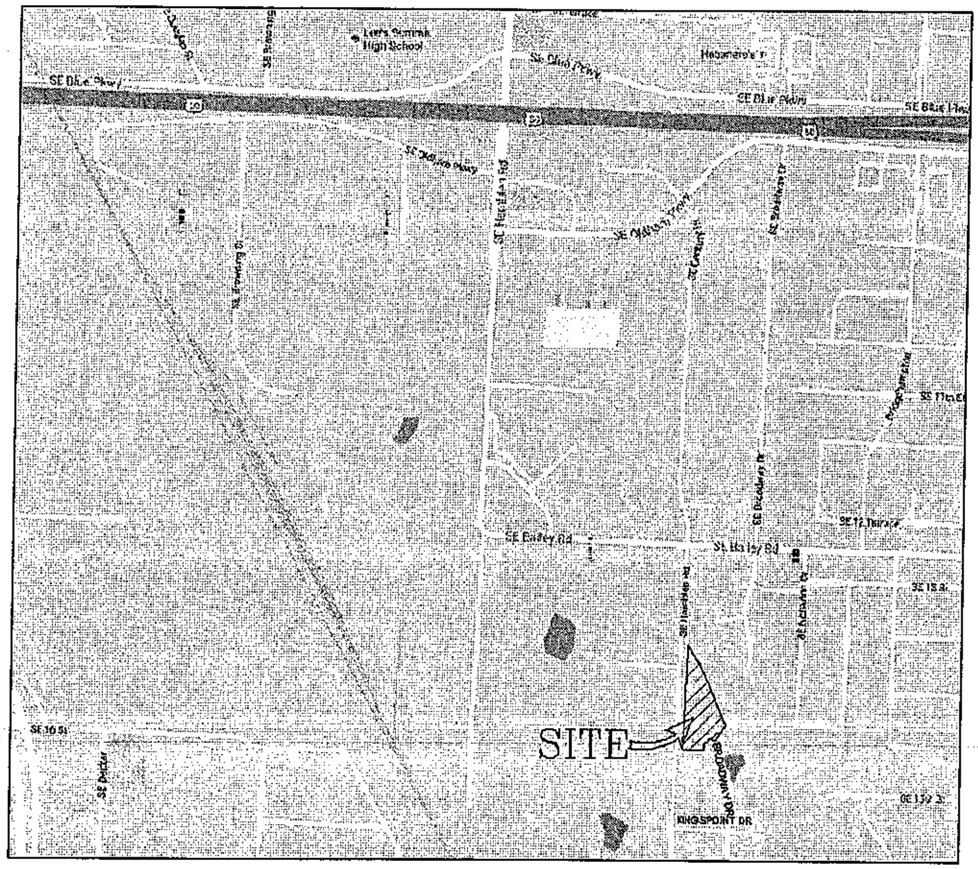
MICRO STORM WATER DRAINAGE STUDY

For:
HT SOLUTIONS
ON Lot 292 of "Newburry Landing"
Lee's Summit, Jackson County, Missouri

Water Shed:
An Un named Tributary of Big Creek

March, 2016



PREPARED BY:

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821 NE Columbus St.
Lee's Summit, MO 64063
Phone: (816) 550-5675

Robert Walquist, PE

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3. GENERAL INFORMATION AND SITE CONDITIONS.

This study is to evaluate the proposed development of commercial development on 3.59 acres of land in Lee's Summit, Jackson County, Missouri.

The site currently has no trees with slopes ranging from 2% to 6%. The land generally drains to the east to an existing creek located off site running along the east property line. There is no off site land the drains across this property

The development does not have a 100yr flood plain with in it.

4. OVERVIEW OF THE PROPOSED DESIGN

The storm drainage study was preformed to evaluate the storm water run of from the proposed development.

The proposed Phase 1 and phase 2 buildings and parking lots will increase the impervious surface of the site which in turn will increase the storm water runoff of the site. The total developed area evaluated for this study is the is lot 292 of Newburry Landing on a 3.59 acre peace of property. We have proposed to route all of the proposed impervious area into a proposed extended dry detention basin located with in the existing low point of the property.

We have proposed to utilize open vegetative strips and an extended dry detention basin to satisfy the BMP requirements for this project.

We have proposed that 1.25 acres of un developed portion of the lot will be un-detained and flow off the property at the east. The basin has been evaluated to achieve post development runoff equal to or less than the post development runoff.

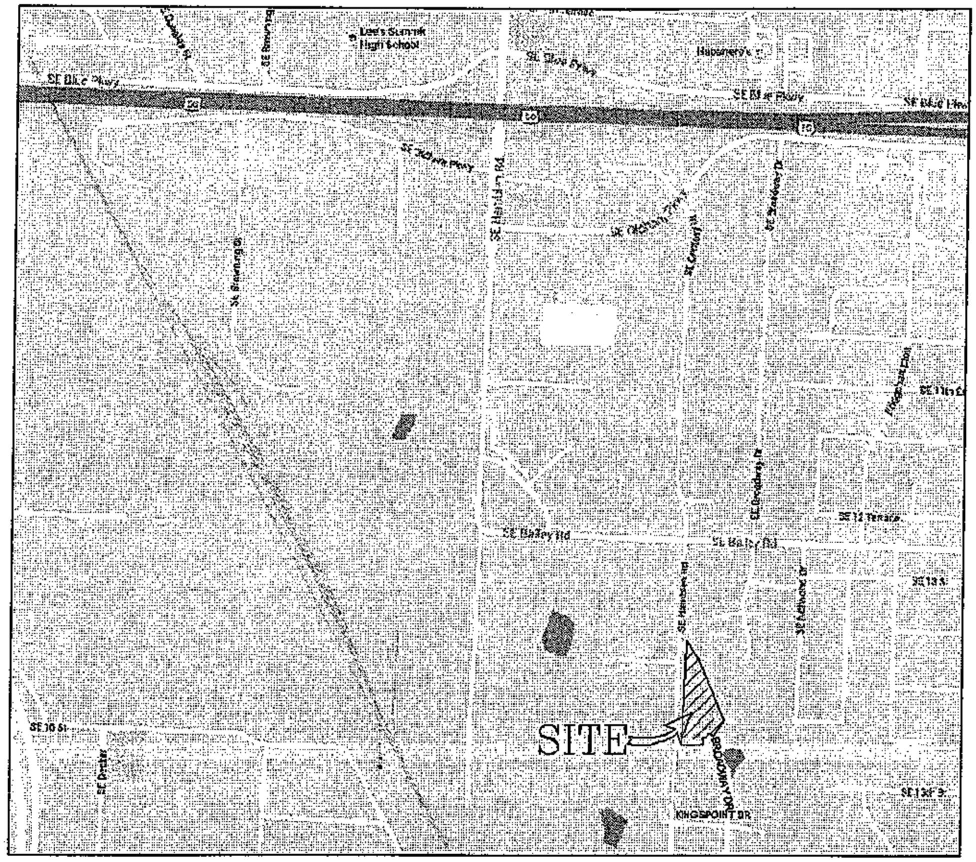
5. METHODOLOGY & PROPOSED DETENTION DESIGN

We have proposed to route 2.34 of the proposed development (all of the phase 1 and phase 2 impervious areas) into the proposed basin. This basin has outflow restricted thru a proposed small diameter pipe and a rectangular weir consisting of 24" concrete piers set closed together. (See The Drainage area map.)

