Toben 5th Addition
Preliminary Drainage Report
Wichita, Sedgwick County, Kansas

Location

The subject property is in the City of Wichita, Sedgwick County, Kansas. The proposed development is east of Rock Road, west of Webb Road, and north of 37th Street North. The site is accessible from Toben Street/ 39th Street. The site lies in the southeast ¼ of Section 29, Township 26 South, Range 2 East. The Plat has an approximate area of 55 acres. The site is shown on the Greenwich Kansas Quadrangle, located in Appendix A.

Soils

According to the NRCS (SCS) GIS Sedgwick County Soil Survey (Appendix B), the soil on the site is Rosehill silty clay, 1-3% slopes (HSG "D"). The Hydrologic Soil Group (HSG) "D" was used to determine runoff coefficients.

Pre-Project Conditions

Pre-Project Development
The property is currently grassland.

Pre-Project Landform and Slope
Slopes across the site range from 1.0-5.0%.

Pre-Project Drainage Conditions
The site is located within Zone C-areas of minimal flooding. The nearest Zone A, areas within the 100-year floodplain, is located approximately ¼ mile east of the site. (City of Wichita, Sedgwick County, Kasas FIRM Panel 15 of 40) (Appendix C).

Pre-Project Runoff Characteristics
The site drains from east to west to an existing railroad ditch along the west property line. A ridge divides the site into two watersheds. The North Watershed is approximately 96 acres and drains to an existing 7'x4' Reinforced Concrete Box (RCB) located near the northwest corner of the site. Approximately 7.0 acre-feet of dry detention exists east of this RCB. The South Watershed is approximately 68 acres and drains to an existing 7'x4' RCB near the center of the west property line. The watersheds were divided into several sub-watersheds for modeling purposes. The pre-project sub-watersheds are shown on the Existing Boundaries Map, Appendix D. Times of concentration were calculated using the FAA Method, Appendix E. Pre-project conditions were modeled using the Rational Method in Hydraflow Hydrographs by Intelisolve, Appendix F. Table 1 is a summary of pre-project flow rates.

Table 1. Pre-Project Flow Rates

	2-year (cfs)	5-year (cfs)	10-year (cfs)	100-year (cfs)
North Watershed	44.4	66.2	84.4	162.9
South Watershed	80.4	106.5	147.3	273.6

All runoff from the Toben 5th Addition drains into Willowbend First Addition. Offsite areas were considered to be developed for pre-project calculations.

Post-Project Conditions

Post-Project Development
The subject property will develop as 13 light industrial lots ranging is size from approximately 1.7 to 6.2 acres.

Post-Project Landform and Slope
Slopes across the site will remain similar to pre-project slopes. Three detention ponds will be constructed on site, one near the northwest corner, and two near the center of the property. The excavated soil will be used to construct building pads on the site. A Preliminary Four Corner Lot Grading Plan is located in Appendix G.

Post-Project Runoff Characteristics
The post-project sub-watersheds are show on the Post-Project Boundaries Map in Appendix H. A detention pond will be constructed near the northwest corner of the site. Runoff from sub-watersheds B Offsite and A Onsite will be routed into the proposed North detention pond. Sub-watershed A Offsite will continue to drain to the existing area of dry detention east of the existing 7'x4' RCB.

Two proposed ponds located near the center of the subject property will provide detention for the South Watershed. The detention provided by these two ponds allows runoff from sub-watershed G Onsite to exit the property without detention. The post-project times of concentration were calculated using the FAA Method, Appendix E. Post-project flow rates were modeled using the Rational Method in Hydraflow Hydrographs by Intelisolve, Appendix F. A summary of post-project flow rates is in Table 2.

Table 2. Post-Project Flow Rates

	2-year (cfs)	5-year (cfs)	10-year (cfs)	100-year (cfs)
North Watershed	44.6	64.0	80.7	145.4
South Watershed	78.7	97.7	126.4	217.0

The flow rate was decreased in the 100-year event by 17.5 cfs in the North Watershed and 56.6 cfs in the South Watershed from pre-project to post-project conditions.

Stormwater Sewer Systems (SWS)

An existing 3-48" Reinforced Concrete Pipe (RCP) stub will be extended under the railroad track near the center of the west property line. This system will replace the existing 7'x4' RCB. The purpose of this replacement is to reduce the 100-year High Water Elevation (HWE) along the west property line. This replacement in not intended to reduce peak-flow rates from the site. The existing 7'x4' RCB and the proposed 3-48" RCP were analyzed using HY-8, Appendix I. Table 3 is a summary of the HY-8 output.

Table 3. Existing 7'x4' RCB and Proposed 3-48" RCP HY-8 Output.

	Pre-Project Flow Rate (cfs)	Pre-Project HWE (ft)	Post-Project Flow Rate (cfs)	Post-Project HWE (ft)
7'x4' RCB	273.5	212.4	217.0	211.1
3-48" RCP	273.5	204.8	217.0	204.1

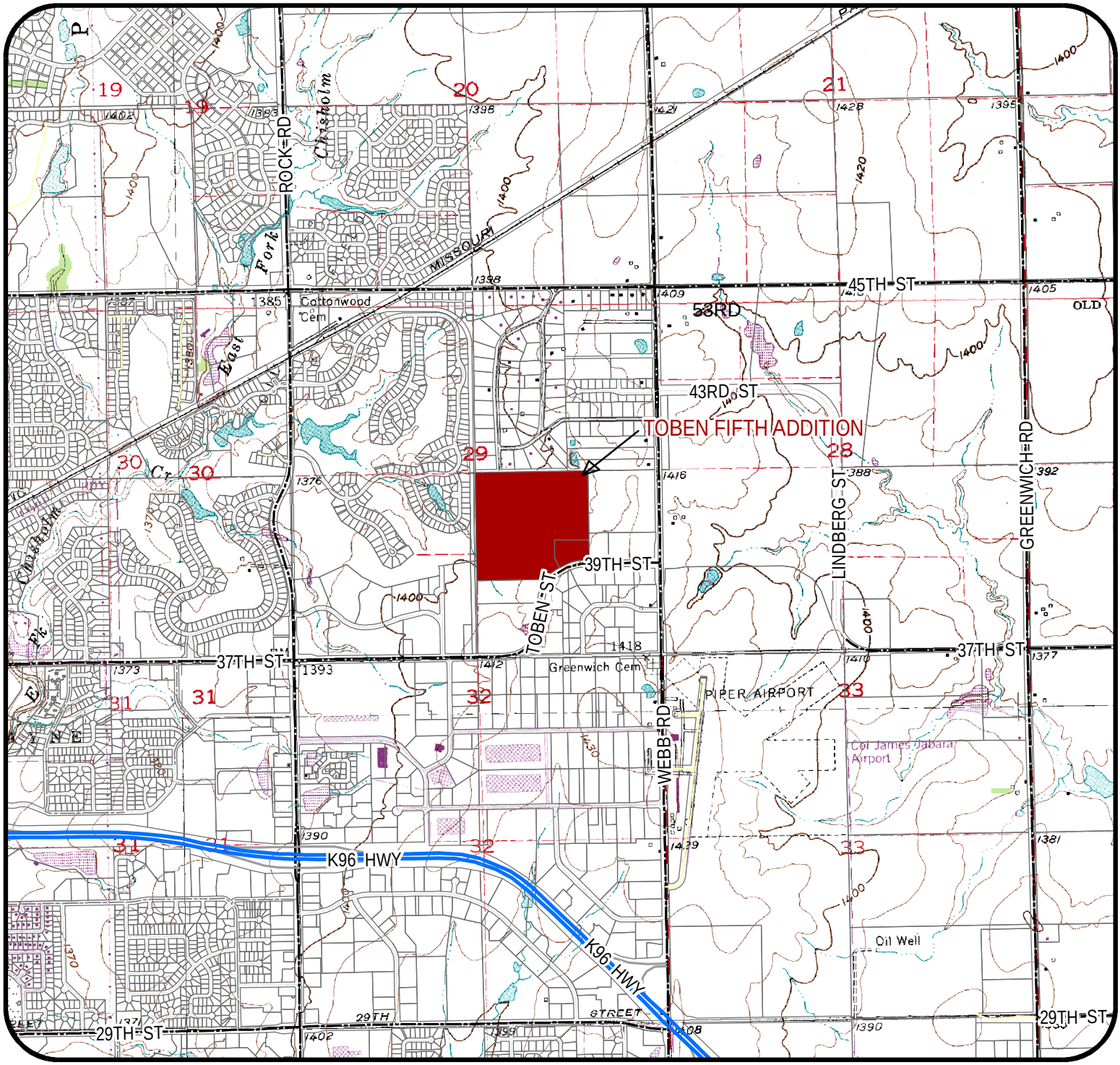
The construction of the 3-48" RCP reduces the HWE along the west property line by approximately 7.6 feet under pre-project conditions and approximately 7.0 feet under post-project conditions. The reduction of the HWE allows for development along the west property line.

The site was divided into basins to size SWS and drainage swales carrying runoff to and from the ponds. The basins are shown on the Drainage and Utility Plan, Appendix J. Flow rates to the proposed SWS and swales were calculated using the Rational Method in a spreadsheet, Appendix K. SWS pipes were sized using Hydraflow Storm Sewer, Appendix L. The proposed swales were sized using Flow Master, Appendix M.

Summary

Toben Fifth Addition is approximately 55 acres north of 37th Street North and west of Webb Road. This area is zoned for light industrial use. The subject property has previously been plated as Toben Fourth Addition. A ridge divides the site into two separate drainage basins. The north basin drains to an existing 7'x4' RCB located near the northwest corner of the site. Pre-project calculations show that approximately 7.0 acre-feet of dry storage is currently present upstream of this RCB. The South Watershed drains to an existing 7'x4' RCB located near the center of the west property line. This RCB will be replaced by 3-48" RCP. The 3-48" RCP will reduce the HWE along the west property line. The site will develop for light industrial use. Three detention ponds will be constructed onsite to control runoff. The flow rate decreases from pre-project to post-project conditions in the 100-year event by 17.5 cfs in the North Watershed and 56.6 cfs in the South Watershed. Runoff from both watersheds drains into the Willowbend Addition.

Appendix A
Quadrangle



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1,000 500 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

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TOBEN FIFTH ADDITION

Project Name:

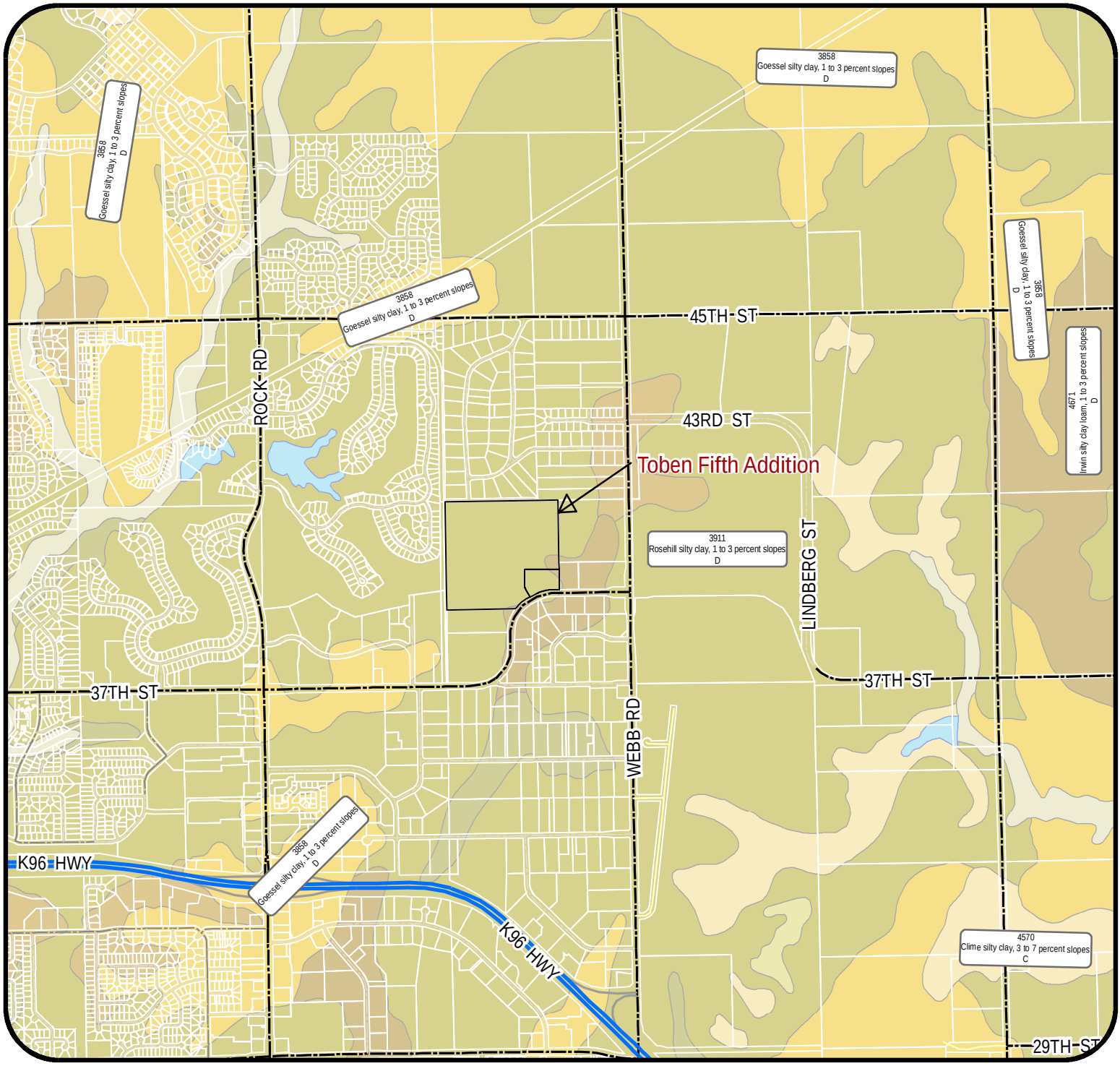
USGS - Sedgwick County, KS

Sheet Title:

MKEC ENGINEERING CONSULTANTS, INC.

AJK	March, 2006
Drawn By:	Date:
AJK / KLA	00315
Design / Review:	Job No.:

Appendix B
Soil Survey



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1,000 500 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

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Toben Fifth Addition

Project Name:

Soil Survey - Sedgwick County, KS

Sheet Title:

MKEC ENGINEERING CONSULTANTS, INC.

AJK	March, 2006
Drawn By:	Date:
AJK / KLA	00315
Design / Review:	Job No.:

Appendix C
FIRM & FBFM

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

PANEL 15 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0015 B

EFFECTIVE DATE:
MAY 15, 1986

Federal Emergency Management Agency

APPROXIMATE SCALE

1000 0 1000 FEET

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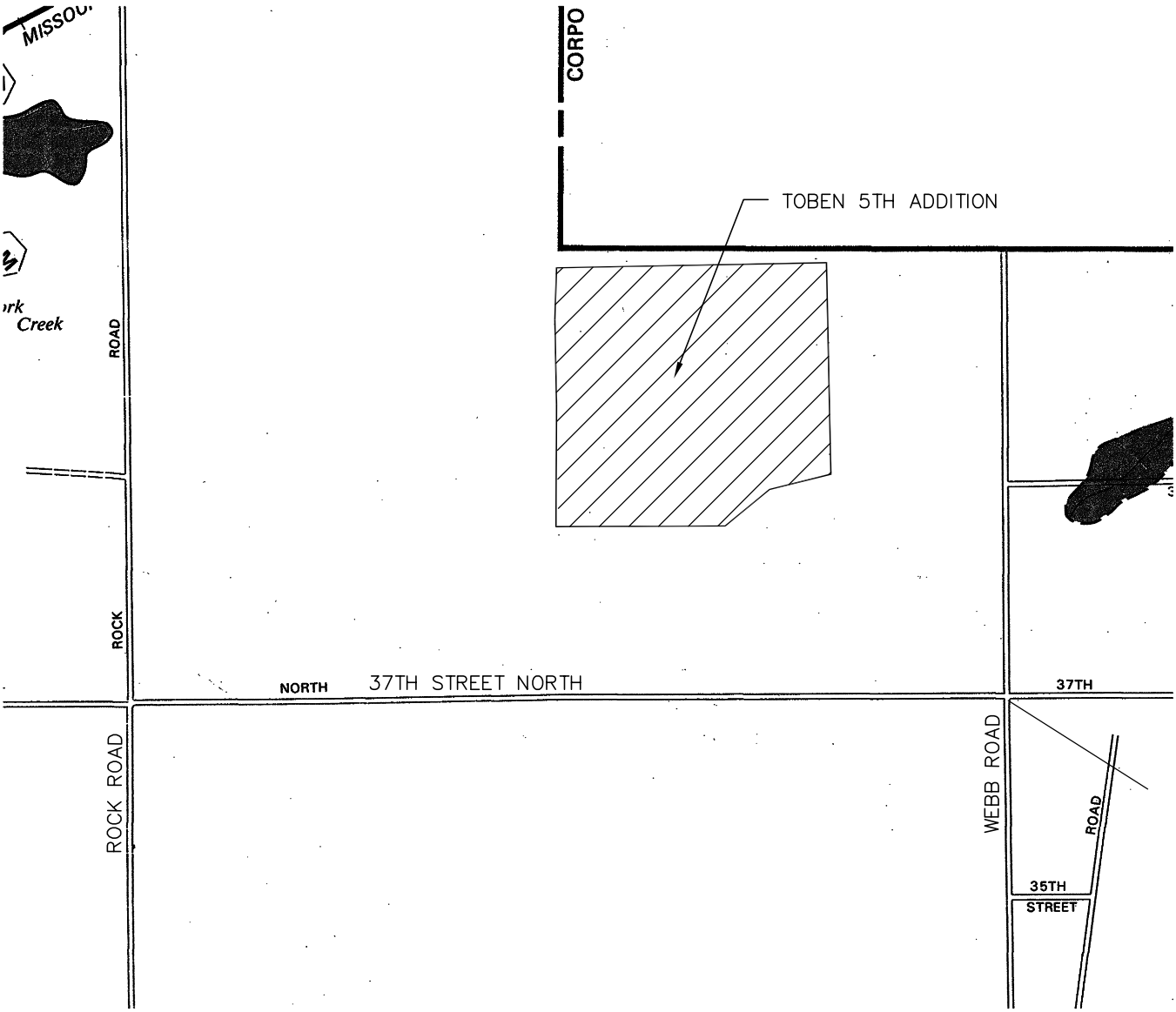
MKEC
ENGINEERING
CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

TOBEN 5TH ADDITION
PROJECT NAME

FIRM PANEL 225 OF 300
SEDGWICK COUNTY, KANSAS
SHEET TITLE

AJK	KWS	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
MARCH 2006	05753	1 / 1
DATE	JOB NO.	SHEET/OF



NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

PANEL 15 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0015

EFFECTIVE DATE:
MAY 15, 1986

Federal Emergency Management Agency

N

APPROXIMATE SCALE

1000 0 1000 FEET

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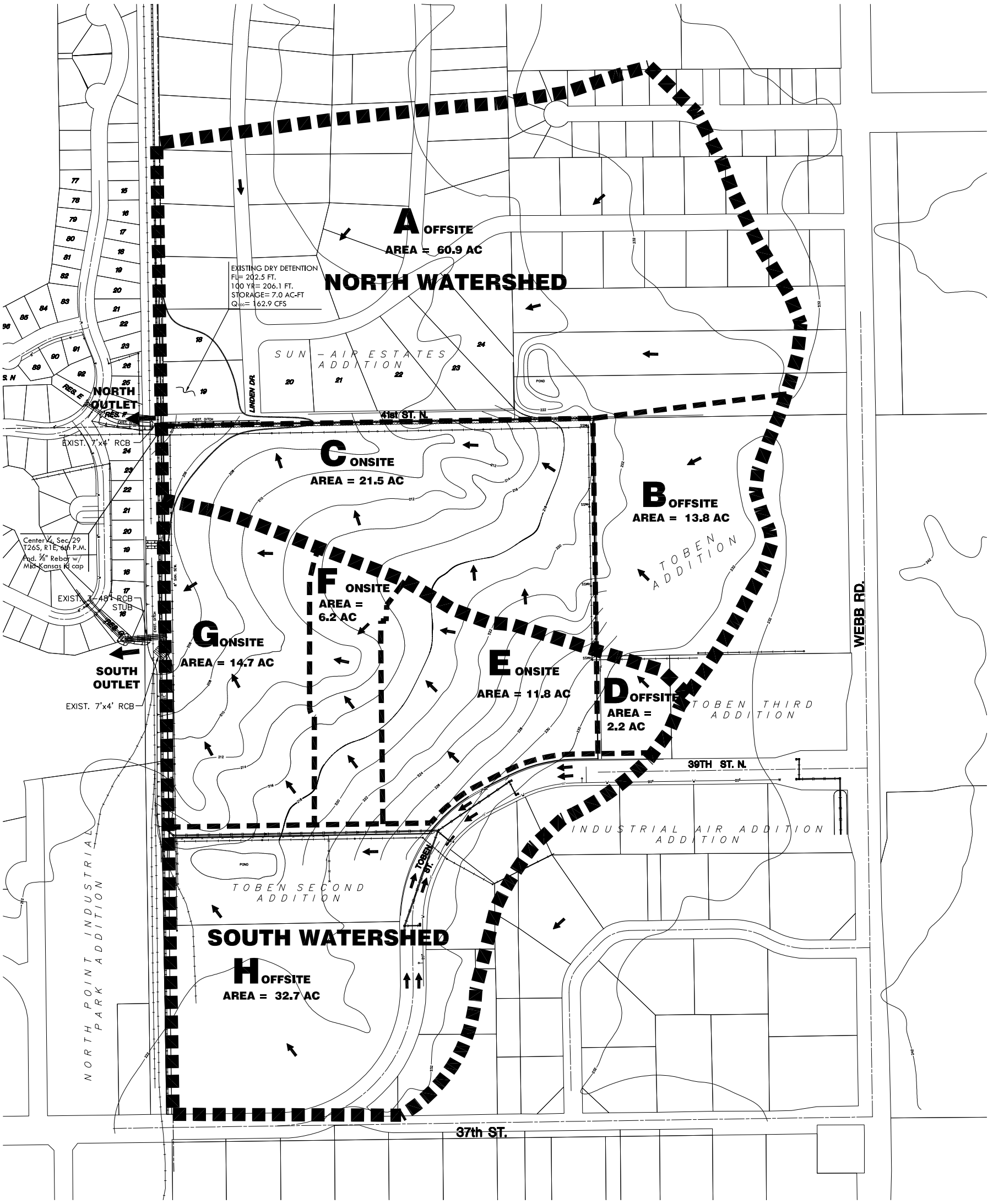
MKEC
ENGINEERING
CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

TOBIN 5TH ADDITION
PROJECT NAME

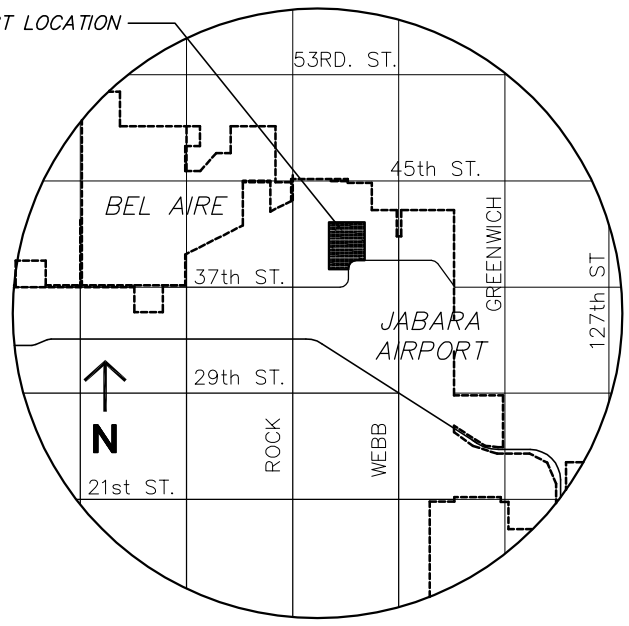
FBFM PANEL 225 OF 300
SEDGWICK COUNTY, KANSAS
SHEET TITLE

AJK	KWS	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
MARCH 2006	00315	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix D
Existing Boundaries Map



PROJECT LOCATION



VICINITY MAP

NOTES

1. ZONING: Existing - LI "LIMITED INDUSTRIAL"
2. ANNEXATION: NA, Lies within the City of Wichita
3. PUBLIC UTILITIES: Paving and certain utilities shall be extended to site by petitions
4. LEGAL DESCRIPTION: A replat of all of Toben Fourth Addition, an addition to Wichita, Sedgwick County, Kansas.
5. EXISTING USE: Vacant Industrial land
6. PLAT AREA: Gross = 55.3 ac Net = 41.8 ac.
7. MINIMUM PADS: As shown on the Final Drainage Plan
8. LOT TOTAL: 13
9. RESERVES: Reserve "A" is platted for landscaping, irrigation, and monuments. "B" is platted for drainage, landscaping, irrigation, open space, and monuments.
10. PLSS: A tract lying within a portion of the Southeast Quarter, Section 29, Township 26 South, Range 2 East, of the Sixth Principal Meridian.

BENCH MARK

BM#1 "□" cut on center of W. side of middle inlet of three at the N.W. corner Lot 12, block 1. Elev.=224.96

LEGEND

- GM – GAS METER
- YLG – YARD LIGHT
- ELECT MH – ELECTRIC MANHOLE
- SIG LIGHT – SIGNAL LIGHT
- 6IN – CONIFEROUS TREE & DIAMETER
- 3IN – DECIDUOUS TREE & DIAMETER
- SN – SIGN
- – IRON BAR
- – BUSH
- PP – POWER POLE AND GUY
- KGE – ELECTRIC BOX
- CO – SEWER CLEANOUT
- – EDGE OF TREES
- – FENCE
- – BENCHMARK
- SWMH – STORM WATER MANHOLE
- SSMH – SANITARY SEWER MANHOLE
- SWB – TELEPHONE MANHOLE
- – SECTION CORNER
- – 5/8" REBAR/MKEC CLS #39 SET
- – FOUND REBAR
- POLE – POLE
- – GATE
- TRAF MH – TRAFFIC SIGNAL MANHOLE
- SPK – SPRINKLER HEAD
- – WALL
- LP – LIGHT POLE
- FH – FIRE HYDRANT
- WV – WATER VALVE
- WM – WATER METER
- ICV – IRRIGATION CONTROL VALVE
- – GRATE INLET
- TR – TELEPHONE RISER
- – INLET
- – STORM SEWER PIPE
- – WATER LINE
- – SANITARY SEWER LINE
- – GAS LINE
- – TELEPHONE LINE
- – UNDERGROUND ELECTRIC LINE
- – OVERHEAD TELEPHONE
- – OVERHEAD ELECTRIC
- – UNDERGROUND FIBER OPTIC CABLE
- – DRAINAGE BOUNDARY
- A – DRAINAGE BOUNDARY LABEL
- – FLOW ARROWS

SCALE: 1"=200'

200 0 200 400

H:\CIVIL\00315\DWG\PROP\DNRG\EXISTING.DWG

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

TOBEN FIFTH ADDITION
PROJECT NAME

EXISTING BOUNDARIES
SHEET TITLE

AJK	JFL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2006	00315	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix E
Time of Concentration Calculations

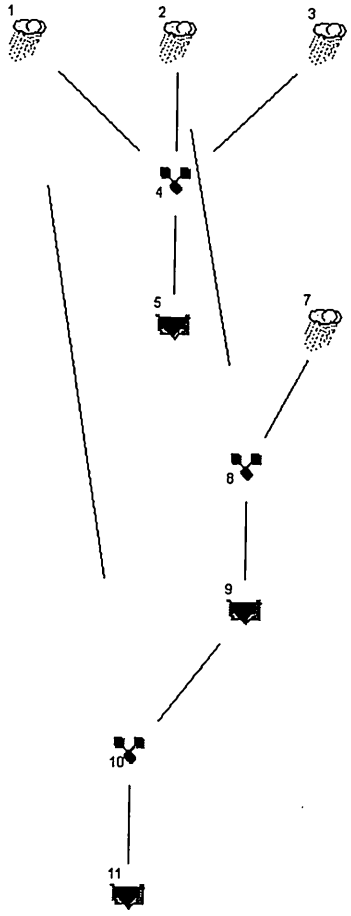
Time of Concentration Calculations

Toben Fifth Addition

Soil Group **D**

Area Name	C 2-yr	C 5-yr	C 10-yr	C 100-yr	Land Use	Maximum Elevation	Minimum Elevation	Flow Length (L)	T_c 2-yr	T_c 5-yr	T_c 10-yr	T_c 100-yr
Pre-Project												
A Offsite	0.41	0.45	0.54	0.71	Residential - 1 Acre	233.0	205.0	2600	61.8	58.2	50.1	34.9
B Offsite	0.68	0.69	0.73	0.80	Industrial - Light	323.0	220.0	900	15.0	15.0	15.0	15.0
C Onsite	0.32	0.37	0.47	0.67	Agricultural - Pasture - Slopes 1-4%	224.0	205.0	1900	61.2	57.3	49.4	33.7
D Offsite	0.68	0.69	0.73	0.80	Industrial - Light	233.0	230.0	300	15.0	15.0	15.0	15.0
E Onsite	0.32	0.37	0.47	0.67	Agricultural - Pasture - Slopes 1-4%	232.0	220.0	600	27.3	25.5	22.0	15.0
F Onsite	0.32	0.37	0.47	0.67	Agricultural - Pasture - Slopes 1-4%	224.0	211.0	650	28.4	26.6	22.9	15.7
G Onsite	0.32	0.37	0.47	0.67	Agricultural - Pasture - Slopes 1-4%	220.0	205.0	900	35.5	33.2	28.7	19.6
H Offsite	0.68	0.69	0.73	0.80	Industrial - Light	232.0	214.0	1800	32.1	31.3	28.3	22.9
Post-Project												
A Offsite	0.41	0.45	0.54	0.71	Residential - 1 Acre	233.0	205.0	2600	61.8	58.2	50.1	34.9
B Offsite	0.68	0.69	0.73	0.80	Industrial - Light	323.0	220.0	900	15.0	15.0	15.0	15.0
C Onsite	0.68	0.69	0.73	0.80	Industrial - Light	224.0	205.0	2000	34.4	33.6	30.3	24.6
D Offsite	0.68	0.69	0.73	0.80	Industrial - Light	233.0	230.0	300	15.0	15.0	15.0	15.0
E Onsite	0.68	0.69	0.73	0.80	Industrial - Light	232.0	220.0	650	15.7	15.3	15.0	15.0
F Onsite	0.68	0.69	0.73	0.80	Industrial - Light	224.0	211.0	650	15.3	15.0	15.0	15.0
G Onsite	0.68	0.69	0.73	0.80	Industrial - Light	220.0	205.0	1000	20.9	20.4	18.4	15.0
H Offsite	0.68	0.69	0.73	0.80	Industrial - Light	232.0	214.0	1800	32.1	31.3	28.3	22.9

Appendix F
Hydraflow Hydrographs by Intelisolve
Output



Hydraflow Hydrographs Diagram	Project: North WS 100.gpw	04-06-2006

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	41.22	1	62	3.520	----	------	------	A Offsite
2	Rational	35.85	1	15	0.741	----	------	------	B Offsite
3	Rational	11.49	1	61	0.965	----	------	------	C Onsite Pre-Proj
4	Combine	52.52	1	62	5.226	1, 2, 3	------	------	N Outlet Pre-Proj
5	Reservoir	44.39	1	72	5.226	4	204.01	1.305	Pre-Proj North Outlet
7	Rational	37.00	1	34	1.733	----	------	------	C Onsite Post-Proj
8	Combine	52.18	1	15	2.474	2, 7	------	------	Flow to North Pond
9	Reservoir	11.45	1	57	2.369	8	205.58	1.933	North Pond
10	Combine	52.55	1	62	5.889	1, 9	------	------	Post to North Outlet
11	Reservoir	44.63	1	72	5.885	10	204.02	1.193	Post North Outlet

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	60.19	1	58	4.809	----	------	------	A Offsite
2	Rational	43.00	1	15	0.888	----	------	------	B Offsite
3	Rational	17.66	1	57	1.387	----	------	------	C Onsite Pre-Proj
4	Combine	77.55	1	58	7.084	1, 2, 3	------	------	N Outlet Pre-Proj
5	Reservoir	66.18	1	66	7.084	4	204.48	1.704	Pre-Proj North Outlet
7	Rational	45.88	1	34	2.149	----	------	------	C Onsite Post-Proj
8	Combine	63.25	1	15	3.037	2, 7	------	------	Flow to North Pond
9	Reservoir	14.38	1	57	2.543	8	205.89	2.340	North Pond
10	Combine	74.57	1	58	7.352	1, 9	------	------	Post to North Outlet
11	Reservoir	64.01	1	68	7.352	10	204.43	1.518	Post North Outlet

Proj. file: North WS 5-yr.gpw | Return Period: 5 yr | Run date: 04-03-2006

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	92.84	1	50	6.394	----	------	------	A Offsite
2	Rational	52.21	1	15	1.079	----	------	------	B Offsite
3	Rational	28.87	1	49	1.948	----	------	------	C Onsite Pre-Proj
4	Combine	121.12	1	50	9.421	1, 2, 3	------	------	N Outlet Pre-Proj
5	Reservoir	84.39	1	65	9.421	4	204.82	2.793	Pre-Proj North Outlet
7	Rational	60.39	1	30	2.495	----	------	------	C Onsite Post-Proj
8	Combine	82.41	1	15	3.574	2, 7	------	------	Flow to North Pond
9	Reservoir	19.12	1	51	2.700	8	206.24	2.806	North Pond
10	Combine	111.96	1	50	9.094	1, 9	------	------	Post to North Outlet
11	Reservoir	80.67	1	65	9.094	10	204.75	2.284	Post North Outlet

Proj. file: North WS 10-yr.gpw | Return Period: 10 yr | Run date: 04-03-2006

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	216.01	1	35	10.413	----	------	------	A Offsite
2	Rational	80.72	1	15	1.668	----	------	------	B Offsite
3	Rational	73.04	1	34	3.421	----	------	------	C Onsite Pre-Proj
4	Combine	286.90	1	35	15.502	1, 2, 3	------	------	N Outlet Pre-Proj
5	Reservoir	162.89	1	50	15.502	4	206.10	7.033	Pre-Proj North Outlet
7	Rational	103.81	1	25	3.575	----	------	------	C Onsite Post-Proj
8	Combine	143.00	1	15	5.242	2, 7	------	------	Flow to North Pond
9	Reservoir	42.56	1	40	2.993	8	207.17	4.102	North Pond
10	Combine	256.72	1	35	13.406	1, 9	------	------	Post to North Outlet
11	Reservoir	145.39	1	52	13.406	10	205.84	5.326	Post North Outlet

Proj. file: North WS 100.gpw | Return Period: 100 yr | Run date: 04-03-2006

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

A Offsite

Hydrograph type	= Rational	Peak discharge	= 216.01 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 60.9 ac	Runoff coeff.	= 0.71
Intensity	= 4.996 in/hr	Time of conc. (Tc)	= 35 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 10.413 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.57	209.83
0.58	216.01 <<
0.60	209.83

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 2

B Offsite

Hydrograph type	= Rational	Peak discharge	= 80.72 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 13.7 ac	Runoff coeff.	= 0.8
Intensity	= 7.365 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1.668 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.25	80.72 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 3

C Onsite Pre-Proj

Hydrograph type	= Rational	Peak discharge	= 73.04 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 21.5 ac	Runoff coeff.	= 0.67
Intensity	= 5.070 in/hr	Time of conc. (Tc)	= 34 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 3.421 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.55	70.89
0.57	73.04 <<
0.58	70.89

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

N Outlet Pre-Proj

Hydrograph type	= Combine	Peak discharge	= 286.90 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 2, 3		

Hydrograph Volume = 15.502 acft

Hydrograph Discharge Table

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
0.55	203.66	0.00	70.89	274.55
0.57	209.83	0.00	73.04 <<	282.87
0.58	216.01 <<	0.00	70.89	286.90 <<
0.60	209.83	0.00	68.74	278.58

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 5

Pre-Proj North Outlet

Hydrograph type	= Reservoir	Peak discharge	= 162.89 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 4	Reservoir name	= 7X4 Box
Max. Elevation	= 206.10 ft	Max. Storage	= 7.033 acft

Storage Indication method used.

Outflow hydrograph volume = 15.502 acft

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
0.70	228.66	205.99	155.10	-----	-----	-----	-----	-----	-----	-----	-----	155.10
0.72	220.34	206.01	157.00	-----	-----	-----	-----	-----	-----	-----	-----	157.00
0.73	212.02	206.04	158.62	-----	-----	-----	-----	-----	-----	-----	-----	158.62
0.75	203.70	206.06	159.97	-----	-----	-----	-----	-----	-----	-----	-----	159.97
0.77	195.38	206.07	161.06	-----	-----	-----	-----	-----	-----	-----	-----	161.06
0.78	187.06	206.09	161.89	-----	-----	-----	-----	-----	-----	-----	-----	161.89
0.80	178.74	206.10	162.46	-----	-----	-----	-----	-----	-----	-----	-----	162.46
0.82	170.42	206.10	162.79	-----	-----	-----	-----	-----	-----	-----	-----	162.79
0.83	162.10	206.10 <<	162.89	-----	-----	-----	-----	-----	-----	-----	-----	162.89 <<
0.85	153.78	206.10	162.75	-----	-----	-----	-----	-----	-----	-----	-----	162.75
0.87	145.46	206.09	162.39	-----	-----	-----	-----	-----	-----	-----	-----	162.39
0.88	137.14	206.09	161.82	-----	-----	-----	-----	-----	-----	-----	-----	161.82
0.90	128.82	206.07	161.02	-----	-----	-----	-----	-----	-----	-----	-----	161.02
0.92	120.50	206.06	160.03	-----	-----	-----	-----	-----	-----	-----	-----	160.03
0.93	112.18	206.04	158.83	-----	-----	-----	-----	-----	-----	-----	-----	158.83
0.95	103.86	206.02	157.44	-----	-----	-----	-----	-----	-----	-----	-----	157.44
0.97	95.54	206.00	155.85	-----	-----	-----	-----	-----	-----	-----	-----	155.85

...End

Reservoir Report

Reservoir No. 2 - 7X4 Box

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 (acft)	Total storage (acft)
0.00	202.50	00	0.000	0.000
2.00	204.50	75,170	1.726	1.726
4.00	206.50	213,550	6.628	8.354

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 84.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 202.50	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	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
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 acft	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	0.000	202.50	0.00	---	---	---	---	---	---	---	---	0.00
0.20	0.173	202.70	2.13	---	---	---	---	---	---	---	---	2.13
0.40	0.345	202.90	6.03	---	---	---	---	---	---	---	---	6.03
0.60	0.518	203.10	11.08	---	---	---	---	---	---	---	---	11.08
0.80	0.690	203.30	17.05	---	---	---	---	---	---	---	---	17.05
1.00	0.863	203.50	23.83	---	---	---	---	---	---	---	---	23.83
1.20	1.035	203.70	31.33	---	---	---	---	---	---	---	---	31.33
1.40	1.208	203.90	39.48	---	---	---	---	---	---	---	---	39.48
1.60	1.381	204.10	48.23	---	---	---	---	---	---	---	---	48.23
1.80	1.553	204.30	57.55	---	---	---	---	---	---	---	---	57.55
2.00	1.726	204.50	67.41	---	---	---	---	---	---	---	---	67.41
2.20	2.388	204.70	77.77	---	---	---	---	---	---	---	---	77.77
2.40	3.051	204.90	88.61	---	---	---	---	---	---	---	---	88.61
2.60	3.714	205.10	99.92	---	---	---	---	---	---	---	---	99.92
2.80	4.377	205.30	111.66	---	---	---	---	---	---	---	---	111.66
3.00	5.040	205.50	123.84	---	---	---	---	---	---	---	---	123.84
3.20	5.703	205.70	136.43	---	---	---	---	---	---	---	---	136.43
3.40	6.365	205.90	149.41	---	---	---	---	---	---	---	---	149.41
3.60	7.028	206.10	162.79	---	---	---	---	---	---	---	---	162.79
3.80	7.691	206.30	176.54	---	---	---	---	---	---	---	---	176.54
4.00	8.354	206.50	190.66	---	---	---	---	---	---	---	---	190.66

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 7

C Onsite Post-Proj

Hydrograph type	= Rational	Peak discharge	= 103.81 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 22.0 ac	Runoff coeff.	= 0.8
Intensity	= 5.898 in/hr	Time of conc. (Tc)	= 25 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 3.575 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.40	99.65
0.42	103.81 <<
0.43	99.65

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 8

Flow to North Pond

Hydrograph type	= Combine	Peak discharge	= 143.00 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 2, 7		

Hydrograph Volume = 5.242 acft

Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 7 = (cfs)	Outflow (cfs)
0.25	80.72 <<	62.28	143.00 <<
0.27	75.34	66.44	141.78
0.28	69.96	70.59	140.55
0.30	64.58	74.74	139.32
0.32	59.20	78.89	138.09
0.33	53.81	83.04	136.86

...End

Hydrograph Report

Hyd. No. 9

North Pond

Hydrograph type	= Reservoir	Peak discharge	= 42.56 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 8	Reservoir name	= North Pond
Max. Elevation	= 207.17 ft	Max. Storage	= 4.102 acft

Storage Indication method used.

