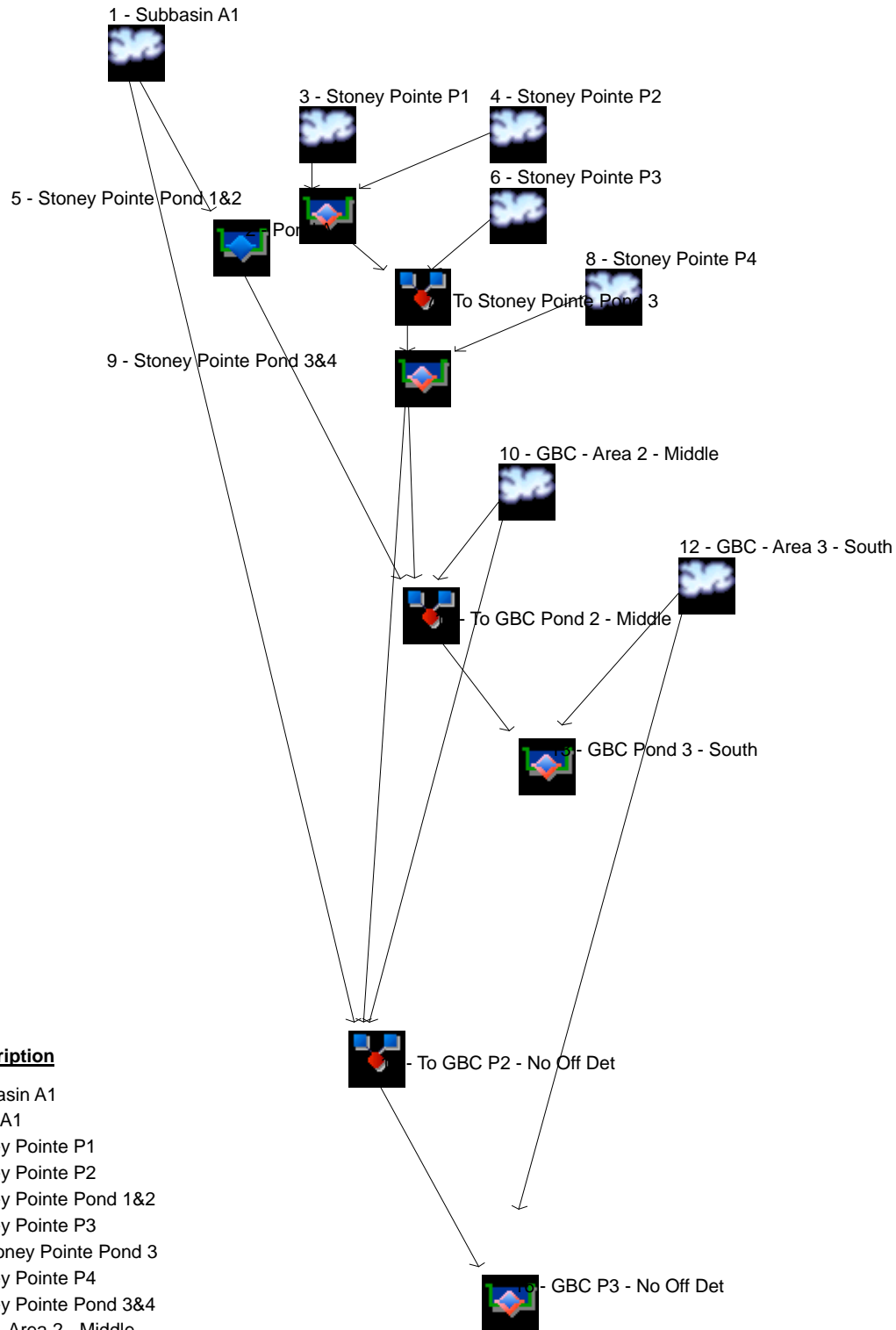
FEMA FIRM EXHIBIT
GREENWICH BUSINESS CENTER ADDITION

PROJECT NO. 05039	DATE: 9/4/2014	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		1 OF 1

Appendix E - Hydraflow Hydrographs

Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066



Legend

Hyd.	Origin	Description
1	SCS Runoff	Subbasin A1
2	Reservoir	Pond A1
3	SCS Runoff	Stoney Pointe P1
4	SCS Runoff	Stoney Pointe P2
5	Reservoir(i)	Stoney Pointe Pond 1&2
6	SCS Runoff	Stoney Pointe P3
7	Combine	To Stoney Pointe Pond 3
8	SCS Runoff	Stoney Pointe P4
9	Reservoir(i)	Stoney Pointe Pond 3&4
10	SCS Runoff	GBC - Area 2 - Middle
11	Combine	To GBC Pond 2 - Middle
12	SCS Runoff	GBC - Area 3 - South
13	Reservoir(i)	GBC Pond 3 - South
15	Combine	To GBC P2 - No Off Det
16	Reservoir(i)	GBC P3 - No Off Det

Hydrograph Return Period Recap

Hydroflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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	SCS Runoff	-----	31.90	42.87	7.815	60.22	71.54	88.46	101.28	112.46	Subbasin A1
2	Reservoir	1	4.133	6.780	0.388	10.45	11.73	13.63	15.48	16.91	Pond A1
3	SCS Runoff	-----	24.69	32.20	7.296	43.95	51.58	62.96	71.58	79.11	Stoney Pointe P1
4	SCS Runoff	-----	17.13	22.30	5.110	30.39	35.64	43.47	49.40	54.58	Stoney Pointe P2
5	Reservoir(i)	3, 4	3.943	5.507	0.923	6.683	7.009	7.566	7.910	8.187	Stoney Pointe Pond 1&2
6	SCS Runoff	-----	33.81	44.02	10.09	59.97	70.34	85.79	97.50	107.72	Stoney Pointe P3
7	Combine	5, 6	34.76	45.10	10.62	61.22	71.67	92.25	104.31	114.72	To Stoney Pointe Pond 3
8	SCS Runoff	-----	21.87	28.47	6.522	38.78	45.49	55.48	63.05	69.66	Stoney Pointe P4
9	Reservoir(i)	7, 8	4.425	18.53	1.128	30.53	32.31	34.16	35.72	37.58	Stoney Pointe Pond 3&4
10	SCS Runoff	-----	29.63	38.64	8.755	52.73	61.89	75.55	85.90	94.93	GBC - Area 2 - Middle
11	Combine	2, 9, 10	33.13	59.25	9.575	87.89	100.40	117.98	130.65	141.91	To GBC Pond 2 - Middle
12	SCS Runoff	-----	36.07	46.96	10.76	63.97	75.03	91.51	104.00	114.90	GBC - Area 3 - South
13	Reservoir(i)	11, 12	5.150	7.742	1.177	14.06	17.15	22.73	26.49	34.58	GBC Pond 3 - South
15	Combine	1, 9, 10,	63.85	97.28	17.32	143.30	165.02	197.37	221.38	242.91	To GBC P2 - No Off Det
16	Reservoir(i)	15, 12	6.180	8.889	1.342	14.97	18.13	24.79	40.60	58.53	GBC P3 - No Off Det

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	31.90	6	726	2.972	-----	-----	-----	Subbasin A1	
2	Reservoir	4.133	6	774	2.955	1	1386.87	1.67	Pond A1	
3	SCS Runoff	24.69	6	726	2.321	-----	-----	-----	Stoney Pointe P1	
4	SCS Runoff	17.13	6	720	1.225	-----	-----	-----	Stoney Pointe P2	
5	Reservoir(i)	3.943	6	900	3.546	3, 4	1397.89	2.60	Stoney Pointe Pond 1&2	
6	SCS Runoff	33.81	6	720	2.418	-----	-----	-----	Stoney Pointe P3	
7	Combine	34.76	6	720	5.963	5, 6	-----	-----	To Stoney Pointe Pond 3	
8	SCS Runoff	21.87	6	720	1.564	-----	-----	-----	Stoney Pointe P4	
9	Reservoir(i)	4.425	6	750	7.527	7, 8	1384.19	3.33	Stoney Pointe Pond 3&4	
10	SCS Runoff	29.63	6	726	2.785	-----	-----	-----	GBC - Area 2 - Middle	
11	Combine	33.13	6	726	13.267	2, 9, 10	-----	-----	To GBC Pond 2 - Middle	
12	SCS Runoff	36.07	6	720	2.579	-----	-----	-----	GBC - Area 3 - South	
13	Reservoir(i)	5.150	6	894	13.789	11, 12	1377.92	6.16	GBC Pond 3 - South	
15	Combine	63.85	6	726	13.285	1, 9, 10,	-----	-----	To GBC P2 - No Off Det	
16	Reservoir(i)	6.180	6	852	13.817	15, 12	1378.11	6.65	GBC P3 - No Off Det	
Future GBC.gpw					Return Period: 1 Year			Wednesday, Aug 27, 2014		

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	42.87	6	726	4.008	-----	-----	-----	Subbasin A1	
2	Reservoir	6.780	6	762	3.991	1	1387.15	2.22	Pond A1	
3	SCS Runoff	32.20	6	726	3.055	-----	-----	-----	Stoney Pointe P1	
4	SCS Runoff	22.30	6	720	1.612	-----	-----	-----	Stoney Pointe P2	
5	Reservoir(i)	5.507	6	828	4.667	3, 4	1398.65	3.02	Stoney Pointe Pond 1&2	
6	SCS Runoff	44.02	6	720	3.182	-----	-----	-----	Stoney Pointe P3	
7	Combine	45.10	6	720	7.849	5, 6	-----	-----	To Stoney Pointe Pond 3	
8	SCS Runoff	28.47	6	720	2.058	-----	-----	-----	Stoney Pointe P4	
9	Reservoir(i)	18.53	6	732	9.907	7, 8	1384.33	3.54	Stoney Pointe Pond 3&4	
10	SCS Runoff	38.64	6	726	3.666	-----	-----	-----	GBC - Area 2 - Middle	
11	Combine	59.25	6	732	17.563	2, 9, 10	-----	-----	To GBC Pond 2 - Middle	
12	SCS Runoff	46.96	6	720	3.394	-----	-----	-----	GBC - Area 3 - South	
13	Reservoir(i)	7.742	6	780	18.900	11, 12	1379.07	9.08	GBC Pond 3 - South	
15	Combine	97.28	6	732	17.581	1, 9, 10,	-----	-----	To GBC P2 - No Off Det	
16	Reservoir(i)	8.889	6	780	18.929	15, 12	1379.30	9.76	GBC P3 - No Off Det	
Future GBC.gpw					Return Period: 2 Year			Wednesday, Aug 27, 2014		

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	7.815	6	732	0.755	-----	-----	-----	Subbasin A1	
2	Reservoir	0.388	6	972	0.739	1	1386.25	0.476	Pond A1	
3	SCS Runoff	7.296	6	726	0.688	-----	-----	-----	Stoney Pointe P1	
4	SCS Runoff	5.110	6	720	0.363	-----	-----	-----	Stoney Pointe P2	
5	Reservoir(i)	0.923	6	924	1.050	3, 4	1395.88	0.699	Stoney Pointe Pond 1&2	
6	SCS Runoff	10.09	6	720	0.716	-----	-----	-----	Stoney Pointe P3	
7	Combine	10.62	6	720	1.766	5, 6	-----	-----	To Stoney Pointe Pond 3	
8	SCS Runoff	6.522	6	720	0.463	-----	-----	-----	Stoney Pointe P4	
9	Reservoir(i)	1.128	6	762	2.229	7, 8	1381.76	1.10	Stoney Pointe Pond 3&4	
10	SCS Runoff	8.755	6	726	0.825	-----	-----	-----	GBC - Area 2 - Middle	
11	Combine	9.575	6	732	3.793	2, 9, 10	-----	-----	To GBC Pond 2 - Middle	
12	SCS Runoff	10.76	6	720	0.764	-----	-----	-----	GBC - Area 3 - South	
13	Reservoir(i)	1.177	6	1704	2.502	11, 12	1376.60	3.23	GBC Pond 3 - South	
15	Combine	17.32	6	732	3.809	1, 9, 10,	-----	-----	To GBC P2 - No Off Det	
16	Reservoir(i)	1.342	6	1488	2.529	15, 12	1376.63	3.30	GBC P3 - No Off Det	
Future GBC.gpw					Return Period: 3 Year			Wednesday, Aug 27, 2014		

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	60.22	6	726	5.682	-----	-----	-----	Subbasin A1
2	Reservoir	10.45	6	762	5.664	1	1387.59	3.12	Pond A1
3	SCS Runoff	43.95	6	726	4.226	-----	-----	-----	Stoney Pointe P1
4	SCS Runoff	30.39	6	720	2.231	-----	-----	-----	Stoney Pointe P2
5	Reservoir(i)	6.683	6	828	6.456	3, 4	1399.78	3.86	Stoney Pointe Pond 1&2
6	SCS Runoff	59.97	6	720	4.402	-----	-----	-----	Stoney Pointe P3
7	Combine	61.22	6	720	10.859	5, 6	-----	-----	To Stoney Pointe Pond 3
8	SCS Runoff	38.78	6	720	2.847	-----	-----	-----	Stoney Pointe P4
9	Reservoir(i)	30.53	6	732	13.705	7, 8	1384.68	3.95	Stoney Pointe Pond 3&4
10	SCS Runoff	52.73	6	726	5.072	-----	-----	-----	GBC - Area 2 - Middle
11	Combine	87.89	6	732	24.441	2, 9, 10	-----	-----	To GBC Pond 2 - Middle
12	SCS Runoff	63.97	6	720	4.696	-----	-----	-----	GBC - Area 3 - South
13	Reservoir(i)	14.06	6	750	27.079	11, 12	1380.80	14.5	GBC Pond 3 - South
15	Combine	143.30	6	726	24.459	1, 9, 10,	-----	-----	To GBC P2 - No Off Det
16	Reservoir(i)	14.97	6	750	27.108	15, 12	1381.02	15.3	GBC P3 - No Off Det
Future GBC.gpw					Return Period: 5 Year			Wednesday, Aug 27, 2014	

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	71.54	6	726	6.794	-----	-----	-----	Subbasin A1	
2	Reservoir	11.73	6	762	6.777	1	1387.90	3.74	Pond A1	
3	SCS Runoff	51.58	6	726	4.999	-----	-----	-----	Stoney Pointe P1	
4	SCS Runoff	35.64	6	720	2.638	-----	-----	-----	Stoney Pointe P2	
5	Reservoir(i)	7.009	6	858	7.637	3, 4	1400.47	4.62	Stoney Pointe Pond 1&2	
6	SCS Runoff	70.34	6	720	5.207	-----	-----	-----	Stoney Pointe P3	
7	Combine	71.67	6	720	12.844	5, 6	-----	-----	To Stoney Pointe Pond 3	
8	SCS Runoff	45.49	6	720	3.367	-----	-----	-----	Stoney Pointe P4	
9	Reservoir(i)	32.31	6	732	16.211	7, 8	1385.28	4.70	Stoney Pointe Pond 3&4	
10	SCS Runoff	61.89	6	726	5.999	-----	-----	-----	GBC - Area 2 - Middle	
11	Combine	100.40	6	732	28.987	2, 9, 10	-----	-----	To GBC Pond 2 - Middle	
12	SCS Runoff	75.03	6	720	5.554	-----	-----	-----	GBC - Area 3 - South	
13	Reservoir(i)	17.15	6	744	32.483	11, 12	1381.28	16.5	GBC Pond 3 - South	
15	Combine	165.02	6	726	29.004	1, 9, 10,	-----	-----	To GBC P2 - No Off Det	
16	Reservoir(i)	18.13	6	744	32.512	15, 12	1381.30	16.7	GBC P3 - No Off Det	
Future GBC.gpw					Return Period: 10 Year			Wednesday, Aug 27, 2014		

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	88.46	6	726	8.478	-----	-----	-----	Subbasin A1	
2	Reservoir	13.63	6	762	8.461	1	1388.36	4.69	Pond A1	
3	SCS Runoff	62.96	6	726	6.164	-----	-----	-----	Stoney Pointe P1	
4	SCS Runoff	43.47	6	720	3.253	-----	-----	-----	Stoney Pointe P2	
5	Reservoir(i)	7.566	6	888	9.416	3, 4	1401.44	5.84	Stoney Pointe Pond 1&2	
6	SCS Runoff	85.79	6	720	6.421	-----	-----	-----	Stoney Pointe P3	
7	Combine	92.25	6	720	15.837	5, 6	-----	-----	To Stoney Pointe Pond 3	
8	SCS Runoff	55.48	6	720	4.152	-----	-----	-----	Stoney Pointe P4	
9	Reservoir(i)	34.16	6	738	19.988	7, 8	1386.16	5.92	Stoney Pointe Pond 3&4	
10	SCS Runoff	75.55	6	726	7.396	-----	-----	-----	GBC - Area 2 - Middle	
11	Combine	117.98	6	726	35.845	2, 9, 10	-----	-----	To GBC Pond 2 - Middle	
12	SCS Runoff	91.51	6	720	6.849	-----	-----	-----	GBC - Area 3 - South	
13	Reservoir(i)	22.73	6	1122	40.635	11, 12	1381.46	18.3	GBC Pond 3 - South	
15	Combine	197.37	6	726	35.863	1, 9, 10,	-----	-----	To GBC P2 - No Off Det	
16	Reservoir(i)	24.79	6	930	40.665	15, 12	1381.48	19.0	GBC P3 - No Off Det	
Future GBC.gpw					Return Period: 25 Year			Wednesday, Aug 27, 2014		

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description	
1	SCS Runoff	101.28	6	726	9.770	-----	-----	-----	Subbasin A1	
2	Reservoir	15.48	6	762	9.752	1	1388.70	5.40	Pond A1	
3	SCS Runoff	71.58	6	726	7.054	-----	-----	-----	Stoney Pointe P1	
4	SCS Runoff	49.40	6	720	3.723	-----	-----	-----	Stoney Pointe P2	
5	Reservoir(i)	7.910	6	918	10.776	3, 4	1402.14	6.80	Stoney Pointe Pond 1&2	
6	SCS Runoff	97.50	6	720	7.348	-----	-----	-----	Stoney Pointe P3	
7	Combine	104.31	6	720	18.124	5, 6	-----	-----	To Stoney Pointe Pond 3	
8	SCS Runoff	63.05	6	720	4.752	-----	-----	-----	Stoney Pointe P4	
9	Reservoir(i)	35.72	6	738	22.876	7, 8	1386.80	6.86	Stoney Pointe Pond 3&4	
10	SCS Runoff	85.90	6	726	8.465	-----	-----	-----	GBC - Area 2 - Middle	
11	Combine	130.65	6	726	41.093	2, 9, 10	-----	-----	To GBC Pond 2 - Middle	
12	SCS Runoff	104.00	6	720	7.838	-----	-----	-----	GBC - Area 3 - South	
13	Reservoir(i)	26.49	6	1098	46.872	11, 12	1381.54	19.8	GBC Pond 3 - South	
15	Combine	221.38	6	726	41.111	1, 9, 10,	-----	-----	To GBC P2 - No Off Det	
16	Reservoir(i)	40.60	6	828	46.902	15, 12	1381.81	21.1	GBC P3 - No Off Det	
Future GBC.gpw					Return Period: 50 Year			Wednesday, Aug 27, 2014		

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	112.46	6	726	10.904	-----	-----	-----	Subbasin A1
2	Reservoir	16.91	6	762	10.886	1	1388.99	6.01	Pond A1
3	SCS Runoff	79.11	6	726	7.835	-----	-----	-----	Stoney Pointe P1
4	SCS Runoff	54.58	6	720	4.135	-----	-----	-----	Stoney Pointe P2
5	Reservoir(i)	8.187	6	936	11.969	3, 4	1402.72	7.66	Stoney Pointe Pond 1&2
6	SCS Runoff	107.72	6	720	8.161	-----	-----	-----	Stoney Pointe P3
7	Combine	114.72	6	720	20.130	5, 6	-----	-----	To Stoney Pointe Pond 3
8	SCS Runoff	69.66	6	720	5.278	-----	-----	-----	Stoney Pointe P4
9	Reservoir(i)	37.58	6	738	25.408	7, 8	1387.30	7.70	Stoney Pointe Pond 3&4
10	SCS Runoff	94.93	6	726	9.402	-----	-----	-----	GBC - Area 2 - Middle
11	Combine	141.91	6	726	45.696	2, 9, 10	-----	-----	To GBC Pond 2 - Middle
12	SCS Runoff	114.90	6	720	8.705	-----	-----	-----	GBC - Area 3 - South
13	Reservoir(i)	34.58	6	954	52.342	11, 12	1381.74	20.6	GBC Pond 3 - South
15	Combine	242.91	6	726	45.714	1, 9, 10,	-----	-----	To GBC P2 - No Off Det
16	Reservoir(i)	58.53	6	792	52.374	15, 12	1382.02	22.1	GBC P3 - No Off Det
Future GBC.gpw					Return Period: 100 Year			Wednesday, Aug 27, 2014	

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

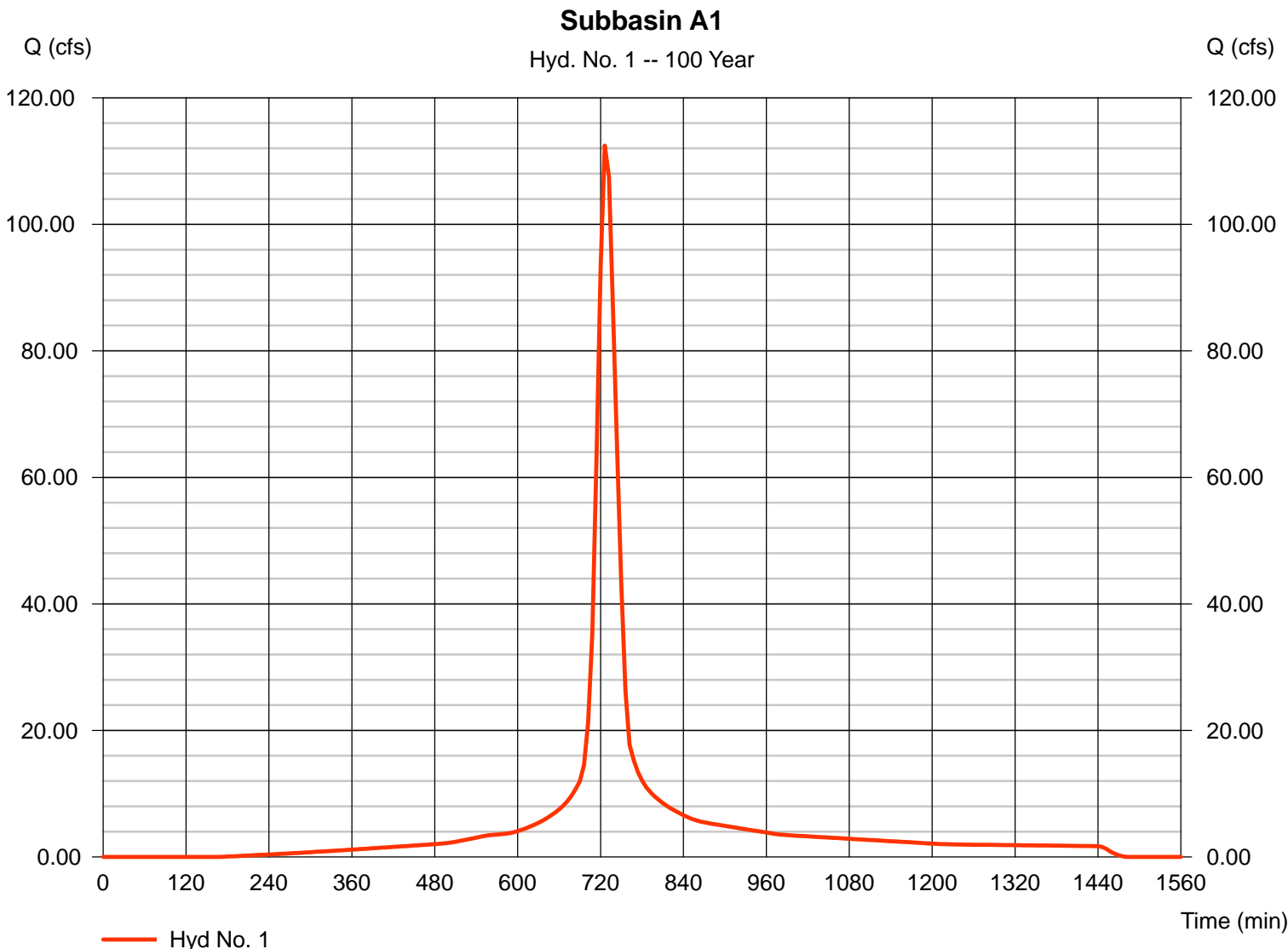
Wednesday, Aug 27, 2014

Hyd. No. 1

Subbasin A1

Hydrograph type = SCS Runoff
Storm frequency = 100 yrs
Time interval = 6 min
Drainage area = 19.800 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 7.80 in
Storm duration = 24 hrs

Peak discharge = 112.46 cfs
Time to peak = 726 min
Hyd. volume = 10.904 acft
Curve number = 90
Hydraulic length = 0 ft
Time of conc. (Tc) = 21.00 min
Distribution = Type II
Shape factor = 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

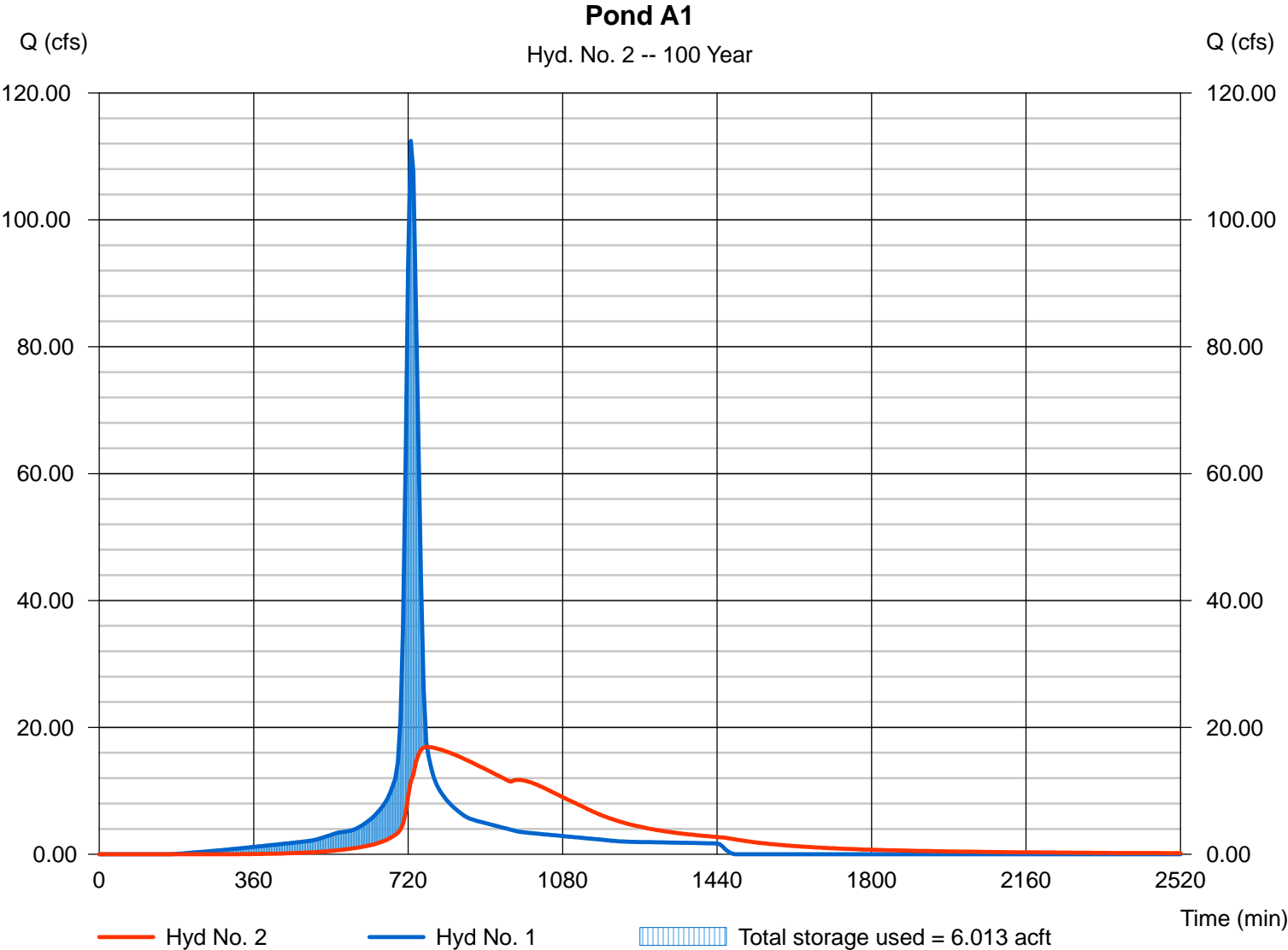
Hyd. No. 2

Pond A1

Hydrograph type = Reservoir
Storm frequency = 100 yrs
Time interval = 6 min
Inflow hyd. No. = 1 - Subbasin A1
Reservoir name = A1 Detention

Peak discharge = 16.91 cfs
Time to peak = 762 min
Hyd. volume = 10.886 acft
Max. Elevation = 1388.99 ft
Max. Storage = 6.013 acft

Storage Indication method used.