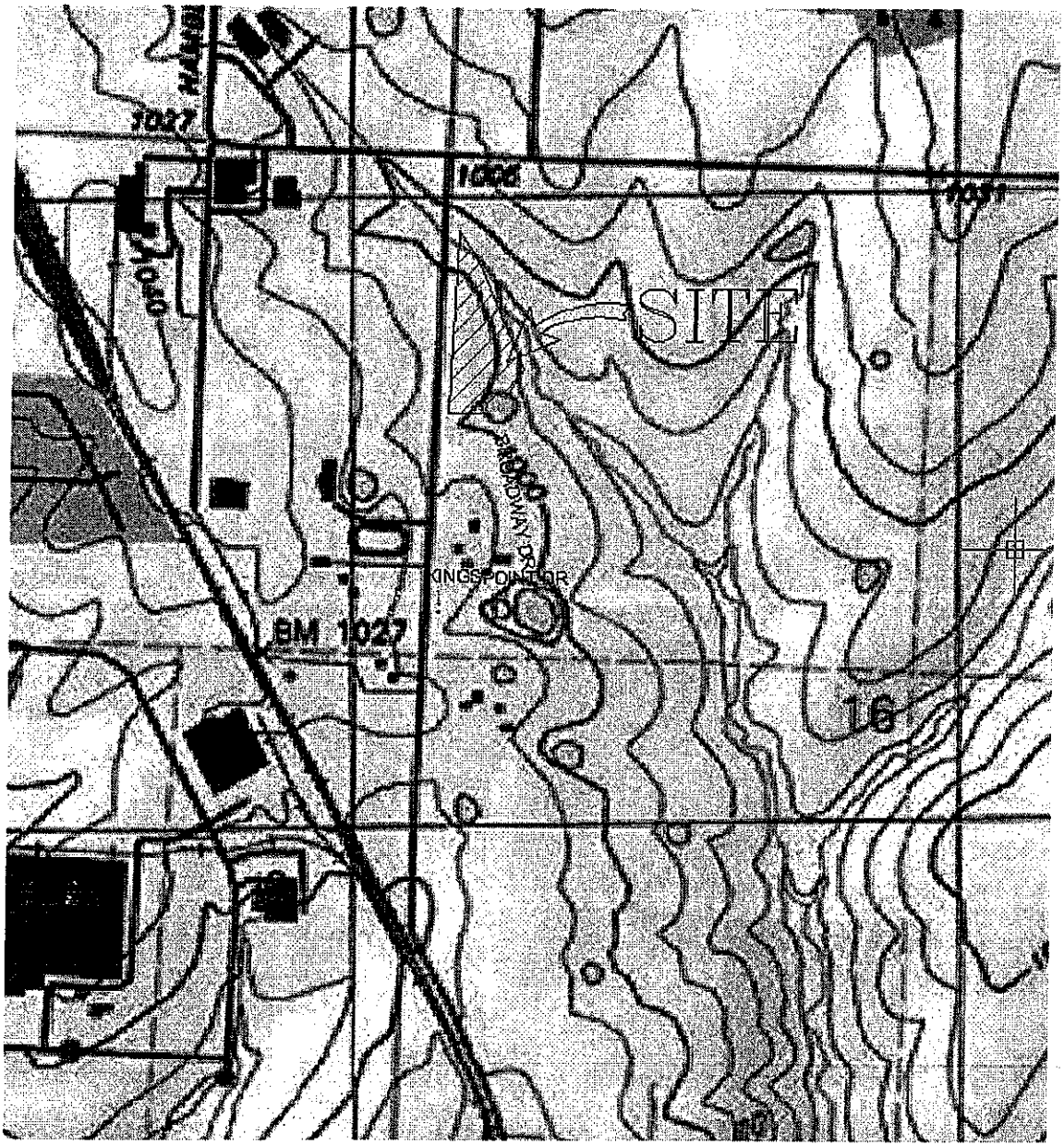
All calculation for the detention basin was done using the Software Hydra flow. This program utilized the Rational Method to model the different storm events. The following "C" values where used:

On Site	C
Pre Development	0.30
Post Development	0.85

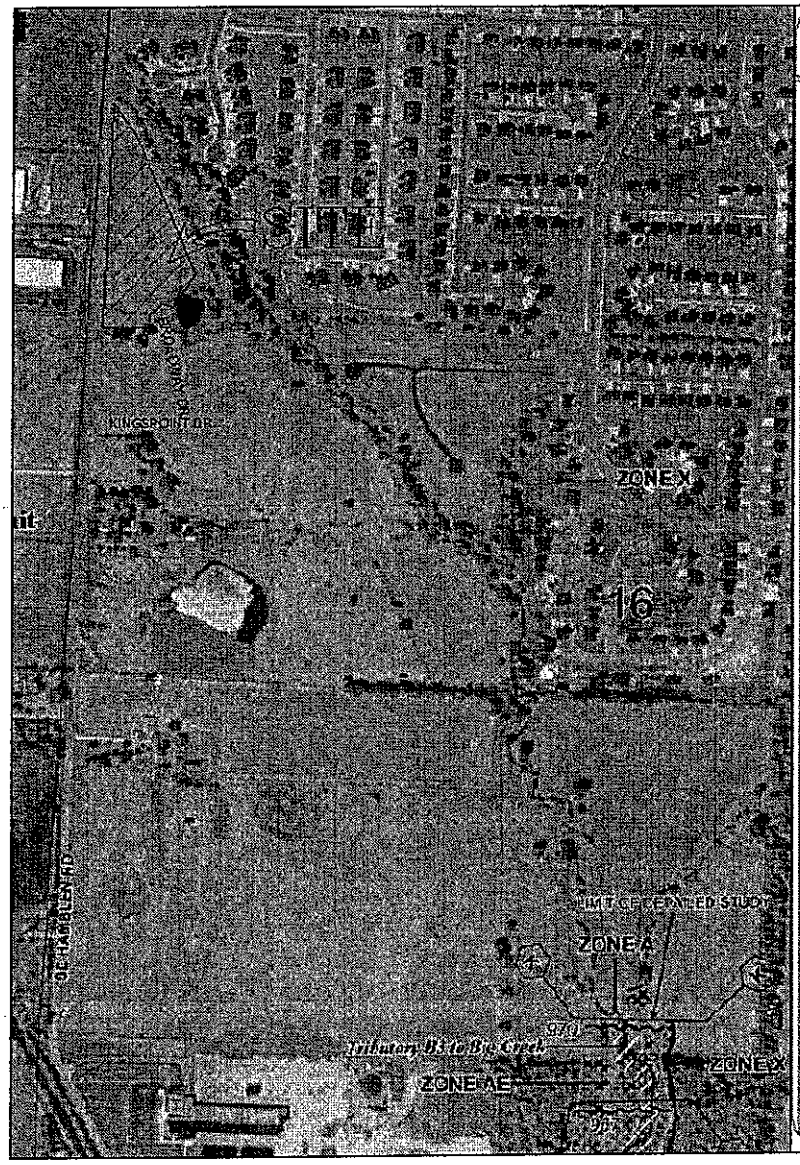
SITE LOCATION MAP


Lee's Summit
High School
SE Bailey Rd
SE 12 Terrace
SITE
BROADWAY DR
KINGSPOINT DR

USGS MAP


1027
1028
1031
1050
SITE
BROADWAY DR
KINGSPOINT DR
BM 1027
16

AERIAL VIEW



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0313F

FIRM

FLOOD INSURANCE RATE MAP

JACKSON COUNTY, MISSOURI

AND INCORPORATED AREAS

PANEL 313 OF 480

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LEE'S SUMMIT, CITY OF	290174	0313	F

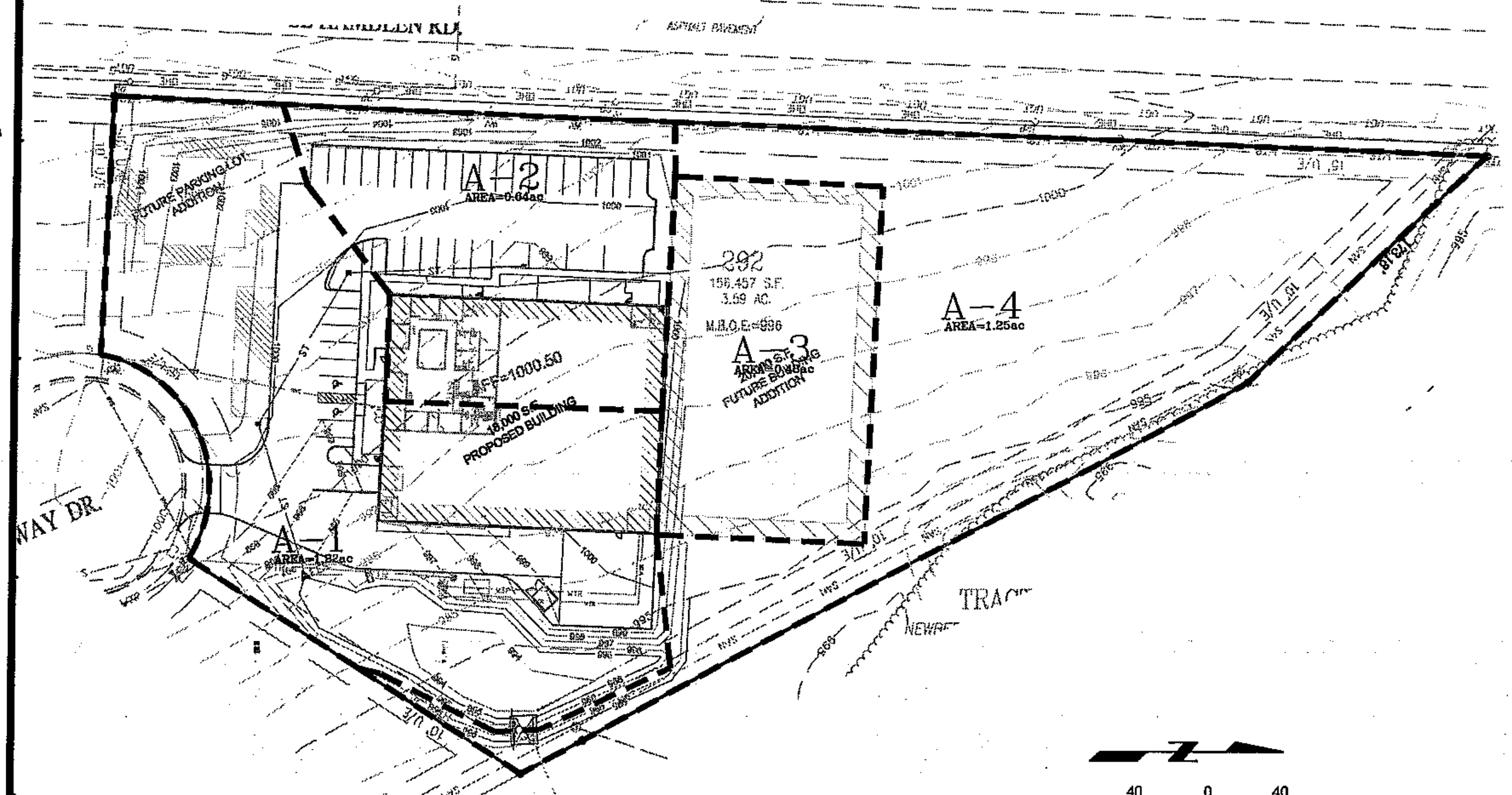
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
29095C0313F