Outflow hydrograph volume = 2.993 acft

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
0.58	62.28	207.12	17.10	-----	-----	-----	23.62	-----	-----	-----	-----	40.72
0.60	58.13	207.14	17.22	-----	-----	-----	24.21	-----	-----	-----	-----	41.43
0.62	53.98	207.15	17.31	-----	-----	-----	24.65	-----	-----	-----	-----	41.97
0.63	49.83	207.16	17.37	-----	-----	-----	24.95	-----	-----	-----	-----	42.33
0.65	45.67	207.16	17.41	-----	-----	-----	25.11	-----	-----	-----	-----	42.52
0.67	41.52	207.17 <<	17.41	-----	-----	-----	25.15	-----	-----	-----	-----	42.56 <<
0.68	37.37	207.16	17.39	-----	-----	-----	25.05	-----	-----	-----	-----	42.45
0.70	33.22	207.16	17.35	-----	-----	-----	24.84	-----	-----	-----	-----	42.19
0.72	29.07	207.15	17.28	-----	-----	-----	24.50	-----	-----	-----	-----	41.79
0.73	24.91	207.13	17.19	-----	-----	-----	24.06	-----	-----	-----	-----	41.25
0.75	20.76	207.11	17.07	-----	-----	-----	23.50	-----	-----	-----	-----	40.57

...End

Reservoir Report

Reservoir No. 1 - North Pond

Pond Data

Bottom LxW = 280.0 x 180.0 ft Side slope = 4.0:1 Bottom elev. = 204.00 ft Depth = 7.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	204.00	50,400	0.000	0.000
0.35	204.35	51,696	0.410	0.410
0.70	204.70	53,007	0.421	0.831
1.05	205.05	54,335	0.431	1.262
1.40	205.40	55,677	0.442	1.704
1.75	205.75	57,036	0.453	2.157
2.10	206.10	58,410	0.464	2.621
2.45	206.45	59,800	0.475	3.095
2.80	206.80	61,206	0.486	3.582
3.15	207.15	62,627	0.497	4.079
3.50	207.50	64,064	0.509	4.588
3.85	207.85	65,517	0.521	5.109
4.20	208.20	66,985	0.532	5.641
4.55	208.55	68,469	0.544	6.185
4.90	208.90	69,969	0.556	6.741
5.25	209.25	71,484	0.568	7.310
5.60	209.60	73,015	0.581	7.890
5.95	209.95	74,562	0.593	8.483
6.30	210.30	76,124	0.605	9.088
6.65	210.65	77,702	0.618	9.706
7.00	211.00	79,296	0.631	10.337

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 24.0	0.0	0.0	0.0
Span in	= 24.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 204.00	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	= 6.00	0.00	0.00	0.00
Crest El. ft	= 206.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 205.84 ft

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

Stage / Storage / Discharge Table

Stage ft	Storage acft	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	0.000	204.00	0.00	---	---	---	0.00	---	---	---	---	0.00
0.04	0.041	204.04	0.00	---	---	---	0.00	---	---	---	---	0.00
0.07	0.082	204.07	0.00	---	---	---	0.00	---	---	---	---	0.00
0.11	0.123	204.11	0.00	---	---	---	0.00	---	---	---	---	0.00
0.14	0.164	204.14	0.00	---	---	---	0.00	---	---	---	---	0.00
0.18	0.205	204.18	0.00	---	---	---	0.00	---	---	---	---	0.00
0.21	0.246	204.21	0.00	---	---	---	0.00	---	---	---	---	0.00
0.25	0.287	204.25	0.00	---	---	---	0.00	---	---	---	---	0.00
0.28	0.328	204.28	0.00	---	---	---	0.00	---	---	---	---	0.00
0.32	0.369	204.32	0.00	---	---	---	0.00	---	---	---	---	0.00
0.35	0.410	204.35	0.00	---	---	---	0.00	---	---	---	---	0.00
0.39	0.452	204.39	0.00	---	---	---	0.00	---	---	---	---	0.00
0.42	0.494	204.42	0.00	---	---	---	0.00	---	---	---	---	0.00
0.46	0.536	204.46	0.00	---	---	---	0.00	---	---	---	---	0.00
0.49	0.578	204.49	0.00	---	---	---	0.00	---	---	---	---	0.00
0.53	0.620	204.53	0.00	---	---	---	0.00	---	---	---	---	0.00
0.56	0.663	204.56	0.00	---	---	---	0.00	---	---	---	---	0.00

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
0.60	0.705	204.60	0.00	---	---	---	0.00	---	---	---	---	0.00
0.63	0.747	204.63	0.00	---	---	---	0.00	---	---	---	---	0.00
0.67	0.789	204.67	0.00	---	---	---	0.00	---	---	---	---	0.00
0.70	0.831	204.70	0.00	---	---	---	0.00	---	---	---	---	0.00
0.74	0.874	204.74	0.00	---	---	---	0.00	---	---	---	---	0.00
0.77	0.917	204.77	0.00	---	---	---	0.00	---	---	---	---	0.00
0.80	0.960	204.81	0.00	---	---	---	0.00	---	---	---	---	0.00
0.84	1.003	204.84	0.00	---	---	---	0.00	---	---	---	---	0.00
0.87	1.046	204.88	0.00	---	---	---	0.00	---	---	---	---	0.00
0.91	1.090	204.91	0.00	---	---	---	0.00	---	---	---	---	0.00
0.94	1.133	204.95	0.00	---	---	---	0.00	---	---	---	---	0.00
0.98	1.176	204.98	0.00	---	---	---	0.00	---	---	---	---	0.00
1.02	1.219	205.02	0.00	---	---	---	0.00	---	---	---	---	0.00
1.05	1.262	205.05	0.00	---	---	---	0.00	---	---	---	---	0.00
1.09	1.306	205.09	0.00	---	---	---	0.00	---	---	---	---	0.00
1.12	1.350	205.12	0.00	---	---	---	0.00	---	---	---	---	0.00
1.16	1.395	205.16	0.00	---	---	---	0.00	---	---	---	---	0.00
1.19	1.439	205.19	0.00	---	---	---	0.00	---	---	---	---	0.00
1.23	1.483	205.23	0.00	---	---	---	0.00	---	---	---	---	0.00
1.26	1.527	205.26	0.00	---	---	---	0.00	---	---	---	---	0.00
1.30	1.571	205.30	0.00	---	---	---	0.00	---	---	---	---	0.00
1.33	1.616	205.33	0.00	---	---	---	0.00	---	---	---	---	0.00
1.37	1.660	205.37	0.00	---	---	---	0.00	---	---	---	---	0.00
1.40	1.704	205.40	0.00	---	---	---	0.00	---	---	---	---	0.00
1.44	1.749	205.44	0.00	---	---	---	0.00	---	---	---	---	0.00
1.47	1.795	205.47	0.00	---	---	---	0.00	---	---	---	---	0.00
1.51	1.840	205.51	0.00	---	---	---	0.00	---	---	---	---	0.00
1.54	1.885	205.54	0.00	---	---	---	0.00	---	---	---	---	0.00
1.58	1.930	205.58	0.00	---	---	---	0.00	---	---	---	---	0.00
1.61	1.976	205.61	0.00	---	---	---	0.00	---	---	---	---	0.00
1.65	2.021	205.65	0.00	---	---	---	0.00	---	---	---	---	0.00
1.68	2.066	205.68	0.00	---	---	---	0.00	---	---	---	---	0.00
1.72	2.111	205.72	0.00	---	---	---	0.00	---	---	---	---	0.00
1.75	2.157	205.75	0.00	---	---	---	0.00	---	---	---	---	0.00
1.79	2.203	205.79	0.00	---	---	---	0.00	---	---	---	---	0.00
1.82	2.250	205.82	0.00	---	---	---	0.00	---	---	---	---	0.00
1.86	2.296	205.86	14.18	---	---	---	0.00	---	---	---	---	14.18
1.89	2.342	205.89	14.39	---	---	---	0.00	---	---	---	---	14.39
1.93	2.389	205.93	14.70	---	---	---	0.00	---	---	---	---	14.70
1.96	2.435	205.96	14.91	---	---	---	0.00	---	---	---	---	14.91
2.00	2.481	206.00	15.11	---	---	---	0.00	---	---	---	---	15.11
2.03	2.528	206.03	6.59	---	---	---	0.10	---	---	---	---	6.70
2.07	2.574	206.07	7.17	---	---	---	0.33	---	---	---	---	7.51
2.10	2.621	206.10	7.71	---	---	---	0.63	---	---	---	---	8.34
2.14	2.668	206.14	8.22	---	---	---	0.99	---	---	---	---	9.21
2.17	2.716	206.17	8.69	---	---	---	1.40	---	---	---	---	10.09
2.21	2.763	206.21	9.14	---	---	---	1.85	---	---	---	---	10.99
2.24	2.811	206.24	9.57	---	---	---	2.35	---	---	---	---	11.92
2.28	2.858	206.28	9.98	---	---	---	2.88	---	---	---	---	12.86
2.31	2.906	206.31	10.37	---	---	---	3.45	---	---	---	---	13.82
2.35	2.953	206.35	10.75	---	---	---	4.05	---	---	---	---	14.80
2.38	3.000	206.38	11.11	---	---	---	4.68	---	---	---	---	15.80
2.42	3.048	206.42	11.47	---	---	---	5.34	---	---	---	---	16.81
2.45	3.095	206.45	11.81	---	---	---	6.03	---	---	---	---	17.84
2.49	3.144	206.49	12.15	---	---	---	6.75	---	---	---	---	18.90
2.52	3.193	206.52	12.47	---	---	---	7.49	---	---	---	---	19.96
2.56	3.241	206.56	12.79	---	---	---	8.26	---	---	---	---	21.05
2.59	3.290	206.59	13.10	---	---	---	9.05	---	---	---	---	22.15
2.63	3.339	206.63	13.40	---	---	---	9.87	---	---	---	---	23.27
2.66	3.387	206.66	13.70	---	---	---	10.71	---	---	---	---	24.41
2.70	3.436	206.70	13.99	---	---	---	11.58	---	---	---	---	25.56
2.73	3.484	206.73	14.27	---	---	---	12.46	---	---	---	---	26.73
2.77	3.533	206.77	14.55	---	---	---	13.37	---	---	---	---	27.92
2.80	3.582	206.80	14.82	---	---	---	14.30	---	---	---	---	29.12
2.84	3.631	206.84	15.09	---	---	---	15.25	---	---	---	---	30.33
2.87	3.681	206.87	15.35	---	---	---	16.21	---	---	---	---	31.56
2.91	3.731	206.91	15.61	---	---	---	17.20	---	---	---	---	32.81
2.94	3.781	206.94	15.86	---	---	---	18.21	---	---	---	---	34.07
2.98	3.830	206.98	16.11	---	---	---	19.24	---	---	---	---	35.35
3.01	3.880	207.01	16.36	---	---	---	20.28	---	---	---	---	36.64

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Stage / Storage / Discharge Table

Stage ft	Storage acft	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
3.05	3.930	207.05	16.60	---	---	---	21.34	---	---	---	---	37.95
3.08	3.980	207.08	16.84	---	---	---	22.43	---	---	---	---	39.27
3.12	4.029	207.12	17.08	---	---	---	23.52	---	---	---	---	40.60
3.15	4.079	207.15	17.31	---	---	---	24.64	---	---	---	---	41.95
3.19	4.130	207.19	17.54	---	---	---	25.77	---	---	---	---	43.31
3.22	4.181	207.22	17.77	---	---	---	26.92	---	---	---	---	44.69
3.26	4.232	207.26	17.99	---	---	---	28.09	---	---	---	---	46.08
3.29	4.283	207.29	18.21	---	---	---	29.27	---	---	---	---	47.49
3.33	4.334	207.33	18.43	---	---	---	30.47	---	---	---	---	48.90
3.36	4.384	207.36	18.65	---	---	---	31.69	---	---	---	---	50.34
3.40	4.435	207.40	18.86	---	---	---	32.92	---	---	---	---	51.78
3.43	4.486	207.43	19.07	---	---	---	34.17	---	---	---	---	53.24
3.47	4.537	207.47	19.28	---	---	---	35.43	---	---	---	---	54.71
3.50	4.588	207.50	19.49	---	---	---	36.71	---	---	---	---	56.19
3.54	4.640	207.54	19.69	---	---	---	38.00	---	---	---	---	57.69
3.57	4.692	207.57	19.89	---	---	---	39.31	---	---	---	---	59.20
3.61	4.744	207.61	20.09	---	---	---	40.63	---	---	---	---	60.72
3.64	4.796	207.64	20.29	---	---	---	41.96	---	---	---	---	62.26
3.68	4.848	207.68	20.49	---	---	---	43.31	---	---	---	---	63.80
3.71	4.900	207.71	20.68	---	---	---	44.68	---	---	---	---	65.36
3.75	4.952	207.75	20.88	---	---	---	46.06	---	---	---	---	66.93
3.78	5.004	207.78	21.07	---	---	---	47.45	---	---	---	---	68.52
3.82	5.057	207.82	21.26	---	---	---	48.86	---	---	---	---	70.11
3.85	5.109	207.85	21.44	---	---	---	50.28	---	---	---	---	71.72
3.89	5.162	207.89	21.63	---	---	---	51.71	---	---	---	---	73.34
3.92	5.215	207.92	21.81	---	---	---	53.16	---	---	---	---	74.97
3.96	5.268	207.96	22.00	---	---	---	54.62	---	---	---	---	76.61
3.99	5.322	207.99	22.18	---	---	---	56.09	---	---	---	---	78.27
4.03	5.375	208.03	22.36	---	---	---	57.58	---	---	---	---	79.93
4.06	5.428	208.06	22.54	---	---	---	59.08	---	---	---	---	81.61
4.09	5.481	208.10	22.71	---	---	---	60.59	---	---	---	---	83.30
4.13	5.534	208.13	22.89	---	---	---	62.11	---	---	---	---	85.00
4.16	5.588	208.17	23.06	---	---	---	63.65	---	---	---	---	86.71
4.20	5.641	208.20	23.24	---	---	---	65.20	---	---	---	---	88.43
4.23	5.695	208.24	23.41	---	---	---	66.76	---	---	---	---	90.17
4.27	5.750	208.27	23.58	---	---	---	68.33	---	---	---	---	91.91
4.30	5.804	208.31	23.75	---	---	---	69.92	---	---	---	---	93.67
4.34	5.859	208.34	23.91	---	---	---	71.52	---	---	---	---	95.43
4.37	5.913	208.38	24.08	---	---	---	73.13	---	---	---	---	97.21
4.41	5.967	208.41	24.25	---	---	---	74.75	---	---	---	---	99.00
4.44	6.022	208.45	24.41	---	---	---	76.39	---	---	---	---	100.80
4.48	6.076	208.48	24.58	---	---	---	78.03	---	---	---	---	102.61
4.51	6.131	208.52	24.74	---	---	---	79.69	---	---	---	---	104.43
4.55	6.185	208.55	24.90	---	---	---	81.36	---	---	---	---	106.26
4.58	6.241	208.59	25.06	---	---	---	83.04	---	---	---	---	108.10
4.62	6.296	208.62	25.22	---	---	---	84.73	---	---	---	---	109.95
4.65	6.352	208.66	25.38	---	---	---	86.44	---	---	---	---	111.81
4.69	6.408	208.69	25.53	---	---	---	88.15	---	---	---	---	113.68
4.72	6.463	208.73	25.69	---	---	---	89.88	---	---	---	---	115.57
4.76	6.519	208.76	25.85	---	---	---	91.61	---	---	---	---	117.46
4.79	6.574	208.80	26.00	---	---	---	93.36	---	---	---	---	119.36
4.83	6.630	208.83	26.15	---	---	---	95.12	---	---	---	---	121.28
4.86	6.686	208.87	26.31	---	---	---	96.89	---	---	---	---	123.20
4.90	6.741	208.90	26.46	---	---	---	98.67	---	---	---	---	125.13
4.93	6.798	208.94	26.61	---	---	---	100.46	---	---	---	---	127.07
4.97	6.855	208.97	26.76	---	---	---	102.27	---	---	---	---	129.02
5.00	6.912	209.01	26.91	---	---	---	104.08	---	---	---	---	130.99
5.04	6.969	209.04	27.06	---	---	---	105.90	---	---	---	---	132.96
5.07	7.025	209.08	27.20	---	---	---	107.74	---	---	---	---	134.94
5.11	7.082	209.11	27.35	---	---	---	109.58	---	---	---	---	136.93
5.14	7.139	209.15	27.50	---	---	---	111.44	---	---	---	---	138.93
5.18	7.196	209.18	27.64	---	---	---	113.30	---	---	---	---	140.94
5.21	7.253	209.22	27.79	---	---	---	115.18	---	---	---	---	142.96
5.25	7.310	209.25	27.93	---	---	---	117.06	---	---	---	---	144.99
5.28	7.368	209.29	28.07	---	---	---	118.96	---	---	---	---	147.03
5.32	7.426	209.32	28.22	---	---	---	120.87	---	---	---	---	149.08
5.35	7.484	209.36	28.36	---	---	---	122.78	---	---	---	---	151.14
5.39	7.542	209.39	28.50	---	---	---	124.71	---	---	---	---	153.21
5.42	7.600	209.43	28.64	---	---	---	126.65	---	---	---	---	155.28
5.46	7.658	209.46	28.78	---	---	---	128.59	---	---	---	---	157.37