Pond Report

Pond No. 1 - A1 Detention

Pond Data

Trapezoid - Bottom L x W = 275.0 x 300.0 ft, Side slope = 3.00:1, Bottom elev. = 1386.00 ft, Depth = 3.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1386.00	82,500	0.000	0.000
0.30	1386.30	83,538	0.572	0.572
0.60	1386.60	84,583	0.579	1.151
0.90	1386.90	85,634	0.586	1.737
1.20	1387.20	86,692	0.593	2.330
1.50	1387.50	87,756	0.601	2.931
1.80	1387.80	88,827	0.608	3.539
2.10	1388.10	89,904	0.615	4.154
2.40	1388.40	90,987	0.623	4.777
2.70	1388.70	92,077	0.630	5.408
3.00	1389.00	93,174	0.638	6.046

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	0.00	0.00	0.00
Span (in)	= 24.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1386.00	0.00	0.00	0.00
Length (ft)	= 200.00	0.00	0.00	0.00
Slope (%)	= 0.40	0.00	0.00	n/a
N-Value	= .013	.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 acft	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	0.000	1386.00	0.00	---	---	---	---	---	---	---	---	---	0.000
0.03	0.057	1386.03	0.01 oc	---	---	---	---	---	---	---	---	---	0.005
0.06	0.114	1386.06	0.02 ic	---	---	---	---	---	---	---	---	---	0.023
0.09	0.172	1386.09	0.05 ic	---	---	---	---	---	---	---	---	---	0.052
0.12	0.229	1386.12	0.09 ic	---	---	---	---	---	---	---	---	---	0.092
0.15	0.286	1386.15	0.14 ic	---	---	---	---	---	---	---	---	---	0.142
0.18	0.343	1386.18	0.20 ic	---	---	---	---	---	---	---	---	---	0.204
0.21	0.400	1386.21	0.28 ic	---	---	---	---	---	---	---	---	---	0.276
0.24	0.457	1386.24	0.36 ic	---	---	---	---	---	---	---	---	---	0.358
0.27	0.515	1386.27	0.45 ic	---	---	---	---	---	---	---	---	---	0.451
0.30	0.572	1386.30	0.55 ic	---	---	---	---	---	---	---	---	---	0.553
0.33	0.630	1386.33	0.66 ic	---	---	---	---	---	---	---	---	---	0.665
0.36	0.688	1386.36	0.79 ic	---	---	---	---	---	---	---	---	---	0.786
0.39	0.745	1386.39	0.92 ic	---	---	---	---	---	---	---	---	---	0.920
0.42	0.803	1386.42	1.06 ic	---	---	---	---	---	---	---	---	---	1.062
0.45	0.861	1386.45	1.21 ic	---	---	---	---	---	---	---	---	---	1.212
0.48	0.919	1386.48	1.37 ic	---	---	---	---	---	---	---	---	---	1.368
0.51	0.977	1386.51	1.54 ic	---	---	---	---	---	---	---	---	---	1.541
0.54	1.035	1386.54	1.71 ic	---	---	---	---	---	---	---	---	---	1.714
0.57	1.093	1386.57	1.90 ic	---	---	---	---	---	---	---	---	---	1.897
0.60	1.151	1386.60	2.10 ic	---	---	---	---	---	---	---	---	---	2.097
0.63	1.209	1386.63	2.29 ic	---	---	---	---	---	---	---	---	---	2.294
0.66	1.268	1386.66	2.51 ic	---	---	---	---	---	---	---	---	---	2.507
0.69	1.327	1386.69	2.72 ic	---	---	---	---	---	---	---	---	---	2.723
0.72	1.385	1386.72	2.95 ic	---	---	---	---	---	---	---	---	---	2.947
0.75	1.444	1386.75	3.18 ic	---	---	---	---	---	---	---	---	---	3.180
0.78	1.502	1386.78	3.41 ic	---	---	---	---	---	---	---	---	---	3.413
0.81	1.561	1386.81	3.66 ic	---	---	---	---	---	---	---	---	---	3.663
0.84	1.620	1386.84	3.91 ic	---	---	---	---	---	---	---	---	---	3.910
0.87	1.678	1386.87	4.17 ic	---	---	---	---	---	---	---	---	---	4.175
0.90	1.737	1386.90	4.44 ic	---	---	---	---	---	---	---	---	---	4.437
0.93	1.796	1386.93	4.70 ic	---	---	---	---	---	---	---	---	---	4.705
0.96	1.856	1386.96	4.98 ic	---	---	---	---	---	---	---	---	---	4.978
0.99	1.915	1386.99	5.26 ic	---	---	---	---	---	---	---	---	---	5.257

Continues on next page...

A1 Detention

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
1.02	1.974	1387.02	5.54 ic	---	---	---	---	---	---	---	---	---	5.542
1.05	2.034	1387.05	5.83 ic	---	---	---	---	---	---	---	---	---	5.831
1.08	2.093	1387.08	6.12 ic	---	---	---	---	---	---	---	---	---	6.123
1.11	2.152	1387.11	6.43 ic	---	---	---	---	---	---	---	---	---	6.431
1.14	2.212	1387.14	6.73 ic	---	---	---	---	---	---	---	---	---	6.731
1.17	2.271	1387.17	7.03 ic	---	---	---	---	---	---	---	---	---	7.034
1.20	2.330	1387.20	7.35 ic	---	---	---	---	---	---	---	---	---	7.349
1.23	2.390	1387.23	7.66 ic	---	---	---	---	---	---	---	---	---	7.656
1.26	2.450	1387.26	7.92 oc	---	---	---	---	---	---	---	---	---	7.919
1.29	2.510	1387.29	8.17 oc	---	---	---	---	---	---	---	---	---	8.172
1.32	2.571	1387.32	8.42 oc	---	---	---	---	---	---	---	---	---	8.420
1.35	2.631	1387.35	8.66 oc	---	---	---	---	---	---	---	---	---	8.661
1.38	2.691	1387.38	8.91 oc	---	---	---	---	---	---	---	---	---	8.908
1.41	2.751	1387.41	9.13 oc	---	---	---	---	---	---	---	---	---	9.135
1.44	2.811	1387.44	9.38 oc	---	---	---	---	---	---	---	---	---	9.376
1.47	2.871	1387.47	9.60 oc	---	---	---	---	---	---	---	---	---	9.596
1.50	2.931	1387.50	9.82 oc	---	---	---	---	---	---	---	---	---	9.817
1.53	2.992	1387.53	10.03 oc	---	---	---	---	---	---	---	---	---	10.03
1.56	3.053	1387.56	10.23 oc	---	---	---	---	---	---	---	---	---	10.23
1.59	3.113	1387.59	10.43 oc	---	---	---	---	---	---	---	---	---	10.43
1.62	3.174	1387.62	10.62 oc	---	---	---	---	---	---	---	---	---	10.62
1.65	3.235	1387.65	10.80 oc	---	---	---	---	---	---	---	---	---	10.80
1.68	3.296	1387.68	10.97 oc	---	---	---	---	---	---	---	---	---	10.97
1.71	3.357	1387.71	11.12 oc	---	---	---	---	---	---	---	---	---	11.12
1.74	3.417	1387.74	11.27 oc	---	---	---	---	---	---	---	---	---	11.27
1.77	3.478	1387.77	11.40 oc	---	---	---	---	---	---	---	---	---	11.40
1.80	3.539	1387.80	11.51 oc	---	---	---	---	---	---	---	---	---	11.51
1.83	3.601	1387.83	11.60 oc	---	---	---	---	---	---	---	---	---	11.60
1.86	3.662	1387.86	11.68 oc	---	---	---	---	---	---	---	---	---	11.68
1.89	3.724	1387.89	11.73 oc	---	---	---	---	---	---	---	---	---	11.73
1.92	3.785	1387.92	11.74 oc	---	---	---	---	---	---	---	---	---	11.74
1.95	3.847	1387.95	11.71 oc	---	---	---	---	---	---	---	---	---	11.71
1.98	3.908	1387.98	11.60 oc	---	---	---	---	---	---	---	---	---	11.60
2.01	3.970	1388.01	11.39 oc	---	---	---	---	---	---	---	---	---	11.39
2.04	4.031	1388.04	11.60 oc	---	---	---	---	---	---	---	---	---	11.60
2.07	4.093	1388.07	11.81 oc	---	---	---	---	---	---	---	---	---	11.81
2.10	4.154	1388.10	12.01 oc	---	---	---	---	---	---	---	---	---	12.01
2.13	4.217	1388.13	12.21 oc	---	---	---	---	---	---	---	---	---	12.21
2.16	4.279	1388.16	12.40 oc	---	---	---	---	---	---	---	---	---	12.40
2.19	4.341	1388.19	12.60 oc	---	---	---	---	---	---	---	---	---	12.60
2.22	4.404	1388.22	12.79 oc	---	---	---	---	---	---	---	---	---	12.79
2.25	4.466	1388.25	12.97 oc	---	---	---	---	---	---	---	---	---	12.97
2.28	4.528	1388.28	13.16 oc	---	---	---	---	---	---	---	---	---	13.16
2.31	4.590	1388.31	13.34 oc	---	---	---	---	---	---	---	---	---	13.34
2.34	4.653	1388.34	13.52 oc	---	---	---	---	---	---	---	---	---	13.52
2.37	4.715	1388.37	13.69 oc	---	---	---	---	---	---	---	---	---	13.69
2.40	4.777	1388.40	13.87 oc	---	---	---	---	---	---	---	---	---	13.87
2.43	4.840	1388.43	14.04 oc	---	---	---	---	---	---	---	---	---	14.04
2.46	4.903	1388.46	14.21 oc	---	---	---	---	---	---	---	---	---	14.21
2.49	4.966	1388.49	14.38 oc	---	---	---	---	---	---	---	---	---	14.38
2.52	5.030	1388.52	14.55 oc	---	---	---	---	---	---	---	---	---	14.55
2.55	5.093	1388.55	14.71 oc	---	---	---	---	---	---	---	---	---	14.71
2.58	5.156	1388.58	14.87 oc	---	---	---	---	---	---	---	---	---	14.87
2.61	5.219	1388.61	15.03 oc	---	---	---	---	---	---	---	---	---	15.03
2.64	5.282	1388.64	15.19 oc	---	---	---	---	---	---	---	---	---	15.19
2.67	5.345	1388.67	15.35 oc	---	---	---	---	---	---	---	---	---	15.35
2.70	5.408	1388.70	15.51 oc	---	---	---	---	---	---	---	---	---	15.51
2.73	5.472	1388.73	15.66 oc	---	---	---	---	---	---	---	---	---	15.66
2.76	5.535	1388.76	15.81 oc	---	---	---	---	---	---	---	---	---	15.81
2.79	5.599	1388.79	15.96 oc	---	---	---	---	---	---	---	---	---	15.96
2.82	5.663	1388.82	16.11 oc	---	---	---	---	---	---	---	---	---	16.11
2.85	5.727	1388.85	16.26 oc	---	---	---	---	---	---	---	---	---	16.26
2.88	5.790	1388.88	16.41 oc	---	---	---	---	---	---	---	---	---	16.41
2.91	5.854	1388.91	16.56 oc	---	---	---	---	---	---	---	---	---	16.56
2.94	5.918	1388.94	16.70 oc	---	---	---	---	---	---	---	---	---	16.70
2.97	5.982	1388.97	16.84 oc	---	---	---	---	---	---	---	---	---	16.84
3.00	6.046	1389.00	16.99 oc	---	---	---	---	---	---	---	---	---	16.99

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

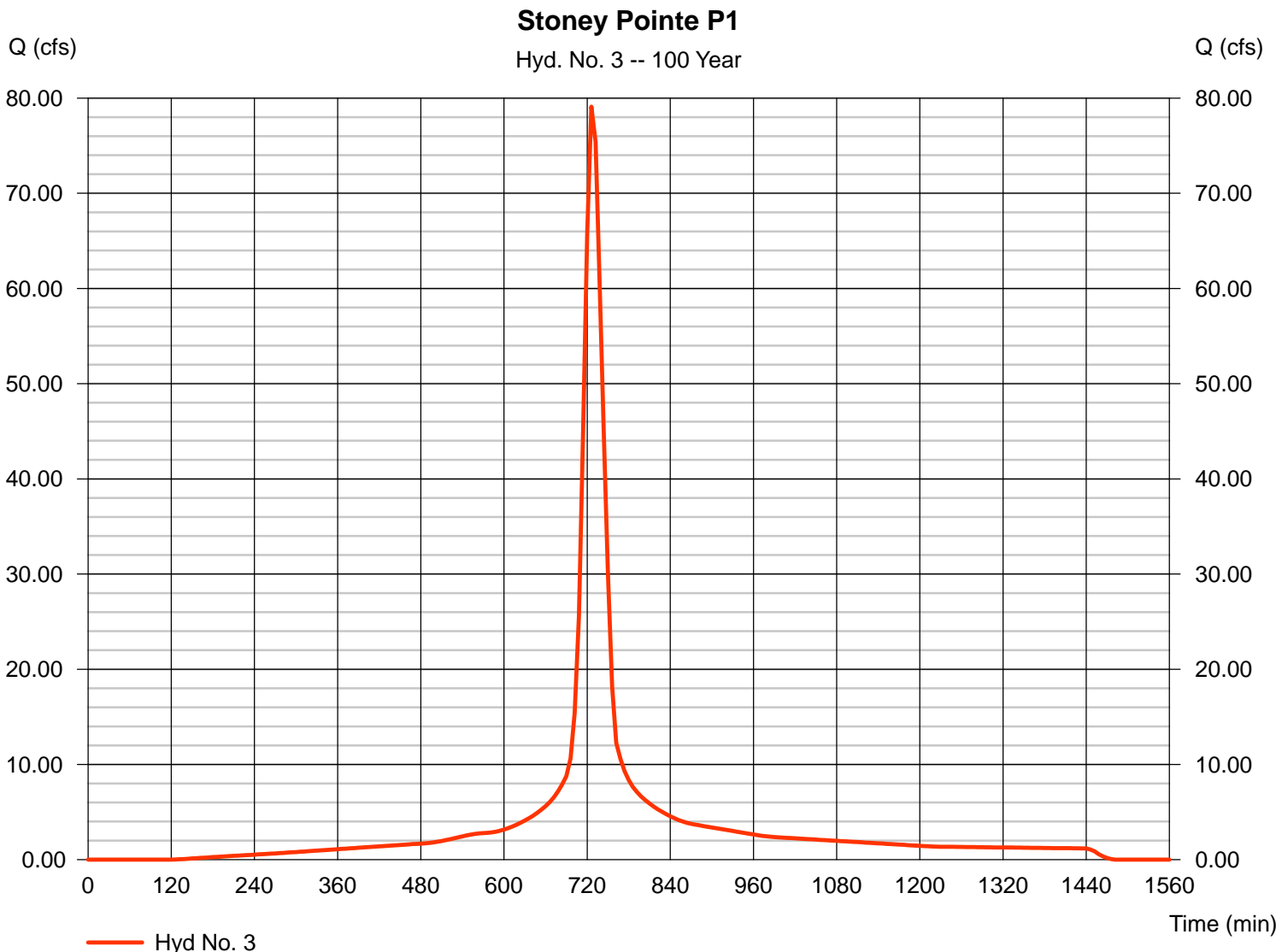
Wednesday, Aug 27, 2014

Hyd. No. 3

Stoney Pointe P1

Hydrograph type = SCS Runoff
Storm frequency = 100 yrs
Time interval = 6 min
Drainage area = 13.500 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 7.80 in
Storm duration = 24 hrs

Peak discharge = 79.11 cfs
Time to peak = 726 min
Hyd. volume = 7.835 acft
Curve number = 93
Hydraulic length = 0 ft
Time of conc. (Tc) = 21.00 min
Distribution = Type II
Shape factor = 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

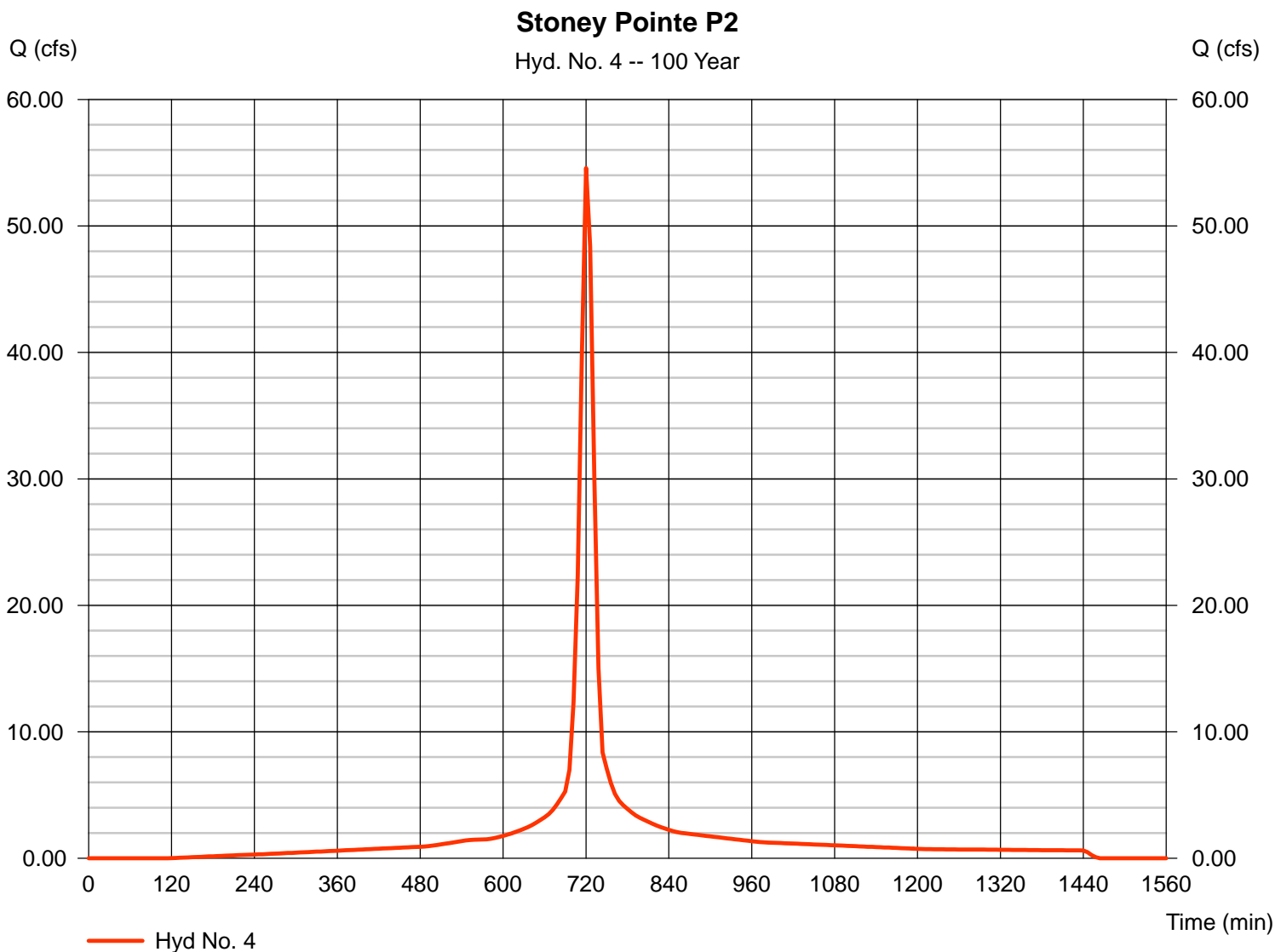
Wednesday, Aug 27, 2014

Hyd. No. 4

Stoney Pointe P2

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 6 min
 Drainage area = 7.600 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.80 in
 Storm duration = 24 hrs

Peak discharge = 54.58 cfs
 Time to peak = 720 min
 Hyd. volume = 4.135 acft
 Curve number = 93
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 16.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 5

Stoney Pointe Pond 1&2

Hydrograph type = Reservoir (Interconnected)
 Storm frequency = 100 yrs
 Time interval = 6 min

Upper Pond

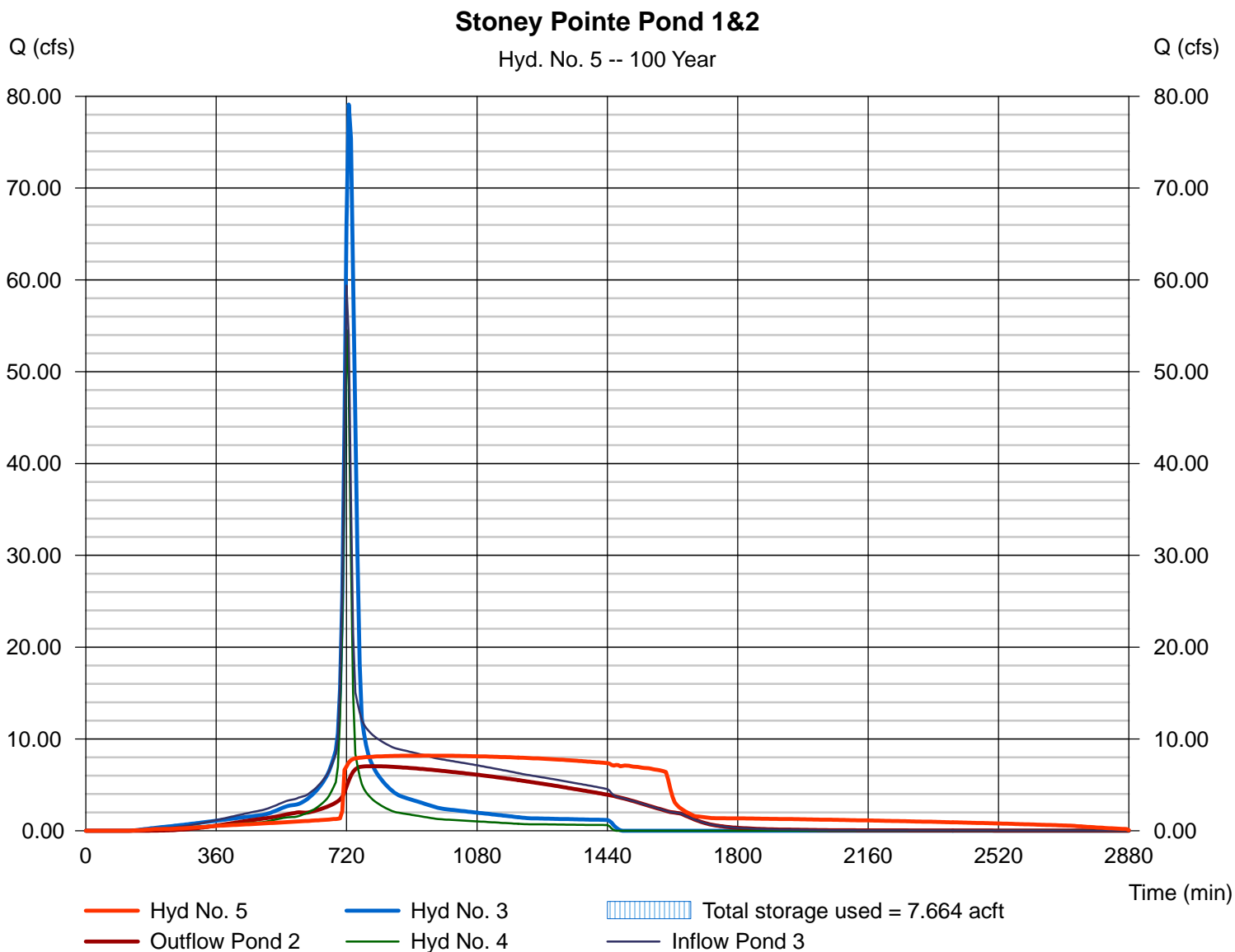
Pond name = Stoney Pointe P1
 Inflow hyd. = 3 - Stoney Pointe P1
 Max. Elevation = 1402.72 ft
 Max. Storage = 4.202 acft

Peak discharge = 8.187 cfs
 Time to peak = 936 min
 Hyd. volume = 11.969 acft

Lower Pond

Pond name = Stoney Pointe P2
 Other Inflow hyd. = 4 - Stoney Pointe P1
 Max. Elevation = 1400.99 ft
 Max. Storage = 3.461 acft

Interconnected Pond Routing. Storage Indication method used.