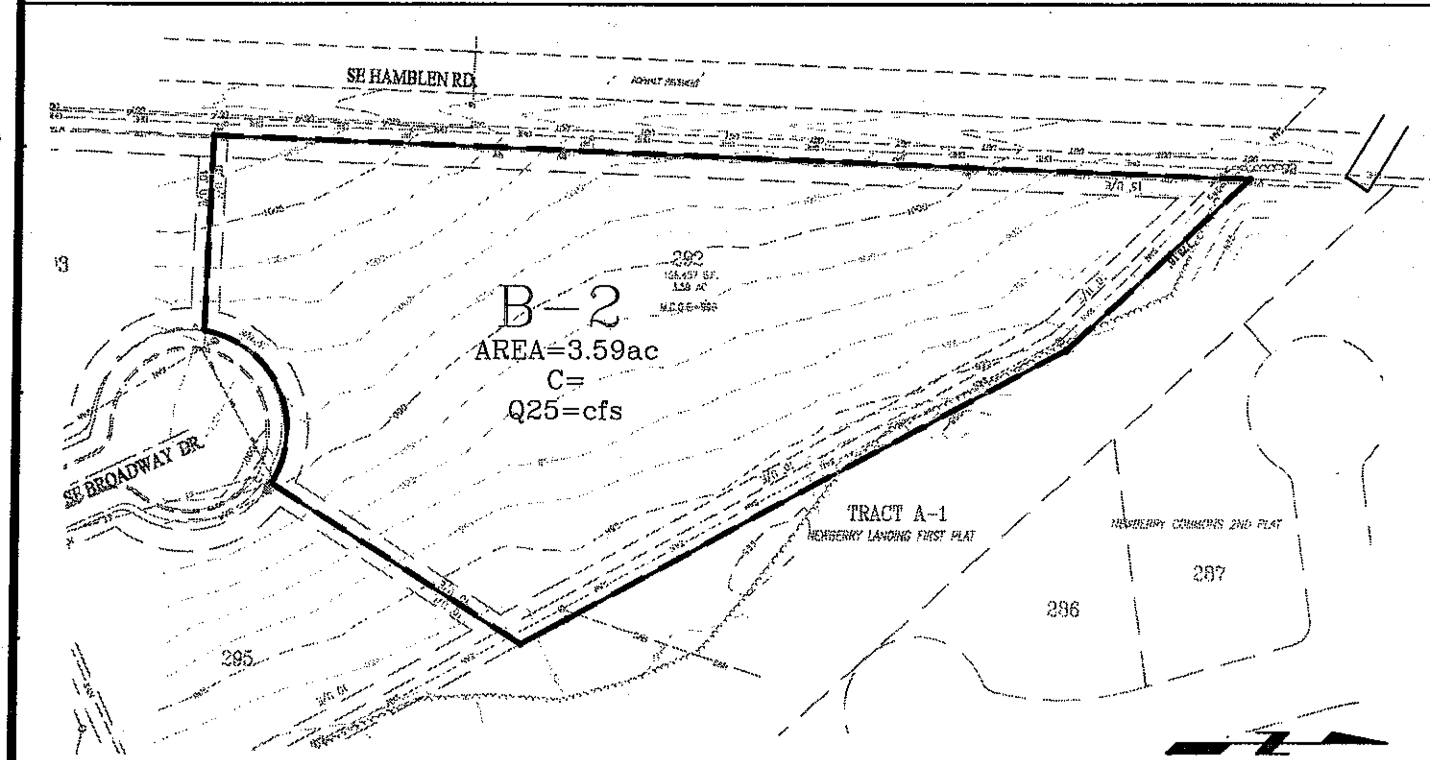
EFFECTIVE DATE
SEPTEMBER 29, 2006

Federal Emergency Management Agency

STORM DRAINAGE MAP & BASIN DESIGN



POST DEVELOPMENT



PRE DEVELOPMENT

RATIONAL METHOD		A-1				
C#	FLOW LENGTH	S= SLOPE				
0.85	80	2.0				
*Ti =	3.20	min				
Tt=	1.80					
Tc=	5	min				
FLOWS	AREA (ac)	INTENSITY (in/hr)				
K =	A =	I100	I50	I25	ED	I2
1	1.22	10.32	9.40	8.53	7.35	5.00
Q100 =	13.38	cfs	K=1.25			
Q50 =	11.69	cfs	K=1.20			
Q25 =	9.73	cfs	K=1.10			
Q10 =	7.63	cfs	K=1.0			
Q2 =	5.19	cfs	K=1.0			

RATIONAL METHOD		A-2				
C#	FLOW LENGTH	S= SLOPE				
0.85	50	2.0				
*Ti =	2.53	min				
Tt=	2.47					
Tc=	5	min				
FLOWS	AREA (a	INTENSITY (in/hr)				
K =	A =	I100	I50	I25	ED	I2
1	0.64	10.32	9.40	8.53	7.35	5.00
Q100 =	7.02	cfs	K=1.25			
Q50 =	6.13	cfs	K=1.20			
Q25 =	5.10	cfs	K=1.10			
Q10 =	4.00	cfs	K=1.0			
Q2 =	2.72	cfs	K=1.0			

RATIONAL METHOD		A-3				
C#	FLOW LENGTH	S= SLOPE				
0.85	50	4.0				
*Ti =	2.01	min				
Tt=	2.99					
Tc=	5	min				
FLOWS	AREA (ac)	INTENSITY (in/hr)				
K =	A =	I100	I50	I25	ED	I2
1	0.48	10.32	9.40	8.53	7.35	5.00
Q100 =	5.26	cfs	K=1.25			
Q50 =	4.60	cfs	K=1.20			
Q25 =	3.83	cfs	K=1.10			
Q10 =	3.00	cfs	K=1.0			
Q2 =	2.04	cfs	K=1.0			

RATIONAL METHOD		A-4				
C#	FLOW LENGTH	S= SLOPE				
0.85	50	4.0				
*Ti =	2.01	min				
Tt=	2.99					
Tc=	5	min				
FLOWS	AREA (a	INTENSITY (in/hr)				
K =	A =	I100	I50	I25	ED	I2
1	1.25	10.32	9.40	8.53	7.35	5.00
Q100 =	13.71	cfs	K=1.25			
Q50 =	11.98	cfs	K=1.20			
Q25 =	9.97	cfs	K=1.10			
Q10 =	7.81	cfs	K=1.0			
Q2 =	5.31	cfs	K=1.0			

RATIONAL METHOD		B-1				
C#	FLOW LENGTH	S= SLOPE				
0.30	250	3.0				
*Ti =	15.79	min				
Tt=	-0.79					
Tc=	15	min				
FLOWS	AREA (ac)	INTENSITY (in/hr)				
K =	A =	I100	I50	I25	ED	I2
1	3.59	7.36	6.70	6.01	5.18	3.52
Q100 =	9.80	cfs	K=1.25			
Q50 =	8.65	cfs	K=1.20			
Q25 =	7.12	cfs	K=1.10			
Q10 =	5.58	cfs	K=1.0			
Q2 =	3.79	cfs	K=1.0			