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
5.49	7.716	209.50	28.92	---	---	---	130.55	---	---	---	---	159.46
5.53	7.774	209.53	29.05	---	---	---	132.51	---	---	---	---	161.57
5.56	7.832	209.57	29.19	---	---	---	134.49	---	---	---	---	163.68
5.60	7.890	209.60	29.33	---	---	---	136.47	---	---	---	---	165.80
5.63	7.949	209.64	29.46	---	---	---	138.47	---	---	---	---	167.93
5.67	8.009	209.67	29.60	---	---	---	140.47	---	---	---	---	170.07
5.70	8.068	209.71	29.73	---	---	---	142.49	---	---	---	---	172.22
5.74	8.127	209.74	29.87	---	---	---	144.51	---	---	---	---	174.38
5.77	8.186	209.78	30.00	---	---	---	146.55	---	---	---	---	176.55
5.81	8.246	209.81	30.14	---	---	---	148.59	---	---	---	---	178.73
5.84	8.305	209.85	30.27	---	---	---	150.64	---	---	---	---	180.91
5.88	8.364	209.88	30.40	---	---	---	152.70	---	---	---	---	183.10
5.91	8.424	209.92	30.53	---	---	---	154.77	---	---	---	---	185.31
5.95	8.483	209.95	30.66	---	---	---	156.85	---	---	---	---	187.51
5.98	8.543	209.99	30.79	---	---	---	158.94	---	---	---	---	189.73
6.02	8.604	210.02	30.92	---	---	---	161.04	---	---	---	---	191.96
6.05	8.664	210.06	31.05	---	---	---	163.15	---	---	---	---	194.20
6.09	8.725	210.09	31.18	---	---	---	165.27	---	---	---	---	196.45
6.12	8.786	210.13	31.31	---	---	---	167.39	---	---	---	---	198.70
6.16	8.846	210.16	31.44	---	---	---	169.53	---	---	---	---	200.96
6.19	8.907	210.20	31.56	---	---	---	171.67	---	---	---	---	203.23
6.23	8.967	210.23	31.69	---	---	---	173.82	---	---	---	---	205.51
6.26	9.028	210.27	31.82	---	---	---	175.99	---	---	---	---	207.80
6.30	9.088	210.30	31.94	---	---	---	178.16	---	---	---	---	210.10
6.33	9.150	210.34	32.07	---	---	---	180.34	---	---	---	---	212.40
6.37	9.212	210.37	32.19	---	---	---	182.52	---	---	---	---	214.72
6.40	9.274	210.41	32.32	---	---	---	184.72	---	---	---	---	217.04
6.44	9.335	210.44	32.44	---	---	---	186.93	---	---	---	---	219.37
6.47	9.397	210.48	32.56	---	---	---	189.14	---	---	---	---	221.70
6.51	9.459	210.51	32.69	---	---	---	191.37	---	---	---	---	224.05
6.54	9.521	210.55	32.81	---	---	---	193.60	---	---	---	---	226.41
6.58	9.583	210.58	32.93	---	---	---	195.84	---	---	---	---	228.77
6.61	9.644	210.62	33.05	---	---	---	198.09	---	---	---	---	231.14
6.65	9.706	210.65	33.17	---	---	---	200.34	---	---	---	---	233.51
6.68	9.769	210.69	33.29	---	---	---	202.61	---	---	---	---	235.90
6.72	9.832	210.72	33.41	---	---	---	204.88	---	---	---	---	238.30
6.75	9.895	210.76	33.53	---	---	---	207.17	---	---	---	---	240.70
6.79	9.959	210.79	33.65	---	---	---	209.46	---	---	---	---	243.11
6.82	10.022	210.83	33.77	---	---	---	211.76	---	---	---	---	245.53
6.86	10.085	210.86	33.89	---	---	---	214.07	---	---	---	---	247.96
6.89	10.148	210.90	34.01	---	---	---	216.39	---	---	---	---	250.39
6.93	10.211	210.93	34.12	---	---	---	218.71	---	---	---	---	252.83
6.96	10.274	210.97	34.24	---	---	---	221.04	---	---	---	---	255.28
7.00	10.337	211.00	34.36	---	---	---	223.38	---	---	---	---	257.74

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 10

Post to North Outlet

Hydrograph type	= Combine	Peak discharge	= 256.72 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 9		

Hydrograph Volume = 13.406 acft

Hydrograph Discharge Table

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 9 = (cfs)	Outflow (cfs)
0.57	209.83	39.82	249.66
0.58	216.01 <<	40.72	256.72 <<
0.60	209.83	41.43	251.26
0.62	203.66	41.97	245.63

...End

Hydrograph Report

Hyd. No. 11

Post North Outlet

Hydrograph type	= Reservoir	Peak discharge	= 145.39 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 10	Reservoir name	= Post -Proj 7x4 RC
Max. Elevation	= 205.84 ft	Max. Storage	= 5.326 acft

Storage Indication method used.

Outflow hydrograph volume = 13.406 acft

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
0.75	194.86	205.75	139.52	-----	-----	-----	-----	-----	-----	-----	-----	139.52
0.77	187.90	205.77	141.14	-----	-----	-----	-----	-----	-----	-----	-----	141.14
0.78	180.81	205.79	142.50	-----	-----	-----	-----	-----	-----	-----	-----	142.50
0.80	173.62	205.81	143.59	-----	-----	-----	-----	-----	-----	-----	-----	143.59
0.82	166.32	205.82	144.42	-----	-----	-----	-----	-----	-----	-----	-----	144.42
0.83	158.93	205.83	144.99	-----	-----	-----	-----	-----	-----	-----	-----	144.99
0.85	151.53	205.84	145.31	-----	-----	-----	-----	-----	-----	-----	-----	145.31
0.87	144.18	205.84 <<	145.39	-----	-----	-----	-----	-----	-----	-----	-----	145.39 <<
0.88	136.88	205.84	145.24	-----	-----	-----	-----	-----	-----	-----	-----	145.24
0.90	129.63	205.83	144.86	-----	-----	-----	-----	-----	-----	-----	-----	144.86
0.92	122.43	205.82	144.27	-----	-----	-----	-----	-----	-----	-----	-----	144.27
0.93	115.27	205.81	143.47	-----	-----	-----	-----	-----	-----	-----	-----	143.47
0.95	108.13	205.79	142.47	-----	-----	-----	-----	-----	-----	-----	-----	142.48
0.97	101.04	205.77	141.29	-----	-----	-----	-----	-----	-----	-----	-----	141.29
0.98	93.98	205.75	139.91	-----	-----	-----	-----	-----	-----	-----	-----	139.91
1.00	86.97	205.73	138.36	-----	-----	-----	-----	-----	-----	-----	-----	138.36

...End

Reservoir Report

Reservoir No. 3 - Post -Proj 7x4 RCB

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 (acft)	Total storage (acft)
0.00	202.50	00	0.000	0.000
2.00	204.50	68,491	1.572	1.572
4.00	206.50	175,897	5.610	7.183

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 84.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 202.50	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

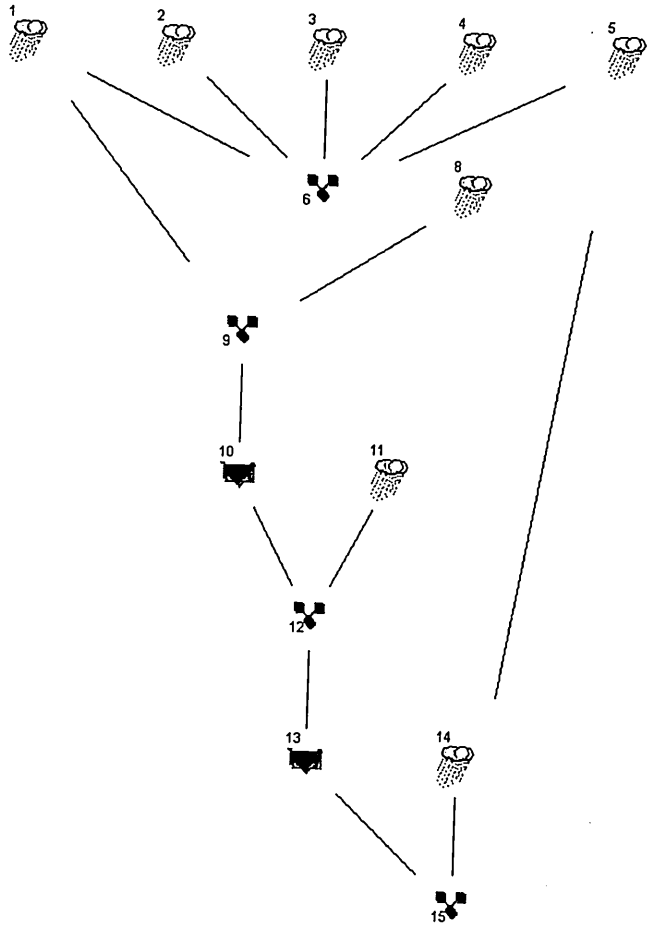
	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

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 acft	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	0.000	202.50	0.00	---	---	---	---	---	---	---	---	0.00
0.20	0.157	202.70	2.13	---	---	---	---	---	---	---	---	2.13
0.40	0.314	202.90	6.03	---	---	---	---	---	---	---	---	6.03
0.60	0.472	203.10	11.08	---	---	---	---	---	---	---	---	11.08
0.80	0.629	203.30	17.05	---	---	---	---	---	---	---	---	17.05
1.00	0.786	203.50	23.83	---	---	---	---	---	---	---	---	23.83
1.20	0.943	203.70	31.33	---	---	---	---	---	---	---	---	31.33
1.40	1.101	203.90	39.48	---	---	---	---	---	---	---	---	39.48
1.60	1.258	204.10	48.23	---	---	---	---	---	---	---	---	48.23
1.80	1.415	204.30	57.55	---	---	---	---	---	---	---	---	57.55
2.00	1.572	204.50	67.41	---	---	---	---	---	---	---	---	67.41
2.20	2.133	204.70	77.77	---	---	---	---	---	---	---	---	77.77
2.40	2.694	204.90	88.61	---	---	---	---	---	---	---	---	88.61
2.60	3.255	205.10	99.92	---	---	---	---	---	---	---	---	99.92
2.80	3.816	205.30	111.66	---	---	---	---	---	---	---	---	111.66
3.00	4.378	205.50	123.84	---	---	---	---	---	---	---	---	123.84
3.20	4.939	205.70	136.43	---	---	---	---	---	---	---	---	136.43
3.40	5.500	205.90	149.41	---	---	---	---	---	---	---	---	149.41
3.60	6.061	206.10	162.79	---	---	---	---	---	---	---	---	162.79
3.80	6.622	206.30	176.54	---	---	---	---	---	---	---	---	176.54
4.00	7.183	206.50	190.66	---	---	---	---	---	---	---	---	190.66



Hydraflow Hydrographs Diagram	Project: South WS 100.gpw	04-06-2006

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	5.76	1	15	0.119	----	------	------	Pre D Offsite
2	Rational	10.73	1	27	0.399	----	------	------	Pre E Onsite
3	Rational	5.52	1	28	0.213	----	------	------	Pre F Onsite
4	Rational	11.23	1	36	0.557	----	------	------	Pre G Onsite
5	Rational	57.10	1	32	2.517	----	------	------	Pre H Offsite
6	Combine	80.54	1	32	3.804	1, 2, 3, 4, 5	------	------	Pre-Proj South Outlet
8	Rational	27.69	1	16	0.610	----	------	------	Post E Onsite
9	Combine	33.06	1	16	0.729	1, 8	------	------	Q to East Pond
10	Reservoir	8.20	1	28	0.722	9	215.18	0.563	East Pond
11	Rational	17.27	1	15	0.357	----	------	------	Post F Onsite
12	Combine	21.37	1	15	1.079	10, 11	------	------	Q to West Pond
13	Reservoir	6.42	1	43	1.063	12	211.09	0.452	West Pond
14	Rational	32.63	1	21	0.944	----	------	------	Post G Onsite
15	Combine	78.69	1	32	4.523	5, 13, 14	------	------	Post-Proj South Outlet

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	6.91	1	15	0.143	----	------	------	Pre D Offsite
2	Rational	15.27	1	26	0.547	----	------	------	Pre E Onsite
3	Rational	7.87	1	27	0.293	----	------	------	Pre F Onsite
4	Rational	16.72	1	33	0.760	----	------	------	Pre G Onsite
5	Rational	71.80	1	31	3.066	----	------	------	Pre H Offsite
6	Combine	106.54	1	31	4.808	1, 2, 3, 4, 5	------	------	Pre-Proj South Outlet
8	Rational	34.21	1	15	0.707	----	------	------	Post E Onsite
9	Combine	41.12	1	15	0.850	1, 8	------	------	Q to East Pond
10	Reservoir	9.31	1	27	0.842	9	215.45	0.665	East Pond
11	Rational	20.72	1	15	0.428	----	------	------	Post F Onsite
12	Combine	26.54	1	15	1.270	10, 11	------	------	Q to West Pond
13	Reservoir	7.95	1	39	1.254	12	211.24	0.518	West Pond
14	Rational	40.48	1	20	1.115	----	------	------	Post G Onsite
15	Combine	97.73	1	31	5.435	5, 13, 14	------	------	Post-Proj South Outlet

Proj. file: South WS 5-yr.gpw | Return Period: 5 yr | Run date: 04-03-2006

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	8.38	1	15	0.173	----	------	------	Pre D Offsite
2	Rational	24.39	1	22	0.739	----	------	------	Pre E Onsite
3	Rational	12.54	1	23	0.397	----	------	------	Pre F Onsite
4	Rational	26.44	1	29	1.056	----	------	------	Pre G Onsite
5	Rational	93.05	1	28	3.589	----	------	------	Pre H Offsite
6	Combine	147.25	1	28	5.955	1, 2, 3, 4, 5	------	------	Pre-Proj South Outlet
8	Rational	41.54	1	15	0.858	----	------	------	Post E Onsite
9	Combine	49.93	1	15	1.032	1, 8	------	------	Q to East Pond
10	Reservoir	14.75	1	26	1.024	9	215.76	0.787	East Pond
11	Rational	25.15	1	15	0.520	----	------	------	Post F Onsite
12	Combine	32.29	1	15	1.544	10, 11	------	------	Q to West Pond
13	Reservoir	10.64	1	32	1.527	12	211.50	0.636	West Pond
14	Rational	51.79	1	18	1.284	----	------	------	Post G Onsite
15	Combine	126.40	1	28	6.400	5, 13, 14	------	------	Post-Proj South Outlet

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	Rational	12.96	1	15	0.268	----	------	------	Pre D Offsite
2	Rational	58.23	1	15	1.203	----	------	------	Pre E Onsite
3	Rational	29.81	1	16	0.657	----	------	------	Pre F Onsite
4	Rational	64.31	1	20	1.772	----	------	------	Pre G Onsite
5	Rational	160.41	1	23	5.082	----	------	------	Pre H Offsite
6	Combine	273.62	1	20	8.981	1, 2, 3, 4, 5	------	------	Pre-Proj South Outlet
8	Rational	64.22	1	15	1.327	----	------	------	Post E Onsite
9	Combine	77.19	1	15	1.595	1, 8	------	------	Q to East Pond
10	Reservoir	37.93	1	23	1.587	9	216.34	1.031	East Pond
11	Rational	38.89	1	15	0.803	----	------	------	Post F Onsite
12	Combine	61.00	1	20	2.391	10, 11	------	------	Q to West Pond
13	Reservoir	19.15	1	32	2.374	12	212.60	1.180	West Pond
14	Rational	86.61	1	15	1.790	----	------	------	Post G Onsite
15	Combine	217.04	1	23	9.246	5, 13, 14	------	------	Post-Proj South Outlet

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

Pre D Offsite

Hydrograph type	= Rational	Peak discharge	= 12.96 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 2.2 ac	Runoff coeff.	= 0.8
Intensity	= 7.365 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 0.268 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.25	12.96 <<

...End

Hydrograph Report

Hyd. No. 2

Pre E Onsite

Hydrograph type	= Rational	Peak discharge	= 58.23 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 11.8 ac	Runoff coeff.	= 0.67
Intensity	= 7.365 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1.203 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.25	58.23 <<

...End

Hydrograph Report

Hyd. No. 3

Pre F Onsite

Hydrograph type	= Rational	Peak discharge	= 29.81 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 6.2 ac	Runoff coeff.	= 0.67
Intensity	= 7.177 in/hr	Time of conc. (Tc)	= 16 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 0.657 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.27	29.81 <<

...End

Hydrograph Report

Hyd. No. 4

Pre G Onsite

Hydrograph type	= Rational	Peak discharge	= 64.31 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 14.7 ac	Runoff coeff.	= 0.67
Intensity	= 6.530 in/hr	Time of conc. (Tc)	= 20 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1.772 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.33	64.31 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 5

Pre H Offsite

Hydrograph type	= Rational	Peak discharge	= 160.41 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 32.7 ac	Runoff coeff.	= 0.8
Intensity	= 6.132 in/hr	Time of conc. (Tc)	= 23 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 5.082 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.37	153.43
0.38	160.41 <<
0.40	153.43

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 6

Pre-Proj South Outlet

Hydrograph type	= Combine	Peak discharge	= 273.62 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 2, 3, 4, 5		

Hydrograph Volume = 8.981 acft

Hydrograph Discharge Table

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Hyd. 3 + (cfs)	Hyd. 4 + (cfs)	Hyd. 5 = (cfs)	Outflow (cfs)
0.28	11.23	50.46	27.95	54.67	118.56	262.88
0.30	10.37	46.58	26.09	57.88	125.54	266.46
0.32	9.51	42.70	24.22	61.10	132.51	270.04
0.33	8.64	38.82	22.36	64.31 <<	139.48	273.62 <<
0.35	7.78	34.94	20.50	61.10	146.46	270.77
0.37	6.91	31.06	18.63	57.88	153.43	267.92
0.38	6.05	27.17	16.77	54.67	160.41 <<	265.07

...End

Hydrograph Report

Hyd. No. 8

Post E Onsite

Hydrograph type	= Rational	Peak discharge	= 64.22 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 10.9 ac	Runoff coeff.	= 0.8
Intensity	= 7.365 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1.327 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.25	64.22 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 9

Q to East Pond

Hydrograph type	= Combine	Peak discharge	= 77.19 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 8		

Hydrograph Volume = 1.595 acft

Hydrograph Discharge Table

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 8 = (cfs)	Outflow (cfs)
0.25	12.96 <<	64.22 <<	77.19 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 10

East Pond

Hydrograph type	= Reservoir	Peak discharge	= 37.93 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 9	Reservoir name	= East Pond
Max. Elevation	= 216.34 ft	Max. Storage	= 1.031 acft

Storage Indication method used.