Pond Report

Pond No. 2 - Stoney Pointe P1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 1395.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1395.00	13,729	0.000	0.000
1.00	1396.00	15,977	0.341	0.341
2.00	1397.00	18,384	0.394	0.735
3.00	1398.00	20,947	0.451	1.186
4.00	1399.00	23,668	0.512	1.697
5.00	1400.00	26,546	0.576	2.274
6.00	1401.00	29,581	0.644	2.917
7.00	1402.00	32,773	0.715	3.633
8.00	1403.00	36,122	0.790	4.423
9.00	1404.00	39,628	0.869	5.292

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	0.00	0.00	0.00
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1395.00	0.00	0.00	0.00
Length (ft)	= 140.00	0.00	0.00	0.00
Slope (%)	= 0.40	0.00	0.00	n/a
N-Value	= .013	.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 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 acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	1395.00	0.00	---	---	---	---	---	---	---	---	---	0.000
0.10	0.034	1395.10	0.04 ic	---	---	---	---	---	---	---	---	---	0.044
0.20	0.068	1395.20	0.17 ic	---	---	---	---	---	---	---	---	---	0.171
0.30	0.102	1395.30	0.37 ic	---	---	---	---	---	---	---	---	---	0.371
0.40	0.136	1395.40	0.63 ic	---	---	---	---	---	---	---	---	---	0.632
0.50	0.170	1395.50	0.95 ic	---	---	---	---	---	---	---	---	---	0.947
0.60	0.204	1395.60	1.29 oc	---	---	---	---	---	---	---	---	---	1.289
0.70	0.238	1395.70	1.58 oc	---	---	---	---	---	---	---	---	---	1.583
0.80	0.272	1395.80	1.84 oc	---	---	---	---	---	---	---	---	---	1.839
0.90	0.307	1395.90	2.01 oc	---	---	---	---	---	---	---	---	---	2.014
1.00	0.341	1396.00	1.95 oc	---	---	---	---	---	---	---	---	---	1.952
1.10	0.380	1396.10	2.12 oc	---	---	---	---	---	---	---	---	---	2.119
1.20	0.419	1396.20	2.27 oc	---	---	---	---	---	---	---	---	---	2.274
1.30	0.459	1396.30	2.42 oc	---	---	---	---	---	---	---	---	---	2.419
1.40	0.498	1396.40	2.56 oc	---	---	---	---	---	---	---	---	---	2.556
1.50	0.538	1396.50	2.69 oc	---	---	---	---	---	---	---	---	---	2.686
1.60	0.577	1396.60	2.81 oc	---	---	---	---	---	---	---	---	---	2.809
1.70	0.616	1396.70	2.93 oc	---	---	---	---	---	---	---	---	---	2.928
1.80	0.656	1396.80	3.04 oc	---	---	---	---	---	---	---	---	---	3.042
1.90	0.695	1396.90	3.15 oc	---	---	---	---	---	---	---	---	---	3.152
2.00	0.735	1397.00	3.26 oc	---	---	---	---	---	---	---	---	---	3.258
2.10	0.780	1397.10	3.36 oc	---	---	---	---	---	---	---	---	---	3.361
2.20	0.825	1397.20	3.46 oc	---	---	---	---	---	---	---	---	---	3.460
2.30	0.870	1397.30	3.56 oc	---	---	---	---	---	---	---	---	---	3.557
2.40	0.915	1397.40	3.65 oc	---	---	---	---	---	---	---	---	---	3.652
2.50	0.960	1397.50	3.74 oc	---	---	---	---	---	---	---	---	---	3.744
2.60	1.005	1397.60	3.83 oc	---	---	---	---	---	---	---	---	---	3.834
2.70	1.050	1397.70	3.92 oc	---	---	---	---	---	---	---	---	---	3.921
2.80	1.096	1397.80	4.01 oc	---	---	---	---	---	---	---	---	---	4.007
2.90	1.141	1397.90	4.09 oc	---	---	---	---	---	---	---	---	---	4.091
3.00	1.186	1398.00	4.17 oc	---	---	---	---	---	---	---	---	---	4.173
3.10	1.237	1398.10	4.25 oc	---	---	---	---	---	---	---	---	---	4.254
3.20	1.288	1398.20	4.33 oc	---	---	---	---	---	---	---	---	---	4.333
3.30	1.339	1398.30	4.41 oc	---	---	---	---	---	---	---	---	---	4.411
3.40	1.390	1398.40	4.49 oc	---	---	---	---	---	---	---	---	---	4.488

Continues on next page...

Stoney Pointe P1

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
3.50	1.442	1398.50	4.56 oc	---	---	---	---	---	---	---	---	---	4.563
3.60	1.493	1398.60	4.64 oc	---	---	---	---	---	---	---	---	---	4.637
3.70	1.544	1398.70	4.71 oc	---	---	---	---	---	---	---	---	---	4.710
3.80	1.595	1398.80	4.78 oc	---	---	---	---	---	---	---	---	---	4.781
3.90	1.646	1398.90	4.85 oc	---	---	---	---	---	---	---	---	---	4.852
4.00	1.697	1399.00	4.92 oc	---	---	---	---	---	---	---	---	---	4.922
4.10	1.755	1399.10	4.99 oc	---	---	---	---	---	---	---	---	---	4.990
4.20	1.813	1399.20	5.06 oc	---	---	---	---	---	---	---	---	---	5.058
4.30	1.870	1399.30	5.12 oc	---	---	---	---	---	---	---	---	---	5.125
4.40	1.928	1399.40	5.19 oc	---	---	---	---	---	---	---	---	---	5.191
4.50	1.986	1399.50	5.26 oc	---	---	---	---	---	---	---	---	---	5.256
4.60	2.043	1399.60	5.32 oc	---	---	---	---	---	---	---	---	---	5.320
4.70	2.101	1399.70	5.38 oc	---	---	---	---	---	---	---	---	---	5.384
4.80	2.158	1399.80	5.45 oc	---	---	---	---	---	---	---	---	---	5.447
4.90	2.216	1399.90	5.51 oc	---	---	---	---	---	---	---	---	---	5.509
5.00	2.274	1400.00	5.57 oc	---	---	---	---	---	---	---	---	---	5.570
5.10	2.338	1400.10	5.63 oc	---	---	---	---	---	---	---	---	---	5.631
5.20	2.402	1400.20	5.69 oc	---	---	---	---	---	---	---	---	---	5.691
5.30	2.467	1400.30	5.75 oc	---	---	---	---	---	---	---	---	---	5.750
5.40	2.531	1400.40	5.81 oc	---	---	---	---	---	---	---	---	---	5.809
5.50	2.595	1400.50	5.87 oc	---	---	---	---	---	---	---	---	---	5.867
5.60	2.660	1400.60	5.93 oc	---	---	---	---	---	---	---	---	---	5.925
5.70	2.724	1400.70	5.98 oc	---	---	---	---	---	---	---	---	---	5.982
5.80	2.789	1400.80	6.04 oc	---	---	---	---	---	---	---	---	---	6.039
5.90	2.853	1400.90	6.09 oc	---	---	---	---	---	---	---	---	---	6.095
6.00	2.917	1401.00	6.15 oc	---	---	---	---	---	---	---	---	---	6.150
6.10	2.989	1401.10	6.21 oc	---	---	---	---	---	---	---	---	---	6.206
6.20	3.060	1401.20	6.26 oc	---	---	---	---	---	---	---	---	---	6.260
6.30	3.132	1401.30	6.31 oc	---	---	---	---	---	---	---	---	---	6.314
6.40	3.204	1401.40	6.37 oc	---	---	---	---	---	---	---	---	---	6.368
6.50	3.275	1401.50	6.42 oc	---	---	---	---	---	---	---	---	---	6.421
6.60	3.347	1401.60	6.47 oc	---	---	---	---	---	---	---	---	---	6.474
6.70	3.418	1401.70	6.53 oc	---	---	---	---	---	---	---	---	---	6.526
6.80	3.490	1401.80	6.58 oc	---	---	---	---	---	---	---	---	---	6.578
6.90	3.561	1401.90	6.63 oc	---	---	---	---	---	---	---	---	---	6.630
7.00	3.633	1402.00	6.68 oc	---	---	---	---	---	---	---	---	---	6.681
7.10	3.712	1402.10	6.73 oc	---	---	---	---	---	---	---	---	---	6.731
7.20	3.791	1402.20	6.78 oc	---	---	---	---	---	---	---	---	---	6.782
7.30	3.870	1402.30	6.83 oc	---	---	---	---	---	---	---	---	---	6.832
7.40	3.949	1402.40	6.88 oc	---	---	---	---	---	---	---	---	---	6.881
7.50	4.028	1402.50	6.93 oc	---	---	---	---	---	---	---	---	---	6.931
7.60	4.107	1402.60	6.98 oc	---	---	---	---	---	---	---	---	---	6.980
7.70	4.186	1402.70	7.03 oc	---	---	---	---	---	---	---	---	---	7.028
7.80	4.265	1402.80	7.08 oc	---	---	---	---	---	---	---	---	---	7.076
7.90	4.344	1402.90	7.12 oc	---	---	---	---	---	---	---	---	---	7.124
8.00	4.423	1403.00	7.17 oc	---	---	---	---	---	---	---	---	---	7.172
8.10	4.510	1403.10	7.22 oc	---	---	---	---	---	---	---	---	---	7.219
8.20	4.597	1403.20	7.27 oc	---	---	---	---	---	---	---	---	---	7.266
8.30	4.684	1403.30	7.31 oc	---	---	---	---	---	---	---	---	---	7.313
8.40	4.771	1403.40	7.36 oc	---	---	---	---	---	---	---	---	---	7.359
8.50	4.858	1403.50	7.41 oc	---	---	---	---	---	---	---	---	---	7.405
8.60	4.945	1403.60	7.45 oc	---	---	---	---	---	---	---	---	---	7.451
8.70	5.031	1403.70	7.50 oc	---	---	---	---	---	---	---	---	---	7.497
8.80	5.118	1403.80	7.54 oc	---	---	---	---	---	---	---	---	---	7.542
8.90	5.205	1403.90	7.59 oc	---	---	---	---	---	---	---	---	---	7.587
9.00	5.292	1404.00	7.63 oc	---	---	---	---	---	---	---	---	---	7.631

...End

Pond Report

Pond No. 3 - Stoney Pointe P2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 1390.80 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1390.80	00	0.000	0.000
0.20	1391.00	785	0.001	0.001
1.20	1392.00	6,754	0.075	0.077
2.20	1393.00	8,513	0.175	0.251
3.20	1394.00	10,415	0.217	0.468
4.20	1395.00	12,458	0.262	0.730
5.20	1396.00	14,670	0.311	1.041
6.20	1397.00	17,004	0.363	1.405
7.20	1398.00	19,617	0.420	1.825
8.20	1399.00	22,356	0.481	2.306
9.20	1400.00	25,252	0.546	2.852
10.20	1401.00	28,305	0.614	3.466
11.20	1402.00	31,516	0.686	4.153

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	2.50	4.00	0.00
Span (in)	= 12.00	2.50	4.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1390.70	1390.80	1390.39	0.00
Length (ft)	= 140.00	0.50	0.50	0.00
Slope (%)	= 0.40	0.00	0.00	n/a
N-Value	= .013	.013	.013	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)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 1396.97	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
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 acft	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	0.000	1390.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.02	0.000	1390.82	0.05 ic	0.00 ic	0.05 ic	---	0.00	---	---	---	---	---	0.052
0.04	0.000	1390.84	0.07 ic	0.00 ic	0.06 ic	---	0.00	---	---	---	---	---	0.063
0.06	0.000	1390.86	0.08 ic	0.01 ic	0.07 ic	---	0.00	---	---	---	---	---	0.078
0.08	0.000	1390.88	0.09 ic	0.01 ic	0.08 ic	---	0.00	---	---	---	---	---	0.092
0.10	0.001	1390.90	0.11 ic	0.02 ic	0.09 ic	---	0.00	---	---	---	---	---	0.106
0.12	0.001	1390.92	0.12 ic	0.02 ic	0.10 ic	---	0.00	---	---	---	---	---	0.122
0.14	0.001	1390.94	0.14 ic	0.03 ic	0.11 ic	---	0.00	---	---	---	---	---	0.137
0.16	0.001	1390.96	0.15 ic	0.04 ic	0.11 ic	---	0.00	---	---	---	---	---	0.150
0.18	0.001	1390.98	0.17 ic	0.04 ic	0.12 ic	---	0.00	---	---	---	---	---	0.167
0.20	0.001	1391.00	0.18 ic	0.05 ic	0.13 ic	---	0.00	---	---	---	---	---	0.180
0.30	0.009	1391.10	0.24 ic	0.07 ic	0.17 ic	---	0.00	---	---	---	---	---	0.237
0.40	0.016	1391.20	0.29 ic	0.08 ic	0.21 ic	---	0.00	---	---	---	---	---	0.287
0.50	0.024	1391.30	0.34 ic	0.09 ic	0.24 ic	---	0.00	---	---	---	---	---	0.331
0.60	0.031	1391.40	0.37 ic	0.10 ic	0.27 ic	---	0.00	---	---	---	---	---	0.371
0.70	0.039	1391.50	0.41 ic	0.11 ic	0.29 ic	---	0.00	---	---	---	---	---	0.407
0.80	0.046	1391.60	0.44 ic	0.12 ic	0.32 ic	---	0.00	---	---	---	---	---	0.442
0.90	0.054	1391.70	0.48 ic	0.13 ic	0.34 ic	---	0.00	---	---	---	---	---	0.475
1.00	0.061	1391.80	0.52 ic	0.14 ic	0.36 ic	---	0.00	---	---	---	---	---	0.505
1.10	0.069	1391.90	0.54 ic	0.15 ic	0.38 ic	---	0.00	---	---	---	---	---	0.535
1.20	0.077	1392.00	0.56 ic	0.16 ic	0.40 ic	---	0.00	---	---	---	---	---	0.562
1.30	0.094	1392.10	0.60 ic	0.17 ic	0.42 ic	---	0.00	---	---	---	---	---	0.589
1.40	0.111	1392.20	0.62 ic	0.17 ic	0.44 ic	---	0.00	---	---	---	---	---	0.615
1.50	0.129	1392.30	0.64 ic	0.18 ic	0.46 ic	---	0.00	---	---	---	---	---	0.640
1.60	0.146	1392.40	0.67 ic	0.19 ic	0.48 ic	---	0.00	---	---	---	---	---	0.665
1.70	0.164	1392.50	0.69 ic	0.19 ic	0.49 ic	---	0.00	---	---	---	---	---	0.688
1.80	0.181	1392.60	0.71 ic	0.20 ic	0.51 ic	---	0.00	---	---	---	---	---	0.710
1.90	0.199	1392.70	0.74 ic	0.21 ic	0.53 ic	---	0.00	---	---	---	---	---	0.732
2.00	0.216	1392.80	0.76 ic	0.21 ic	0.54 ic	---	0.00	---	---	---	---	---	0.753
2.10	0.234	1392.90	0.79 ic	0.22 ic	0.56 ic	---	0.00	---	---	---	---	---	0.774
2.20	0.251	1393.00	0.81 ic	0.22 ic	0.57 ic	---	0.00	---	---	---	---	---	0.794
2.30	0.273	1393.10	0.81 ic	0.23 ic	0.59 ic	---	0.00	---	---	---	---	---	0.814

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Stoney Pointe P2

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
2.40	0.295	1393.20	0.84 ic	0.23 ic	0.60 ic	---	0.00	---	---	---	---	---	0.834
2.50	0.316	1393.30	0.86 ic	0.24 ic	0.61 ic	---	0.00	---	---	---	---	---	0.853
2.60	0.338	1393.40	0.89 ic	0.24 ic	0.63 ic	---	0.00	---	---	---	---	---	0.871
2.70	0.360	1393.50	0.89 ic	0.25 ic	0.64 ic	---	0.00	---	---	---	---	---	0.890
2.80	0.381	1393.60	0.91 ic	0.26 ic	0.65 ic	---	0.00	---	---	---	---	---	0.908
2.90	0.403	1393.70	0.94 ic	0.26 ic	0.67 ic	---	0.00	---	---	---	---	---	0.925
3.00	0.425	1393.80	0.94 ic	0.26 ic	0.68 ic	---	0.00	---	---	---	---	---	0.943
3.10	0.447	1393.90	0.96 ic	0.27 ic	0.69 ic	---	0.00	---	---	---	---	---	0.960
3.20	0.468	1394.00	0.99 ic	0.27 ic	0.70 ic	---	0.00	---	---	---	---	---	0.976
3.30	0.494	1394.10	0.99 ic	0.28 ic	0.71 ic	---	0.00	---	---	---	---	---	0.993
3.40	0.521	1394.20	1.02 ic	0.28 ic	0.73 ic	---	0.00	---	---	---	---	---	1.009
3.50	0.547	1394.30	1.02 ic	0.29 ic	0.74 ic	---	0.00	---	---	---	---	---	1.025
3.60	0.573	1394.40	1.04 ic	0.29 ic	0.75 ic	---	0.00	---	---	---	---	---	1.041
3.70	0.599	1394.50	1.07 ic	0.30 ic	0.76 ic	---	0.00	---	---	---	---	---	1.056
3.80	0.626	1394.60	1.07 ic	0.30 ic	0.77 ic	---	0.00	---	---	---	---	---	1.072
3.90	0.652	1394.70	1.10 ic	0.31 ic	0.78 ic	---	0.00	---	---	---	---	---	1.087
4.00	0.678	1394.80	1.10 ic	0.31 ic	0.79 ic	---	0.00	---	---	---	---	---	1.102
4.10	0.704	1394.90	1.13 ic	0.31 ic	0.80 ic	---	0.00	---	---	---	---	---	1.117
4.20	0.730	1395.00	1.13 ic	0.32 ic	0.81 ic	---	0.00	---	---	---	---	---	1.131
4.30	0.761	1395.10	1.15 ic	0.32 ic	0.82 ic	---	0.00	---	---	---	---	---	1.146
4.40	0.793	1395.20	1.16 ic	0.33 ic	0.83 ic	---	0.00	---	---	---	---	---	1.160
4.50	0.824	1395.30	1.18 ic	0.33 ic	0.84 ic	---	0.00	---	---	---	---	---	1.174
4.60	0.855	1395.40	1.19 ic	0.33 ic	0.85 ic	---	0.00	---	---	---	---	---	1.188
4.70	0.886	1395.50	1.21 ic	0.34 ic	0.86 ic	---	0.00	---	---	---	---	---	1.202
4.80	0.917	1395.60	1.22 ic	0.34 ic	0.87 ic	---	0.00	---	---	---	---	---	1.215
4.90	0.948	1395.70	1.24 ic	0.35 ic	0.88 ic	---	0.00	---	---	---	---	---	1.229
5.00	0.979	1395.80	1.24 ic	0.35 ic	0.89 ic	---	0.00	---	---	---	---	---	1.242
5.10	1.010	1395.90	1.27 ic	0.35 ic	0.90 ic	---	0.00	---	---	---	---	---	1.255
5.20	1.041	1396.00	1.29 oc	0.36 ic	0.91 ic	---	0.00	---	---	---	---	---	1.267
5.30	1.078	1396.10	1.29 oc	0.36 ic	0.92 ic	---	0.00	---	---	---	---	---	1.281
5.40	1.114	1396.20	1.31 oc	0.36 ic	0.93 ic	---	0.00	---	---	---	---	---	1.293
5.50	1.150	1396.30	1.31 oc	0.37 ic	0.94 ic	---	0.00	---	---	---	---	---	1.306
5.60	1.187	1396.40	1.34 oc	0.37 ic	0.95 ic	---	0.00	---	---	---	---	---	1.318
5.70	1.223	1396.50	1.34 oc	0.37 ic	0.96 ic	---	0.00	---	---	---	---	---	1.331
5.80	1.259	1396.60	1.36 oc	0.38 ic	0.97 ic	---	0.00	---	---	---	---	---	1.343
5.90	1.296	1396.70	1.36 oc	0.38 ic	0.97 ic	---	0.00	---	---	---	---	---	1.356
6.00	1.332	1396.80	1.38 oc	0.38 ic	0.98 ic	---	0.00	---	---	---	---	---	1.367
6.10	1.368	1396.90	1.38 oc	0.39 ic	0.99 ic	---	0.00	---	---	---	---	---	1.380
6.20	1.405	1397.00	1.60 oc	0.39 ic	0.99 ic	---	0.21	---	---	---	---	---	1.591
6.30	1.447	1397.10	3.12 oc	0.35 ic	0.89 ic	---	1.87	---	---	---	---	---	3.117
6.40	1.489	1397.20	5.24 oc	0.23 ic	0.60 ic	---	4.41	---	---	---	---	---	5.239
6.50	1.531	1397.30	6.40 oc	0.06 ic	0.16 ic	---	6.17 s	---	---	---	---	---	6.396
6.60	1.573	1397.40	6.49 oc	0.04 ic	0.11 ic	---	6.34 s	---	---	---	---	---	6.490
6.70	1.615	1397.50	6.56 oc	0.03 ic	0.08 ic	---	6.44 s	---	---	---	---	---	6.555
6.80	1.657	1397.60	6.62 oc	0.02 ic	0.06 ic	---	6.52 s	---	---	---	---	---	6.611
6.90	1.699	1397.70	6.67 oc	0.02 ic	0.05 ic	---	6.59 s	---	---	---	---	---	6.667
7.00	1.741	1397.80	6.73 oc	0.02 ic	0.04 ic	---	6.65 s	---	---	---	---	---	6.714
7.10	1.783	1397.90	6.78 oc	0.01 ic	0.04 ic	---	6.72 s	---	---	---	---	---	6.776
7.20	1.825	1398.00	6.83 oc	0.01 ic	0.03 ic	---	6.77 s	---	---	---	---	---	6.816
7.30	1.873	1398.10	6.88 oc	0.01 ic	0.03 ic	---	6.80 s	---	---	---	---	---	6.844
7.40	1.921	1398.20	6.93 oc	0.01 ic	0.03 ic	---	6.84 s	---	---	---	---	---	6.875
7.50	1.969	1398.30	6.98 oc	0.01 ic	0.02 ic	---	6.93 s	---	---	---	---	---	6.963
7.60	2.017	1398.40	7.03 oc	0.01 ic	0.02 ic	---	6.94 s	---	---	---	---	---	6.968
7.70	2.065	1398.50	7.08 oc	0.01 ic	0.02 ic	---	7.00 s	---	---	---	---	---	7.025
7.80	2.113	1398.60	7.12 oc	0.01 ic	0.02 ic	---	7.08 s	---	---	---	---	---	7.103
7.90	2.162	1398.70	7.17 oc	0.01 ic	0.02 ic	---	7.10 s	---	---	---	---	---	7.119
8.00	2.210	1398.80	7.22 oc	0.01 ic	0.01 ic	---	6.99 s	---	---	---	---	---	7.015
8.10	2.258	1398.90	7.27 oc	0.01 ic	0.01 ic	---	7.19 s	---	---	---	---	---	7.208
8.20	2.306	1399.00	7.31 oc	0.01 ic	0.01 ic	---	7.07 s	---	---	---	---	---	7.085
8.30	2.361	1399.10	7.36 oc	0.00 ic	0.00 ic	---	0.00 s	---	---	---	---	---	7.359
8.40	2.415	1399.20	7.41 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.405
8.50	2.470	1399.30	7.45 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.451
8.60	2.524	1399.40	7.50 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.497
8.70	2.579	1399.50	7.54 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.542
8.80	2.634	1399.60	7.59 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.587
8.90	2.688	1399.70	7.63 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.631
9.00	2.743	1399.80	7.68 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.676
9.10	2.797	1399.90	7.72 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.720
9.20	2.852	1400.00	7.76 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.764
9.30	2.913	1400.10	7.81 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.808
9.40	2.975	1400.20	7.85 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.851
9.50	3.036	1400.30	7.89 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.894
9.60	3.098	1400.40	7.94 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.937
9.70	3.159	1400.50	7.98 oc	0.00	0.00	---	0.00	---	---	---	---	---	7.980