Flow through a pipe		L-1	
Using Mannings Equation			
FROM=	CI-1-1	Elin	996.65
TO=	JB-1-2	Elout	996.00
L (ft) =	93.74		
TOP OF	CI-1-1		999.30
COVER OVER PIPE=			1.40
Diameter of pipe (ft)=			**1.25**
Slope of pipe in (ft/ft)=			**0.0069**
Roughnees Coef. N=			**0.013**
Hydralic Radius R=			0.3125
Wetted Perimeter P=			3.925
Area of Pipe A=			1.22656
Pipe Capacity Q=			5.38
Velocity in pipe V=			4.38
AREA=B-6, B-5, A-12			
Design	Q 25yr =5.1cfs		

Flow through a pipe		L-1	
Using Mannings Equation			
FROM=	JB-1-2	Elin	996.00
TO=	JB-1-1	Elout	995.40
L (ft) =	92.78		
TOR OF	JB-1-2		1000.20
COVER OVER PIPE=			2.95
Diameter of pipe (ft)=			**1.25**
Slope of pipe in (ft/ft)=			**0.0065**
Roughnees Coef. N=			**0.013**
Hydralic Radius R=			0.3125
Wetted Perimeter P=			3.925
Area of Pipe A=			1.226563
Pipe Capacity Q=			5.19
Velocity in pipe V=			4.23
AREA=B-6, B-5, A-12			
Design	Q 25yr =5.1cfs		

Flow through a pipe		L-2	
Using Mannings Equation			
FROM=	JB-1-1	Elin	995.40
TO=	FES-1-1	Elout	994.85
L (ft) =	85.34		
TOP OF	JB-1-1		1000.20
COVER OVER PIPE=			3.55
Diameter of pipe (ft)=			**1.25**
Slope of pipe in (ft/ft)=			**0.0064**
Roughnees Coef. N=			**0.013**
Hydralic Radius R=			0.3125
Wetted Perimeter P=			3.925
Area of Pipe A=			1.22656
Pipe Capacity Q=			5.18
Velocity in pipe V=			4.23
AREA= A-1, A-2			
Design	Q 25yr =5.1cfs		

SITE STORM DRAINAGE PLAN

CONSULTANTS:
M.E.P.:

CIVIL:

Quist Engineering, Inc
Civil Engineering for Residential Commercial Site Development
821 NE Columbus St.
Lee's Summit, Missouri 64063
Phone: (816) 550-5675

PROJECT

CONSTRUCTION OF:

HT SOLUTIONS BUILDING ON LOT 292 OF "NEWBURRY LANDING"

LEE' SUMMIT MO
JACKSON COUNTY

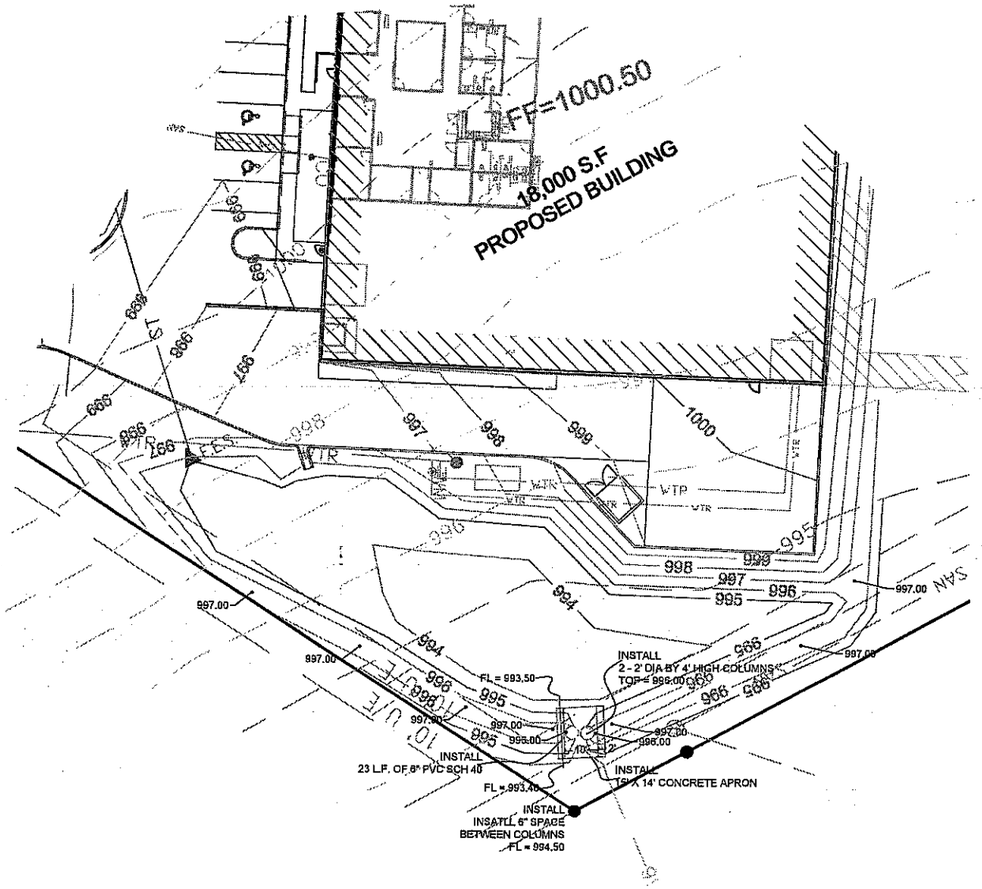
DATE: 02-20-2016
REVISION DATE:

DESIGN/DRAWN:
APPROVED:

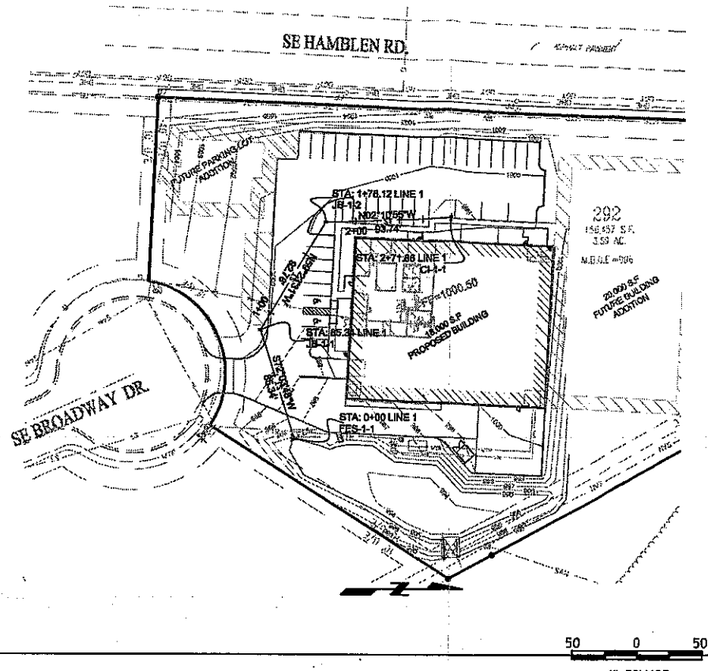
SHEET TITLE:
SITE STORM DRAINAGE PLAN

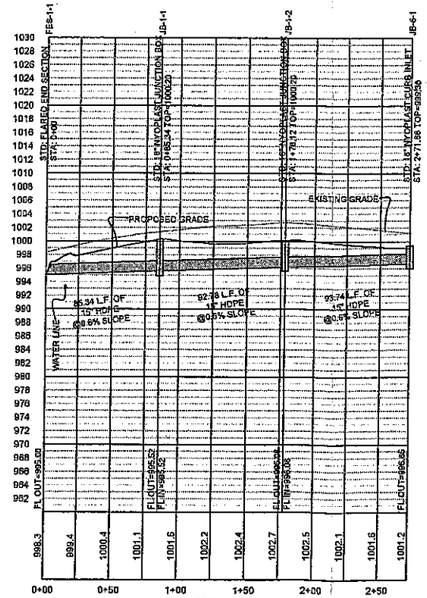
SHEET NUMBER:
C400

PROJECT NO: 201423



BASIN DETAILED PLAN





SITE STORM LINES 1 & BASIN PLAN

CONSULTANTS:

M.E.P.:

CIVIL:

Quist Engineering, Inc
Civil Engineering for Residential Commercial Site Development
821 NE Columbus St.
Lee's Summit, Missouri 64063
Phone: (816) 500-5675

PROJECT

CONSTRUCTION OF:

HT SOLUTIONS
BUILDING
ON
LOT 292 OF
"NEWBURRY LANDING"

LEE' SUMMIT MO
JACKSON COUNTY

DATE: 02-20-2016

REVISION DATE:

DESIGN/
DRAWN:

APPROVED:

SHEET TITLE:

SITE STORM LINE 1
BASIN PLAN

SHEET NUMBER:

C401

PROJECT NO: 201423

BMP LEVEL OF SERVCE WWOKSHEETS 1

WORKSHEET 1: REQUIRED LEVEL OF SERVICE - UNDEVELOPED SITE

Project: By: Date:
Location: Checked: Date:

1. Runoff Curve Number

A. Predevelopment CN

Cover Description	Soil HSG	CN from Table 1	Area (ac.)	Product of CN x Area
Pasture Poor	C	77	3.59	276
		Totals:	3.59	276

Area-Weighted CN = total product/total area = 77 (Round to integer)

B. Postdevelopment CN

Cover Description	Soil HSG[1]	CN from Table 1	Area (ac.)	Product of CN x Area
A-1, A-2, A-3, Developed		85	2.34	198.9
A-4 Pasture	C	77	1.25	96.25
		Totals:	3.59	295.15

[1] Postdevelopment CN is one HSG higher for all cover types except preserved vegetation, absent documentation showing how postdevelopment soil structure will be preserved.