Outflow hydrograph volume = 1.587 acft

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	
0.35	46.31	216.32	25.24	12.25	-----	-----	24.75	-----	-----	-----	-----	37.00	
0.37	41.17	216.34	25.53	12.30	-----	-----	25.53	-----	-----	-----	-----	37.83	
0.38	36.02	216.34	25.62	12.31	-----	-----	25.62	-----	-----	-----	-----	37.93	<<
0.40	30.87	216.33	25.35	12.27	-----	-----	25.10	-----	-----	-----	-----	37.37	
0.42	25.73	216.30	24.34	12.19	-----	-----	23.98	-----	-----	-----	-----	36.18	

...End

Reservoir Report

Reservoir No. 1 - East Pond

Pond Data

Bottom LxW = 100.0 x 130.0 ft Side slope = 4.0:1 Bottom elev. = 213.50 ft Depth = 4.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	213.50	13,000	0.000	0.000
0.20	213.70	13,371	0.061	0.061
0.40	213.90	13,746	0.062	0.123
0.60	214.10	14,127	0.064	0.187
0.80	214.30	14,513	0.066	0.253
1.00	214.50	14,904	0.068	0.320
1.20	214.70	15,300	0.069	0.389
1.40	214.90	15,701	0.071	0.461
1.60	215.10	16,108	0.073	0.534
1.80	215.30	16,519	0.075	0.608
2.00	215.50	16,936	0.077	0.685
2.20	215.70	17,358	0.079	0.764
2.40	215.90	17,785	0.081	0.845
2.60	216.10	18,217	0.083	0.927
2.80	216.30	18,654	0.085	1.012
3.00	216.50	19,096	0.087	1.099
3.20	216.70	19,543	0.089	1.187
3.40	216.90	19,996	0.091	1.278
3.60	217.10	20,453	0.093	1.371
3.80	217.30	20,916	0.095	1.466
4.00	217.50	21,384	0.097	1.563

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 36.0	18.0	0.0	0.0
Span in	= 36.0	18.0	0.0	0.0
No. Barrels	= 1	1	0	0
Invert El. ft	= 213.50	213.50	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	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 10.00	0.00	0.00	0.00
Crest El. ft	= 215.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	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 acft	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	0.000	213.50	0.00	0.00	---	---	0.00	---	---	---	---	0.00
0.02	0.006	213.52	0.00	0.00	---	---	0.00	---	---	---	---	0.00
0.04	0.012	213.54	0.00	0.01	---	---	0.00	---	---	---	---	0.01
0.06	0.018	213.56	0.00	0.02	---	---	0.00	---	---	---	---	0.02
0.08	0.024	213.58	0.00	0.04	---	---	0.00	---	---	---	---	0.04
0.10	0.030	213.60	0.00	0.06	---	---	0.00	---	---	---	---	0.06
0.12	0.036	213.62	0.00	0.08	---	---	0.00	---	---	---	---	0.08
0.14	0.042	213.64	0.00	0.11	---	---	0.00	---	---	---	---	0.11
0.16	0.048	213.66	0.00	0.14	---	---	0.00	---	---	---	---	0.14
0.18	0.054	213.68	0.00	0.20	---	---	0.00	---	---	---	---	0.20
0.20	0.061	213.70	0.00	0.24	---	---	0.00	---	---	---	---	0.24
0.22	0.067	213.72	0.00	0.29	---	---	0.00	---	---	---	---	0.29
0.24	0.073	213.74	0.00	0.31	---	---	0.00	---	---	---	---	0.31
0.26	0.079	213.76	0.00	0.36	---	---	0.00	---	---	---	---	0.36
0.28	0.085	213.78	0.00	0.42	---	---	0.00	---	---	---	---	0.42
0.30	0.092	213.80	0.00	0.49	---	---	0.00	---	---	---	---	0.49
0.32	0.098	213.82	0.00	0.56	---	---	0.00	---	---	---	---	0.56

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Stage / Storage / Discharge Table

Stage ft	Storage acft	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
0.34	0.104	213.84	0.00	0.64	---	---	0.00	---	---	---	---	0.64
0.36	0.110	213.86	0.00	0.73	---	---	0.00	---	---	---	---	0.73
0.38	0.117	213.88	0.00	0.75	---	---	0.00	---	---	---	---	0.75
0.40	0.123	213.90	0.00	0.84	---	---	0.00	---	---	---	---	0.84
0.42	0.129	213.92	0.00	0.94	---	---	0.00	---	---	---	---	0.94
0.44	0.136	213.94	0.00	1.05	---	---	0.00	---	---	---	---	1.05
0.46	0.142	213.96	0.00	1.07	---	---	0.00	---	---	---	---	1.07
0.48	0.148	213.98	0.00	1.18	---	---	0.00	---	---	---	---	1.18
0.50	0.155	214.00	0.00	1.30	---	---	0.00	---	---	---	---	1.30
0.52	0.161	214.02	0.00	1.43	---	---	0.00	---	---	---	---	1.43
0.54	0.168	214.04	0.00	1.46	---	---	0.00	---	---	---	---	1.46
0.56	0.174	214.06	0.00	1.59	---	---	0.00	---	---	---	---	1.59
0.58	0.180	214.08	0.00	1.73	---	---	0.00	---	---	---	---	1.73
0.60	0.187	214.10	0.00	1.76	---	---	0.00	---	---	---	---	1.76
0.62	0.193	214.12	0.00	1.90	---	---	0.00	---	---	---	---	1.90
0.64	0.200	214.14	0.00	2.05	---	---	0.00	---	---	---	---	2.05
0.66	0.206	214.16	0.00	2.08	---	---	0.00	---	---	---	---	2.08
0.68	0.213	214.18	0.00	2.23	---	---	0.00	---	---	---	---	2.23
0.70	0.220	214.20	0.00	2.39	---	---	0.00	---	---	---	---	2.39
0.72	0.226	214.22	0.00	2.43	---	---	0.00	---	---	---	---	2.43
0.74	0.233	214.24	0.00	2.59	---	---	0.00	---	---	---	---	2.59
0.76	0.239	214.26	0.00	2.75	---	---	0.00	---	---	---	---	2.75
0.78	0.246	214.28	0.00	2.92	---	---	0.00	---	---	---	---	2.92
0.80	0.253	214.30	0.00	2.96	---	---	0.00	---	---	---	---	2.96
0.82	0.259	214.32	0.00	3.13	---	---	0.00	---	---	---	---	3.13
0.84	0.266	214.34	0.00	3.30	---	---	0.00	---	---	---	---	3.30
0.86	0.273	214.36	0.00	3.34	---	---	0.00	---	---	---	---	3.34
0.88	0.280	214.38	0.00	3.52	---	---	0.00	---	---	---	---	3.52
0.90	0.286	214.40	0.00	3.69	---	---	0.00	---	---	---	---	3.69
0.92	0.293	214.42	0.00	3.74	---	---	0.00	---	---	---	---	3.74
0.94	0.300	214.44	0.00	3.91	---	---	0.00	---	---	---	---	3.91
0.96	0.307	214.46	0.00	4.09	---	---	0.00	---	---	---	---	4.09
0.98	0.313	214.48	0.00	4.13	---	---	0.00	---	---	---	---	4.13
1.00	0.320	214.50	0.00	4.31	---	---	0.00	---	---	---	---	4.31
1.02	0.327	214.52	0.00	4.48	---	---	0.00	---	---	---	---	4.48
1.04	0.334	214.54	0.00	4.65	---	---	0.00	---	---	---	---	4.65
1.06	0.341	214.56	0.00	4.70	---	---	0.00	---	---	---	---	4.70
1.08	0.348	214.58	0.00	4.87	---	---	0.00	---	---	---	---	4.87
1.10	0.355	214.60	0.00	5.04	---	---	0.00	---	---	---	---	5.04
1.12	0.362	214.62	0.00	5.20	---	---	0.00	---	---	---	---	5.20
1.14	0.369	214.64	0.00	5.25	---	---	0.00	---	---	---	---	5.25
1.16	0.376	214.66	0.00	5.41	---	---	0.00	---	---	---	---	5.41
1.18	0.382	214.68	0.00	5.56	---	---	0.00	---	---	---	---	5.56
1.20	0.389	214.70	0.00	5.72	---	---	0.00	---	---	---	---	5.72
1.22	0.397	214.72	0.00	5.86	---	---	0.00	---	---	---	---	5.86
1.24	0.404	214.74	0.00	6.00	---	---	0.00	---	---	---	---	6.00
1.26	0.411	214.76	0.00	6.14	---	---	0.00	---	---	---	---	6.14
1.28	0.418	214.78	0.00	6.19	---	---	0.00	---	---	---	---	6.19
1.30	0.425	214.80	0.00	6.32	---	---	0.00	---	---	---	---	6.32
1.32	0.432	214.82	0.00	6.44	---	---	0.00	---	---	---	---	6.44
1.34	0.439	214.84	0.00	6.63	---	---	0.00	---	---	---	---	6.63
1.36	0.446	214.86	0.00	6.73	---	---	0.00	---	---	---	---	6.73
1.38	0.453	214.88	0.00	6.83	---	---	0.00	---	---	---	---	6.83
1.40	0.461	214.90	0.00	6.93	---	---	0.00	---	---	---	---	6.93
1.42	0.468	214.92	0.00	7.05	---	---	0.00	---	---	---	---	7.05
1.44	0.475	214.94	0.00	7.13	---	---	0.00	---	---	---	---	7.13
1.46	0.482	214.96	0.00	7.22	---	---	0.00	---	---	---	---	7.22
1.48	0.490	214.98	0.00	7.31	---	---	0.00	---	---	---	---	7.31
1.50	0.497	215.00	0.00	7.37	---	---	0.00	---	---	---	---	7.37
1.52	0.504	215.02	0.00	7.47	---	---	0.00	---	---	---	---	7.47
1.54	0.512	215.04	0.00	7.56	---	---	0.00	---	---	---	---	7.56
1.56	0.519	215.06	0.00	7.66	---	---	0.00	---	---	---	---	7.66
1.58	0.526	215.08	0.00	7.75	---	---	0.00	---	---	---	---	7.75
1.60	0.534	215.10	0.00	7.84	---	---	0.00	---	---	---	---	7.84
1.62	0.541	215.12	0.00	7.94	---	---	0.00	---	---	---	---	7.94
1.64	0.549	215.14	0.00	8.03	---	---	0.00	---	---	---	---	8.03
1.66	0.556	215.16	0.00	8.12	---	---	0.00	---	---	---	---	8.12
1.68	0.564	215.18	0.00	8.20	---	---	0.00	---	---	---	---	8.20
1.70	0.571	215.20	0.00	8.29	---	---	0.00	---	---	---	---	8.29
1.72	0.579	215.22	0.00	8.38	---	---	0.00	---	---	---	---	8.38

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Stage / Storage / Discharge Table

Stage ft	Storage acft	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
1.74	0.586	215.24	0.00	8.47	---	---	0.00	---	---	---	---	8.47
1.76	0.593	215.26	0.00	8.55	---	---	0.00	---	---	---	---	8.55
1.78	0.601	215.28	0.00	8.63	---	---	0.00	---	---	---	---	8.63
1.80	0.608	215.30	0.00	8.72	---	---	0.00	---	---	---	---	8.72
1.82	0.616	215.32	0.00	8.80	---	---	0.00	---	---	---	---	8.80
1.84	0.624	215.34	0.00	8.88	---	---	0.00	---	---	---	---	8.88
1.86	0.632	215.36	0.00	8.96	---	---	0.00	---	---	---	---	8.96
1.88	0.639	215.38	0.00	9.04	---	---	0.00	---	---	---	---	9.04
1.90	0.647	215.40	0.00	9.12	---	---	0.00	---	---	---	---	9.12
1.92	0.655	215.42	0.00	9.20	---	---	0.00	---	---	---	---	9.20
1.94	0.662	215.44	0.00	9.28	---	---	0.00	---	---	---	---	9.28
1.96	0.670	215.46	0.00	9.36	---	---	0.00	---	---	---	---	9.36
1.98	0.678	215.48	0.00	9.44	---	---	0.00	---	---	---	---	9.44
2.00	0.685	215.50	0.00	9.51	---	---	0.00	---	---	---	---	9.51
2.02	0.693	215.52	0.09	9.59	---	---	0.09	---	---	---	---	9.68
2.04	0.701	215.54	0.27	9.66	---	---	0.27	---	---	---	---	9.93
2.06	0.709	215.56	0.59	9.74	---	---	0.49	---	---	---	---	10.23
2.08	0.717	215.58	0.75	9.81	---	---	0.75	---	---	---	---	10.57
2.10	0.725	215.60	1.14	9.89	---	---	1.05	---	---	---	---	10.94
2.12	0.733	215.62	1.38	9.96	---	---	1.38	---	---	---	---	11.34
2.14	0.740	215.64	1.97	10.03	---	---	1.74	---	---	---	---	11.78
2.16	0.748	215.66	2.32	10.10	---	---	2.13	---	---	---	---	12.23
2.18	0.756	215.68	2.70	10.17	---	---	2.54	---	---	---	---	12.72
2.20	0.764	215.70	3.13	10.24	---	---	2.98	---	---	---	---	13.22
2.22	0.772	215.72	3.60	10.32	---	---	3.44	---	---	---	---	13.75
2.24	0.780	215.74	4.11	10.38	---	---	3.92	---	---	---	---	14.30
2.26	0.788	215.76	4.66	10.45	---	---	4.41	---	---	---	---	14.87
2.28	0.796	215.78	5.26	10.52	---	---	4.93	---	---	---	---	15.46
2.30	0.804	215.80	5.90	10.59	---	---	5.47	---	---	---	---	16.06
2.32	0.812	215.82	6.03	10.66	---	---	6.03	---	---	---	---	16.69
2.34	0.820	215.84	6.60	10.73	---	---	6.60	---	---	---	---	17.33
2.36	0.829	215.86	7.30	10.80	---	---	7.19	---	---	---	---	17.99
2.38	0.837	215.88	8.07	10.86	---	---	7.80	---	---	---	---	18.66
2.40	0.845	215.90	8.87	10.93	---	---	8.42	---	---	---	---	19.35
2.42	0.853	215.92	9.06	10.99	---	---	9.06	---	---	---	---	20.06
2.44	0.861	215.94	9.72	11.06	---	---	9.72	---	---	---	---	20.78
2.46	0.869	215.96	10.60	11.13	---	---	10.39	---	---	---	---	21.51
2.48	0.878	215.98	11.51	11.19	---	---	11.07	---	---	---	---	22.26
2.50	0.886	216.00	11.77	11.25	---	---	11.77	---	---	---	---	23.03
2.52	0.894	216.02	12.49	11.32	---	---	12.49	---	---	---	---	23.81
2.54	0.903	216.04	13.44	11.38	---	---	13.21	---	---	---	---	24.60
2.56	0.911	216.06	14.45	11.45	---	---	13.96	---	---	---	---	25.40
2.58	0.919	216.08	14.71	11.51	---	---	14.71	---	---	---	---	26.22
2.60	0.927	216.10	15.48	11.57	---	---	15.48	---	---	---	---	27.05
2.62	0.936	216.12	16.52	11.63	---	---	16.26	---	---	---	---	27.89
2.64	0.944	216.14	17.59	11.70	---	---	17.05	---	---	---	---	28.75
2.66	0.953	216.16	17.86	11.76	---	---	17.86	---	---	---	---	29.61
2.68	0.961	216.18	18.67	11.82	---	---	18.67	---	---	---	---	30.49
2.70	0.970	216.20	19.76	11.88	---	---	19.50	---	---	---	---	31.38
2.72	0.978	216.22	20.86	11.94	---	---	20.35	---	---	---	---	32.29
2.74	0.987	216.24	21.95	12.00	---	---	21.20	---	---	---	---	33.20
2.76	0.995	216.26	22.06	12.06	---	---	22.06	---	---	---	---	34.13
2.78	1.003	216.28	23.05	12.12	---	---	22.94	---	---	---	---	35.06
2.80	1.012	216.30	24.14	12.18	---	---	23.83	---	---	---	---	36.01
2.82	1.021	216.32	25.22	12.24	---	---	24.69	---	---	---	---	36.93
2.84	1.029	216.34	25.46	12.30	---	---	25.46	---	---	---	---	37.76
2.86	1.038	216.36	26.29	12.36	---	---	26.29	---	---	---	---	38.65
2.88	1.047	216.38	27.34	12.42	---	---	26.89	---	---	---	---	39.31
2.90	1.055	216.40	27.57	12.47	---	---	27.57	---	---	---	---	40.04
2.92	1.064	216.42	28.37	12.53	---	---	28.37	---	---	---	---	40.90
2.94	1.073	216.44	29.37	12.59	---	---	28.85	---	---	---	---	41.44
2.96	1.081	216.46	29.55	12.65	---	---	29.55	---	---	---	---	42.20
2.98	1.090	216.48	30.35	12.70	---	---	30.27	---	---	---	---	42.97
3.00	1.099	216.50	30.68	12.76	---	---	30.68	---	---	---	---	43.44
3.02	1.107	216.52	31.43	12.82	---	---	31.43	---	---	---	---	44.25
3.04	1.116	216.54	32.21	12.87	---	---	32.06	---	---	---	---	44.93
3.06	1.125	216.56	32.49	12.93	---	---	32.49	---	---	---	---	45.42
3.08	1.134	216.58	33.20	12.99	---	---	33.20	---	---	---	---	46.19
3.10	1.143	216.60	33.92	13.04	---	---	33.80	---	---	---	---	46.84
3.12	1.152	216.62	34.20	13.10	---	---	34.20	---	---	---	---	47.29

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
3.14	1.161	216.64	34.86	13.15	---	---	34.86	---	---	---	---	48.01
3.16	1.170	216.66	35.49	13.21	---	---	35.49	---	---	---	---	48.70
3.18	1.178	216.68	36.19	13.26	---	---	35.86	---	---	---	---	49.12
3.20	1.187	216.70	36.39	13.32	---	---	36.39	---	---	---	---	49.70
3.22	1.196	216.72	36.97	13.37	---	---	36.97	---	---	---	---	50.34
3.24	1.205	216.74	37.52	13.42	---	---	37.52	---	---	---	---	50.94
3.26	1.215	216.76	38.04	13.48	---	---	38.03	---	---	---	---	51.51
3.28	1.224	216.78	38.57	13.53	---	---	38.42	---	---	---	---	51.95
3.30	1.233	216.80	39.04	13.59	---	---	38.83	---	---	---	---	52.41
3.32	1.242	216.82	39.48	13.64	---	---	39.27	---	---	---	---	52.91
3.34	1.251	216.84	39.86	13.69	---	---	39.76	---	---	---	---	53.45
3.36	1.260	216.86	40.23	13.74	---	---	40.22	---	---	---	---	53.97
3.38	1.269	216.88	40.58	13.80	---	---	40.58	---	---	---	---	54.38
3.40	1.278	216.90	40.99	13.85	---	---	40.96	---	---	---	---	54.81
3.42	1.287	216.92	41.28	13.90	---	---	41.28	---	---	---	---	55.18
3.44	1.297	216.94	41.60	13.95	---	---	41.60	---	---	---	---	55.55
3.46	1.306	216.96	41.94	14.01	---	---	41.94	---	---	---	---	55.95
3.48	1.315	216.98	42.33	14.06	---	---	42.33	---	---	---	---	56.39
3.50	1.325	217.00	42.71	14.11	---	---	42.71	---	---	---	---	56.82
3.52	1.334	217.02	43.09	14.16	---	---	43.08	---	---	---	---	57.24
3.54	1.343	217.04	43.45	14.21	---	---	43.45	---	---	---	---	57.66
3.56	1.352	217.06	43.82	14.26	---	---	43.81	---	---	---	---	58.07
3.58	1.362	217.08	44.18	14.31	---	---	44.17	---	---	---	---	58.48
3.60	1.371	217.10	44.53	14.36	---	---	44.52	---	---	---	---	58.89
3.62	1.380	217.12	44.87	14.41	---	---	44.87	---	---	---	---	59.29
3.64	1.390	217.14	45.22	14.46	---	---	45.22	---	---	---	---	59.68
3.66	1.399	217.16	45.56	14.51	---	---	45.55	---	---	---	---	60.07
3.68	1.409	217.18	45.89	14.56	---	---	45.89	---	---	---	---	60.45
3.70	1.418	217.20	46.22	14.61	---	---	46.22	---	---	---	---	60.83
3.72	1.428	217.22	46.55	14.66	---	---	46.55	---	---	---	---	61.21
3.74	1.437	217.24	46.87	14.71	---	---	46.87	---	---	---	---	61.58
3.76	1.447	217.26	47.19	14.76	---	---	47.19	---	---	---	---	61.95
3.78	1.456	217.28	47.50	14.81	---	---	47.50	---	---	---	---	62.31
3.80	1.466	217.30	47.81	14.86	---	---	47.81	---	---	---	---	62.67
3.82	1.476	217.32	48.12	14.91	---	---	48.12	---	---	---	---	63.02
3.84	1.485	217.34	48.42	14.96	---	---	48.42	---	---	---	---	63.38
3.86	1.495	217.36	48.72	15.00	---	---	48.72	---	---	---	---	63.72
3.88	1.505	217.38	49.02	15.05	---	---	49.01	---	---	---	---	64.07
3.90	1.514	217.40	49.31	15.10	---	---	49.31	---	---	---	---	64.41
3.92	1.524	217.42	49.60	15.15	---	---	49.60	---	---	---	---	64.75
3.94	1.534	217.44	49.89	15.20	---	---	49.89	---	---	---	---	65.09
3.96	1.544	217.46	50.18	15.24	---	---	50.18	---	---	---	---	65.42
3.98	1.553	217.48	50.46	15.29	---	---	50.46	---	---	---	---	65.75
4.00	1.563	217.50	50.74	15.34	---	---	50.73	---	---	---	---	66.07