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Stoney Pointe P2

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
9.80	3.221	1400.60	8.02 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.023
9.90	3.282	1400.70	8.06 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.065
10.00	3.343	1400.80	8.11 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.107
10.10	3.405	1400.90	8.15 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.149
10.20	3.466	1401.00	8.19 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.190
10.30	3.535	1401.10	8.23 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.232
10.40	3.604	1401.20	8.27 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.273
10.50	3.672	1401.30	8.31 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.314
10.60	3.741	1401.40	8.35 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.355
10.70	3.809	1401.50	8.40 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.396
10.80	3.878	1401.60	8.44 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.436
10.90	3.947	1401.70	8.48 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.476
11.00	4.015	1401.80	8.52 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.516
11.10	4.084	1401.90	8.56 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.556
11.20	4.153	1402.00	8.60 oc	0.00	0.00	---	0.00	---	---	---	---	---	8.596

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

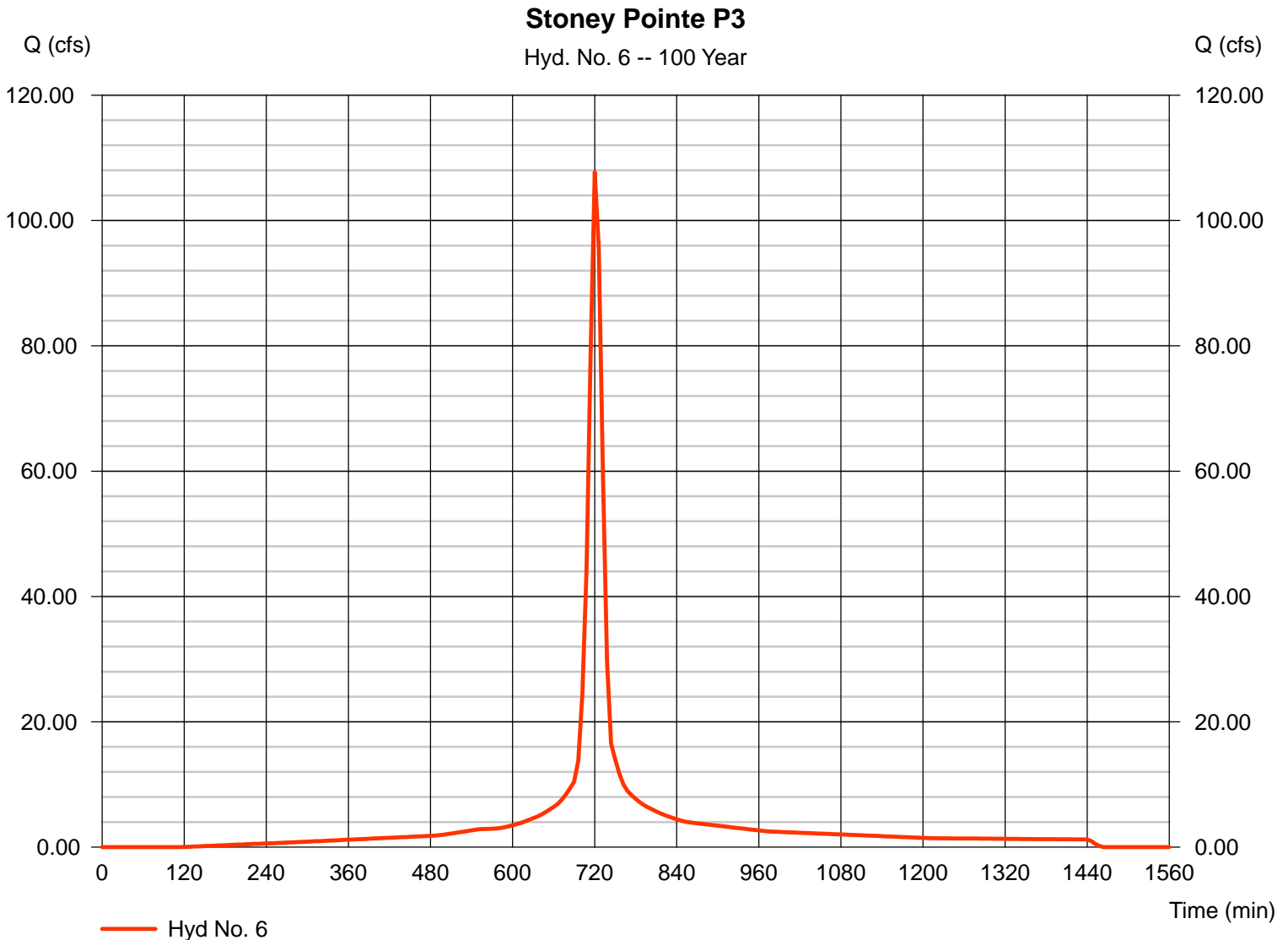
Wednesday, Aug 27, 2014

Hyd. No. 6

Stoney Pointe P3

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 6 min
 Drainage area = 15.000 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.80 in
 Storm duration = 24 hrs

Peak discharge = 107.72 cfs
 Time to peak = 720 min
 Hyd. volume = 8.161 acft
 Curve number = 93
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 16.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 7

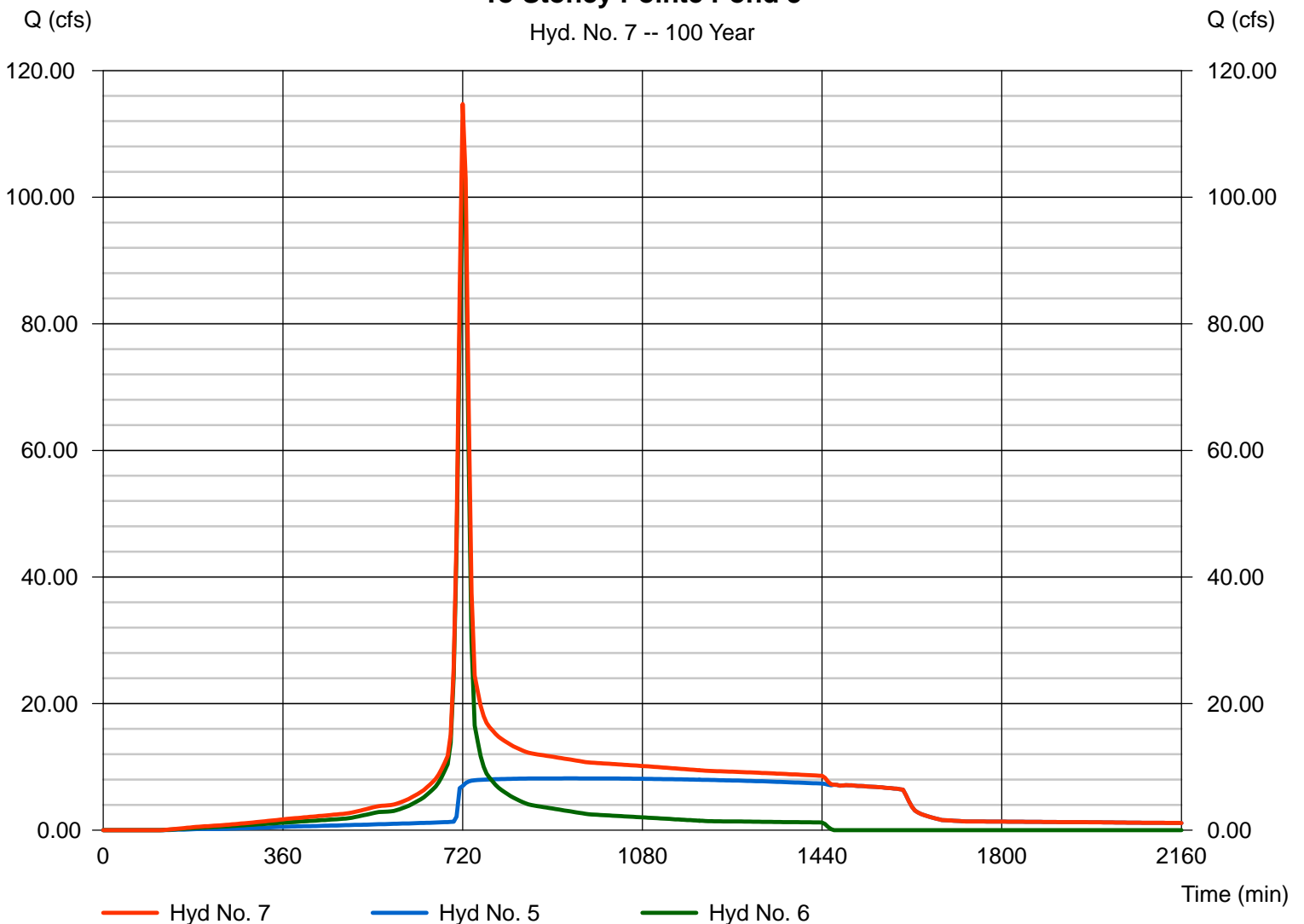
To Stoney Pointe Pond 3

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 6 min
 Inflow hyds. = 5, 6

Peak discharge = 114.72 cfs
 Time to peak = 720 min
 Hyd. volume = 20.130 acft
 Contrib. drain. area = 15.000 ac

To Stoney Pointe Pond 3

Hyd. No. 7 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

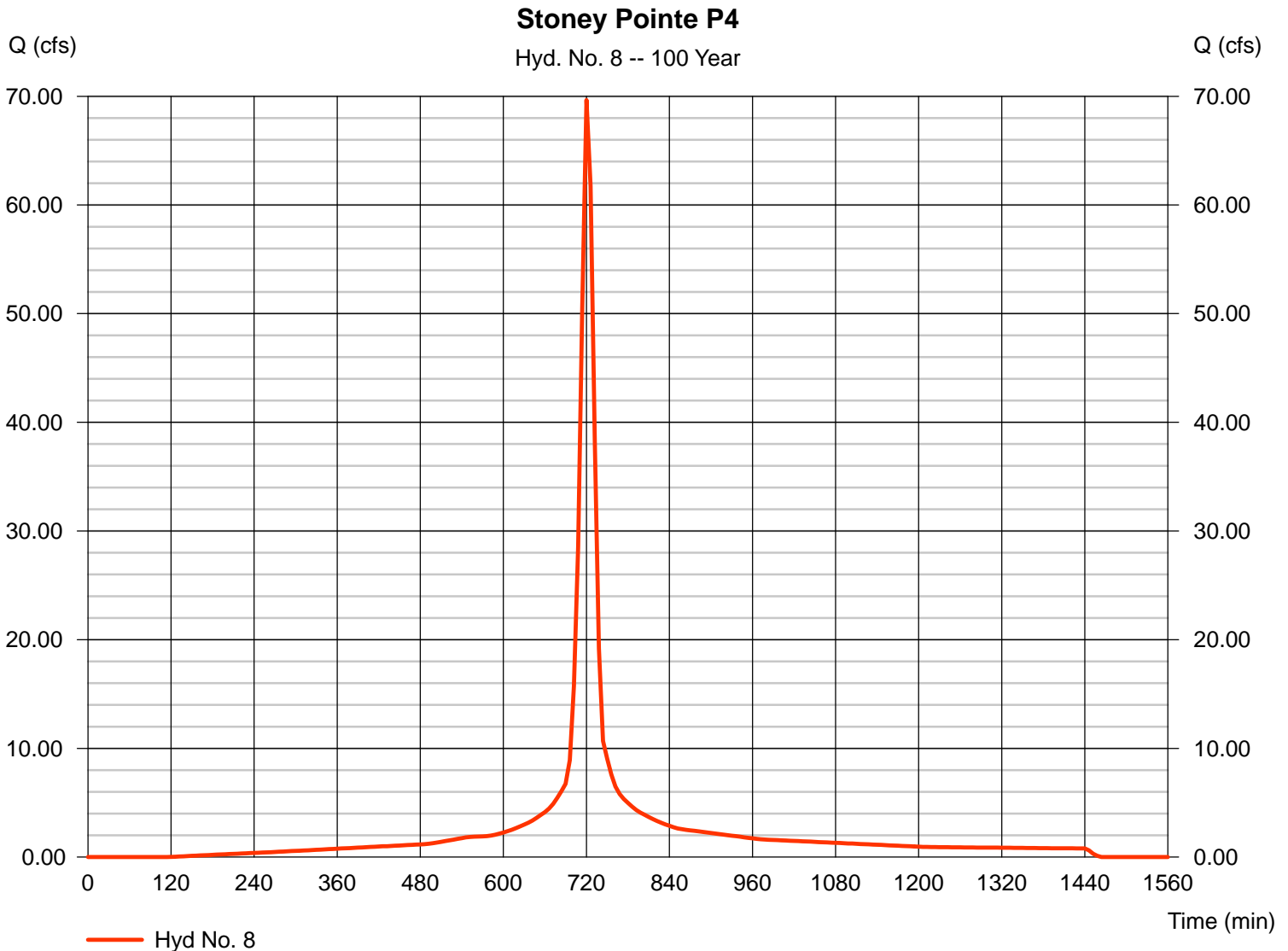
Wednesday, Aug 27, 2014

Hyd. No. 8

Stoney Pointe P4

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 6 min
 Drainage area = 9.700 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.80 in
 Storm duration = 24 hrs

Peak discharge = 69.66 cfs
 Time to peak = 720 min
 Hyd. volume = 5.278 acft
 Curve number = 93
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 19.00 min
 Distribution = Type II
 Shape factor = 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 9

Stoney Pointe Pond 3&4

Hydrograph type = Reservoir (Interconnected)
 Storm frequency = 100 yrs
 Time interval = 6 min

Peak discharge = 37.58 cfs
 Time to peak = 738 min
 Hyd. volume = 25.408 acft

Upper Pond

Pond name = Stoney Pointe P3
 Inflow hyd. = 7 - To Stoney Pointe Pond 3
 Max. Elevation = 1387.30 ft
 Max. Storage = 5.663 acft

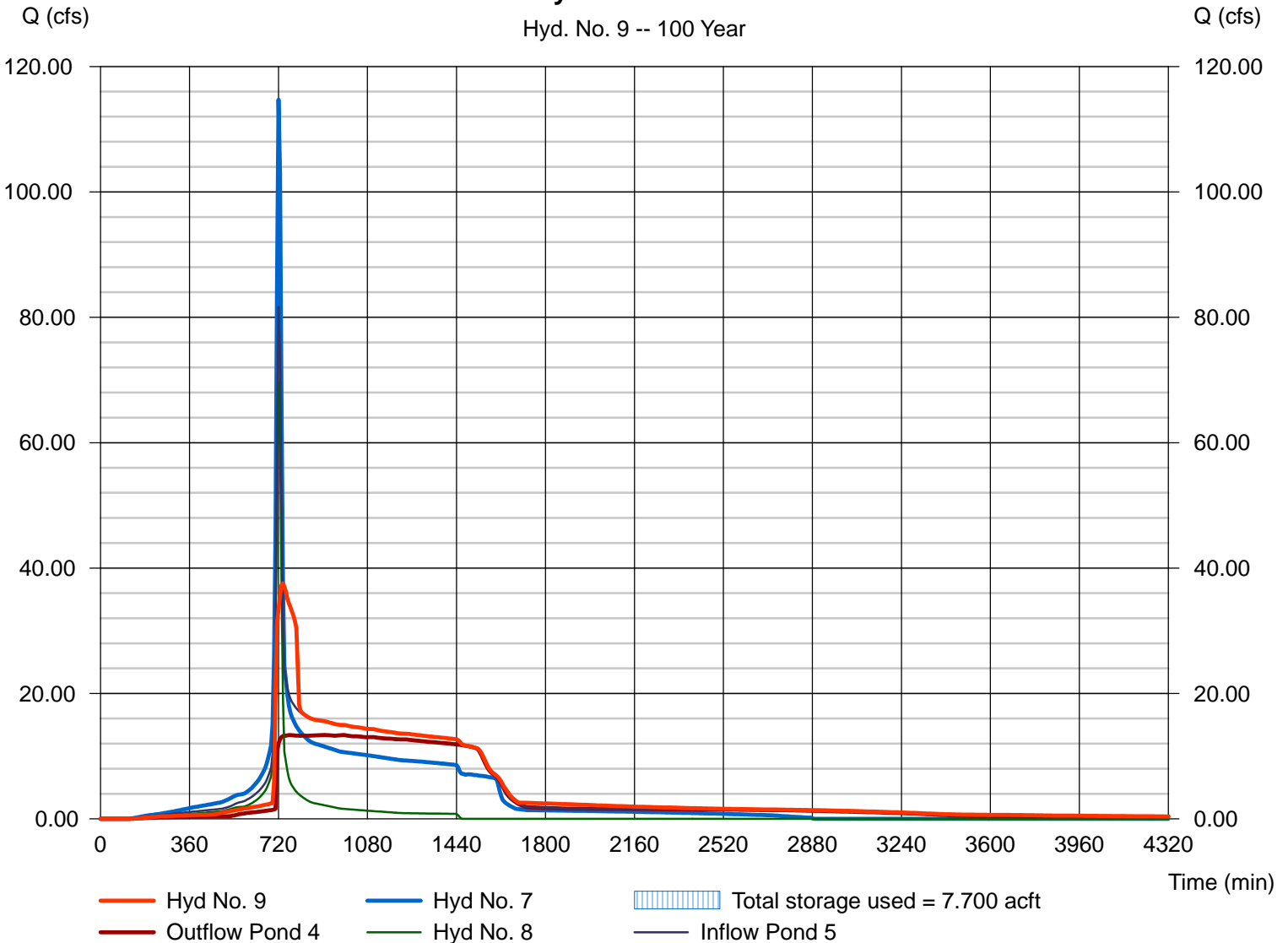
Lower Pond

Pond name = Stoney Pointe P4
 Other Inflow hyd. = 8 - Stoney Point
 Max. Elevation = 1384.40 ft
 Max. Storage = 2.038 acft

Interconnected Pond Routing. Storage Indication method used.

Stoney Pointe Pond 3&4

Hyd. No. 9 -- 100 Year



Pond Report

Pond No. 4 - Stoney Pointe P3

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 1377.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1377.90	00	0.000	0.000
0.10	1378.00	367	0.000	0.000
1.10	1379.00	4,068	0.043	0.044
2.10	1380.00	10,827	0.165	0.208
3.10	1381.00	17,048	0.317	0.526
4.10	1382.00	23,434	0.463	0.988
5.10	1383.00	29,467	0.606	1.594
6.10	1384.00	34,699	0.736	2.330
7.10	1385.00	40,127	0.858	3.188
8.10	1386.00	45,684	0.984	4.172
9.10	1387.00	51,415	1.114	5.286
10.10	1388.00	57,308	1.247	6.533
11.10	1389.00	63,359	1.384	7.917
12.10	1390.00	69,567	1.525	9.442

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	3.00	5.00	0.00
Span (in)	= 15.00	3.00	5.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1377.54	1377.90	1381.20	0.00
Length (ft)	= 140.00	0.50	0.50	0.00
Slope (%)	= 0.40	0.00	0.00	n/a
N-Value	= .013	.013	.013	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)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 1384.07	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
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 acft	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	0.000	1377.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.01	0.000	1377.91	0.62 ic	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.000
0.02	0.000	1377.92	0.62 ic	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.001
0.03	0.000	1377.93	0.62 ic	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.002
0.04	0.000	1377.94	0.62 ic	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.004
0.05	0.000	1377.95	0.62 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.005
0.06	0.000	1377.96	0.62 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.008
0.07	0.000	1377.97	0.62 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.010
0.08	0.000	1377.98	0.62 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.013
0.09	0.000	1377.99	0.62 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.016
0.10	0.000	1378.00	0.62 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.020
0.20	0.005	1378.10	0.62 ic	0.06 ic	0.00	---	0.00	---	---	---	---	---	0.064
0.30	0.009	1378.20	0.62 ic	0.10 ic	0.00	---	0.00	---	---	---	---	---	0.099
0.40	0.013	1378.30	0.62 ic	0.12 ic	0.00	---	0.00	---	---	---	---	---	0.124
0.50	0.018	1378.40	0.62 ic	0.14 ic	0.00	---	0.00	---	---	---	---	---	0.145
0.60	0.022	1378.50	0.62 ic	0.16 ic	0.00	---	0.00	---	---	---	---	---	0.163
0.70	0.026	1378.60	0.62 ic	0.18 ic	0.00	---	0.00	---	---	---	---	---	0.179
0.80	0.031	1378.70	0.62 ic	0.19 ic	0.00	---	0.00	---	---	---	---	---	0.194
0.90	0.035	1378.80	0.62 ic	0.21 ic	0.00	---	0.00	---	---	---	---	---	0.208
1.00	0.039	1378.90	0.62 ic	0.22 ic	0.00	---	0.00	---	---	---	---	---	0.221
1.10	0.044	1379.00	0.62 ic	0.23 ic	0.00	---	0.00	---	---	---	---	---	0.233
1.20	0.060	1379.10	0.62 ic	0.25 ic	0.00	---	0.00	---	---	---	---	---	0.245
1.30	0.077	1379.20	0.62 ic	0.26 ic	0.00	---	0.00	---	---	---	---	---	0.256
1.40	0.093	1379.30	0.62 ic	0.27 ic	0.00	---	0.00	---	---	---	---	---	0.267
1.50	0.109	1379.40	0.62 ic	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.277
1.60	0.126	1379.50	0.62 ic	0.29 ic	0.00	---	0.00	---	---	---	---	---	0.287
1.70	0.142	1379.60	0.62 ic	0.30 ic	0.00	---	0.00	---	---	---	---	---	0.297
1.80	0.159	1379.70	0.62 ic	0.31 ic	0.00	---	0.00	---	---	---	---	---	0.306
1.90	0.175	1379.80	0.62 ic	0.31 ic	0.00	---	0.00	---	---	---	---	---	0.315
2.00	0.192	1379.90	0.62 ic	0.32 ic	0.00	---	0.00	---	---	---	---	---	0.324
2.10	0.208	1380.00	0.62 ic	0.33 ic	0.00	---	0.00	---	---	---	---	---	0.332

Continues on next page...