Area-Weighted CN = total product/total area = 82 (Round to integer)

C. Level of Service (LS) Calculation

Predevelopment CN: 77

Postdevelopment CN: 82

Difference: 5

LS Required (see scale at right): 6

Change in CN	LS
17+	8
7 to 16	7
4 to 6	6
1 to 3	5
0	4
-7 to -1	3
-8 to -17	2
-18 to -21	1
-22 -	0

WORKSHEET 2: DEVELOP MITIGATION PACKAGE(S) THAT MEET THE REQUIRED LS

Project:	By:	Date:
Location:	Checked:	Date:
Sheet __ of __		

1. Required LS (New Development, Wksht 1) or Total VR (Redevelopment, Wksht 1A): 6

Note: Various BMPs may alter CN of proposed development, and LS; recalculate both if applicable.

2. Proposed BMP Option Package No. ___

Cover/BMP Description	Treatment Area	VR from Table 4.4 or 4.6[1]	Product of VR x Area
A-4 Veg Fv Strip	1.25	5	6.25
A-1 thru 3 Veg Swale r Exted Dry Det	2.34	8	18.8
Total[2]:	3.59	**Total:**	25.05
		***Weighted VR:**	6.9 = total product/total a

1 VR calculated for final BMP only in Treatment Train.
2 Total treatment area cannot exceed 100 percent of the actual site area.
* Blank In Redevelopment

Meets required LS (Yes/No)? Yes (If No, or if additional options are being tested, proceed below.)

3. Proposed BMP Option Package No. ___

Cover/BMP Description	Treatment Area	VR from Table 4.4 or 4.6[1]	Product of VR x Area
Total[2]:		**Total:**	
		***Weighted VR:**	= total product/total a

1 VR calculated for final BMP only in Treatment Train.
2 Total treatment area cannot exceed 100 percent of the actual site area.
* Blank In Redevelopment

Meets required LS (Yes/No)? (If No, or if additional options are being tested, move to next sheet.)

HYDROLOGIC MODEL

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	Rational	-----	-----	4.75	-----	-----	6.54	-----	-----	11.57	PRE DEVELOPMENT
2	Rational	-----	-----	1.65	-----	-----	2.28	-----	-----	4.03	UNDETAINED
3	Rational	-----	-----	8.77	-----	-----	12.09	-----	-----	21.36	INTO BASIN
4	Reservoir	3	-----	2.15	-----	-----	2.83	-----	-----	4.74	BASIN-1

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	4.75	1	10	2,848	---	-----	-----	PRE DEVELOPMENT
2	Rational	1.65	1	10	992	---	-----	-----	UNDETAINED
3	Rational	8.77	1	10	5,260	---	-----	-----	INTO BASIN
4	Reservoir	2.15	1	18	4,999	3	994.90	3,908	BASIN-1

Proj. file: E16-302.gpw | Return Period: 2 yr | Run date: 03-09-2016

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT

Hydrograph type	= Rational	Peak discharge	= 4.75 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Drainage area	= 3.6 ac	Runoff coeff.	= 0.3
Intensity	= 4.407 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 2,848 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.02	0.47
0.05	1.42
0.08	2.37
0.12	3.32
0.15	4.27
0.18	4.27
0.22	3.32
0.25	2.37
0.28	1.42
0.32	0.47

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 2

UNDETAINED

Hydrograph type	= Rational	Peak discharge	= 1.65 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Drainage area	= 1.3 ac	Runoff coeff.	= 0.3
Intensity	= 4.407 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 992 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.02	0.17
0.05	0.50
0.08	0.83
0.12	1.16
0.15	1.49
0.18	1.49
0.22	1.16
0.25	0.83
0.28	0.50
0.32	0.17

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 3

INTO BASIN

Hydrograph type	= Rational	Peak discharge	= 8.77 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Drainage area	= 2.3 ac	Runoff coeff.	= 0.85
Intensity	= 4.407 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 5,260 cuft

Hydrograph Discharge Table

Time -- (hrs	Outflow cfs)
0.02	0.88
0.05	2.63
0.08	4.38
0.12	6.14
0.15	7.89
0.18	7.89
0.22	6.14
0.25	4.38
0.28	2.63
0.32	0.88

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

BASIN-1

Hydrograph type	= Reservoir	Peak discharge	= 2.15 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Inflow hyd. No.	= 3	Reservoir name	= BASIN-1
Max. Elevation	= 994.90 ft	Max. Storage	= 3,908 cuft

Storage Indication method used.

Outflow hydrograph volume = 4,999 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.07	3.51	993.80	0.28	-----	-----	-----	-----	-----	-----	-----	-----	0.28
0.10	5.26	994.09	0.85	-----	-----	-----	-----	-----	-----	-----	-----	0.85
0.13	7.01	994.26	1.09	-----	-----	-----	-----	-----	-----	-----	-----	1.09
0.17	8.77 <<	994.47	1.34	-----	-----	-----	-----	-----	-----	-----	-----	1.34
0.20	7.01	994.67	1.54	-----	-----	-----	0.12	-----	-----	-----	-----	1.66
0.23	5.26	994.81	1.66	-----	-----	-----	0.29	-----	-----	-----	-----	1.95
0.27	3.51	994.88	1.72	-----	-----	-----	0.40	-----	-----	-----	-----	2.12
0.30	1.75	994.90 <<	1.73	-----	-----	-----	0.42	-----	-----	-----	-----	2.15 <<
0.33	0.00	994.86	1.70	-----	-----	-----	0.36	-----	-----	-----	-----	2.06
0.37	0.00	994.80	1.65	-----	-----	-----	0.27	-----	-----	-----	-----	1.92
0.40	0.00	994.74	1.60	-----	-----	-----	0.20	-----	-----	-----	-----	1.79
0.43	0.00	994.68	1.55	-----	-----	-----	0.13	-----	-----	-----	-----	1.68
0.47	0.00	994.63	1.50	-----	-----	-----	0.08	-----	-----	-----	-----	1.58
0.50	0.00	994.58	1.45	-----	-----	-----	0.04	-----	-----	-----	-----	1.50
0.53	0.00	994.53	1.41	-----	-----	-----	0.02	-----	-----	-----	-----	1.42
0.57	0.00	994.49	1.36	-----	-----	-----	-----	-----	-----	-----	-----	1.36
0.60	0.00	994.45	1.32	-----	-----	-----	-----	-----	-----	-----	-----	1.32
0.63	0.00	994.41	1.27	-----	-----	-----	-----	-----	-----	-----	-----	1.27
0.67	0.00	994.37	1.23	-----	-----	-----	-----	-----	-----	-----	-----	1.23
0.70	0.00	994.33	1.18	-----	-----	-----	-----	-----	-----	-----	-----	1.18
0.73	0.00	994.29	1.14	-----	-----	-----	-----	-----	-----	-----	-----	1.14
0.77	0.00	994.26	1.09	-----	-----	-----	-----	-----	-----	-----	-----	1.09
0.80	0.00	994.22	1.05	-----	-----	-----	-----	-----	-----	-----	-----	1.05
0.83	0.00	994.19	1.00	-----	-----	-----	-----	-----	-----	-----	-----	1.00
0.87	0.00	994.16	0.96	-----	-----	-----	-----	-----	-----	-----	-----	0.96
0.90	0.00	994.13	0.91	-----	-----	-----	-----	-----	-----	-----	-----	0.91
0.93	0.00	994.10	0.87	-----	-----	-----	-----	-----	-----	-----	-----	0.87
0.97	0.00	994.07	0.82	-----	-----	-----	-----	-----	-----	-----	-----	0.82
1.00	0.00	994.05	0.77	-----	-----	-----	-----	-----	-----	-----	-----	0.77
1.03	0.00	994.02	0.72	-----	-----	-----	-----	-----	-----	-----	-----	0.72
1.07	0.00	994.00	0.68	-----	-----	-----	-----	-----	-----	-----	-----	0.68
1.10	0.00	993.88	0.44	-----	-----	-----	-----	-----	-----	-----	-----	0.44
1.13	0.00	993.80	0.29	-----	-----	-----	-----	-----	-----	-----	-----	0.29
1.17	0.00	993.74	0.20	-----	-----	-----	-----	-----	-----	-----	-----	0.20
1.20	0.00	993.71	0.14	-----	-----	-----	-----	-----	-----	-----	-----	0.14
1.23	0.00	993.68	0.11	-----	-----	-----	-----	-----	-----	-----	-----	0.11