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 11

Post F Onsite

Hydrograph type	= Rational	Peak discharge	= 38.89 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 6.6 ac	Runoff coeff.	= 0.8
Intensity	= 7.365 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 0.803 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.25	38.89 <<

...End

Hydrograph Report

Hyd. No. 12

Q to West Pond

Hydrograph type	= Combine	Peak discharge	= 61.00 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 10, 11		

Hydrograph Volume = 2.391 acft

Hydrograph Discharge Table

Time (hrs)	Hyd. 10 + (cfs)	Hyd. 11 = (cfs)	Outflow (cfs)
0.30	27.82	31.11	58.93
0.32	32.00	28.52	60.51
0.33	35.08	25.93	61.00 <<
0.35	37.00	23.33	60.33
0.37	37.83	20.74	58.57

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 13

West Pond

Hydrograph type	= Reservoir	Peak discharge	= 19.15 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 12	Reservoir name	= West Pond
Max. Elevation	= 212.60 ft	Max. Storage	= 1.180 acft

Storage Indication method used. Outflow hydrograph volume = 2.374 acft

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	
0.45	39.84	212.49	-----	18.45	-----	-----	-----	-----	-----	-----	-----	18.45	
0.47	34.65	212.54	-----	18.76	-----	-----	-----	-----	-----	-----	-----	18.76	
0.48	29.24	212.57	-----	18.97	-----	-----	-----	-----	-----	-----	-----	18.97	
0.50	23.61	212.59	-----	19.09	-----	-----	-----	-----	-----	-----	-----	19.09	
0.52	20.82	212.60	-----	19.14	-----	-----	-----	-----	-----	-----	-----	19.14	
0.53	18.49	212.60	-----	19.15	-----	-----	-----	-----	-----	-----	-----	19.15	<<
0.55	16.54	212.60	-----	19.12	-----	-----	-----	-----	-----	-----	-----	19.12	
0.57	14.91	212.59	-----	19.07	-----	-----	-----	-----	-----	-----	-----	19.07	
0.58	13.56	212.58	-----	18.99	-----	-----	-----	-----	-----	-----	-----	18.99	
0.60	12.42	212.56	-----	18.89	-----	-----	-----	-----	-----	-----	-----	18.89	
0.62	11.47	212.54	-----	18.78	-----	-----	-----	-----	-----	-----	-----	18.78	
0.63	10.70	212.52	-----	18.66	-----	-----	-----	-----	-----	-----	-----	18.66	
0.65	10.09	212.50	-----	18.52	-----	-----	-----	-----	-----	-----	-----	18.52	
0.67	9.65	212.48	-----	18.38	-----	-----	-----	-----	-----	-----	-----	18.38	
0.68	9.44	212.45	-----	18.24	-----	-----	-----	-----	-----	-----	-----	18.24	

...End

Reservoir Report

Reservoir No. 2 - West Pond

Pond Data

Bottom LxW = 130.0 x 130.0 ft Side slope = 4.0:1 Bottom elev. = 210.00 ft Depth = 4.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	210.00	16,900	0.000	0.000
0.20	210.20	17,319	0.079	0.079
0.40	210.40	17,742	0.080	0.159
0.60	210.60	18,171	0.082	0.241
0.80	210.80	18,605	0.084	0.326
1.00	211.00	19,044	0.086	0.412
1.20	211.20	19,488	0.088	0.501
1.40	211.40	19,937	0.091	0.591
1.60	211.60	20,392	0.093	0.684
1.80	211.80	20,851	0.095	0.779
2.00	212.00	21,316	0.097	0.875
2.20	212.20	21,786	0.099	0.974
2.40	212.40	22,261	0.101	1.075
2.60	212.60	22,741	0.103	1.179
2.80	212.80	23,226	0.106	1.284
3.00	213.00	23,716	0.108	1.392
3.20	213.20	24,211	0.110	1.502
3.40	213.40	24,712	0.112	1.614
3.60	213.60	25,217	0.115	1.729
3.80	213.80	25,728	0.117	1.846
4.00	214.00	26,244	0.119	1.965

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	24.0	0.0	0.0
Span in	= 0.0	24.0	0.0	0.0
No. Barrels	= 0	1	0	0
Invert El. ft	= 0.00	210.00	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	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
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	0.00	0.00	0.00
Weir Type	= ---	---	---	---
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 acft	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	0.000	210.00	---	0.00	---	---	---	---	---	---	---	0.00
0.02	0.008	210.02	---	0.00	---	---	---	---	---	---	---	0.00
0.04	0.016	210.04	---	0.01	---	---	---	---	---	---	---	0.01
0.06	0.024	210.06	---	0.02	---	---	---	---	---	---	---	0.02
0.08	0.031	210.08	---	0.05	---	---	---	---	---	---	---	0.05
0.10	0.039	210.10	---	0.07	---	---	---	---	---	---	---	0.07
0.12	0.047	210.12	---	0.10	---	---	---	---	---	---	---	0.10
0.14	0.055	210.14	---	0.13	---	---	---	---	---	---	---	0.13
0.16	0.063	210.16	---	0.17	---	---	---	---	---	---	---	0.17
0.18	0.071	210.18	---	0.22	---	---	---	---	---	---	---	0.22
0.20	0.079	210.20	---	0.28	---	---	---	---	---	---	---	0.28
0.22	0.087	210.22	---	0.34	---	---	---	---	---	---	---	0.34
0.24	0.095	210.24	---	0.41	---	---	---	---	---	---	---	0.41
0.26	0.103	210.26	---	0.43	---	---	---	---	---	---	---	0.43
0.28	0.111	210.28	---	0.51	---	---	---	---	---	---	---	0.51
0.30	0.119	210.30	---	0.61	---	---	---	---	---	---	---	0.61
0.32	0.127	210.32	---	0.63	---	---	---	---	---	---	---	0.63

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
0.34	0.135	210.34	---	0.73	---	---	---	---	---	---	---	0.73
0.36	0.143	210.36	---	0.85	---	---	---	---	---	---	---	0.85
0.38	0.151	210.38	---	0.88	---	---	---	---	---	---	---	0.88
0.40	0.159	210.40	---	1.01	---	---	---	---	---	---	---	1.01
0.42	0.167	210.42	---	1.15	---	---	---	---	---	---	---	1.15
0.44	0.176	210.44	---	1.17	---	---	---	---	---	---	---	1.17
0.46	0.184	210.46	---	1.33	---	---	---	---	---	---	---	1.33
0.48	0.192	210.48	---	1.50	---	---	---	---	---	---	---	1.50
0.50	0.200	210.50	---	1.53	---	---	---	---	---	---	---	1.53
0.52	0.209	210.52	---	1.71	---	---	---	---	---	---	---	1.71
0.54	0.217	210.54	---	1.74	---	---	---	---	---	---	---	1.74
0.56	0.225	210.56	---	1.93	---	---	---	---	---	---	---	1.93
0.58	0.233	210.58	---	1.97	---	---	---	---	---	---	---	1.97
0.60	0.241	210.60	---	2.17	---	---	---	---	---	---	---	2.17
0.62	0.250	210.62	---	2.39	---	---	---	---	---	---	---	2.39
0.64	0.258	210.64	---	2.43	---	---	---	---	---	---	---	2.43
0.66	0.267	210.66	---	2.66	---	---	---	---	---	---	---	2.66
0.68	0.275	210.68	---	2.70	---	---	---	---	---	---	---	2.70
0.70	0.284	210.70	---	2.95	---	---	---	---	---	---	---	2.95
0.72	0.292	210.72	---	2.99	---	---	---	---	---	---	---	2.99
0.74	0.301	210.74	---	3.25	---	---	---	---	---	---	---	3.25
0.76	0.309	210.76	---	3.29	---	---	---	---	---	---	---	3.29
0.78	0.317	210.78	---	3.56	---	---	---	---	---	---	---	3.56
0.80	0.326	210.80	---	3.60	---	---	---	---	---	---	---	3.60
0.82	0.335	210.82	---	3.88	---	---	---	---	---	---	---	3.88
0.84	0.343	210.84	---	3.93	---	---	---	---	---	---	---	3.93
0.86	0.352	210.86	---	4.22	---	---	---	---	---	---	---	4.22
0.88	0.360	210.88	---	4.27	---	---	---	---	---	---	---	4.27
0.90	0.369	210.90	---	4.57	---	---	---	---	---	---	---	4.57
0.92	0.378	210.92	---	4.62	---	---	---	---	---	---	---	4.62
0.94	0.386	210.94	---	4.93	---	---	---	---	---	---	---	4.93
0.96	0.395	210.96	---	4.98	---	---	---	---	---	---	---	4.98
0.98	0.404	210.98	---	5.29	---	---	---	---	---	---	---	5.29
1.00	0.412	211.00	---	5.62	---	---	---	---	---	---	---	5.62
1.02	0.421	211.02	---	5.67	---	---	---	---	---	---	---	5.67
1.04	0.430	211.04	---	6.00	---	---	---	---	---	---	---	6.00
1.06	0.439	211.06	---	6.06	---	---	---	---	---	---	---	6.06
1.08	0.448	211.08	---	6.39	---	---	---	---	---	---	---	6.39
1.10	0.457	211.10	---	6.45	---	---	---	---	---	---	---	6.45
1.12	0.465	211.12	---	6.78	---	---	---	---	---	---	---	6.78
1.14	0.474	211.14	---	6.84	---	---	---	---	---	---	---	6.84
1.16	0.483	211.16	---	7.18	---	---	---	---	---	---	---	7.18
1.18	0.492	211.18	---	7.24	---	---	---	---	---	---	---	7.24
1.20	0.501	211.20	---	7.58	---	---	---	---	---	---	---	7.58
1.22	0.510	211.22	---	7.65	---	---	---	---	---	---	---	7.65
1.24	0.519	211.24	---	7.99	---	---	---	---	---	---	---	7.99
1.26	0.528	211.26	---	8.05	---	---	---	---	---	---	---	8.05
1.28	0.537	211.28	---	8.39	---	---	---	---	---	---	---	8.39
1.30	0.546	211.30	---	8.46	---	---	---	---	---	---	---	8.46
1.32	0.555	211.32	---	8.80	---	---	---	---	---	---	---	8.80
1.34	0.564	211.34	---	8.86	---	---	---	---	---	---	---	8.86
1.36	0.573	211.36	---	9.20	---	---	---	---	---	---	---	9.20
1.38	0.582	211.38	---	9.27	---	---	---	---	---	---	---	9.27
1.40	0.591	211.40	---	9.60	---	---	---	---	---	---	---	9.60
1.42	0.601	211.42	---	9.93	---	---	---	---	---	---	---	9.93
1.44	0.610	211.44	---	10.00	---	---	---	---	---	---	---	10.00
1.46	0.619	211.46	---	10.32	---	---	---	---	---	---	---	10.32
1.48	0.628	211.48	---	10.39	---	---	---	---	---	---	---	10.39
1.50	0.638	211.50	---	10.70	---	---	---	---	---	---	---	10.70
1.52	0.647	211.52	---	10.77	---	---	---	---	---	---	---	10.77
1.54	0.656	211.54	---	11.08	---	---	---	---	---	---	---	11.08
1.56	0.665	211.56	---	11.37	---	---	---	---	---	---	---	11.37
1.58	0.675	211.58	---	11.45	---	---	---	---	---	---	---	11.45
1.60	0.684	211.60	---	11.73	---	---	---	---	---	---	---	11.73
1.62	0.693	211.62	---	12.01	---	---	---	---	---	---	---	12.01
1.64	0.703	211.64	---	12.08	---	---	---	---	---	---	---	12.08
1.66	0.712	211.66	---	12.35	---	---	---	---	---	---	---	12.35
1.68	0.722	211.68	---	12.60	---	---	---	---	---	---	---	12.60
1.70	0.731	211.70	---	12.68	---	---	---	---	---	---	---	12.68
1.72	0.741	211.72	---	12.92	---	---	---	---	---	---	---	12.92

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
1.74	0.750	211.74	---	13.15	---	---	---	---	---	---	---	13.15
1.76	0.760	211.76	---	13.23	---	---	---	---	---	---	---	13.23
1.78	0.769	211.78	---	13.45	---	---	---	---	---	---	---	13.45
1.80	0.779	211.80	---	13.65	---	---	---	---	---	---	---	13.65
1.82	0.788	211.82	---	13.85	---	---	---	---	---	---	---	13.85
1.84	0.798	211.84	---	14.03	---	---	---	---	---	---	---	14.03
1.86	0.808	211.86	---	14.20	---	---	---	---	---	---	---	14.20
1.88	0.817	211.88	---	14.35	---	---	---	---	---	---	---	14.35
1.90	0.827	211.90	---	14.50	---	---	---	---	---	---	---	14.50
1.92	0.837	211.92	---	14.64	---	---	---	---	---	---	---	14.64
1.94	0.846	211.94	---	14.80	---	---	---	---	---	---	---	14.80
1.96	0.856	211.96	---	14.91	---	---	---	---	---	---	---	14.91
1.98	0.866	211.98	---	15.03	---	---	---	---	---	---	---	15.03
2.00	0.875	212.00	---	15.12	---	---	---	---	---	---	---	15.12
2.02	0.885	212.02	---	15.28	---	---	---	---	---	---	---	15.28
2.04	0.895	212.04	---	15.42	---	---	---	---	---	---	---	15.42
2.06	0.905	212.06	---	15.57	---	---	---	---	---	---	---	15.57
2.08	0.915	212.08	---	15.72	---	---	---	---	---	---	---	15.72
2.10	0.925	212.10	---	15.86	---	---	---	---	---	---	---	15.86
2.12	0.935	212.12	---	16.01	---	---	---	---	---	---	---	16.01
2.14	0.945	212.14	---	16.15	---	---	---	---	---	---	---	16.15
2.16	0.955	212.16	---	16.29	---	---	---	---	---	---	---	16.29
2.18	0.964	212.18	---	16.43	---	---	---	---	---	---	---	16.43
2.20	0.974	212.20	---	16.57	---	---	---	---	---	---	---	16.57
2.22	0.984	212.22	---	16.71	---	---	---	---	---	---	---	16.71
2.24	0.995	212.24	---	16.84	---	---	---	---	---	---	---	16.84
2.26	1.005	212.26	---	16.98	---	---	---	---	---	---	---	16.98
2.28	1.015	212.28	---	17.11	---	---	---	---	---	---	---	17.11
2.30	1.025	212.30	---	17.25	---	---	---	---	---	---	---	17.25
2.32	1.035	212.32	---	17.38	---	---	---	---	---	---	---	17.38
2.34	1.045	212.34	---	17.51	---	---	---	---	---	---	---	17.51
2.36	1.055	212.36	---	17.64	---	---	---	---	---	---	---	17.64
2.38	1.065	212.38	---	17.77	---	---	---	---	---	---	---	17.77
2.40	1.075	212.40	---	17.90	---	---	---	---	---	---	---	17.90
2.42	1.086	212.42	---	18.02	---	---	---	---	---	---	---	18.02
2.44	1.096	212.44	---	18.15	---	---	---	---	---	---	---	18.15
2.46	1.106	212.46	---	18.28	---	---	---	---	---	---	---	18.28
2.48	1.117	212.48	---	18.40	---	---	---	---	---	---	---	18.40
2.50	1.127	212.50	---	18.52	---	---	---	---	---	---	---	18.52
2.52	1.137	212.52	---	18.65	---	---	---	---	---	---	---	18.65
2.54	1.148	212.54	---	18.77	---	---	---	---	---	---	---	18.77
2.56	1.158	212.56	---	18.89	---	---	---	---	---	---	---	18.89
2.58	1.168	212.58	---	19.01	---	---	---	---	---	---	---	19.01
2.60	1.179	212.60	---	19.13	---	---	---	---	---	---	---	19.13
2.62	1.189	212.62	---	19.25	---	---	---	---	---	---	---	19.25
2.64	1.200	212.64	---	19.37	---	---	---	---	---	---	---	19.37
2.66	1.210	212.66	---	19.49	---	---	---	---	---	---	---	19.49
2.68	1.221	212.68	---	19.60	---	---	---	---	---	---	---	19.60
2.70	1.231	212.70	---	19.72	---	---	---	---	---	---	---	19.72
2.72	1.242	212.72	---	19.84	---	---	---	---	---	---	---	19.84
2.74	1.253	212.74	---	19.95	---	---	---	---	---	---	---	19.95
2.76	1.263	212.76	---	20.07	---	---	---	---	---	---	---	20.07
2.78	1.274	212.78	---	20.18	---	---	---	---	---	---	---	20.18
2.80	1.284	212.80	---	20.29	---	---	---	---	---	---	---	20.29
2.82	1.295	212.82	---	20.40	---	---	---	---	---	---	---	20.40
2.84	1.306	212.84	---	20.52	---	---	---	---	---	---	---	20.52
2.86	1.317	212.86	---	20.63	---	---	---	---	---	---	---	20.63
2.88	1.327	212.88	---	20.74	---	---	---	---	---	---	---	20.74
2.90	1.338	212.90	---	20.85	---	---	---	---	---	---	---	20.85
2.92	1.349	212.92	---	20.96	---	---	---	---	---	---	---	20.96
2.94	1.360	212.94	---	21.07	---	---	---	---	---	---	---	21.07
2.96	1.370	212.96	---	21.17	---	---	---	---	---	---	---	21.17
2.98	1.381	212.98	---	21.28	---	---	---	---	---	---	---	21.28
3.00	1.392	213.00	---	21.39	---	---	---	---	---	---	---	21.39
3.02	1.403	213.02	---	21.50	---	---	---	---	---	---	---	21.50
3.04	1.414	213.04	---	21.60	---	---	---	---	---	---	---	21.60
3.06	1.425	213.06	---	21.71	---	---	---	---	---	---	---	21.71
3.08	1.436	213.08	---	21.81	---	---	---	---	---	---	---	21.81
3.10	1.447	213.10	---	21.92	---	---	---	---	---	---	---	21.92
3.12	1.458	213.12	---	22.02	---	---	---	---	---	---	---	22.02