Stoney Pointe P3

Stage / Storage / Discharge Table

Stage ft	Storage acft	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	0.240	1380.10	0.62 ic	0.34 ic	0.00	---	0.00	---	---	---	---	---	0.340
2.30	0.272	1380.20	0.62 ic	0.35 ic	0.00	---	0.00	---	---	---	---	---	0.349
2.40	0.303	1380.30	0.62 ic	0.36 ic	0.00	---	0.00	---	---	---	---	---	0.356
2.50	0.335	1380.40	0.62 ic	0.36 ic	0.00	---	0.00	---	---	---	---	---	0.364
2.60	0.367	1380.50	0.62 ic	0.37 ic	0.00	---	0.00	---	---	---	---	---	0.372
2.70	0.399	1380.60	0.62 ic	0.38 ic	0.00	---	0.00	---	---	---	---	---	0.379
2.80	0.430	1380.70	0.62 ic	0.39 ic	0.00	---	0.00	---	---	---	---	---	0.387
2.90	0.462	1380.80	0.62 ic	0.39 ic	0.00	---	0.00	---	---	---	---	---	0.394
3.00	0.494	1380.90	0.62 ic	0.40 ic	0.00	---	0.00	---	---	---	---	---	0.401
3.10	0.526	1381.00	0.62 ic	0.41 ic	0.00	---	0.00	---	---	---	---	---	0.408
3.20	0.572	1381.10	0.62 ic	0.41 ic	0.00	---	0.00	---	---	---	---	---	0.414
3.30	0.618	1381.20	0.62 ic	0.42 ic	0.00	---	0.00	---	---	---	---	---	0.421
3.40	0.664	1381.30	0.62 ic	0.43 ic	0.03 ic	---	0.00	---	---	---	---	---	0.456
3.50	0.711	1381.40	0.62 ic	0.43 ic	0.10 ic	---	0.00	---	---	---	---	---	0.534
3.60	0.757	1381.50	0.64 ic	0.44 ic	0.20 ic	---	0.00	---	---	---	---	---	0.639
3.70	0.803	1381.60	0.74 ic	0.45 ic	0.29 ic	---	0.00	---	---	---	---	---	0.737
3.80	0.849	1381.70	0.81 ic	0.45 ic	0.35 ic	---	0.00	---	---	---	---	---	0.808
3.90	0.896	1381.80	0.87 ic	0.46 ic	0.41 ic	---	0.00	---	---	---	---	---	0.870
4.00	0.942	1381.90	0.94 ic	0.47 ic	0.46 ic	---	0.00	---	---	---	---	---	0.926
4.10	0.988	1382.00	0.98 ic	0.47 ic	0.50 ic	---	0.00	---	---	---	---	---	0.976
4.20	1.049	1382.10	1.05 ic	0.48 ic	0.55 ic	---	0.00	---	---	---	---	---	1.023
4.30	1.109	1382.20	1.09 ic	0.48 ic	0.58 ic	---	0.00	---	---	---	---	---	1.067
4.40	1.170	1382.30	1.12 ic	0.49 ic	0.62 ic	---	0.00	---	---	---	---	---	1.108
4.50	1.231	1382.40	1.16 ic	0.49 ic	0.65 ic	---	0.00	---	---	---	---	---	1.147
4.60	1.291	1382.50	1.20 ic	0.50 ic	0.69 ic	---	0.00	---	---	---	---	---	1.184
4.70	1.352	1382.60	1.25 ic	0.50 ic	0.72 ic	---	0.00	---	---	---	---	---	1.220
4.80	1.412	1382.70	1.25 ic	0.51 ic	0.75 ic	---	0.00	---	---	---	---	---	1.254
4.90	1.473	1382.80	1.29 ic	0.51 ic	0.77 ic	---	0.00	---	---	---	---	---	1.288
5.00	1.533	1382.90	1.33 ic	0.52 ic	0.80 ic	---	0.00	---	---	---	---	---	1.320
5.10	1.594	1383.00	1.37 ic	0.52 ic	0.83 ic	---	0.00	---	---	---	---	---	1.352
5.20	1.668	1383.10	1.38 ic	0.53 ic	0.85 ic	---	0.00	---	---	---	---	---	1.382
5.30	1.741	1383.20	1.42 ic	0.53 ic	0.88 ic	---	0.00	---	---	---	---	---	1.412
5.40	1.815	1383.30	1.46 ic	0.54 ic	0.90 ic	---	0.00	---	---	---	---	---	1.441
5.50	1.888	1383.40	1.47 ic	0.54 ic	0.93 ic	---	0.00	---	---	---	---	---	1.469
5.60	1.962	1383.50	1.50 ic	0.55 ic	0.95 ic	---	0.00	---	---	---	---	---	1.497
5.70	2.035	1383.60	1.55 ic	0.55 ic	0.97 ic	---	0.00	---	---	---	---	---	1.524
5.80	2.109	1383.70	1.55 ic	0.56 ic	0.99 ic	---	0.00	---	---	---	---	---	1.551
5.90	2.183	1383.80	1.59 ic	0.56 ic	1.02 ic	---	0.00	---	---	---	---	---	1.577
6.00	2.256	1383.90	1.60 ic	0.57 ic	1.04 ic	---	0.00	---	---	---	---	---	1.603
6.10	2.330	1384.00	1.64 ic	0.57 ic	1.06 ic	---	0.00	---	---	---	---	---	1.628
6.20	2.416	1384.10	1.87 ic	0.57 ic	1.08 ic	---	0.21	---	---	---	---	---	1.859
6.30	2.501	1384.20	3.53 oc	0.55 ic	1.10 ic	---	1.87	---	---	---	---	---	3.524
6.40	2.587	1384.30	6.02 oc	0.49 ic	1.12 ic	---	4.41	---	---	---	---	---	6.017
6.50	2.673	1384.40	8.93 oc	0.36 ic	0.99 ic	---	7.58	---	---	---	---	---	8.928
6.60	2.759	1384.50	11.06 oc	0.13 ic	0.36 ic	---	10.57 s	---	---	---	---	---	11.06
6.70	2.845	1384.60	11.29 oc	0.09 ic	0.26 ic	---	10.94 s	---	---	---	---	---	11.29
6.80	2.930	1384.70	11.44 oc	0.07 ic	0.20 ic	---	11.16 s	---	---	---	---	---	11.44
6.90	3.016	1384.80	11.56 oc	0.06 ic	0.17 ic	---	11.33 s	---	---	---	---	---	11.56
7.00	3.102	1384.90	11.66 oc	0.05 ic	0.14 ic	---	11.46 s	---	---	---	---	---	11.65
7.10	3.188	1385.00	11.76 oc	0.04 ic	0.12 ic	---	11.58 s	---	---	---	---	---	11.75
7.20	3.286	1385.10	11.85 oc	0.04 ic	0.10 ic	---	11.70 s	---	---	---	---	---	11.84
7.30	3.385	1385.20	11.94 oc	0.03 ic	0.09 ic	---	11.81 s	---	---	---	---	---	11.94
7.40	3.483	1385.30	12.03 oc	0.03 ic	0.08 ic	---	11.91 s	---	---	---	---	---	12.02
7.50	3.581	1385.40	12.12 oc	0.03 ic	0.07 ic	---	12.00 s	---	---	---	---	---	12.11
7.60	3.680	1385.50	12.21 oc	0.02 ic	0.07 ic	---	12.09 s	---	---	---	---	---	12.18
7.70	3.778	1385.60	12.29 oc	0.02 ic	0.06 ic	---	12.16 s	---	---	---	---	---	12.25
7.80	3.877	1385.70	12.38 oc	0.02 ic	0.06 ic	---	12.25 s	---	---	---	---	---	12.32
7.90	3.975	1385.80	12.46 oc	0.02 ic	0.05 ic	---	12.35 s	---	---	---	---	---	12.42
8.00	4.074	1385.90	12.54 oc	0.02 ic	0.05 ic	---	12.43 s	---	---	---	---	---	12.50
8.10	4.172	1386.00	12.63 oc	0.02 ic	0.05 ic	---	12.55 s	---	---	---	---	---	12.61
8.20	4.283	1386.10	12.71 oc	0.02 ic	0.04 ic	---	12.63 s	---	---	---	---	---	12.68
8.30	4.395	1386.20	12.79 oc	0.01 ic	0.04 ic	---	12.60 s	---	---	---	---	---	12.66
8.40	4.506	1386.30	12.87 oc	0.01 ic	0.04 ic	---	12.73 s	---	---	---	---	---	12.78
8.50	4.617	1386.40	12.95 oc	0.01 ic	0.04 ic	---	12.77 s	---	---	---	---	---	12.82
8.60	4.729	1386.50	13.03 oc	0.01 ic	0.03 ic	---	12.85 s	---	---	---	---	---	12.89
8.70	4.840	1386.60	13.11 oc	0.01 ic	0.03 ic	---	13.04 s	---	---	---	---	---	13.09
8.80	4.952	1386.70	13.18 oc	0.01 ic	0.03 ic	---	12.96 s	---	---	---	---	---	13.00
8.90	5.063	1386.80	13.26 oc	0.01 ic	0.03 ic	---	13.13 s	---	---	---	---	---	13.17
9.00	5.174	1386.90	13.34 oc	0.01 ic	0.03 ic	---	13.13 s	---	---	---	---	---	13.17
9.10	5.286	1387.00	13.42 oc	0.01 ic	0.03 ic	---	13.35 s	---	---	---	---	---	13.39
9.20	5.410	1387.10	13.49 oc	0.01 ic	0.03 ic	---	13.22 s	---	---	---	---	---	13.25
9.30	5.535	1387.20	13.57 oc	0.01 ic	0.02 ic	---	13.35 s	---	---	---	---	---	13.38
9.40	5.660	1387.30	13.64 oc	0.01 ic	0.02 ic	---	13.23 s	---	---	---	---	---	13.26
9.50	5.785	1387.40	13.72 oc	0.01 ic	0.02 ic	---	13.68 s	---	---	---	---	---	13.72

Continues on next page...

Stoney Pointe P3

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
9.60	5.909	1387.50	13.79 oc	0.01 ic	0.02 ic	---	13.70 s	---	---	---	---	---	13.73
9.70	6.034	1387.60	13.87 oc	0.01 ic	0.02 ic	---	13.67 s	---	---	---	---	---	13.70
9.80	6.159	1387.70	13.94 oc	0.01 ic	0.02 ic	---	13.57 s	---	---	---	---	---	13.60
9.90	6.284	1387.80	14.02 oc	0.01 ic	0.02 ic	---	13.55 s	---	---	---	---	---	13.57
10.00	6.408	1387.90	14.09 oc	0.01 ic	0.02 ic	---	13.95 s	---	---	---	---	---	13.98
10.10	6.533	1388.00	14.16 oc	0.01 ic	0.02 ic	---	13.71 s	---	---	---	---	---	13.74
10.20	6.671	1388.10	14.23 oc	0.01 ic	0.02 ic	---	14.10 s	---	---	---	---	---	14.13
10.30	6.810	1388.20	14.31 oc	0.01 ic	0.02 ic	---	13.75 s	---	---	---	---	---	13.78
10.40	6.948	1388.30	14.38 oc	0.01 ic	0.02 ic	---	14.30 s	---	---	---	---	---	14.32
10.50	7.087	1388.40	14.45 oc	0.01 ic	0.02 ic	---	14.04 s	---	---	---	---	---	14.07
10.60	7.225	1388.50	14.52 oc	0.01 ic	0.02 ic	---	14.40 s	---	---	---	---	---	14.43
10.70	7.364	1388.60	14.59 oc	0.01 ic	0.02 ic	---	13.82 s	---	---	---	---	---	13.84
10.80	7.502	1388.70	14.66 oc	0.01 ic	0.02 ic	---	14.16 s	---	---	---	---	---	14.19
10.90	7.640	1388.80	14.73 oc	0.01 ic	0.01 ic	---	13.65 s	---	---	---	---	---	13.67
11.00	7.779	1388.90	14.80 oc	0.01 ic	0.01 ic	---	13.97 s	---	---	---	---	---	13.99
11.10	7.917	1389.00	14.87 oc	0.01 ic	0.01 ic	---	14.29 s	---	---	---	---	---	14.31
11.20	8.070	1389.10	14.94 oc	0.01 ic	0.01 ic	---	14.61 s	---	---	---	---	---	14.63
11.30	8.222	1389.20	15.01 oc	0.01 ic	0.01 ic	---	14.94 s	---	---	---	---	---	14.96
11.40	8.375	1389.30	15.07 oc	0.00 ic	0.00 ic	---	0.00 s	---	---	---	---	---	15.07
11.50	8.527	1389.40	15.14 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.14
11.60	8.680	1389.50	15.21 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.21
11.70	8.832	1389.60	15.28 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.28
11.80	8.985	1389.70	15.34 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.34
11.90	9.137	1389.80	15.41 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.41
12.00	9.290	1389.90	15.48 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.48
12.10	9.442	1390.00	15.54 oc	0.00	0.00	---	0.00	---	---	---	---	---	15.54

...End

Pond Report

Pond No. 5 - Stoney Pointe P4

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 1374.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1374.90	00	0.000	0.000
0.10	1375.00	329	0.000	0.000
1.10	1376.00	2,306	0.027	0.027
2.10	1377.00	3,826	0.070	0.097
3.10	1378.00	5,783	0.110	0.206
4.10	1379.00	8,149	0.159	0.365
5.10	1380.00	10,950	0.218	0.584
6.10	1381.00	14,272	0.289	0.872
7.10	1382.00	17,864	0.368	1.240
8.10	1383.00	21,635	0.453	1.693
9.10	1384.00	2,557	0.242	1.935
10.10	1385.00	29,682	0.313	2.248

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 22.00	4.00	6.00	0.00
Span (in)	= 22.00	4.00	6.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1374.56	1374.90	1377.70	0.00
Length (ft)	= 50.00	0.50	0.50	0.00
Slope (%)	= 0.40	0.00	0.00	n/a
N-Value	= .013	.013	.013	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)	= 24.00	0.00	0.00	0.00
Crest El. (ft)	= 1380.80	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	---	---	---
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 acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	1374.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.01	0.000	1374.91	0.66 oc	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.000
0.02	0.000	1374.92	0.66 oc	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.001
0.03	0.000	1374.93	0.66 oc	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.002
0.04	0.000	1374.94	0.66 oc	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.004
0.05	0.000	1374.95	0.66 oc	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.006
0.06	0.000	1374.96	0.66 oc	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.009
0.07	0.000	1374.97	0.66 oc	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.012
0.08	0.000	1374.98	0.66 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.016
0.09	0.000	1374.99	0.66 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.020
0.10	0.000	1375.00	0.66 oc	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.024
0.20	0.003	1375.10	0.66 oc	0.08 ic	0.00	---	0.00	---	---	---	---	---	0.083
0.30	0.006	1375.20	0.66 oc	0.15 ic	0.00	---	0.00	---	---	---	---	---	0.154
0.40	0.008	1375.30	0.66 oc	0.20 ic	0.00	---	0.00	---	---	---	---	---	0.203
0.50	0.011	1375.40	0.66 oc	0.24 ic	0.00	---	0.00	---	---	---	---	---	0.243
0.60	0.014	1375.50	0.66 oc	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.277
0.70	0.016	1375.60	0.66 oc	0.31 ic	0.00	---	0.00	---	---	---	---	---	0.307
0.80	0.019	1375.70	0.66 oc	0.33 ic	0.00	---	0.00	---	---	---	---	---	0.334
0.90	0.022	1375.80	0.66 oc	0.36 ic	0.00	---	0.00	---	---	---	---	---	0.360
1.00	0.024	1375.90	0.66 oc	0.38 ic	0.00	---	0.00	---	---	---	---	---	0.384
1.10	0.027	1376.00	0.66 oc	0.41 ic	0.00	---	0.00	---	---	---	---	---	0.406
1.20	0.034	1376.10	0.66 oc	0.43 ic	0.00	---	0.00	---	---	---	---	---	0.427
1.30	0.041	1376.20	0.66 oc	0.45 ic	0.00	---	0.00	---	---	---	---	---	0.447
1.40	0.048	1376.30	0.66 oc	0.47 ic	0.00	---	0.00	---	---	---	---	---	0.467
1.50	0.055	1376.40	0.66 oc	0.49 ic	0.00	---	0.00	---	---	---	---	---	0.485
1.60	0.062	1376.50	0.66 oc	0.50 ic	0.00	---	0.00	---	---	---	---	---	0.503
1.70	0.069	1376.60	0.66 oc	0.52 ic	0.00	---	0.00	---	---	---	---	---	0.520
1.80	0.076	1376.70	0.66 oc	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.537
1.90	0.083	1376.80	0.66 oc	0.55 ic	0.00	---	0.00	---	---	---	---	---	0.553
2.00	0.090	1376.90	0.66 oc	0.57 ic	0.00	---	0.00	---	---	---	---	---	0.569
2.10	0.097	1377.00	0.66 oc	0.58 ic	0.00	---	0.00	---	---	---	---	---	0.584
2.20	0.108	1377.10	0.66 oc	0.60 ic	0.00	---	0.00	---	---	---	---	---	0.599
2.30	0.119	1377.20	0.66 oc	0.61 ic	0.00	---	0.00	---	---	---	---	---	0.614

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Stoney Pointe P4

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
2.40	0.130	1377.30	0.66 oc	0.63 ic	0.00	---	0.00	---	---	---	---	---	0.628
2.50	0.141	1377.40	0.66 oc	0.64 ic	0.00	---	0.00	---	---	---	---	---	0.642
2.60	0.151	1377.50	0.66 oc	0.66 ic	0.00	---	0.00	---	---	---	---	---	0.655
2.70	0.162	1377.60	0.70 oc	0.67 ic	0.00	---	0.00	---	---	---	---	---	0.669
2.80	0.173	1377.70	0.70 oc	0.68 ic	0.00	---	0.00	---	---	---	---	---	0.682
2.90	0.184	1377.80	0.74 oc	0.69 ic	0.03 ic	---	0.00	---	---	---	---	---	0.726
3.00	0.195	1377.90	0.82 oc	0.71 ic	0.11 ic	---	0.00	---	---	---	---	---	0.821
3.10	0.206	1378.00	0.96 oc	0.72 ic	0.23 ic	---	0.00	---	---	---	---	---	0.950
3.20	0.222	1378.10	1.10 oc	0.73 ic	0.36 ic	---	0.00	---	---	---	---	---	1.094
3.30	0.238	1378.20	1.26 oc	0.74 ic	0.47 ic	---	0.00	---	---	---	---	---	1.216
3.40	0.254	1378.30	1.37 oc	0.75 ic	0.56 ic	---	0.00	---	---	---	---	---	1.314
3.50	0.270	1378.40	1.42 oc	0.76 ic	0.63 ic	---	0.00	---	---	---	---	---	1.399
3.60	0.286	1378.50	1.48 oc	0.77 ic	0.70 ic	---	0.00	---	---	---	---	---	1.476
3.70	0.302	1378.60	1.60 oc	0.78 ic	0.76 ic	---	0.00	---	---	---	---	---	1.545
3.80	0.318	1378.70	1.66 oc	0.79 ic	0.82 ic	---	0.00	---	---	---	---	---	1.611
3.90	0.334	1378.80	1.72 oc	0.80 ic	0.87 ic	---	0.00	---	---	---	---	---	1.674
4.00	0.349	1378.90	1.78 oc	0.81 ic	0.92 ic	---	0.00	---	---	---	---	---	1.733
4.10	0.365	1379.00	1.84 oc	0.82 ic	0.97 ic	---	0.00	---	---	---	---	---	1.790
4.20	0.387	1379.10	1.90 oc	0.83 ic	1.01 ic	---	0.00	---	---	---	---	---	1.844
4.30	0.409	1379.20	1.90 oc	0.84 ic	1.06 ic	---	0.00	---	---	---	---	---	1.898
4.40	0.431	1379.30	1.97 oc	0.85 ic	1.10 ic	---	0.00	---	---	---	---	---	1.948
4.50	0.453	1379.40	2.03 oc	0.86 ic	1.14 ic	---	0.00	---	---	---	---	---	1.997
4.60	0.475	1379.50	2.10 oc	0.87 ic	1.18 ic	---	0.00	---	---	---	---	---	2.045
4.70	0.496	1379.60	2.10 oc	0.88 ic	1.21 ic	---	0.00	---	---	---	---	---	2.092
4.80	0.518	1379.70	2.16 oc	0.89 ic	1.25 ic	---	0.00	---	---	---	---	---	2.137
4.90	0.540	1379.80	2.23 oc	0.89 ic	1.29 ic	---	0.00	---	---	---	---	---	2.181
5.00	0.562	1379.90	2.23 oc	0.90 ic	1.32 ic	---	0.00	---	---	---	---	---	2.225
5.10	0.584	1380.00	2.30 oc	0.91 ic	1.35 ic	---	0.00	---	---	---	---	---	2.267
5.20	0.613	1380.10	2.36 oc	0.92 ic	1.39 ic	---	0.00	---	---	---	---	---	2.307
5.30	0.642	1380.20	2.36 oc	0.93 ic	1.42 ic	---	0.00	---	---	---	---	---	2.349
5.40	0.670	1380.30	2.43 oc	0.94 ic	1.45 ic	---	0.00	---	---	---	---	---	2.388
5.50	0.699	1380.40	2.43 oc	0.95 ic	1.48 ic	---	0.00	---	---	---	---	---	2.428
5.60	0.728	1380.50	2.50 oc	0.96 ic	1.51 ic	---	0.00	---	---	---	---	---	2.466
5.70	0.757	1380.60	2.57 oc	0.96 ic	1.54 ic	---	0.00	---	---	---	---	---	2.503
5.80	0.786	1380.70	2.57 oc	0.97 ic	1.57 ic	---	0.00	---	---	---	---	---	2.541
5.90	0.815	1380.80	2.64 oc	0.98 ic	1.60 ic	---	0.00	---	---	---	---	---	2.577
6.00	0.844	1380.90	5.11 oc	0.94 ic	1.62 ic	---	2.53	---	---	---	---	---	5.093
6.10	0.872	1381.00	9.67 oc	0.88 ic	1.65 ic	---	7.15	---	---	---	---	---	9.673
6.20	0.909	1381.10	15.62 oc	0.81 ic	1.68 ic	---	13.13	---	---	---	---	---	15.61
6.30	0.946	1381.20	22.39 oc	0.67 ic	1.51 ic	---	20.21	---	---	---	---	---	22.39
6.40	0.983	1381.30	29.25 ic	0.31 ic	0.69 ic	---	28.26	---	---	---	---	---	29.25
6.50	1.020	1381.40	30.27 ic	0.21 ic	0.47 ic	---	29.59 s	---	---	---	---	---	30.27
6.60	1.056	1381.50	30.78 ic	0.17 ic	0.38 ic	---	30.23 s	---	---	---	---	---	30.77
6.70	1.093	1381.60	31.17 ic	0.14 ic	0.31 ic	---	30.70 s	---	---	---	---	---	31.16
6.80	1.130	1381.70	31.50 ic	0.12 ic	0.27 ic	---	31.10 s	---	---	---	---	---	31.49
6.90	1.167	1381.80	31.81 ic	0.10 ic	0.23 ic	---	31.46 s	---	---	---	---	---	31.79
7.00	1.204	1381.90	32.09 ic	0.09 ic	0.20 ic	---	31.79 s	---	---	---	---	---	32.09
7.10	1.240	1382.00	32.37 ic	0.08 ic	0.18 ic	---	32.08 s	---	---	---	---	---	32.34
7.20	1.286	1382.10	32.63 ic	0.07 ic	0.16 ic	---	32.36 s	---	---	---	---	---	32.59
7.30	1.331	1382.20	32.89 ic	0.07 ic	0.15 ic	---	32.67 s	---	---	---	---	---	32.89
7.40	1.376	1382.30	33.15 ic	0.06 ic	0.14 ic	---	32.93 s	---	---	---	---	---	33.13
7.50	1.422	1382.40	33.40 ic	0.06 ic	0.13 ic	---	33.22 s	---	---	---	---	---	33.40
7.60	1.467	1382.50	33.64 ic	0.05 ic	0.12 ic	---	33.46 s	---	---	---	---	---	33.62
7.70	1.512	1382.60	33.89 ic	0.05 ic	0.11 ic	---	33.69 s	---	---	---	---	---	33.85
7.80	1.557	1382.70	34.13 ic	0.04 ic	0.10 ic	---	33.95 s	---	---	---	---	---	34.10
7.90	1.603	1382.80	34.37 ic	0.04 ic	0.09 ic	---	34.12 s	---	---	---	---	---	34.26
8.00	1.648	1382.90	34.61 ic	0.04 ic	0.09 ic	---	34.46 s	---	---	---	---	---	34.59
8.10	1.693	1383.00	34.84 ic	0.04 ic	0.08 ic	---	34.68 s	---	---	---	---	---	34.80
8.20	1.717	1383.10	35.07 ic	0.03 ic	0.08 ic	---	34.81 s	---	---	---	---	---	34.92
8.30	1.742	1383.20	35.31 ic	0.03 ic	0.07 ic	---	35.03 s	---	---	---	---	---	35.13
8.40	1.766	1383.30	35.53 ic	0.03 ic	0.07 ic	---	35.36 s	---	---	---	---	---	35.46
8.50	1.790	1383.40	35.76 ic	0.03 ic	0.07 ic	---	35.44 s	---	---	---	---	---	35.54
8.60	1.814	1383.50	35.99 ic	0.03 ic	0.06 ic	---	35.82 s	---	---	---	---	---	35.91
8.70	1.838	1383.60	36.21 ic	0.03 ic	0.06 ic	---	36.11 s	---	---	---	---	---	36.20
8.80	1.863	1383.70	36.44 ic	0.03 ic	0.06 ic	---	36.16 s	---	---	---	---	---	36.25
8.90	1.887	1383.80	36.66 ic	0.03 ic	0.06 ic	---	36.50 s	---	---	---	---	---	36.59
9.00	1.911	1383.90	36.88 ic	0.02 ic	0.05 ic	---	36.72 s	---	---	---	---	---	36.80
9.10	1.935	1384.00	37.10 ic	0.02 ic	0.05 ic	---	36.69 s	---	---	---	---	---	36.77
9.20	1.966	1384.10	37.31 ic	0.02 ic	0.05 ic	---	36.99 s	---	---	---	---	---	37.06
9.30	1.998	1384.20	37.53 ic	0.02 ic	0.05 ic	---	37.18 s	---	---	---	---	---	37.25
9.40	2.029	1384.30	37.75 ic	0.02 ic	0.05 ic	---	37.52 s	---	---	---	---	---	37.59
9.50	2.060	1384.40	37.96 ic	0.02 ic	0.05 ic	---	37.49 s	---	---	---	---	---	37.55
9.60	2.092	1384.50	38.17 ic	0.02 ic	0.04 ic	---	37.99 s	---	---	---	---	---	38.06
9.70	2.123	1384.60	38.38 ic	0.02 ic	0.04 ic	---	37.72 s	---	---	---	---	---	37.78

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Stoney Pointe P4

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
9.80	2.154	1384.70	38.59 ic	0.02 ic	0.04 ic	---	38.06 s	---	---	---	---	---	38.12
9.90	2.186	1384.80	38.80 ic	0.02 ic	0.04 ic	---	38.52 s	---	---	---	---	---	38.58
10.00	2.217	1384.90	39.01 ic	0.02 ic	0.04 ic	---	38.94 s	---	---	---	---	---	39.00
10.10	2.248	1385.00	39.22 ic	0.02 ic	0.04 ic	---	39.10 s	---	---	---	---	---	39.15
...End													