...End

Reservoir Report

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - BASIN-1

Pond Data

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

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	993.00	20	0	0
1.00	994.00	1,016	518	518
2.00	995.00	6,526	3,771	4,289
3.00	996.00	7,902	7,214	11,503
4.00	997.00	8,200	8,051	19,554

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 8.0	0.0	0.0	0.0
Span in	= 8.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 993.50	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.50	10.00	0.00	0.00
Crest El. ft	= 994.50	996.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	0.00	0.00
Weir Type	= Rect	Broad	---	---
Multi-Stage	= No	No	No	No

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

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	993.00	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.10	52	993.10	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.20	104	993.20	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.30	155	993.30	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.40	207	993.40	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.50	259	993.50	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.60	311	993.60	0.04	---	---	---	0.00	0.00	---	---	---	0.04
0.70	363	993.70	0.13	---	---	---	0.00	0.00	---	---	---	0.13
0.80	414	993.80	0.28	---	---	---	0.00	0.00	---	---	---	0.28
0.90	466	993.90	0.47	---	---	---	0.00	0.00	---	---	---	0.47
1.00	518	994.00	0.68	---	---	---	0.00	0.00	---	---	---	0.68
1.10	895	994.10	0.87	---	---	---	0.00	0.00	---	---	---	0.87
1.20	1,272	994.20	1.02	---	---	---	0.00	0.00	---	---	---	1.02
1.30	1,649	994.30	1.15	---	---	---	0.00	0.00	---	---	---	1.15
1.40	2,026	994.40	1.26	---	---	---	0.00	0.00	---	---	---	1.26
1.50	2,404	994.50	1.37	---	---	---	0.00	0.00	---	---	---	1.37
1.60	2,781	994.60	1.47	---	---	---	0.05	0.00	---	---	---	1.52
1.70	3,158	994.70	1.56	---	---	---	0.15	0.00	---	---	---	1.71
1.80	3,535	994.80	1.65	---	---	---	0.27	0.00	---	---	---	1.93
1.90	3,912	994.90	1.74	---	---	---	0.42	0.00	---	---	---	2.16
2.00	4,289	995.00	1.82	---	---	---	0.59	0.00	---	---	---	2.40
2.10	5,010	995.10	1.89	---	---	---	0.77	0.00	---	---	---	2.67
2.20	5,732	995.20	1.96	---	---	---	0.98	0.00	---	---	---	2.94
2.30	6,453	995.30	2.04	---	---	---	1.19	0.00	---	---	---	3.23
2.40	7,175	995.40	2.10	---	---	---	1.42	0.00	---	---	---	3.52
2.50	7,896	995.50	2.17	---	---	---	1.66	0.00	---	---	---	3.83
2.60	8,617	995.60	2.23	---	---	---	1.92	0.00	---	---	---	4.15
2.70	9,339	995.70	2.30	---	---	---	2.19	0.00	---	---	---	4.48
2.80	10,060	995.80	2.36	---	---	---	2.47	0.00	---	---	---	4.82
2.90	10,782	995.90	2.42	---	---	---	2.76	0.00	---	---	---	5.17
3.00	11,503	996.00	2.47	---	---	---	3.06	0.00	---	---	---	5.53
3.10	12,308	996.10	2.53	---	---	---	3.37	0.82	---	---	---	6.72
3.20	13,113	996.20	2.59	---	---	---	3.69	2.32	---	---	---	8.60

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
3.30	13,918	996.30	2.64	—	—	—	4.02	4.27	—	—	—	10.93
3.40	14,723	996.40	2.69	—	—	—	4.36	6.58	—	—	—	13.63
3.50	15,529	996.50	2.74	—	—	—	4.71	9.19	—	—	—	16.64
3.60	16,334	996.60	2.80	—	—	—	5.07	12.08	—	—	—	19.94
3.70	17,139	996.70	2.85	—	—	—	5.43	15.22	—	—	—	23.50
3.80	17,944	996.80	2.89	—	—	—	5.81	18.60	—	—	—	27.30
3.90	18,749	996.90	2.94	—	—	—	6.19	22.19	—	—	—	31.32
4.00	19,554	997.00	2.99	—	—	—	6.58	26.00	—	—	—	35.57

...End

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	6.54	1	10	3,927	---	-----	-----	PRE DEVELOPMENT
2	Rational	2.28	1	10	1,367	---	-----	-----	UNDETAINED
3	Rational	12.09	1	10	7,252	---	-----	-----	INTO BASIN
4	Reservoir	2.83	1	18	6,991	3	995.16	5,453	BASIN-1

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT

Hydrograph type	= Rational	Peak discharge	= 6.54 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Drainage area	= 3.6 ac	Runoff coeff.	= 0.3
Intensity	= 6.076 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 3,927 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.02	0.65
0.05	1.96
0.08	3.27
0.12	4.58
0.15	5.89
0.18	5.89
0.22	4.58
0.25	3.27
0.28	1.96
0.32	0.65

...End

Hydrograph Report

Hyd. No. 2

UNDETAINED

Hydrograph type	= Rational	Peak discharge	= 2.28 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Drainage area	= 1.3 ac	Runoff coeff.	= 0.3
Intensity	= 6.076 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1,367 cuft

Hydrograph Discharge Table

Time -- Outflow (hrs	cfs)
0.02	0.23
0.05	0.68
0.08	1.14
0.12	1.60
0.15	2.05
0.18	2.05
0.22	1.60
0.25	1.14
0.28	0.68
0.32	0.23

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 3

INTO BASIN

Hydrograph type	= Rational	Peak discharge	= 12.09 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Drainage area	= 2.3 ac	Runoff coeff.	= 0.85
Intensity	= 6.076 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 7,252 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.02	1.21
0.05	3.63
0.08	6.04
0.12	8.46
0.15	10.88
0.18	10.88
0.22	8.46
0.25	6.04
0.28	3.63
0.32	1.21

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

BASIN-1

Hydrograph type	= Reservoir	Peak discharge	= 2.83 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Inflow hyd. No.	= 3	Reservoir name	= BASIN-1
Max. Elevation	= 995.16 ft	Max. Storage	= 5,453 cuft

Storage Indication method used.