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage acft	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
3.14	1.469	213.14	---	22.13	---	---	---	---	---	---	---	22.13
3.16	1.480	213.16	---	22.23	---	---	---	---	---	---	---	22.23
3.18	1.491	213.18	---	22.33	---	---	---	---	---	---	---	22.33
3.20	1.502	213.20	---	22.43	---	---	---	---	---	---	---	22.43
3.22	1.513	213.22	---	22.54	---	---	---	---	---	---	---	22.54
3.24	1.524	213.24	---	22.64	---	---	---	---	---	---	---	22.64
3.26	1.536	213.26	---	22.74	---	---	---	---	---	---	---	22.74
3.28	1.547	213.28	---	22.84	---	---	---	---	---	---	---	22.84
3.30	1.558	213.30	---	22.94	---	---	---	---	---	---	---	22.94
3.32	1.569	213.32	---	23.04	---	---	---	---	---	---	---	23.04
3.34	1.581	213.34	---	23.14	---	---	---	---	---	---	---	23.14
3.36	1.592	213.36	---	23.24	---	---	---	---	---	---	---	23.24
3.38	1.603	213.38	---	23.33	---	---	---	---	---	---	---	23.33
3.40	1.614	213.40	---	23.43	---	---	---	---	---	---	---	23.43
3.42	1.626	213.42	---	23.53	---	---	---	---	---	---	---	23.53
3.44	1.637	213.44	---	23.63	---	---	---	---	---	---	---	23.63
3.46	1.649	213.46	---	23.72	---	---	---	---	---	---	---	23.72
3.48	1.660	213.48	---	23.82	---	---	---	---	---	---	---	23.82
3.50	1.672	213.50	---	23.91	---	---	---	---	---	---	---	23.91
3.52	1.683	213.52	---	24.01	---	---	---	---	---	---	---	24.01
3.54	1.695	213.54	---	24.11	---	---	---	---	---	---	---	24.11
3.56	1.706	213.56	---	24.20	---	---	---	---	---	---	---	24.20
3.58	1.718	213.58	---	24.29	---	---	---	---	---	---	---	24.29
3.60	1.729	213.60	---	24.39	---	---	---	---	---	---	---	24.39
3.62	1.741	213.62	---	24.48	---	---	---	---	---	---	---	24.48
3.64	1.752	213.64	---	24.57	---	---	---	---	---	---	---	24.57
3.66	1.764	213.66	---	24.67	---	---	---	---	---	---	---	24.67
3.68	1.776	213.68	---	24.76	---	---	---	---	---	---	---	24.76
3.70	1.787	213.70	---	24.85	---	---	---	---	---	---	---	24.85
3.72	1.799	213.72	---	24.94	---	---	---	---	---	---	---	24.94
3.74	1.811	213.74	---	25.04	---	---	---	---	---	---	---	25.04
3.76	1.823	213.76	---	25.13	---	---	---	---	---	---	---	25.13
3.78	1.834	213.78	---	25.22	---	---	---	---	---	---	---	25.22
3.80	1.846	213.80	---	25.31	---	---	---	---	---	---	---	25.31
3.82	1.858	213.82	---	25.40	---	---	---	---	---	---	---	25.40
3.84	1.870	213.84	---	25.49	---	---	---	---	---	---	---	25.49
3.86	1.882	213.86	---	25.58	---	---	---	---	---	---	---	25.58
3.88	1.894	213.88	---	25.67	---	---	---	---	---	---	---	25.67
3.90	1.906	213.90	---	25.76	---	---	---	---	---	---	---	25.76
3.92	1.918	213.92	---	25.85	---	---	---	---	---	---	---	25.85
3.94	1.929	213.94	---	25.93	---	---	---	---	---	---	---	25.93
3.96	1.941	213.96	---	26.02	---	---	---	---	---	---	---	26.02
3.98	1.953	213.98	---	26.11	---	---	---	---	---	---	---	26.11
4.00	1.965	214.00	---	26.20	---	---	---	---	---	---	---	26.20

...End

Hydrograph Report

Hyd. No. 14

Post G Onsite

Hydrograph type	= Rational	Peak discharge	= 86.61 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 14.7 ac	Runoff coeff.	= 0.8
Intensity	= 7.365 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1.790 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
0.25	86.61 <<

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 15

Post-Proj South Outlet

Hydrograph type	= Combine	Peak discharge	= 217.04 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 5, 13, 14		

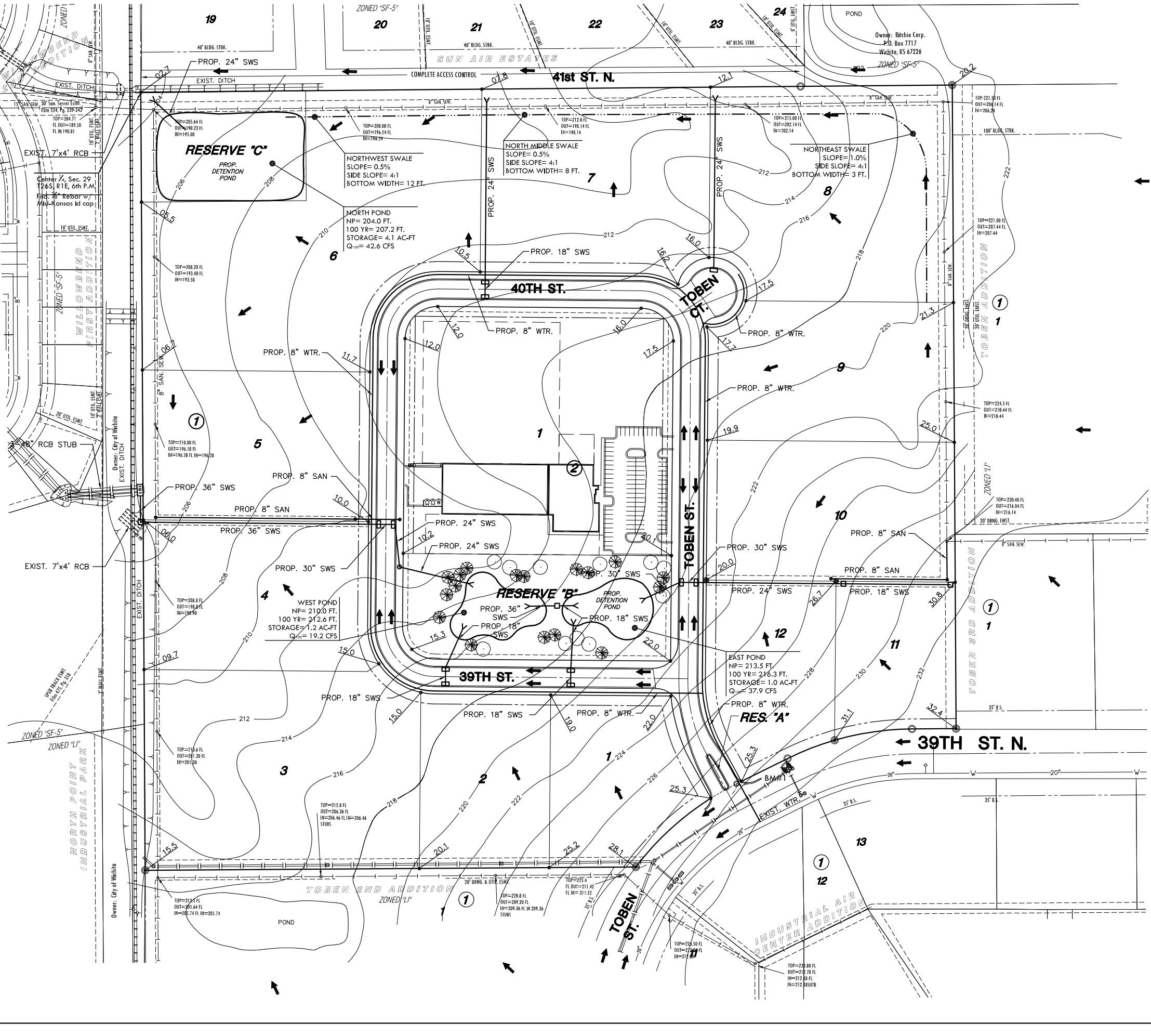
Hydrograph Volume = 9.246 acft

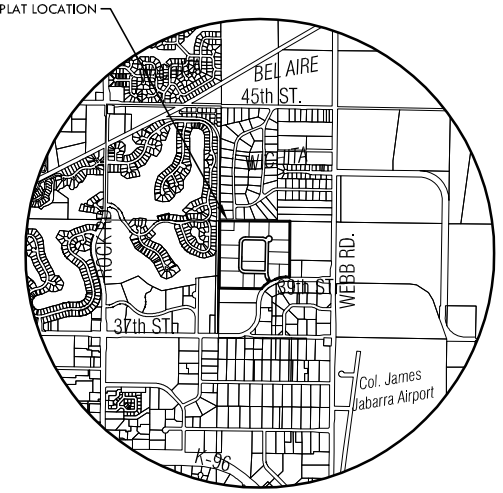
Hydrograph Discharge Table

Time (hrs)	Hyd. 5 + (cfs)	Hyd. 13 + (cfs)	Hyd. 14 = (cfs)	Outflow (cfs)
0.32	132.51	12.06	63.52	208.09
0.33	139.48	13.38	57.74	210.61
0.35	146.46	14.55	51.97	212.98
0.37	153.43	15.38	46.19	215.00
0.38	160.41 <<	16.21	40.42	217.04 <<

...End

Appendix G
Preliminary
Four Corner Lot Grading Plan





VICINITY MAP

NOTES

1. ZONING: Existing - LI "LIMITED INDUSTRIAL"
2. ANNEXATION: NA, Lies within the City of Wichita
3. PUBLIC UTILITIES: Paving and certain utilities shall be extended to site by petitions
4. LEGAL DESCRIPTION: A replat of all of Toben Fourth Addition, an addition to Wichita, Sedgwick County, Kansas.
5. EXISTING USE: Vacant Industrial land
6. PLAT AREA: Gross = 55.3 ac Net = 41.8 ac.
7. MINIMUM PADS: As shown on the Final Drainage Plan
8. LOT TOTAL: 13
9. RESERVES: Reserve "A" is platted for landscaping, irrigation, and monuments. "B" is platted for drainage, landscaping, irrigation, open space, and monuments.
10. PLSS: A tract lying within a portion of the Southeast Quarter, Section 29, Township 26 South, Range 2 East, of the Sixth Prindpal Meridian.

LEGEND

- Sec. Corner
- SIGN
- GATE
- TREES
- EDGE OF TREES
- POLE - POLE
- Fnd. Prop. Corner
- GM - GAS METER
- SSMH - SANITARY SEWER MANHOLE
- PP - POWER POLE/GUY ANCHOR
- KGE - ELECTRIC BOX
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- TR - TELEPHONE RISER
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- UGT - TELEPHONE LINE
- OHE - OVERHEAD ELECTRIC
- FENCE
- SWALE CENTERLINE
- 15.0 - SPOT ELEVATIONS
- FLOW ARROWS

BENCH MARK

BM#1 "□" cut on center of W. side of middle inlet of three at the N.W. corner Lot 12, block 1. Elev.=224.96

MINIMUM PAD ELEVATIONS (LOWEST OPENINGS)			
LOT	BLOCK	ELEVATION (CITY DATUM)	ELEVATION (NGVD)
1	2	219.3	1406.7
3	1	215.0	1402.4
4	1	210.5	1397.9
5	1	210.5	1397.9
6	1	210.2	1397.6

100 0 100 200

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

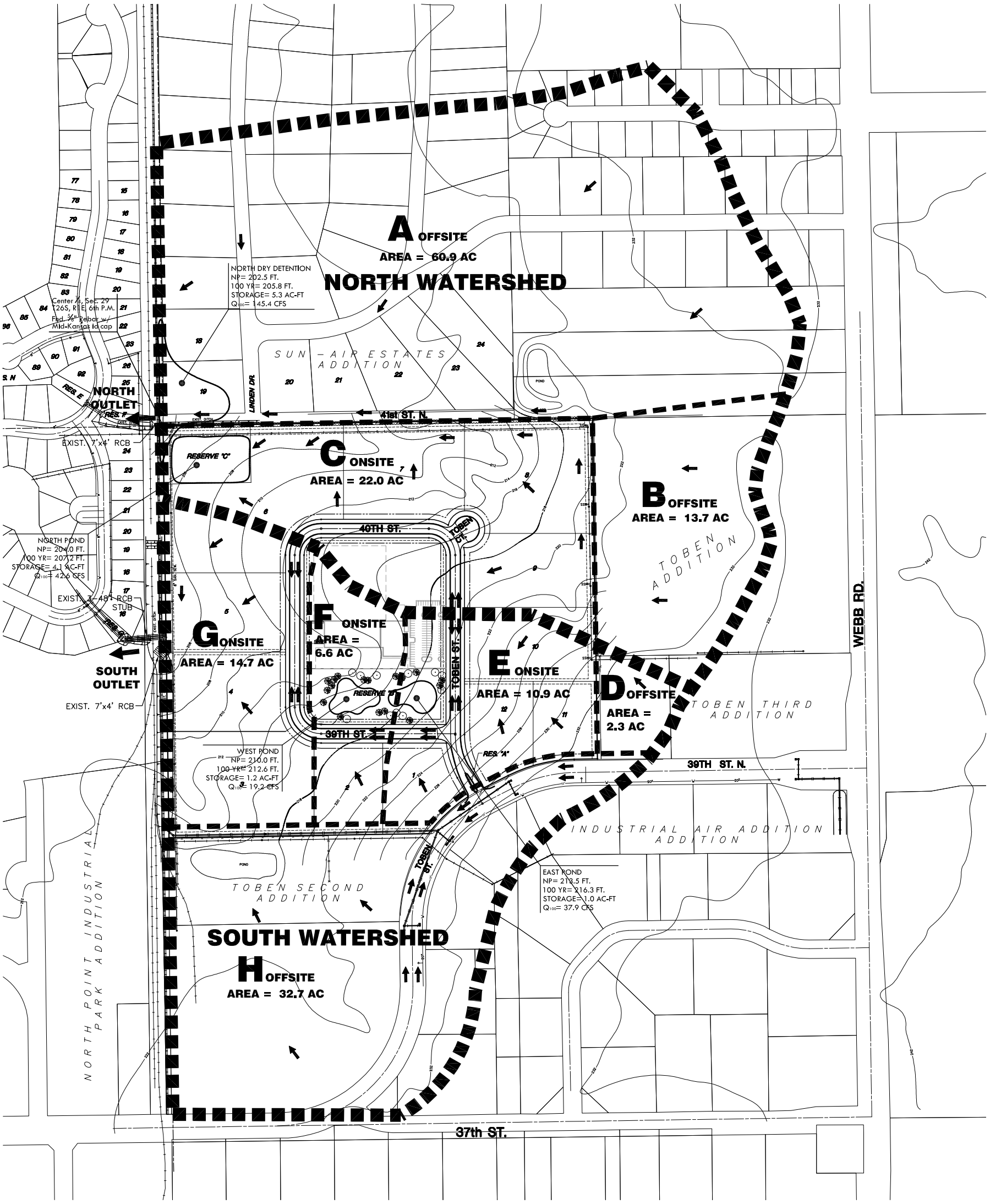
TOBEN FIFTH ADDITION
PROJECT NAME

PRELIMINARY LOT GRADING PLAN
SHEET TITLE

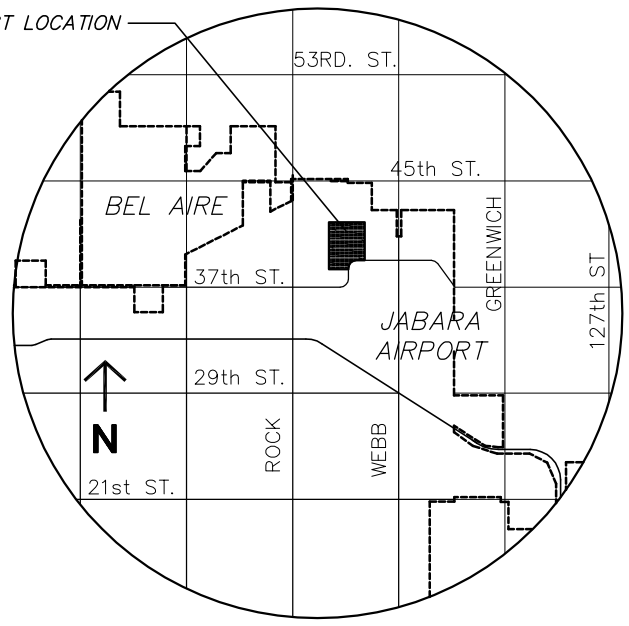
AJK	JFL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2006	00315	1 / 1
DATE	JOB NO.	SHEET/OF

J:\Civil\00315\dwg\GRAD\00315_LGP.dwg

Appendix H
Post-Project Boundaries Map



PROJECT LOCATION



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BENCH MARK

BM#1 — "□" cut on center of W. side of middle inlet of three at the N.W. corner Lot 12, block 1. Elev.=224.96

LEGEND

- GM – GAS METER
- YLG – YARD LIGHT
- ELECT MH – ELECTRIC MANHOLE
- SIG LIGHT – SIGNAL LIGHT
- 6IN – CONIFEROUS TREE & DIAMETER
- 3IN – DECIDUOUS TREE & DIAMETER
- SN – SIGN
- – IRON BAR
- – BUSH
- PP – POWER POLE AND GUY
- KGE – ELECTRIC BOX
- CO – SEWER CLEANOUT
- – EDGE OF TREES
- – FENCE
- – BENCHMARK
- SWMH – STORM WATER MANHOLE
- SSMH – SANITARY SEWER MANHOLE
- SWB – TELEPHONE MANHOLE
- – SECTION CORNER
- – 5/8" REBAR/MKEC CLS #39 SET
- – FOUND REBAR
- POLE – POLE
- – GATE
- TRAF MH – TRAFFIC SIGNAL MANHOLE
- SPK – SPRINKLER HEAD
- – WALL
- LP – LIGHT POLE
- FH – FIRE HYDRANT
- WV – WATER VALVE
- WM – WATER METER
- ICV – IRRIGATION CONTROL VALVE
- – GRATE INLET
- TR – TELEPHONE RISER
- – INLET
- – STORM SEWER PIPE
- – WATER LINE
- – SANITARY SEWER LINE
- – GAS LINE
- UGT – TELEPHONE LINE
- UGE – UNDERGROUND ELECTRIC LINE
- OHT – OVERHEAD TELEPHONE
- OHE – OVERHEAD ELECTRIC
- FOC – UNDERGROUND FIBER OPTIC CABLE
- – DRAINAGE BOUNDARY
- A – DRAINAGE BOUNDARY LABEL
- – FLOW ARROWS

SCALE: 1"=200'

200 0 200 400

H:\CIVIL\00315\DWG\PROP\DNRG\Post-Proj.DWG

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

TOBEN FIFTH ADDITION
PROJECT NAME

POST PROJECT BOUNDARIES
SHEET TITLE

AJK	JFL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2006	00315	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix I
HY-8 Output

CURRENT DATE: 03-29-2006 FILE DATE: 03-29-2006
CURRENT TIME: 07:55:08 FILE NAME: TB7X4RCB

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULVERT NO.	SITE DATA: INLET ELEV. (ft)	SITE DATA: OUTLET ELEV. (ft)	SITE DATA: CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS	SHAPE	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	206.00	205.50	45.00	1	RCB	7.00	4.00	.012	CONVENTIONAL
2									
3									
4									
5									
6									

SUMMARY OF CULVERT FLOWS (cfs) FILE: TB7X4RCB DATE: 03-29-2006

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
206.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
208.00	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
209.21	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
210.29	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
210.68	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
212.60	300.0	283.7	0.0	0.0	0.0	0.0	0.0	15.67	6
212.76	360.0	289.6	0.0	0.0	0.0	0.0	0.0	68.26	5
212.88	420.0	294.0	0.0	0.0	0.0	0.0	0.0	123.04	4
212.98	480.0	297.8	0.0	0.0	0.0	0.0	0.0	180.21	4
213.08	540.0	301.0	0.0	0.0	0.0	0.0	0.0	237.53	4
213.16	600.0	303.9	0.0	0.0	0.0	0.0	0.0	291.94	3
212.50	280.0	280.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: TB7X4RCB DATE: 03-29-2006

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
206.00	0.000	0.00	0.00	0.00
208.00	0.000	60.00	0.00	0.00
209.21	0.000	120.00	0.00	0.00
210.29	0.000	180.00	0.00	0.00
210.68	0.000	200.00	0.00	0.00
212.60	-0.002	300.00	0.65	0.22
212.76	-0.007	360.00	2.13	0.59
212.88	-0.004	420.00	2.97	0.71
212.98	-0.008	480.00	2.03	0.42
213.08	-0.006	540.00	1.50	0.28
213.16	-0.004	600.00	4.18	0.70

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 03-29-2006 FILE DATE: 03-29-2006
CURRENT TIME: 07:55:08 FILE NAME: TB7X4RCB