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 10

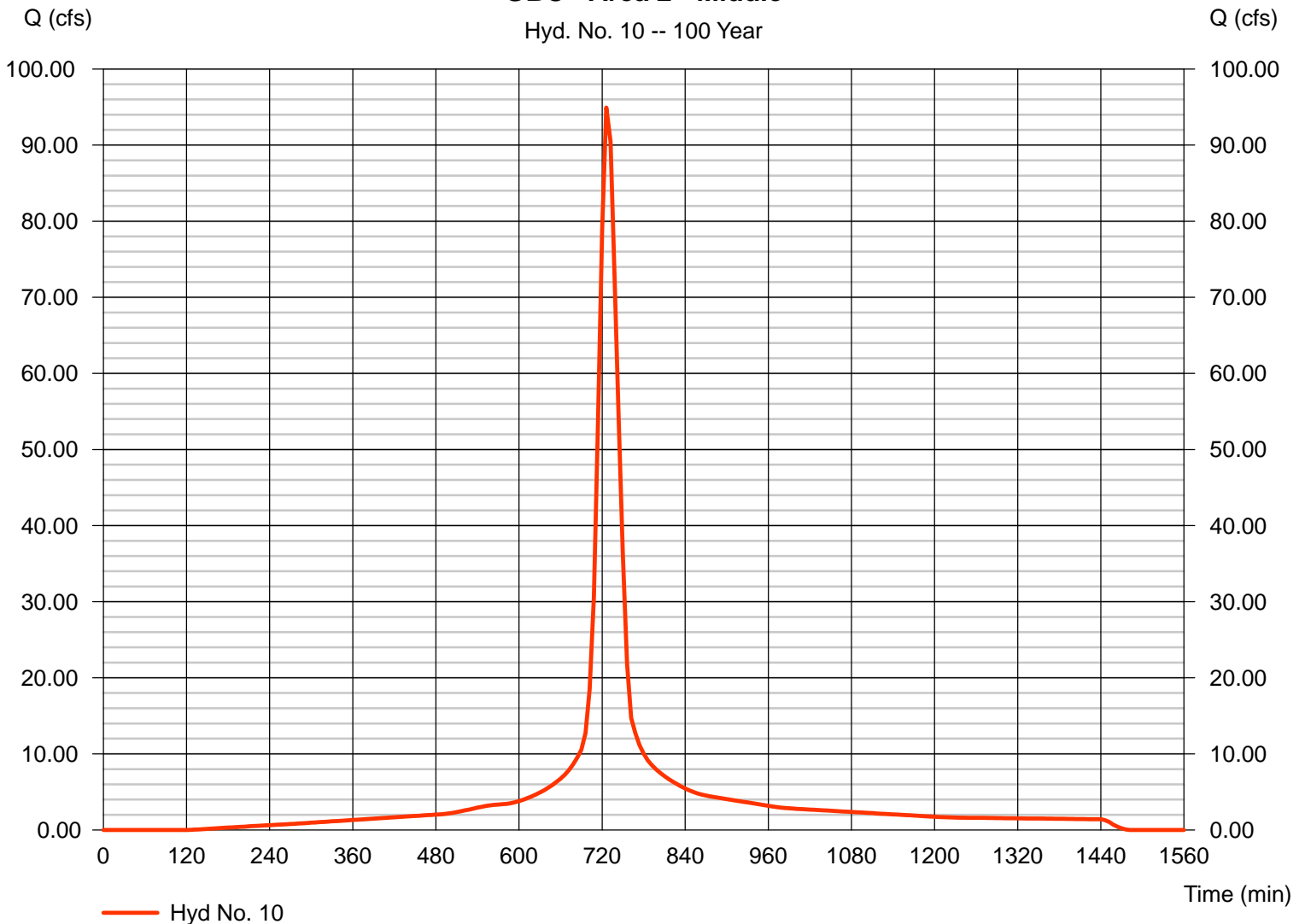
GBC - Area 2 - Middle

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 6 min
 Drainage area = 16.200 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.80 in
 Storm duration = 24 hrs

Peak discharge = 94.93 cfs
 Time to peak = 726 min
 Hyd. volume = 9.402 acft
 Curve number = 93
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 29.00 min
 Distribution = Type II
 Shape factor = 484

GBC - Area 2 - Middle

Hyd. No. 10 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 11

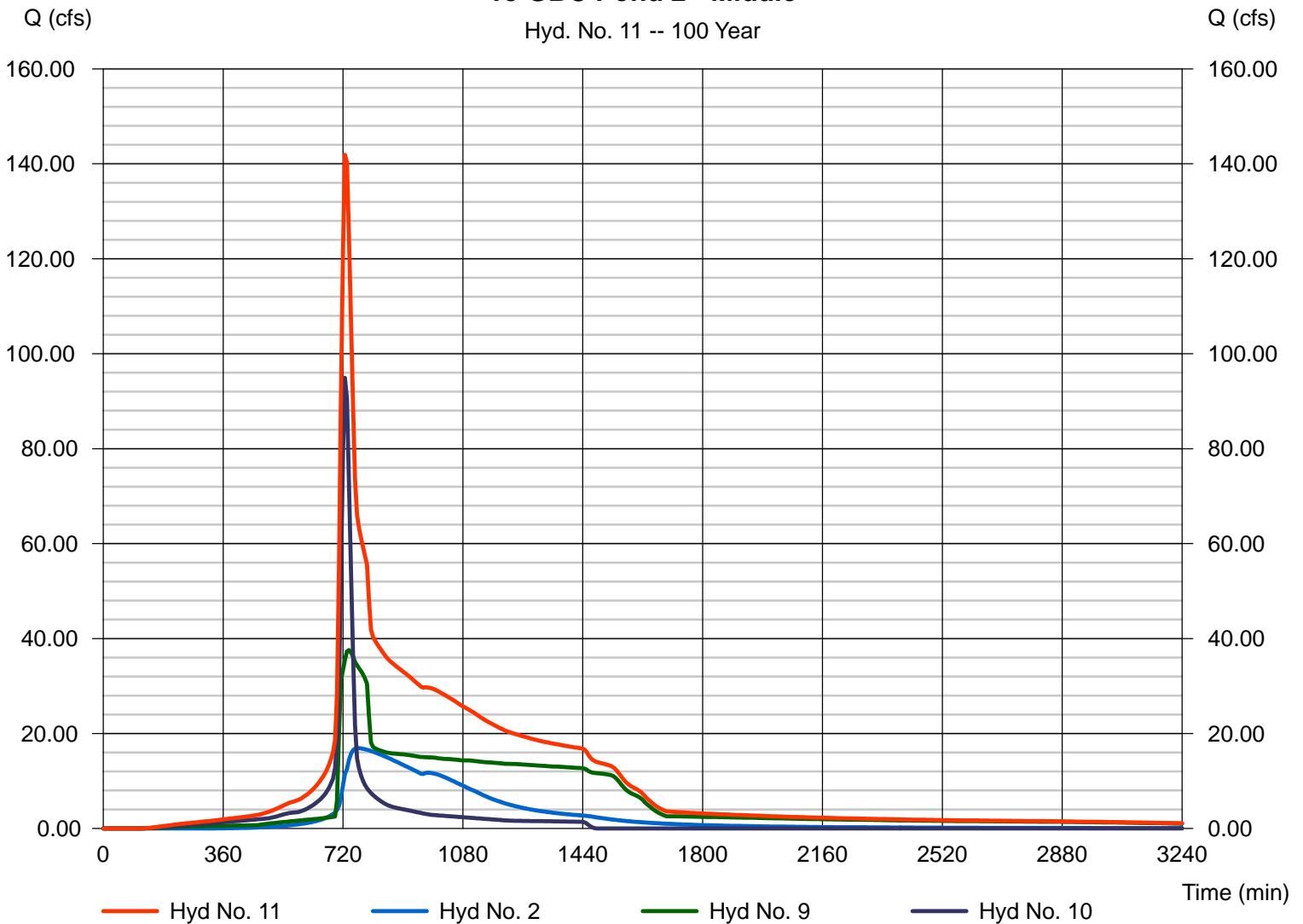
To GBC Pond 2 - Middle

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 6 min
Inflow hyds. = 2, 9, 10

Peak discharge = 141.91 cfs
Time to peak = 726 min
Hyd. volume = 45.696 acft
Contrib. drain. area = 16.200 ac

To GBC Pond 2 - Middle

Hyd. No. 11 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 12

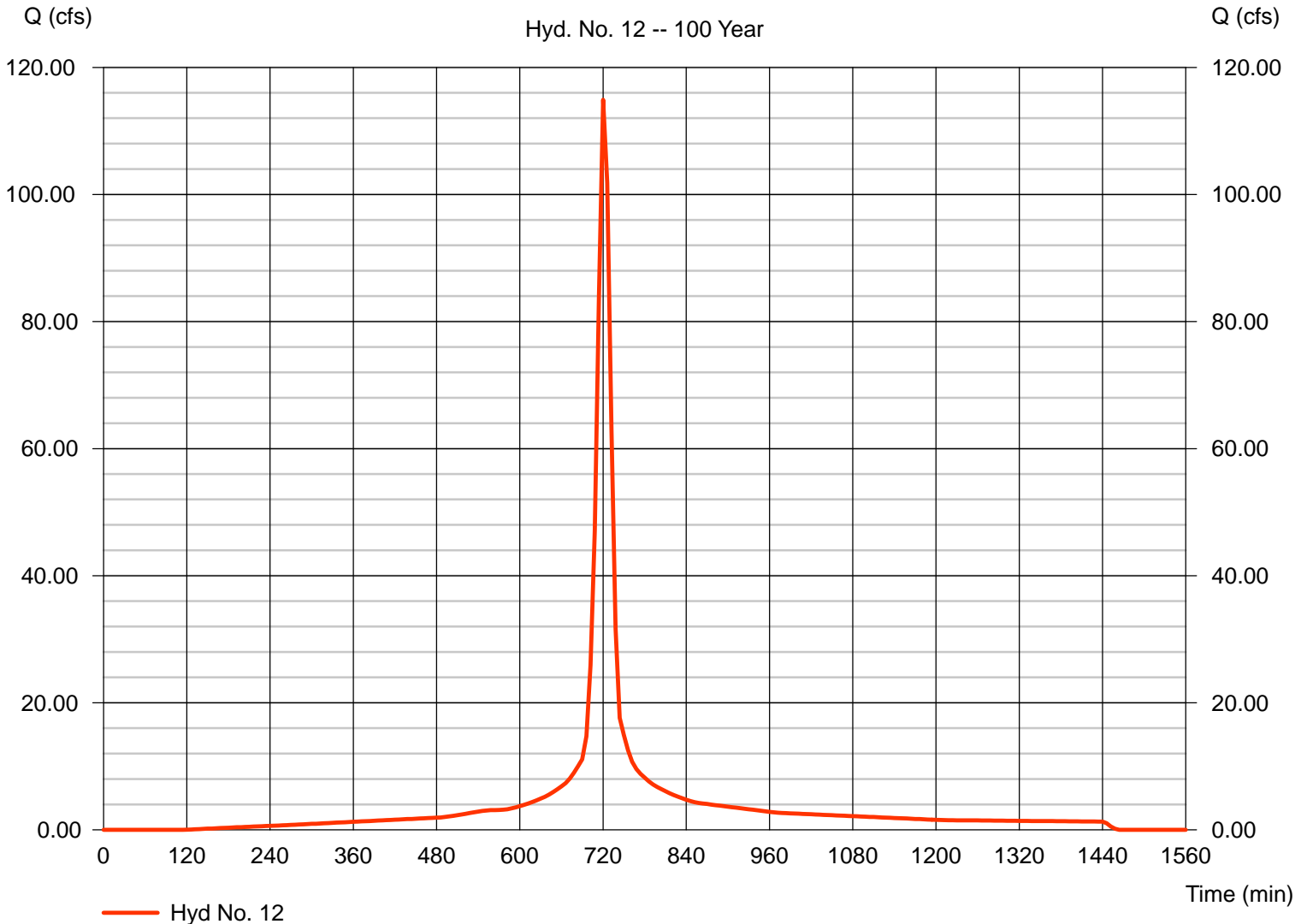
GBC - Area 3 - South

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 6 min
 Drainage area = 16.000 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 7.80 in
 Storm duration = 24 hrs

Peak discharge = 114.90 cfs
 Time to peak = 720 min
 Hyd. volume = 8.705 acft
 Curve number = 93
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 10.00 min
 Distribution = Type II
 Shape factor = 484

GBC - Area 3 - South

Hyd. No. 12 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 13

GBC Pond 3 - South

Hydrograph type = Reservoir (Interconnected)
 Storm frequency = 100 yrs
 Time interval = 6 min

Peak discharge = 34.58 cfs
 Time to peak = 954 min
 Hyd. volume = 52.342 acft

Upper Pond

Pond name = GBC Pond 2 - Middle
 Inflow hyd. = 11 - To GBC Pond 2 - Middle
 Max. Elevation = 1381.61 ft
 Max. Storage = 13.964 acft

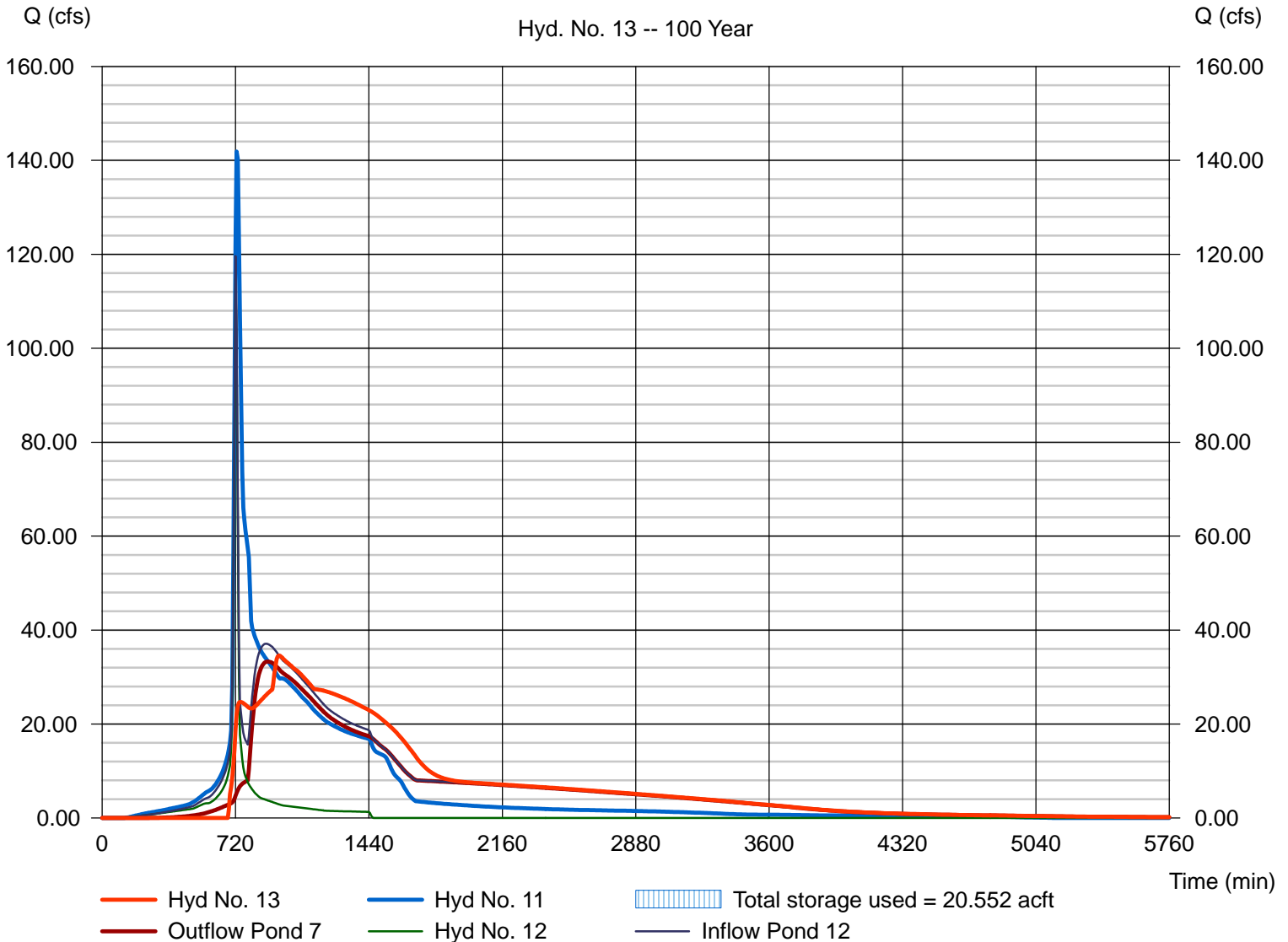
Lower Pond

Pond name = GBC 3 - South - Existing
 Other Inflow hyd. = 12 - GBC - Area
 Max. Elevation = 1381.74 ft
 Max. Storage = 6.588 acft

Interconnected Pond Routing. Storage Indication method used.

GBC Pond 3 - South

Hyd. No. 13 -- 100 Year



Pond No. 7 - GBC Pond 2 - Middle

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1376.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1376.00	80,284	0.000	0.000
1.00	1377.00	91,270	1.968	1.968
2.00	1378.00	100,541	2.201	4.168
3.00	1379.00	110,063	2.416	6.585
4.00	1380.00	119,832	2.638	9.222
5.00	1381.00	129,933	2.866	12.088
6.00	1382.00	140,247	3.100	15.188
7.00	1383.00	145,000	3.274	18.462

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	12.00	0.00	0.00
Span (in)	= 24.00	12.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1371.00	1376.00	0.00	0.00
Length (ft)	= 74.10	30.00	0.00	0.00
Slope (%)	= 2.90	0.10	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	45.00	0.00	0.00
Crest El. (ft)	= 1381.00	1381.90	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	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 acft	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	0.000	1376.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.10	0.197	1376.10	30.25 ic	0.04 ic	---	---	0.00	0.00	---	---	---	---	0.044
0.20	0.394	1376.20	30.25 ic	0.18 ic	---	---	0.00	0.00	---	---	---	---	0.178
0.30	0.590	1376.30	30.25 ic	0.37 ic	---	---	0.00	0.00	---	---	---	---	0.372
0.40	0.787	1376.40	30.25 ic	0.65 ic	---	---	0.00	0.00	---	---	---	---	0.645
0.50	0.984	1376.50	30.25 ic	0.95 ic	---	---	0.00	0.00	---	---	---	---	0.945
0.60	1.181	1376.60	30.25 ic	1.30 ic	---	---	0.00	0.00	---	---	---	---	1.301
0.70	1.377	1376.70	30.25 ic	1.69 ic	---	---	0.00	0.00	---	---	---	---	1.688
0.80	1.574	1376.80	30.25 ic	2.05 ic	---	---	0.00	0.00	---	---	---	---	2.052
0.90	1.771	1376.90	30.25 ic	2.41 ic	---	---	0.00	0.00	---	---	---	---	2.413
1.00	1.968	1377.00	30.25 ic	2.67 ic	---	---	0.00	0.00	---	---	---	---	2.674
1.10	2.188	1377.10	30.25 ic	2.93 ic	---	---	0.00	0.00	---	---	---	---	2.929
1.20	2.408	1377.20	30.25 ic	3.16 ic	---	---	0.00	0.00	---	---	---	---	3.163
1.30	2.628	1377.30	30.25 ic	3.38 ic	---	---	0.00	0.00	---	---	---	---	3.382
1.40	2.848	1377.40	30.25 ic	3.59 ic	---	---	0.00	0.00	---	---	---	---	3.587
1.50	3.068	1377.50	30.25 ic	3.78 ic	---	---	0.00	0.00	---	---	---	---	3.781
1.60	3.288	1377.60	30.25 ic	3.97 ic	---	---	0.00	0.00	---	---	---	---	3.966
1.70	3.508	1377.70	30.25 ic	4.14 ic	---	---	0.00	0.00	---	---	---	---	4.142
1.80	3.728	1377.80	30.25 ic	4.31 ic	---	---	0.00	0.00	---	---	---	---	4.311
1.90	3.948	1377.90	30.25 ic	4.47 ic	---	---	0.00	0.00	---	---	---	---	4.474
2.00	4.168	1378.00	30.25 ic	4.63 ic	---	---	0.00	0.00	---	---	---	---	4.631
2.10	4.410	1378.10	30.25 ic	4.78 ic	---	---	0.00	0.00	---	---	---	---	4.783
2.20	4.652	1378.20	30.25 ic	4.93 ic	---	---	0.00	0.00	---	---	---	---	4.930
2.30	4.893	1378.30	30.25 ic	5.07 ic	---	---	0.00	0.00	---	---	---	---	5.073
2.40	5.135	1378.40	30.25 ic	5.21 ic	---	---	0.00	0.00	---	---	---	---	5.212
2.50	5.376	1378.50	30.25 ic	5.35 ic	---	---	0.00	0.00	---	---	---	---	5.347
2.60	5.618	1378.60	30.25 ic	5.48 ic	---	---	0.00	0.00	---	---	---	---	5.479
2.70	5.860	1378.70	30.25 ic	5.61 ic	---	---	0.00	0.00	---	---	---	---	5.608
2.80	6.101	1378.80	30.25 ic	5.73 ic	---	---	0.00	0.00	---	---	---	---	5.735
2.90	6.343	1378.90	30.25 ic	5.86 ic	---	---	0.00	0.00	---	---	---	---	5.858
3.00	6.585	1379.00	30.25 ic	5.98 ic	---	---	0.00	0.00	---	---	---	---	5.979
3.10	6.848	1379.10	30.25 ic	6.10 ic	---	---	0.00	0.00	---	---	---	---	6.097
3.20	7.112	1379.20	30.25 ic	6.21 ic	---	---	0.00	0.00	---	---	---	---	6.213
3.30	7.376	1379.30	30.25 ic	6.33 ic	---	---	0.00	0.00	---	---	---	---	6.327
3.40	7.640	1379.40	30.25 ic	6.44 ic	---	---	0.00	0.00	---	---	---	---	6.439
3.50	7.903	1379.50	30.25 ic	6.55 ic	---	---	0.00	0.00	---	---	---	---	6.549
3.60	8.167	1379.60	30.25 ic	6.66 ic	---	---	0.00	0.00	---	---	---	---	6.657

Continues on next page...

GBC Pond 2 - Middle

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
3.70	8.431	1379.70	30.25 ic	6.76 ic	---	---	0.00	0.00	---	---	---	---	6.764
3.80	8.695	1379.80	30.25 ic	6.87 ic	---	---	0.00	0.00	---	---	---	---	6.869
3.90	8.959	1379.90	30.25 ic	6.97 ic	---	---	0.00	0.00	---	---	---	---	6.972
4.00	9.222	1380.00	30.25 ic	7.07 ic	---	---	0.00	0.00	---	---	---	---	7.074
4.10	9.509	1380.10	30.25 ic	7.17 ic	---	---	0.00	0.00	---	---	---	---	7.174
4.20	9.796	1380.20	30.25 ic	7.27 ic	---	---	0.00	0.00	---	---	---	---	7.273
4.30	10.082	1380.30	30.25 ic	7.37 ic	---	---	0.00	0.00	---	---	---	---	7.371
4.40	10.369	1380.40	30.25 ic	7.47 ic	---	---	0.00	0.00	---	---	---	---	7.467
4.50	10.655	1380.50	30.25 ic	7.56 ic	---	---	0.00	0.00	---	---	---	---	7.562
4.60	10.942	1380.60	30.25 ic	7.66 ic	---	---	0.00	0.00	---	---	---	---	7.656
4.70	11.228	1380.70	30.25 ic	7.75 ic	---	---	0.00	0.00	---	---	---	---	7.749
4.80	11.515	1380.80	30.25 ic	7.84 ic	---	---	0.00	0.00	---	---	---	---	7.841
4.90	11.802	1380.90	30.25 ic	7.93 ic	---	---	0.00	0.00	---	---	---	---	7.932
5.00	12.088	1381.00	30.25 ic	8.02 ic	---	---	0.00	0.00	---	---	---	---	8.021
5.10	12.398	1381.10	30.25 ic	8.11 ic	---	---	1.68	0.00	---	---	---	---	9.794
5.20	12.708	1381.20	30.25 ic	8.20 ic	---	---	4.76	0.00	---	---	---	---	12.96
5.30	13.018	1381.30	30.25 ic	8.28 ic	---	---	8.76	0.00	---	---	---	---	17.04
5.40	13.328	1381.40	30.25 ic	8.37 ic	---	---	13.48	0.00	---	---	---	---	21.85
5.50	13.638	1381.50	30.25 ic	8.46 ic	---	---	18.84	0.00	---	---	---	---	27.29
5.60	13.948	1381.60	33.06 ic	8.30 ic	---	---	24.76	0.00	---	---	---	---	33.06
5.70	14.258	1381.70	38.12 ic	6.92 ic	---	---	31.20	0.00	---	---	---	---	38.12
5.80	14.568	1381.80	43.05 ic	4.93 ic	---	---	38.13	0.00	---	---	---	---	43.05
5.90	14.878	1381.90	45.98 ic	3.06 ic	---	---	42.92 s	0.00	---	---	---	---	45.98
6.00	15.188	1382.00	46.70 ic	2.59 ic	---	---	44.11 s	3.70	---	---	---	---	50.39
6.10	15.516	1382.10	47.21 ic	2.26 ic	---	---	44.95 s	10.46	---	---	---	---	57.67
6.20	15.843	1382.20	47.64 ic	2.00 ic	---	---	45.63 s	19.22	---	---	---	---	66.85
6.30	16.170	1382.30	48.01 ic	1.80 ic	---	---	46.21 s	29.60	---	---	---	---	77.60
6.40	16.498	1382.40	48.34 ic	1.63 ic	---	---	46.71 s	41.37	---	---	---	---	89.70
6.50	16.825	1382.50	48.65 ic	1.48 ic	---	---	47.16 s	54.37	---	---	---	---	103.02
6.60	17.153	1382.60	48.94 ic	1.36 ic	---	---	47.56 s	68.52	---	---	---	---	117.44
6.70	17.480	1382.70	49.22 ic	1.26 ic	---	---	47.96 s	83.71	---	---	---	---	132.92
6.80	17.807	1382.80	49.49 ic	1.17 ic	---	---	48.30 s	99.90	---	---	---	---	149.37
6.90	18.135	1382.90	49.74 ic	1.09 ic	---	---	48.63 s	117.00	---	---	---	---	166.72
7.00	18.462	1383.00	50.00 ic	1.02 ic	---	---	48.97 s	134.98	---	---	---	---	184.97

...End

Pond No. 12 - GBC 3 - South - Existing

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 1371.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1371.90	15,528	0.000	0.000
0.60	1372.50	17,928	0.230	0.230
1.60	1373.50	20,689	0.443	0.673
2.60	1374.50	23,584	0.508	1.181
3.60	1375.50	24,969	0.557	1.738
4.60	1376.50	27,506	0.602	2.340
5.60	1377.50	30,151	0.662	3.002
6.60	1378.50	32,506	0.719	3.720
7.60	1379.50	35,000	0.775	4.495
8.60	1380.50	40,000	0.860	5.355
9.60	1381.50	45,000	0.975	6.330
10.60	1382.50	50,000	1.090	7.420

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	6.00	0.00	0.00
Span (in)	= 15.00	1371.90	0.00	0.00
No. Barrels	= 2	1	0	0
Invert El. (ft)	= 1370.70	1371.90	0.00	0.00
Length (ft)	= 60.30	0.00	0.00	0.00
Slope (%)	= 0.67	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	50.00	0.00	0.00
Crest El. (ft)	= 1372.90	1381.60	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000	(by Wet area)		
TW Elev. (ft)	= 1376.00			