Outflow hydrograph volume = 6,991 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.07	4.83	994.01	0.70	----	----	----	----	----	----	----	----	0.70
0.10	7.25	994.18	0.98	----	----	----	----	----	----	----	----	0.98
0.13	9.67	994.41	1.27	----	----	----	----	----	----	----	----	1.27
0.17	12.09 <<	994.71	1.57	----	----	----	0.16	----	----	----	----	1.73
0.20	9.67	994.99	1.81	----	----	----	0.57	----	----	----	----	2.38
0.23	7.25	995.09	1.89	----	----	----	0.76	----	----	----	----	2.65
0.27	4.83	995.15	1.93	----	----	----	0.87	----	----	----	----	2.80
0.30	2.42	995.16 <<	1.94	----	----	----	0.90	----	----	----	----	2.83 <<
0.33	0.00	995.13	1.92	----	----	----	0.84	----	----	----	----	2.76
0.37	0.00	995.09	1.88	----	----	----	0.76	----	----	----	----	2.64
0.40	0.00	995.05	1.85	----	----	----	0.68	----	----	----	----	2.53
0.43	0.00	995.01	1.82	----	----	----	0.60	----	----	----	----	2.42
0.47	0.00	994.94	1.76	----	----	----	0.48	----	----	----	----	2.25
0.50	0.00	994.87	1.71	----	----	----	0.37	----	----	----	----	2.08
0.53	0.00	994.80	1.66	----	----	----	0.28	----	----	----	----	1.93
0.57	0.00	994.74	1.60	----	----	----	0.20	----	----	----	----	1.81
0.60	0.00	994.69	1.55	----	----	----	0.14	----	----	----	----	1.69
0.63	0.00	994.64	1.51	----	----	----	0.09	----	----	----	----	1.59
0.67	0.00	994.59	1.46	----	----	----	0.05	----	----	----	----	1.50
0.70	0.00	994.54	1.41	----	----	----	0.02	----	----	----	----	1.43
0.73	0.00	994.50	1.37	----	----	----	----	----	----	----	----	1.37
0.77	0.00	994.45	1.32	----	----	----	----	----	----	----	----	1.32
0.80	0.00	994.41	1.28	----	----	----	----	----	----	----	----	1.28
0.83	0.00	994.37	1.23	----	----	----	----	----	----	----	----	1.23
0.87	0.00	994.33	1.19	----	----	----	----	----	----	----	----	1.19
0.90	0.00	994.30	1.14	----	----	----	----	----	----	----	----	1.14
0.93	0.00	994.26	1.10	----	----	----	----	----	----	----	----	1.10
0.97	0.00	994.23	1.05	----	----	----	----	----	----	----	----	1.05
1.00	0.00	994.19	1.01	----	----	----	----	----	----	----	----	1.01
1.03	0.00	994.16	0.96	----	----	----	----	----	----	----	----	0.96
1.07	0.00	994.13	0.92	----	----	----	----	----	----	----	----	0.92
1.10	0.00	994.10	0.88	----	----	----	----	----	----	----	----	0.88
1.13	0.00	994.08	0.83	----	----	----	----	----	----	----	----	0.83
1.17	0.00	994.05	0.78	----	----	----	----	----	----	----	----	0.78
1.20	0.00	994.03	0.73	----	----	----	----	----	----	----	----	0.73
1.23	0.00	994.00	0.69	----	----	----	----	----	----	----	----	0.69
1.27	0.00	993.90	0.47	----	----	----	----	----	----	----	----	0.47
1.30	0.00	993.81	0.30	----	----	----	----	----	----	----	----	0.30

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1.33	0.00	993.75	0.21	-----	-----	-----	-----	-----	-----	-----	-----	0.21
1.37	0.00	993.71	0.15	-----	-----	-----	-----	-----	-----	-----	-----	0.15

...End

Reservoir Report

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - BASIN-1

Pond Data

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

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	993.00	20	0	0
1.00	994.00	1,016	518	518
2.00	995.00	6,526	3,771	4,289
3.00	996.00	7,902	7,214	11,503
4.00	997.00	8,200	8,051	19,554

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 8.0	0.0	0.0	0.0
Span in	= 8.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 993.50	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.50	10.00	0.00	0.00
Crest El. ft	= 994.50	996.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	0.00	0.00
Weir Type	= Rect	Broad	---	---
Multi-Stage	= No	No	No	No

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

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	993.00	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.10	52	993.10	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.20	104	993.20	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.30	155	993.30	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.40	207	993.40	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.50	259	993.50	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.60	311	993.60	0.04	---	---	---	0.00	0.00	---	---	---	0.04
0.70	363	993.70	0.13	---	---	---	0.00	0.00	---	---	---	0.13
0.80	414	993.80	0.28	---	---	---	0.00	0.00	---	---	---	0.28
0.90	466	993.90	0.47	---	---	---	0.00	0.00	---	---	---	0.47
1.00	518	994.00	0.68	---	---	---	0.00	0.00	---	---	---	0.68
1.10	895	994.10	0.87	---	---	---	0.00	0.00	---	---	---	0.87
1.20	1,272	994.20	1.02	---	---	---	0.00	0.00	---	---	---	1.02
1.30	1,649	994.30	1.15	---	---	---	0.00	0.00	---	---	---	1.15
1.40	2,026	994.40	1.26	---	---	---	0.00	0.00	---	---	---	1.26
1.50	2,404	994.50	1.37	---	---	---	0.00	0.00	---	---	---	1.37
1.60	2,781	994.60	1.47	---	---	---	0.05	0.00	---	---	---	1.52
1.70	3,158	994.70	1.56	---	---	---	0.15	0.00	---	---	---	1.71
1.80	3,535	994.80	1.65	---	---	---	0.27	0.00	---	---	---	1.93
1.90	3,912	994.90	1.74	---	---	---	0.42	0.00	---	---	---	2.16
2.00	4,289	995.00	1.82	---	---	---	0.59	0.00	---	---	---	2.40
2.10	5,010	995.10	1.89	---	---	---	0.77	0.00	---	---	---	2.67
2.20	5,732	995.20	1.96	---	---	---	0.98	0.00	---	---	---	2.94
2.30	6,453	995.30	2.04	---	---	---	1.19	0.00	---	---	---	3.23
2.40	7,175	995.40	2.10	---	---	---	1.42	0.00	---	---	---	3.52
2.50	7,896	995.50	2.17	---	---	---	1.66	0.00	---	---	---	3.83
2.60	8,617	995.60	2.23	---	---	---	1.92	0.00	---	---	---	4.15
2.70	9,339	995.70	2.30	---	---	---	2.19	0.00	---	---	---	4.48
2.80	10,060	995.80	2.36	---	---	---	2.47	0.00	---	---	---	4.82
2.90	10,782	995.90	2.42	---	---	---	2.76	0.00	---	---	---	5.17
3.00	11,503	996.00	2.47	---	---	---	3.06	0.00	---	---	---	5.53
3.10	12,308	996.10	2.53	---	---	---	3.37	0.82	---	---	---	6.72
3.20	13,113	996.20	2.59	---	---	---	3.69	2.32	---	---	---	8.60

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Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
3.30	13,918	996.30	2.64	—	—	—	4.02	4.27	—	—	—	10.93
3.40	14,723	996.40	2.69	—	—	—	4.36	6.58	—	—	—	13.63
3.50	15,529	996.50	2.74	—	—	—	4.71	9.19	—	—	—	16.64
3.60	16,334	996.60	2.80	—	—	—	5.07	12.08	—	—	—	19.94
3.70	17,139	996.70	2.85	—	—	—	5.43	15.22	—	—	—	23.50
3.80	17,944	996.80	2.89	—	—	—	5.81	18.60	—	—	—	27.30
3.90	18,749	996.90	2.94	—	—	—	6.19	22.19	—	—	—	31.32
4.00	19,554	997.00	2.99	—	—	—	6.58	26.00	—	—	—	35.57

...End

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	11.57	1	10	6,939	---	-----	-----	PRE DEVELOPMENT
2	Rational	4.03	1	10	2,416	---	-----	-----	UNDETAINED
3	Rational	21.36	1	10	12,815	---	-----	-----	INTO BASIN
4	Reservoir	4.74	1	18	12,555	3	995.77	9,879	BASIN-1

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT

Hydrograph type	= Rational	Peak discharge	= 11.57 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 3.6 ac	Runoff coeff.	= 0.3
Intensity	= 10.738 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 6,939 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow cfs)
0.02	1.16
0.05	3.47
0.08	5.78
0.12	8.10
0.15	10.41
0.18	10.41
0.22	8.10
0.25	5.78
0.28	3.47
0.32	1.16

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 2

UNDETAINED

Hydrograph type	= Rational	Peak discharge	= 4.03 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 1.3 ac	Runoff coeff.	= 0.3
Intensity	= 10.738 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 2,416 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.02	0.40
0.05	1.21
0.08	2.01
0.12	2.82
0.15	3.62
0.18	3.62
0.22	2.82
0.25	2.01
0.28	1.21
0.32	0.40

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 3

INTO BASIN

Hydrograph type	= Rational	Peak discharge	= 21.36 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 2.3 ac	Runoff coeff.	= 0.85
Intensity	= 10.738 in/hr	Time of conc. (Tc)	= 10 min
IDF Curve	= SampleFHA.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 12,815 cuft

Hydrograph Discharge Table

Time -- Outflow (hrs	cfs)
0.02	2.14
0.05	6.41
0.08	10.68
0.12	14.95
0.15	19.22
0.18	19.22
0.22	14.95
0.25	10.68
0.28	6.41
0.32	2.14

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

BASIN-1

Hydrograph type	= Reservoir	Peak discharge	= 4.74 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 3	Reservoir name	= BASIN-1
Max. Elevation	= 995.77 ft	Max. Storage	= 9,879 cuft

Storage Indication method used.