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 acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	1371.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.06	0.023	1371.96	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.12	0.046	1372.02	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.18	0.069	1372.08	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.24	0.092	1372.14	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.30	0.115	1372.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.36	0.138	1372.26	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.42	0.161	1372.32	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.48	0.184	1372.38	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.54	0.207	1372.44	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.60	0.230	1372.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.70	0.274	1372.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.80	0.319	1372.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.90	0.363	1372.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.00	0.407	1372.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.10	0.452	1373.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.20	0.496	1373.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.30	0.540	1373.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.40	0.584	1373.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.50	0.629	1373.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.60	0.673	1373.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.70	0.724	1373.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.80	0.775	1373.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.90	0.825	1373.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.00	0.876	1373.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.10	0.927	1374.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.20	0.978	1374.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.30	1.028	1374.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.40	1.079	1374.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.50	1.130	1374.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.60	1.181	1374.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.70	1.237	1374.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.80	1.292	1374.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000

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GBC 3 - South - Existing

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
2.90	1.348	1374.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.00	1.404	1374.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.10	1.459	1375.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.20	1.515	1375.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.30	1.571	1375.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.40	1.627	1375.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.50	1.682	1375.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.60	1.738	1375.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	1.798	1375.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.80	1.858	1375.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.90	1.919	1375.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	1.979	1375.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.10	2.039	1376.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	2.099	1376.10	3.48 oc	0.00 ic	---	---	0.00 s	0.00	---	---	---	---	3.476
4.30	2.159	1376.20	5.18 oc	0.00	---	---	0.00	0.00	---	---	---	---	5.182
4.40	2.220	1376.30	6.35 oc	0.00	---	---	0.00	0.00	---	---	---	---	6.347
4.50	2.280	1376.40	7.33 oc	0.00	---	---	0.00	0.00	---	---	---	---	7.329
4.60	2.340	1376.50	8.19 oc	0.00	---	---	0.00	0.00	---	---	---	---	8.194
4.70	2.406	1376.60	8.98 oc	0.00	---	---	0.00	0.00	---	---	---	---	8.976
4.80	2.472	1376.70	9.69 oc	0.00	---	---	0.00	0.00	---	---	---	---	9.695
4.90	2.538	1376.80	10.36 oc	0.00	---	---	0.00	0.00	---	---	---	---	10.36
5.00	2.605	1376.90	10.99 oc	0.00	---	---	0.00	0.00	---	---	---	---	10.99
5.10	2.671	1377.00	11.59 oc	0.00	---	---	0.00	0.00	---	---	---	---	11.59
5.20	2.737	1377.10	12.15 oc	0.00	---	---	0.00	0.00	---	---	---	---	12.15
5.30	2.803	1377.20	12.69 oc	0.00	---	---	0.00	0.00	---	---	---	---	12.69
5.40	2.869	1377.30	13.21 oc	0.00	---	---	0.00	0.00	---	---	---	---	13.21
5.50	2.935	1377.40	13.71 oc	0.00	---	---	0.00	0.00	---	---	---	---	13.71
5.60	3.002	1377.50	14.19 oc	0.00	---	---	0.00	0.00	---	---	---	---	14.19
5.70	3.073	1377.60	14.66 oc	0.00	---	---	0.00	0.00	---	---	---	---	14.66
5.80	3.145	1377.70	15.11 oc	0.00	---	---	0.00	0.00	---	---	---	---	15.11
5.90	3.217	1377.80	15.55 oc	0.00	---	---	0.00	0.00	---	---	---	---	15.55
6.00	3.289	1377.90	15.97 oc	0.00	---	---	0.00	0.00	---	---	---	---	15.97
6.10	3.361	1378.00	16.39 oc	0.00	---	---	0.00	0.00	---	---	---	---	16.39
6.20	3.433	1378.10	16.79 oc	0.00	---	---	0.00	0.00	---	---	---	---	16.79
6.30	3.505	1378.20	17.19 oc	0.00	---	---	0.00	0.00	---	---	---	---	17.19
6.40	3.577	1378.30	17.57 oc	0.00	---	---	0.00	0.00	---	---	---	---	17.57
6.50	3.649	1378.40	17.95 oc	0.00	---	---	0.00	0.00	---	---	---	---	17.95
6.60	3.720	1378.50	18.32 oc	0.00	---	---	0.00	0.00	---	---	---	---	18.32
6.70	3.798	1378.60	18.68 oc	0.00	---	---	0.00	0.00	---	---	---	---	18.68
6.80	3.875	1378.70	19.04 oc	0.00	---	---	0.00	0.00	---	---	---	---	19.04
6.90	3.953	1378.80	19.39 oc	0.00	---	---	0.00	0.00	---	---	---	---	19.39
7.00	4.030	1378.90	19.73 oc	0.00	---	---	0.00	0.00	---	---	---	---	19.73
7.10	4.108	1379.00	20.07 oc	0.00	---	---	0.00	0.00	---	---	---	---	20.07
7.20	4.185	1379.10	20.40 oc	0.00	---	---	0.00	0.00	---	---	---	---	20.40
7.30	4.263	1379.20	20.73 oc	0.00	---	---	0.00	0.00	---	---	---	---	20.73
7.40	4.340	1379.30	21.05 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.05
7.50	4.418	1379.40	21.37 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.37
7.60	4.495	1379.50	21.68 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.68
7.70	4.581	1379.60	21.99 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.99
7.80	4.667	1379.70	22.29 oc	0.00	---	---	0.00	0.00	---	---	---	---	22.29
7.90	4.753	1379.80	22.59 oc	0.00	---	---	0.00	0.00	---	---	---	---	22.59
8.00	4.839	1379.90	22.88 oc	0.00	---	---	0.00	0.00	---	---	---	---	22.88
8.10	4.925	1380.00	23.18 oc	0.00	---	---	0.00	0.00	---	---	---	---	23.18
8.20	5.011	1380.10	23.46 oc	0.00	---	---	0.00	0.00	---	---	---	---	23.46
8.30	5.097	1380.20	23.75 oc	0.00	---	---	0.00	0.00	---	---	---	---	23.75
8.40	5.183	1380.30	24.03 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.03
8.50	5.269	1380.40	24.31 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.31
8.60	5.355	1380.50	24.58 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.58
8.70	5.453	1380.60	24.85 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.85
8.80	5.550	1380.70	25.12 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.12
8.90	5.648	1380.80	25.39 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.39
9.00	5.745	1380.90	25.65 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.65
9.10	5.843	1381.00	25.91 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.91
9.20	5.940	1381.10	26.17 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.17
9.30	6.038	1381.20	26.42 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.42
9.40	6.135	1381.30	26.68 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.68
9.50	6.233	1381.40	26.93 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.93
9.60	6.330	1381.50	27.18 oc	0.00	---	---	0.00	0.00	---	---	---	---	27.18
9.70	6.439	1381.60	27.42 oc	0.00	---	---	0.00	0.00	---	---	---	---	27.42
9.80	6.548	1381.70	27.67 oc	0.00	---	---	0.00	4.11	---	---	---	---	31.77
9.90	6.657	1381.80	27.91 oc	0.00	---	---	0.00	11.63	---	---	---	---	39.54
10.00	6.766	1381.90	28.15 oc	0.00	---	---	0.00	21.37	---	---	---	---	49.51
10.10	6.875	1382.00	28.38 oc	0.00	---	---	0.00	32.89	---	---	---	---	61.27
10.20	6.984	1382.10	28.62 oc	0.00	---	---	0.00	45.96	---	---	---	---	74.58

Continues on next page...

GBC 3 - South - Existing

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
10.30	7.093	1382.20	28.85 oc	0.00	---	---	0.00	60.41	---	---	---	---	89.27
10.40	7.202	1382.30	29.09 oc	0.00	---	---	0.00	76.15	---	---	---	---	105.23
10.50	7.311	1382.40	29.31 oc	0.00	---	---	0.00	93.03	---	---	---	---	122.34
10.60	7.420	1382.50	29.54 oc	0.00	---	---	0.00	111.00	---	---	---	---	140.54
...End													

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 15

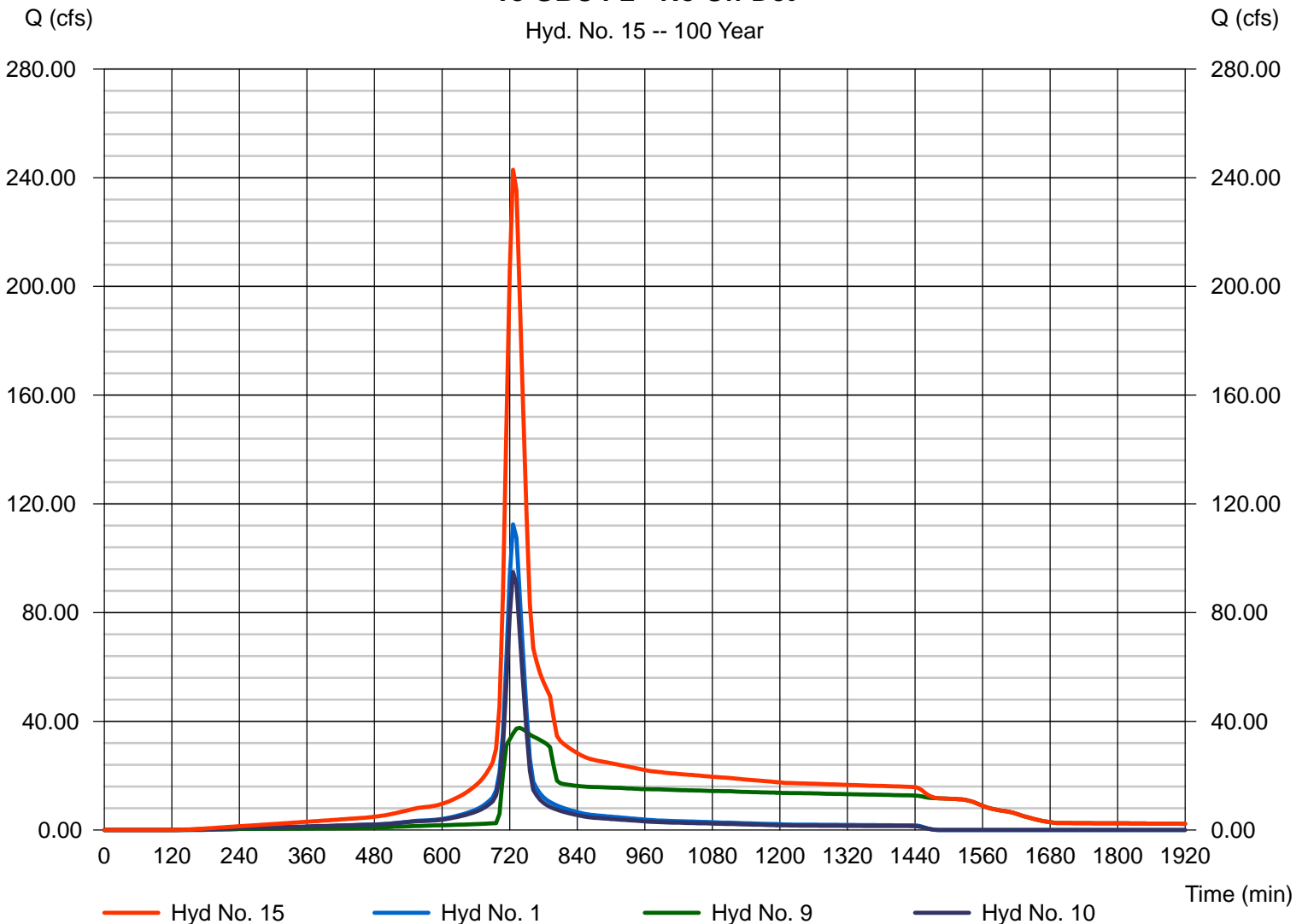
To GBC P2 - No Off Det

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Time interval = 6 min
 Inflow hyds. = 1, 9, 10

Peak discharge = 242.91 cfs
 Time to peak = 726 min
 Hyd. volume = 45.714 acft
 Contrib. drain. area = 36.000 ac

To GBC P2 - No Off Det

Hyd. No. 15 -- 100 Year



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Aug 27, 2014

Hyd. No. 16

GBC P3 - No Off Det

Hydrograph type = Reservoir (Interconnected)
 Storm frequency = 100 yrs
 Time interval = 6 min

Peak discharge = 58.53 cfs
 Time to peak = 792 min
 Hyd. volume = 52.374 acft

Upper Pond

Pond name = GBC Pond 2 - Middle
 Inflow hyd. = 15 - To GBC P2 - No Off Det
 Max. Elevation = 1382.02 ft
 Max. Storage = 15.265 acft

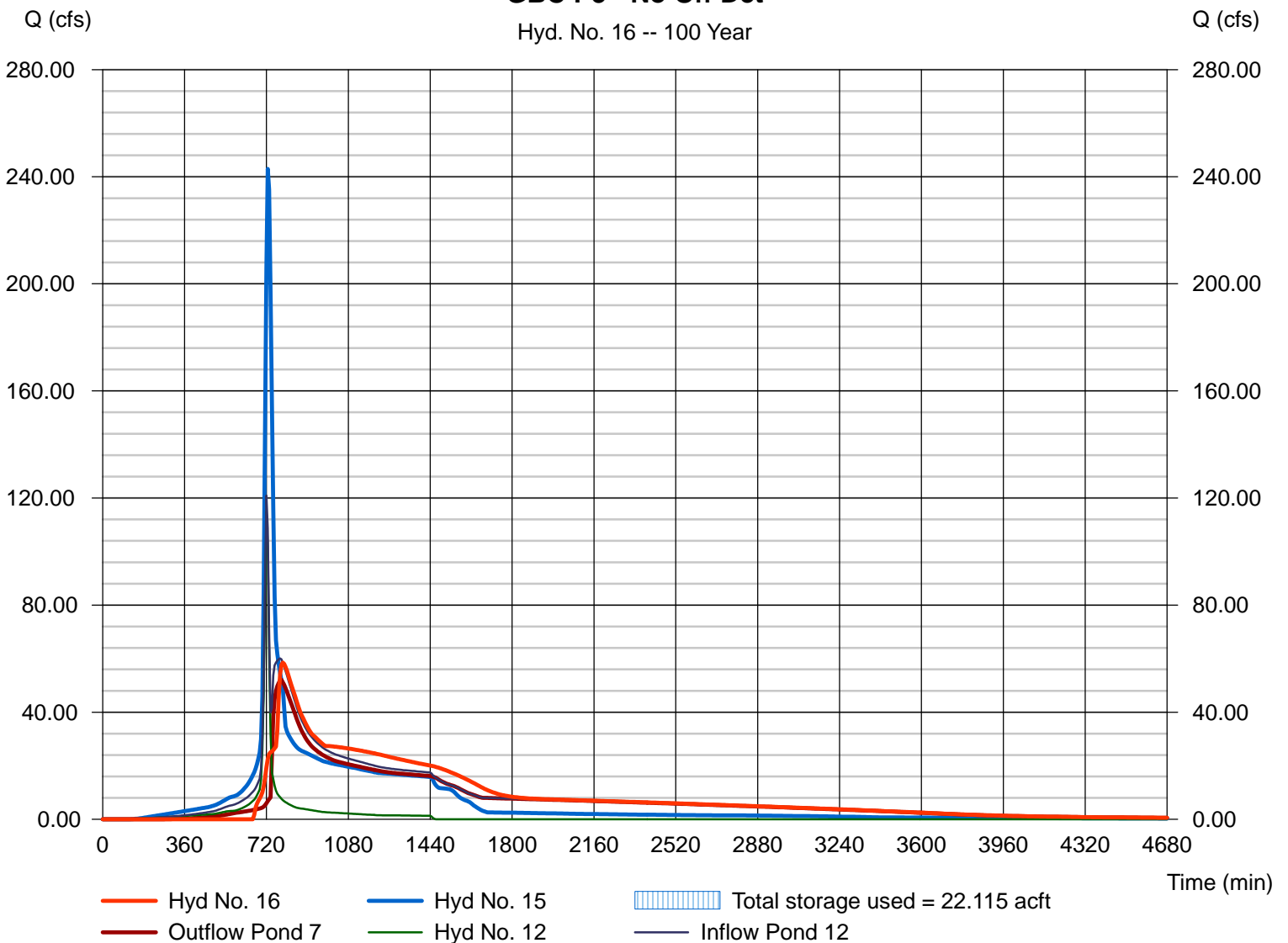
Lower Pond

Pond name = GBC 3 - South - Existing
 Other Inflow hyd. = 12 - GBC - Area
 Max. Elevation = 1381.98 ft
 Max. Storage = 6.850 acft

Interconnected Pond Routing. Storage Indication method used.

GBC P3 - No Off Det

Hyd. No. 16 -- 100 Year



Pond No. 7 - GBC Pond 2 - Middle

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1376.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1376.00	80,284	0.000	0.000
1.00	1377.00	91,270	1.968	1.968
2.00	1378.00	100,541	2.201	4.168
3.00	1379.00	110,063	2.416	6.585
4.00	1380.00	119,832	2.638	9.222
5.00	1381.00	129,933	2.866	12.088
6.00	1382.00	140,247	3.100	15.188
7.00	1383.00	145,000	3.274	18.462

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	12.00	0.00	0.00
Span (in)	= 24.00	12.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1371.00	1376.00	0.00	0.00
Length (ft)	= 74.10	30.00	0.00	0.00
Slope (%)	= 2.90	0.10	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	45.00	0.00	0.00
Crest El. (ft)	= 1381.00	1381.90	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	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 acft	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	0.000	1376.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.10	0.197	1376.10	30.25 ic	0.04 ic	---	---	0.00	0.00	---	---	---	---	0.044
0.20	0.394	1376.20	30.25 ic	0.18 ic	---	---	0.00	0.00	---	---	---	---	0.178
0.30	0.590	1376.30	30.25 ic	0.37 ic	---	---	0.00	0.00	---	---	---	---	0.372
0.40	0.787	1376.40	30.25 ic	0.65 ic	---	---	0.00	0.00	---	---	---	---	0.645
0.50	0.984	1376.50	30.25 ic	0.95 ic	---	---	0.00	0.00	---	---	---	---	0.945
0.60	1.181	1376.60	30.25 ic	1.30 ic	---	---	0.00	0.00	---	---	---	---	1.301
0.70	1.377	1376.70	30.25 ic	1.69 ic	---	---	0.00	0.00	---	---	---	---	1.688
0.80	1.574	1376.80	30.25 ic	2.05 ic	---	---	0.00	0.00	---	---	---	---	2.052
0.90	1.771	1376.90	30.25 ic	2.41 ic	---	---	0.00	0.00	---	---	---	---	2.413
1.00	1.968	1377.00	30.25 ic	2.67 ic	---	---	0.00	0.00	---	---	---	---	2.674
1.10	2.188	1377.10	30.25 ic	2.93 ic	---	---	0.00	0.00	---	---	---	---	2.929
1.20	2.408	1377.20	30.25 ic	3.16 ic	---	---	0.00	0.00	---	---	---	---	3.163
1.30	2.628	1377.30	30.25 ic	3.38 ic	---	---	0.00	0.00	---	---	---	---	3.382
1.40	2.848	1377.40	30.25 ic	3.59 ic	---	---	0.00	0.00	---	---	---	---	3.587
1.50	3.068	1377.50	30.25 ic	3.78 ic	---	---	0.00	0.00	---	---	---	---	3.781
1.60	3.288	1377.60	30.25 ic	3.97 ic	---	---	0.00	0.00	---	---	---	---	3.966
1.70	3.508	1377.70	30.25 ic	4.14 ic	---	---	0.00	0.00	---	---	---	---	4.142
1.80	3.728	1377.80	30.25 ic	4.31 ic	---	---	0.00	0.00	---	---	---	---	4.311
1.90	3.948	1377.90	30.25 ic	4.47 ic	---	---	0.00	0.00	---	---	---	---	4.474
2.00	4.168	1378.00	30.25 ic	4.63 ic	---	---	0.00	0.00	---	---	---	---	4.631
2.10	4.410	1378.10	30.25 ic	4.78 ic	---	---	0.00	0.00	---	---	---	---	4.783
2.20	4.652	1378.20	30.25 ic	4.93 ic	---	---	0.00	0.00	---	---	---	---	4.930
2.30	4.893	1378.30	30.25 ic	5.07 ic	---	---	0.00	0.00	---	---	---	---	5.073
2.40	5.135	1378.40	30.25 ic	5.21 ic	---	---	0.00	0.00	---	---	---	---	5.212
2.50	5.376	1378.50	30.25 ic	5.35 ic	---	---	0.00	0.00	---	---	---	---	5.347
2.60	5.618	1378.60	30.25 ic	5.48 ic	---	---	0.00	0.00	---	---	---	---	5.479
2.70	5.860	1378.70	30.25 ic	5.61 ic	---	---	0.00	0.00	---	---	---	---	5.608
2.80	6.101	1378.80	30.25 ic	5.73 ic	---	---	0.00	0.00	---	---	---	---	5.735
2.90	6.343	1378.90	30.25 ic	5.86 ic	---	---	0.00	0.00	---	---	---	---	5.858
3.00	6.585	1379.00	30.25 ic	5.98 ic	---	---	0.00	0.00	---	---	---	---	5.979
3.10	6.848	1379.10	30.25 ic	6.10 ic	---	---	0.00	0.00	---	---	---	---	6.097
3.20	7.112	1379.20	30.25 ic	6.21 ic	---	---	0.00	0.00	---	---	---	---	6.213
3.30	7.376	1379.30	30.25 ic	6.33 ic	---	---	0.00	0.00	---	---	---	---	6.327
3.40	7.640	1379.40	30.25 ic	6.44 ic	---	---	0.00	0.00	---	---	---	---	6.439
3.50	7.903	1379.50	30.25 ic	6.55 ic	---	---	0.00	0.00	---	---	---	---	6.549
3.60	8.167	1379.60	30.25 ic	6.66 ic	---	---	0.00	0.00	---	---	---	---	6.657

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GBC Pond 2 - Middle

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
3.70	8.431	1379.70	30.25 ic	6.76 ic	---	---	0.00	0.00	---	---	---	---	6.764
3.80	8.695	1379.80	30.25 ic	6.87 ic	---	---	0.00	0.00	---	---	---	---	6.869
3.90	8.959	1379.90	30.25 ic	6.97 ic	---	---	0.00	0.00	---	---	---	---	6.972
4.00	9.222	1380.00	30.25 ic	7.07 ic	---	---	0.00	0.00	---	---	---	---	7.074
4.10	9.509	1380.10	30.25 ic	7.17 ic	---	---	0.00	0.00	---	---	---	---	7.174
4.20	9.796	1380.20	30.25 ic	7.27 ic	---	---	0.00	0.00	---	---	---	---	7.273
4.30	10.082	1380.30	30.25 ic	7.37 ic	---	---	0.00	0.00	---	---	---	---	7.371
4.40	10.369	1380.40	30.25 ic	7.47 ic	---	---	0.00	0.00	---	---	---	---	7.467
4.50	10.655	1380.50	30.25 ic	7.56 ic	---	---	0.00	0.00	---	---	---	---	7.562
4.60	10.942	1380.60	30.25 ic	7.66 ic	---	---	0.00	0.00	---	---	---	---	7.656
4.70	11.228	1380.70	30.25 ic	7.75 ic	---	---	0.00	0.00	---	---	---	---	7.749
4.80	11.515	1380.80	30.25 ic	7.84 ic	---	---	0.00	0.00	---	---	---	---	7.841
4.90	11.802	1380.90	30.25 ic	7.93 ic	---	---	0.00	0.00	---	---	---	---	7.932
5.00	12.088	1381.00	30.25 ic	8.02 ic	---	---	0.00	0.00	---	---	---	---	8.021
5.10	12.398	1381.10	30.25 ic	8.11 ic	---	---	1.68	0.00	---	---	---	---	9.794
5.20	12.708	1381.20	30.25 ic	8.20 ic	---	---	4.76	0.00	---	---	---	---	12.96
5.30	13.018	1381.30	30.25 ic	8.28 ic	---	---	8.76	0.00	---	---	---	---	17.04
5.40	13.328	1381.40	30.25 ic	8.37 ic	---	---	13.48	0.00	---	---	---	---	21.85
5.50	13.638	1381.50	30.25 ic	8.46 ic	---	---	18.84	0.00	---	---	---	---	27.29
5.60	13.948	1381.60	33.06 ic	8.30 ic	---	---	24.76	0.00	---	---	---	---	33.06
5.70	14.258	1381.70	38.12 ic	6.92 ic	---	---	31.20	0.00	---	---	---	---	38.12
5.80	14.568	1381.80	43.05 ic	4.93 ic	---	---	38.13	0.00	---	---	---	---	43.05
5.90	14.878	1381.90	45.98 ic	3.06 ic	---	---	42.92 s	0.00	---	---	---	---	45.98
6.00	15.188	1382.00	46.70 ic	2.59 ic	---	---	44.11 s	3.70	---	---	---	---	50.39
6.10	15.516	1382.10	47.21 ic	2.26 ic	---	---	44.95 s	10.46	---	---	---	---	57.67
6.20	15.843	1382.20	47.64 ic	2.00 ic	---	---	45.63 s	19.22	---	---	---	---	66.85
6.30	16.170	1382.30	48.01 ic	1.80 ic	---	---	46.21 s	29.60	---	---	---	---	77.60
6.40	16.498	1382.40	48.34 ic	1.63 ic	---	---	46.71 s	41.37	---	---	---	---	89.70
6.50	16.825	1382.50	48.65 ic	1.48 ic	---	---	47.16 s	54.37	---	---	---	---	103.02
6.60	17.153	1382.60	48.94 ic	1.36 ic	---	---	47.56 s	68.52	---	---	---	---	117.44
6.70	17.480	1382.70	49.22 ic	1.26 ic	---	---	47.96 s	83.71	---	---	---	---	132.92
6.80	17.807	1382.80	49.49 ic	1.17 ic	---	---	48.30 s	99.90	---	---	---	---	149.37
6.90	18.135	1382.90	49.74 ic	1.09 ic	---	---	48.63 s	117.00	---	---	---	---	166.72
7.00	18.462	1383.00	50.00 ic	1.02 ic	---	---	48.97 s	134.98	---	---	---	---	184.97

...End

Pond No. 12 - GBC 3 - South - Existing

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 1371.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1371.90	15,528	0.000	0.000
0.60	1372.50	17,928	0.230	0.230
1.60	1373.50	20,689	0.443	0.673
2.60	1374.50	23,584	0.508	1.181
3.60	1375.50	24,969	0.557	1.738
4.60	1376.50	27,506	0.602	2.340
5.60	1377.50	30,151	0.662	3.002
6.60	1378.50	32,506	0.719	3.720
7.60	1379.50	35,000	0.775	4.495
8.60	1380.50	40,000	0.860	5.355
9.60	1381.50	45,000	0.975	6.330
10.60	1382.50	50,000	1.090	7.420

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	6.00	0.00	0.00
Span (in)	= 15.00	1371.90	0.00	0.00
No. Barrels	= 2	1	0	0
Invert El. (ft)	= 1370.70	1371.90	0.00	0.00
Length (ft)	= 60.30	0.00	0.00	0.00
Slope (%)	= 0.67	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	50.00	0.00	0.00
Crest El. (ft)	= 1372.90	1381.60	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000	(by Wet area)		
TW Elev. (ft)	= 1376.00			

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 acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0.000	1371.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.06	0.023	1371.96	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.12	0.046	1372.02	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.18	0.069	1372.08	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.24	0.092	1372.14	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.30	0.115	1372.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.36	0.138	1372.26	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.42	0.161	1372.32	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.48	0.184	1372.38	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.54	0.207	1372.44	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.60	0.230	1372.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.70	0.274	1372.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.80	0.319	1372.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.90	0.363	1372.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.00	0.407	1372.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.10	0.452	1373.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.20	0.496	1373.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.30	0.540	1373.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.40	0.584	1373.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.50	0.629	1373.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.60	0.673	1373.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.70	0.724	1373.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.80	0.775	1373.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.90	0.825	1373.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.00	0.876	1373.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.10	0.927	1374.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.20	0.978	1374.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.30	1.028	1374.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.40	1.079	1374.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.50	1.130	1374.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.60	1.181	1374.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.70	1.237	1374.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.80	1.292	1374.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000

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GBC 3 - South - Existing

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
2.90	1.348	1374.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.00	1.404	1374.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.10	1.459	1375.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.20	1.515	1375.10	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.30	1.571	1375.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.40	1.627	1375.30	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.50	1.682	1375.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.60	1.738	1375.50	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	1.798	1375.60	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.80	1.858	1375.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.90	1.919	1375.80	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	1.979	1375.90	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.10	2.039	1376.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	2.099	1376.10	3.48 oc	0.00 ic	---	---	0.00 s	0.00	---	---	---	---	3.476
4.30	2.159	1376.20	5.18 oc	0.00	---	---	0.00	0.00	---	---	---	---	5.182
4.40	2.220	1376.30	6.35 oc	0.00	---	---	0.00	0.00	---	---	---	---	6.347
4.50	2.280	1376.40	7.33 oc	0.00	---	---	0.00	0.00	---	---	---	---	7.329
4.60	2.340	1376.50	8.19 oc	0.00	---	---	0.00	0.00	---	---	---	---	8.194
4.70	2.406	1376.60	8.98 oc	0.00	---	---	0.00	0.00	---	---	---	---	8.976
4.80	2.472	1376.70	9.69 oc	0.00	---	---	0.00	0.00	---	---	---	---	9.695
4.90	2.538	1376.80	10.36 oc	0.00	---	---	0.00	0.00	---	---	---	---	10.36
5.00	2.605	1376.90	10.99 oc	0.00	---	---	0.00	0.00	---	---	---	---	10.99
5.10	2.671	1377.00	11.59 oc	0.00	---	---	0.00	0.00	---	---	---	---	11.59
5.20	2.737	1377.10	12.15 oc	0.00	---	---	0.00	0.00	---	---	---	---	12.15
5.30	2.803	1377.20	12.69 oc	0.00	---	---	0.00	0.00	---	---	---	---	12.69
5.40	2.869	1377.30	13.21 oc	0.00	---	---	0.00	0.00	---	---	---	---	13.21
5.50	2.935	1377.40	13.71 oc	0.00	---	---	0.00	0.00	---	---	---	---	13.71
5.60	3.002	1377.50	14.19 oc	0.00	---	---	0.00	0.00	---	---	---	---	14.19
5.70	3.073	1377.60	14.66 oc	0.00	---	---	0.00	0.00	---	---	---	---	14.66
5.80	3.145	1377.70	15.11 oc	0.00	---	---	0.00	0.00	---	---	---	---	15.11
5.90	3.217	1377.80	15.55 oc	0.00	---	---	0.00	0.00	---	---	---	---	15.55
6.00	3.289	1377.90	15.97 oc	0.00	---	---	0.00	0.00	---	---	---	---	15.97
6.10	3.361	1378.00	16.39 oc	0.00	---	---	0.00	0.00	---	---	---	---	16.39
6.20	3.433	1378.10	16.79 oc	0.00	---	---	0.00	0.00	---	---	---	---	16.79
6.30	3.505	1378.20	17.19 oc	0.00	---	---	0.00	0.00	---	---	---	---	17.19
6.40	3.577	1378.30	17.57 oc	0.00	---	---	0.00	0.00	---	---	---	---	17.57
6.50	3.649	1378.40	17.95 oc	0.00	---	---	0.00	0.00	---	---	---	---	17.95
6.60	3.720	1378.50	18.32 oc	0.00	---	---	0.00	0.00	---	---	---	---	18.32
6.70	3.798	1378.60	18.68 oc	0.00	---	---	0.00	0.00	---	---	---	---	18.68
6.80	3.875	1378.70	19.04 oc	0.00	---	---	0.00	0.00	---	---	---	---	19.04
6.90	3.953	1378.80	19.39 oc	0.00	---	---	0.00	0.00	---	---	---	---	19.39
7.00	4.030	1378.90	19.73 oc	0.00	---	---	0.00	0.00	---	---	---	---	19.73
7.10	4.108	1379.00	20.07 oc	0.00	---	---	0.00	0.00	---	---	---	---	20.07
7.20	4.185	1379.10	20.40 oc	0.00	---	---	0.00	0.00	---	---	---	---	20.40
7.30	4.263	1379.20	20.73 oc	0.00	---	---	0.00	0.00	---	---	---	---	20.73
7.40	4.340	1379.30	21.05 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.05
7.50	4.418	1379.40	21.37 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.37
7.60	4.495	1379.50	21.68 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.68
7.70	4.581	1379.60	21.99 oc	0.00	---	---	0.00	0.00	---	---	---	---	21.99
7.80	4.667	1379.70	22.29 oc	0.00	---	---	0.00	0.00	---	---	---	---	22.29
7.90	4.753	1379.80	22.59 oc	0.00	---	---	0.00	0.00	---	---	---	---	22.59
8.00	4.839	1379.90	22.88 oc	0.00	---	---	0.00	0.00	---	---	---	---	22.88
8.10	4.925	1380.00	23.18 oc	0.00	---	---	0.00	0.00	---	---	---	---	23.18
8.20	5.011	1380.10	23.46 oc	0.00	---	---	0.00	0.00	---	---	---	---	23.46
8.30	5.097	1380.20	23.75 oc	0.00	---	---	0.00	0.00	---	---	---	---	23.75
8.40	5.183	1380.30	24.03 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.03
8.50	5.269	1380.40	24.31 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.31
8.60	5.355	1380.50	24.58 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.58
8.70	5.453	1380.60	24.85 oc	0.00	---	---	0.00	0.00	---	---	---	---	24.85
8.80	5.550	1380.70	25.12 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.12
8.90	5.648	1380.80	25.39 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.39
9.00	5.745	1380.90	25.65 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.65
9.10	5.843	1381.00	25.91 oc	0.00	---	---	0.00	0.00	---	---	---	---	25.91
9.20	5.940	1381.10	26.17 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.17
9.30	6.038	1381.20	26.42 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.42
9.40	6.135	1381.30	26.68 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.68
9.50	6.233	1381.40	26.93 oc	0.00	---	---	0.00	0.00	---	---	---	---	26.93
9.60	6.330	1381.50	27.18 oc	0.00	---	---	0.00	0.00	---	---	---	---	27.18
9.70	6.439	1381.60	27.42 oc	0.00	---	---	0.00	0.00	---	---	---	---	27.42
9.80	6.548	1381.70	27.67 oc	0.00	---	---	0.00	4.11	---	---	---	---	31.77
9.90	6.657	1381.80	27.91 oc	0.00	---	---	0.00	11.63	---	---	---	---	39.54
10.00	6.766	1381.90	28.15 oc	0.00	---	---	0.00	21.37	---	---	---	---	49.51
10.10	6.875	1382.00	28.38 oc	0.00	---	---	0.00	32.89	---	---	---	---	61.27
10.20	6.984	1382.10	28.62 oc	0.00	---	---	0.00	45.96	---	---	---	---	74.58

Continues on next page...

GBC 3 - South - Existing

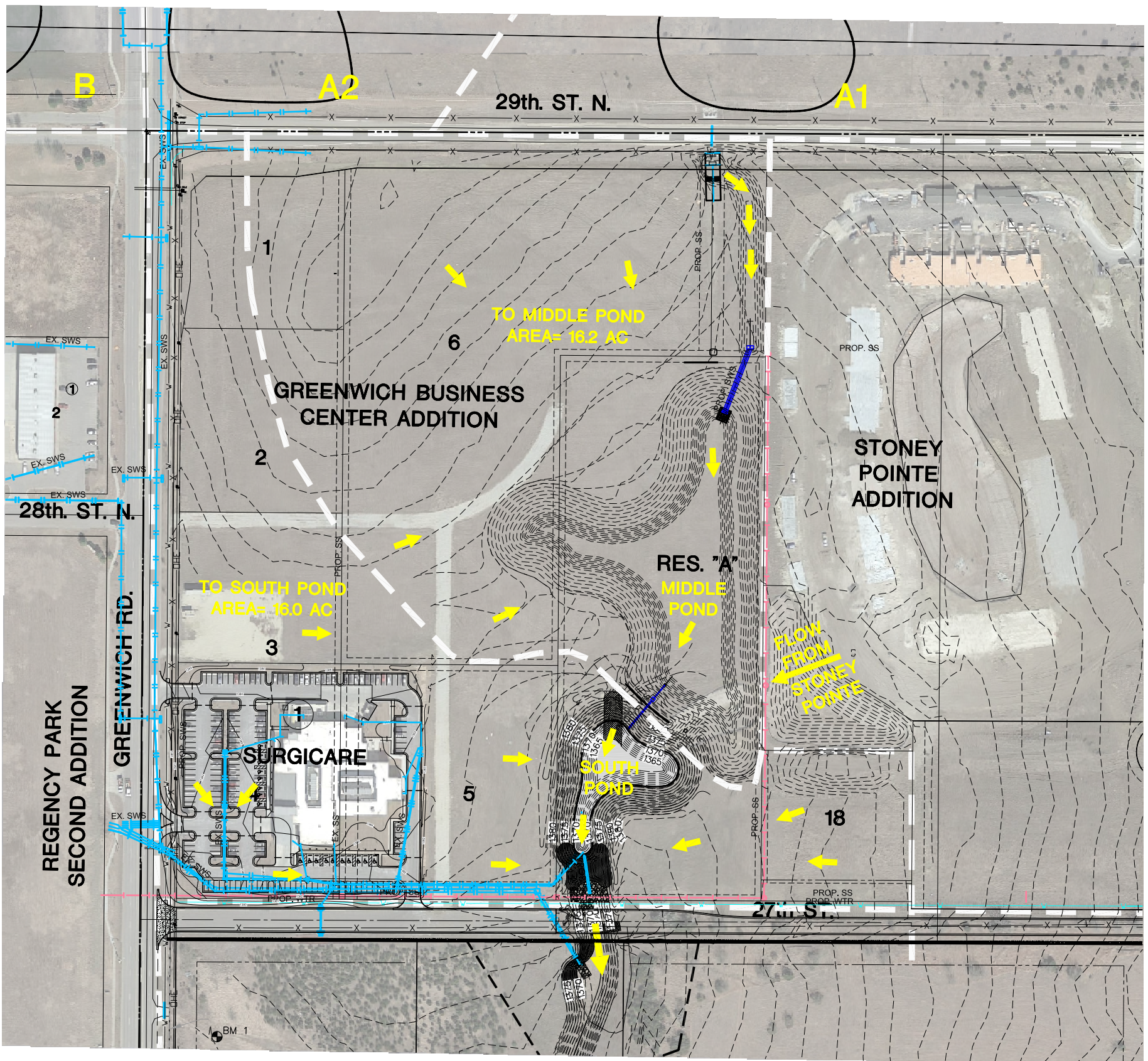
Stage / Storage / Discharge Table

Stage ft	Storage acft	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
10.30	7.093	1382.20	28.85 oc	0.00	---	---	0.00	60.41	---	---	---	---	89.27
10.40	7.202	1382.30	29.09 oc	0.00	---	---	0.00	76.15	---	---	---	---	105.23
10.50	7.311	1382.40	29.31 oc	0.00	---	---	0.00	93.03	---	---	---	---	122.34
10.60	7.420	1382.50	29.54 oc	0.00	---	---	0.00	111.00	---	---	---	---	140.54

...End

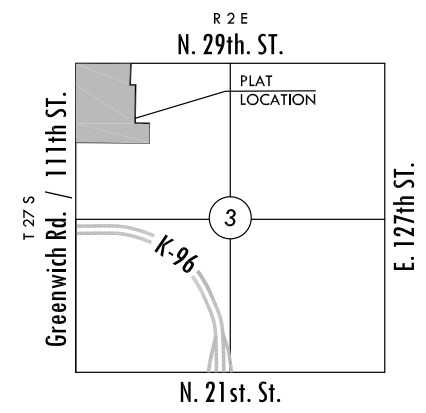
Appendix F - Existing Conditions Map

Appendix G - Drainage Plan

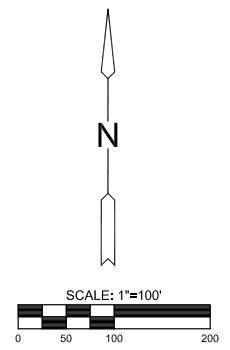


BENCHMARKS

- BM#1 TOP OF "T" POST 129.17' EAST AND 1177.81' NORTH OF W. 1/4, COR, SEC 3, T27S, R2E, 6TH P.M. N=1703621.35, E=1688305.21 ELEV=1376.5 (NAVD 88)
- BM#2 TOP OF "T" POST 729.87' WEST AND 35.53' NORTH OF NE COR, SW 1/4 SEC 3, 27S, R2E, 6TH P.M. N=1702517.50, E=1688104.50 ELEV=1391.3 (NAVD 88)
- BM#4 TOP OF "T" POST 626.03' WEST AND 780.86' NORTH OF NE COR, SW 1/4, SEC 3, T27S, R2E, 6TH P.M. N=1703257.35, E=1688200.41 ELEV=1400.7 (NAVD 88)



VICINITY MAP



LEGEND

- 6IN
- 4IN
- 3IN
- 2IN
- 1.5IN
- 1.25IN
- 1IN
- 0.75IN
- 0.5IN
- 0.25IN
- BM
- CONIFEROUS TREE
- DECIDUOUS TREE
- SIGN
- POWER POLE
- ELECTRIC BOX
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- SECTION CORNER
- BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UNDERGROUND ELEC.
- OVERHEAD ELECTRIC
- FIBER OPTIC CABLE
- DRAINAGE SUB BASIN
- DRAINAGE BASIN
- FLOW ARROW
- AREA FOR SWS SIZING
- PROP SWS

MIDDLE POND

YEARS	WSEL (FT)	STORAGE AC-FT.
2-YEAR	1379.2	7.0
5-YEAR	1381.0	12.0
10-YEAR	1381.4	13.2
25-YEAR	1381.7	14.1
50-YEAR	1382.0	15.2
100-YEAR	1382.2	15.7

PRIMARY OUTLET:
4'x4.5" RISER AT 1381.0 INTO A 24" RCP WITH A 12" ORIFICE AT 1376.0

SECONDARY OUTLET:
EARTHEN WEIR WITH A 45' WIDE OPENING AT 1381.9

SOUTH POND

YEARS	WSEL (FT)	STORAGE AC-FT.
2-YEAR	1376.4	2.3
5-YEAR	1377.3	2.9
10-YEAR	1378.0	3.4
25-YEAR	1379.6	4.5
50-YEAR	1380.4	5.3
100-YEAR	1381.5	6.4

PRIMARY OUTLET:
4'x4" RISER AT 1372.9 INTO 2- 15" RCP WITH A 6" ORIFICE AT 1371.9

SECONDARY OUTLET:
EARTHEN WEIR WITH A 50' WIDE OPENING AT 1381.6

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DRAINAGE PLAN

PROJECT NO.	05039	
DATE	AUGUST 2014	
SCALE	AS NOTED	
DESIGNED	DRAWN	CHECKED
KLA	DM	GJA
NO.	REVISION	DATE
SHEET NO.		
1 OF 1		

Appendix H - Water Quality & Channel Protection

**Water Quality Volume Calculations
Greenwich Business Center**

Volumetric Runoff Coefficients by Land Use and Hydraulic Soil Group

Land Use	Hydrologic Soil Group								Total Area (ac)
	A		B		C		D		
	Area (ac)	R _v	Area (ac)	R _v	Area (ac)	R _v	Area (ac)	R _v	
Undisturbed		0.02		0.03		0.04		0.05	0
Disturbed Pervious		0.15		0.20		0.22	4.8	0.25	4.8
Impervious Cover		0.95		0.95		0.95	27.4	0.95	27.4
Total Area (ac)	0.00		0.00		0.00		32.2		32.2
Volumetric Runoff Coefficient (R_v)	0.00		0.00		0.00		0.85		0.85

Rainfall Depth (P) (in)	1.2
Water Quality Protection Volume (WQ _v) (ac-ft)	2.72
Water Quality Protection Volume (Q _{wv}) (in)	1.01
Redevelopment	No

**Channel Protection Volume Calculations
Greenwich Business Center**

Rainfall Depth (P) (in)	2.80
Volumetric Runoff Coefficient (R _v)	0.85
Total Area (A) (ac)	32.20
Pond and Swamp Areas (% of Drainage Area)	0.00
Pond & Swamp Adjustment Factors (F _p)	1.00
Water Quality Protection Volume (Q _{wv}) (in)	2.37
Curve Number (CN)	93.0
Potential Maximum Abstraction (S)	0.75
Initial Abstraction (I _a)	0.15
Initial Abstraction/Rainfall Depth (I _a /P)	0.05
Time of Concentration (T _c) (min)	10.00
Time of Concentration (T _c) (hr)	0.17
Unit Peak Discharge (q _u) (csm/in) (Figure 4-6)	900.00
Water Quality Peak Flow (Q _{wq})(cfs)	107.22
Rainfall Excess (Q) (in)	2.06
Peak Discharge (Q _p)	93.43
Ratio of Outflow to Inflow (q _o /q _i) (Figure 4-17)	0.03
Ratio of Storage Volume to Runoff Volume (V _s /V _r)	0.64
Channel Protection Volume (CP _v) (ac-ft)	3.55
Redevelopment	No

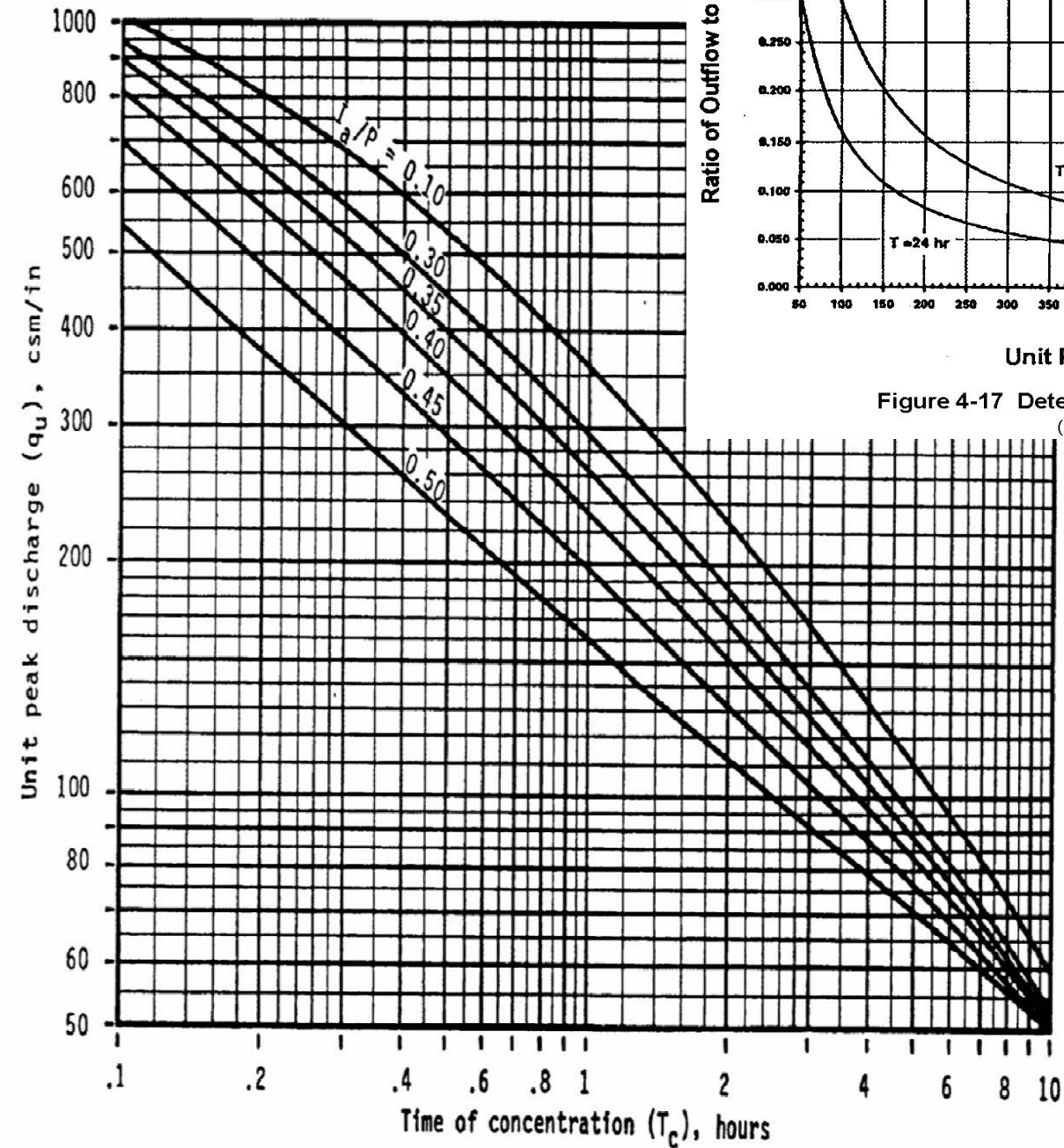


Figure 4-6 SCS Type II Unit Peak Discharge Graph
(Source: SCS, TR-55, Second Edition, June 1986)

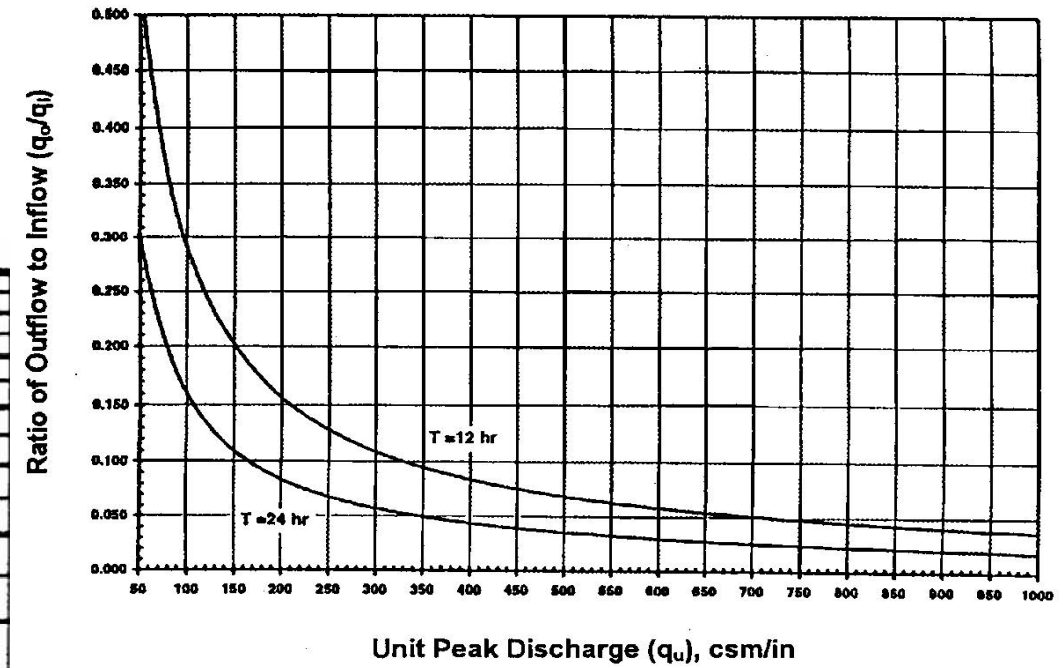


Figure 4-17 Detention Time vs Discharge Ratios
(Source: MDE, 1998)