Outflow hydrograph volume = 12,555 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.07	8.54	994.12	0.90	----	----	----	----	----	----	----	----	0.90
0.10	12.82	994.42	1.29	----	----	----	----	----	----	----	----	1.29
0.13	17.09	994.85	1.69	----	----	----	0.34	----	----	----	----	2.03
0.17	21.36 <<	995.20	1.96	----	----	----	0.97	----	----	----	----	2.93
0.20	17.09	995.46	2.14	----	----	----	1.57	----	----	----	----	3.72
0.23	12.82	995.64	2.26	----	----	----	2.04	----	----	----	----	4.30
0.27	8.54	995.75	2.32	----	----	----	2.32	----	----	----	----	4.64
0.30	4.27	995.77 <<	2.34	----	----	----	2.40	----	----	----	----	4.74 <<
0.33	0.00	995.73	2.32	----	----	----	2.28	----	----	----	----	4.59
0.37	0.00	995.66	2.27	----	----	----	2.08	----	----	----	----	4.35
0.40	0.00	995.59	2.23	----	----	----	1.89	----	----	----	----	4.12
0.43	0.00	995.52	2.18	----	----	----	1.72	----	----	----	----	3.90
0.47	0.00	995.46	2.14	----	----	----	1.56	----	----	----	----	3.70
0.50	0.00	995.40	2.10	----	----	----	1.42	----	----	----	----	3.52
0.53	0.00	995.34	2.06	----	----	----	1.29	----	----	----	----	3.35
0.57	0.00	995.29	2.03	----	----	----	1.16	----	----	----	----	3.19
0.60	0.00	995.23	1.99	----	----	----	1.05	----	----	----	----	3.04
0.63	0.00	995.19	1.95	----	----	----	0.95	----	----	----	----	2.90
0.67	0.00	995.14	1.92	----	----	----	0.85	----	----	----	----	2.77
0.70	0.00	995.09	1.89	----	----	----	0.76	----	----	----	----	2.65
0.73	0.00	995.05	1.85	----	----	----	0.68	----	----	----	----	2.53
0.77	0.00	995.01	1.82	----	----	----	0.60	----	----	----	----	2.43
0.80	0.00	994.94	1.77	----	----	----	0.49	----	----	----	----	2.26
0.83	0.00	994.87	1.71	----	----	----	0.38	----	----	----	----	2.09
0.87	0.00	994.81	1.66	----	----	----	0.29	----	----	----	----	1.95
0.90	0.00	994.75	1.61	----	----	----	0.21	----	----	----	----	1.82
0.93	0.00	994.69	1.56	----	----	----	0.14	----	----	----	----	1.70
0.97	0.00	994.64	1.51	----	----	----	0.09	----	----	----	----	1.60
1.00	0.00	994.59	1.46	----	----	----	0.05	----	----	----	----	1.51
1.03	0.00	994.54	1.42	----	----	----	0.02	----	----	----	----	1.44
1.07	0.00	994.50	1.37	----	----	----	----	----	----	----	----	1.37
1.10	0.00	994.46	1.33	----	----	----	----	----	----	----	----	1.33
1.13	0.00	994.41	1.28	----	----	----	----	----	----	----	----	1.28
1.17	0.00	994.37	1.24	----	----	----	----	----	----	----	----	1.24
1.20	0.00	994.34	1.19	----	----	----	----	----	----	----	----	1.19
1.23	0.00	994.30	1.15	----	----	----	----	----	----	----	----	1.15
1.27	0.00	994.26	1.10	----	----	----	----	----	----	----	----	1.10
1.30	0.00	994.23	1.06	----	----	----	----	----	----	----	----	1.06

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1.33	0.00	994.20	1.01	-----	-----	-----	-----	-----	-----	-----	-----	1.01
1.37	0.00	994.16	0.97	-----	-----	-----	-----	-----	-----	-----	-----	0.97
1.40	0.00	994.13	0.92	-----	-----	-----	-----	-----	-----	-----	-----	0.92
1.43	0.00	994.11	0.88	-----	-----	-----	-----	-----	-----	-----	-----	0.88
1.47	0.00	994.08	0.83	-----	-----	-----	-----	-----	-----	-----	-----	0.83
1.50	0.00	994.05	0.78	-----	-----	-----	-----	-----	-----	-----	-----	0.78
1.53	0.00	994.03	0.73	-----	-----	-----	-----	-----	-----	-----	-----	0.73
1.57	0.00	994.01	0.69	-----	-----	-----	-----	-----	-----	-----	-----	0.69
1.60	0.00	993.91	0.48	-----	-----	-----	-----	-----	-----	-----	-----	0.48
1.63	0.00	993.82	0.31	-----	-----	-----	-----	-----	-----	-----	-----	0.31

...End

Reservoir Report

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - BASIN-1

Pond Data

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

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	993.00	20	0	0
1.00	994.00	1,016	518	518
2.00	995.00	6,526	3,771	4,289
3.00	996.00	7,902	7,214	11,503
4.00	997.00	8,200	8,051	19,554

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 8.0	0.0	0.0	0.0
Span in	= 8.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 993.50	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.50	10.00	0.00	0.00
Crest El. ft	= 994.50	996.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	0.00	0.00
Weir Type	= Rect	Broad	---	---
Multi-Stage	= No	No	No	No

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

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	993.00	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.10	52	993.10	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.20	104	993.20	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.30	155	993.30	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.40	207	993.40	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.50	259	993.50	0.00	---	---	---	0.00	0.00	---	---	---	0.00
0.60	311	993.60	0.04	---	---	---	0.00	0.00	---	---	---	0.04
0.70	363	993.70	0.13	---	---	---	0.00	0.00	---	---	---	0.13
0.80	414	993.80	0.28	---	---	---	0.00	0.00	---	---	---	0.28
0.90	466	993.90	0.47	---	---	---	0.00	0.00	---	---	---	0.47
1.00	518	994.00	0.68	---	---	---	0.00	0.00	---	---	---	0.68
1.10	895	994.10	0.87	---	---	---	0.00	0.00	---	---	---	0.87
1.20	1,272	994.20	1.02	---	---	---	0.00	0.00	---	---	---	1.02
1.30	1,649	994.30	1.15	---	---	---	0.00	0.00	---	---	---	1.15
1.40	2,026	994.40	1.26	---	---	---	0.00	0.00	---	---	---	1.26
1.50	2,404	994.50	1.37	---	---	---	0.00	0.00	---	---	---	1.37
1.60	2,781	994.60	1.47	---	---	---	0.05	0.00	---	---	---	1.52
1.70	3,158	994.70	1.56	---	---	---	0.15	0.00	---	---	---	1.71
1.80	3,535	994.80	1.65	---	---	---	0.27	0.00	---	---	---	1.93
1.90	3,912	994.90	1.74	---	---	---	0.42	0.00	---	---	---	2.16
2.00	4,289	995.00	1.82	---	---	---	0.59	0.00	---	---	---	2.40
2.10	5,010	995.10	1.89	---	---	---	0.77	0.00	---	---	---	2.67
2.20	5,732	995.20	1.96	---	---	---	0.98	0.00	---	---	---	2.94
2.30	6,453	995.30	2.04	---	---	---	1.19	0.00	---	---	---	3.23
2.40	7,175	995.40	2.10	---	---	---	1.42	0.00	---	---	---	3.52
2.50	7,896	995.50	2.17	---	---	---	1.66	0.00	---	---	---	3.83
2.60	8,617	995.60	2.23	---	---	---	1.92	0.00	---	---	---	4.15
2.70	9,339	995.70	2.30	---	---	---	2.19	0.00	---	---	---	4.48
2.80	10,060	995.80	2.36	---	---	---	2.47	0.00	---	---	---	4.82
2.90	10,782	995.90	2.42	---	---	---	2.76	0.00	---	---	---	5.17
3.00	11,503	996.00	2.47	---	---	---	3.06	0.00	---	---	---	5.53
3.10	12,308	996.10	2.53	---	---	---	3.37	0.82	---	---	---	6.72
3.20	13,113	996.20	2.59	---	---	---	3.69	2.32	---	---	---	8.60

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Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
3.30	13,918	996.30	2.64	—	—	—	4.02	4.27	—	—	—	10.93
3.40	14,723	996.40	2.69	—	—	—	4.36	6.58	—	—	—	13.63
3.50	15,529	996.50	2.74	—	—	—	4.71	9.19	—	—	—	16.64
3.60	16,334	996.60	2.80	—	—	—	5.07	12.08	—	—	—	19.94
3.70	17,139	996.70	2.85	—	—	—	5.43	15.22	—	—	—	23.50
3.80	17,944	996.80	2.89	—	—	—	5.81	18.60	—	—	—	27.30
3.90	18,749	996.90	2.94	—	—	—	6.19	22.19	—	—	—	31.32
4.00	19,554	997.00	2.99	—	—	—	6.58	26.00	—	—	—	35.57

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