PERFORMANCE CURVE FOR CULVERT 1 - 1(7.00 (ft) BY 4.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	206.00	0.00	0.00	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
60.00	208.00	2.00	2.00	1-S2n	0.84	1.32	0.96	0.85	8.94	6.18
120.00	209.21	3.21	3.21	1-S2n	1.33	2.09	1.59	1.23	10.75	7.56
180.00	210.29	4.29	4.29	5-S2n	1.76	2.74	2.14	1.51	11.99	8.46
200.00	210.68	4.68	4.68	5-S2n	1.90	2.94	2.33	1.60	12.24	8.71
283.68	212.60	6.60	6.60	5-S2n	2.43	3.72	3.02	1.95	13.43	9.73
289.61	212.76	6.76	6.76	5-S2n	2.47	3.77	3.07	2.13	13.48	10.22
293.99	212.88	6.88	6.88	5-S2n	2.50	3.81	3.10	2.29	13.57	10.65
297.76	212.98	6.98	6.98	5-S2n	2.52	3.84	3.13	2.45	13.60	11.03
300.97	213.07	7.07	7.07	5-S2n	2.54	3.87	3.16	2.59	13.62	11.38
303.88	213.16	7.16	7.16	5-S2n	2.56	3.89	3.17	2.72	13.69	11.70

El. inlet face invert 206.00 ft El. outlet invert 205.50 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	206.00 ft
OUTLET STATION	45.00 ft
OUTLET ELEVATION	205.50 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0111
CULVERT LENGTH ALONG SLOPE	45.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	7.00 ft
BARREL RISE	4.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 03-29-2006 FILE DATE: 03-29-2006
CURRENT TIME: 07:55:08 FILE NAME: TB7X4RCB

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******* REGULAR CHANNEL CROSS SECTION ****************

BOTTOM WIDTH	8.00 ft
SIDE SLOPE H/V (X:1)	4.0
CHANNEL SLOPE V/H (ft/ft)	0.019
MANNING'S n (.01-0.1)	0.025
CHANNEL INVERT ELEVATION	205.50 ft
CULVERT NO.1 OUTLET INVERT ELEVATION	205.50 ft

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (cfs)	W.S.E. (ft)	FROUDE NUMBER	DEPTH (ft)	VEL. (f/s)	SHEAR (psf)
0.00	205.50	0.000	0.00	0.00	0.00
60.00	206.35	1.179	0.85	6.18	1.03
120.00	206.73	1.201	1.23	7.56	1.48
180.00	207.01	1.213	1.51	8.46	1.82
200.00	207.10	1.216	1.60	8.71	1.92
300.00	207.45	1.228	1.95	9.73	2.35
360.00	207.63	1.234	2.13	10.22	2.57
420.00	207.79	1.239	2.29	10.65	2.76
480.00	207.95	1.243	2.45	11.03	2.95
540.00	208.09	1.247	2.59	11.38	3.12
600.00	208.22	1.251	2.72	11.70	3.27

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ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	60.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	212.50 ft

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CURRENT DATE: 03-29-2006 FILE DATE: 03-29-2006
CURRENT TIME: 08:00:27 FILE NAME: TB3_48IN

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CU	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
LV NO.	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	199.00	197.30	147.01	3 RCP	4.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: TB3_48IN DATE: 03-29-2006

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
203.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
203.08	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.00	1
203.33	120.0	120.0	0.0	0.0	0.0	0.0	0.0	0.00	1
203.74	180.0	180.0	0.0	0.0	0.0	0.0	0.0	0.00	1
203.92	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.00	1
205.07	300.0	300.0	0.0	0.0	0.0	0.0	0.0	0.00	1
205.99	360.0	360.0	0.0	0.0	0.0	0.0	0.0	0.00	1
207.07	420.0	420.0	0.0	0.0	0.0	0.0	0.0	0.00	1
208.32	480.0	480.0	0.0	0.0	0.0	0.0	0.0	0.00	1
209.80	540.0	540.0	0.0	0.0	0.0	0.0	0.0	0.00	1
211.73	600.0	600.0	0.0	0.0	0.0	0.0	0.0	0.00	1
212.50	622.6	622.6	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: TB3_48IN DATE: 03-29-2006

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
203.00	0.000	0.00	0.00	0.00
203.08	0.000	60.00	0.00	0.00
203.33	0.000	120.00	0.00	0.00
203.74	0.000	180.00	0.00	0.00
203.92	0.000	200.00	0.00	0.00
205.07	0.000	300.00	0.00	0.00
205.99	0.000	360.00	0.00	0.00
207.07	0.000	420.00	0.00	0.00
208.32	0.000	480.00	0.00	0.00
209.80	0.000	540.00	0.00	0.00
211.73	0.000	600.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 03-29-2006 FILE DATE: 03-29-2006
CURRENT TIME: 08:00:27 FILE NAME: TB3_48IN

PERFORMANCE CURVE FOR CULVERT 1 - 3(4.00 (ft) BY 4.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	203.00	0.00	4.00	0-NF	0.00	0.00	0.00	5.70	0.00	0.00
60.00	203.08	1.76	4.08	4-FFt	0.92	1.31	4.00	5.70	1.59	0.00
120.00	203.33	2.74	4.33	4-FFt	1.32	1.88	4.00	5.70	3.18	0.00
180.00	203.74	3.52	4.74	4-FFt	1.65	2.33	4.00	5.70	4.77	0.00
200.00	203.92	3.77	4.92	4-FFt	1.75	2.46	4.00	5.70	5.31	0.00
300.00	205.07	5.18	6.07	4-FFt	2.22	3.02	4.00	5.70	7.96	0.00
360.00	205.99	6.26	6.99	4-FFt	2.50	3.28	4.00	5.70	9.55	0.00
420.00	207.07	7.55	8.07	4-FFt	2.79	3.49	4.00	5.70	11.14	0.00
480.00	208.32	9.07	9.32	4-FFt	3.13	3.70	4.00	5.70	12.73	0.00
540.00	209.80	10.80	8.78	3-M1f	4.00	3.91	4.00	5.70	14.32	0.00
600.00	211.73	12.73	12.31	4-S2n	4.00	4.00	3.90	5.70	16.13	0.00

El. inlet face invert 199.00 ft El. outlet invert 197.30 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	199.00 ft
OUTLET STATION	147.00 ft
OUTLET ELEVATION	197.30 ft
NUMBER OF BARRELS	3
SLOPE (V/H)	0.0116
CULVERT LENGTH ALONG SLOPE	147.01 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	4.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 03-29-2006   FILE DATE: 03-29-2006
CURRENT TIME: 08:00:27   FILE NAME: TB3_48IN

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CONSTANT WATER SURFACE ELEVATION
203.00

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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ ROADWAY OVERTOPPING DATA ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	60.00 ft
CREST LENGTH	200.00 ft
OVERTOPPING CREST ELEVATION	212.50 ft

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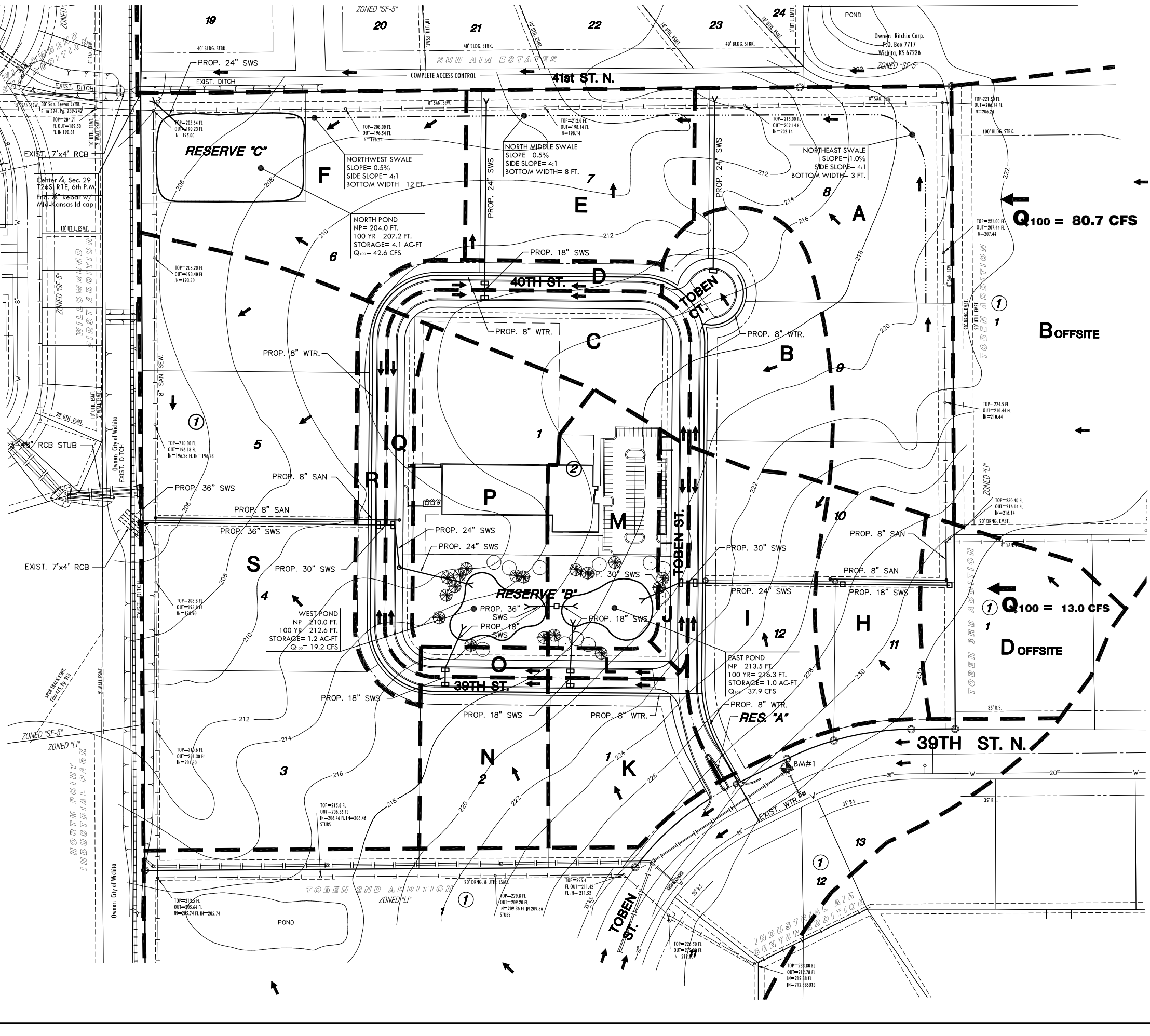
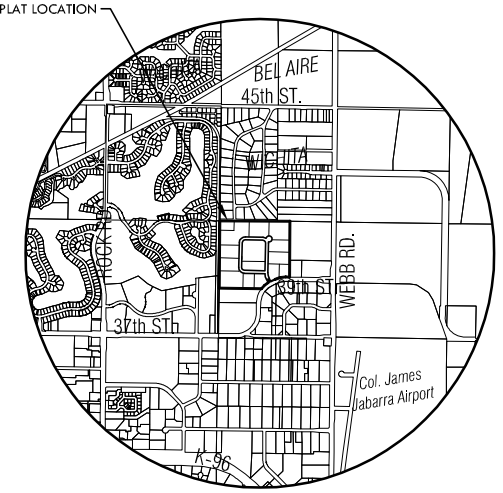
Appendix J
Drainage & Utility Plan





VICINITY MAP

NOTES

1. ZONING: Existing - LI "LIMITED INDUSTRIAL"
2. ANNEXATION: NA, Lies within the City of Wichita
3. PUBLIC UTILITIES: Paving and certain utilities shall be extended to site by petitions
4. LEGAL DESCRIPTION: A replat of all of Toben Fourth Addition, an addition to Wichita, Sedgwick County, Kansas.
5. EXISTING USE: Vacant Industrial land
6. PLAT AREA: Gross = 55.3 ac Net = 41.8 ac.
7. MINIMUM PADS: As shown on the Final Drainage Plan
8. LOT TOTAL: 13
9. RESERVES: Reserve "A" is platted for landscaping, irrigation, and monuments. "B" is platted for drainage, landscaping, irrigation, open space, and monuments.
10. PLSS: A tract lying within a portion of the Southeast Quarter, Section 29, Township 26 South, Range 2 East, of the Sixth Prindpal Meridian.

LEGEND

- Sec. Corner
- SN - SIGN
- GATE
- TREES
- EDGE OF TREES
- POLE - POLE
- Fnd. Prop. Corner
- GM - GAS METER
- SSMH - SANITARY SEWER MANHOLE
- PP - POWER POLE/GUY ANCHOR
- KGE - ELECTRIC BOX
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- TR - TELEPHONE RISER
- STORM SEWER PIPE
- W - WATER LINE
- SANITARY SEWER LINE
- G - GAS LINE
- UGT - TELEPHONE LINE
- OHE - OVERHEAD ELECTRIC
- X - FENCE
- SWALE CENTERLINE
- DRAINAGE BOUNDARY
- A - DRAINAGE BOUNDARY LABEL
- FLOW ARROWS

BENCH MARK

BM#1 "□" cut on center of W. side of middle inlet of three at the N.W. corner Lot 12, block 1. Elev.=224.96

MINIMUM PAD ELEVATIONS (LOWEST OPENINGS)

LOT	BLOCK	ELEVATION (CITY DATUM)	ELEVATION (NGVD)
1	2	219.3	1406.7
3	1	215.0	1402.4
4	1	210.5	1397.9
5	1	210.5	1397.9
6	1	210.2	1397.6

100 0 100 200

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

TOBEN FIFTH ADDITION
PROJECT NAME

PRELIMINARY DRAINAGE AND UTILITY PLAN
SHEET TITLE

AJK	JFL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2006	00315	1 / 1
DATE	JOB NO.	SHEET/OF

J:\Civil\00315\dwg\PROP\DRNG\00315DUP.dwg

Appendix K
Stormwater Sewer (SWS)
Flow Rate Calculations

SWS Time of Concentration & Flow Rate Calculations

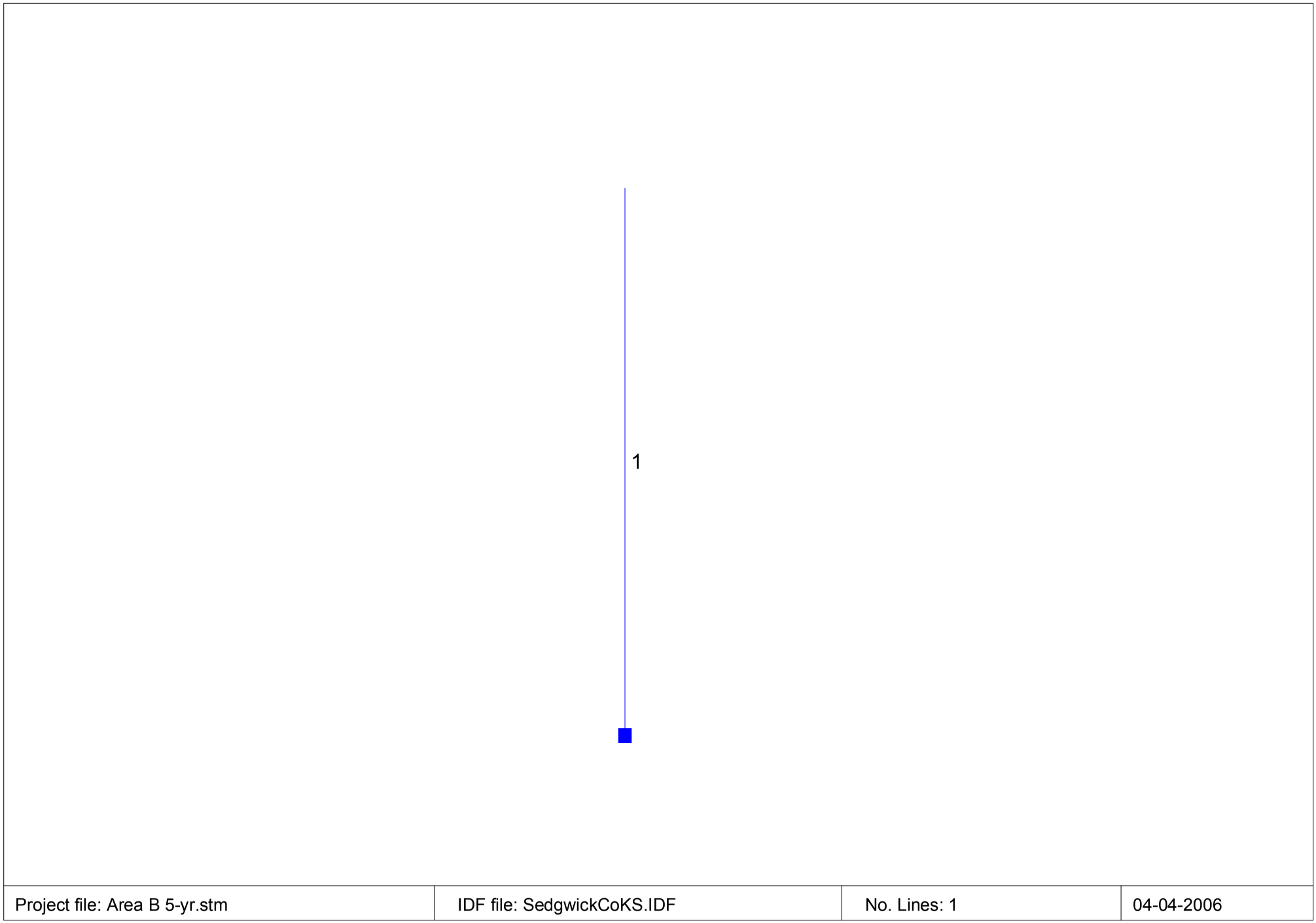
Toben Fifth Addition

Soil Group **D**

Area Name	Area	C 2-yr	C 5-yr	C 10-yr	C 100-yr	Land Use	Maximum Elevation	Minimum Elevation	Flow Length (L)	T_c 2-yr	T_c 5-yr	T_c 10-yr	T_c 100-yr	I 2-yr	I 5-r	I 10-yr	I 100-yr	Q 2-yr	Q 5-yr	Q 10-yr	Q 100-yr
B Offsite (from Hydraflow)										15.0	15.0	15.0	15.0					35.8	43	52.2	80.7
A	6.5	0.68	0.69	0.73	0.80	Industrial - Light	228.0	212.0	1200	23.8	23.2	21.0	17.0	3.10	3.73	4.60	7.18	13.7	16.7	21.8	37.3
Northeast Swale										15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	49.5	59.7	74.0	118.0
B	3.26	0.68	0.69	0.73	0.80	Industrial - Light	224.0	212.0	450	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	8.5	10.3	12.4	19.2
North Middle Swale	9.76	0.68	0.69	0.73	0.80	Industrial - Light				23.8	23.2	21.0	17.0	3.10	3.73	4.60	7.18	56.4	68.1	85.0	136.8
C	2.15	0.68	0.69	0.73	0.80	Industrial - Light	218.0	214.0	450	16.7	16.3	15.0	15.0	3.72	4.43	5.22	7.37	5.4	6.6	8.2	12.7
D	0.81	0.68	0.69	0.73	0.80	Industrial - Light	218.0	214.0	300	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	2.1	2.5	3.1	4.8
E	3.55	0.68	0.69	0.73	0.80	Industrial - Light	214.0	208.0	500	15.9	15.5	15.0	15.0	3.83	4.56	5.22	7.37	9.2	11.2	13.5	20.9
Northwest Swale	16.27	0.68	0.69	0.73	0.80	Industrial - Light				23.8	23.2	21.0	17.0	3.10	3.73	4.60	7.18	70.1	84.9	106.8	174.2
F	5.21	0.68	0.69	0.73	0.80	Industrial - Light	212.0	204.0	500	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	13.6	16.4	19.9	30.7
D offsite (from Hydraflow)										15.0	15.0	15.0	15.0					5.8	6.9	8.4	13.0
H	2.13	0.68	0.69	0.73	0.80	Industrial - Light	232.0	228.0	350	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	5.5	6.7	8.1	12.6
I	3.51	0.68	0.69	0.73	0.80	Industrial - Light	228.0	220.0	400	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	9.1	11.0	13.4	20.7
J	0.62	0.68	0.69	0.73	0.80	Industrial - Light	222.0	220.0	150	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	1.6	2.0	2.4	3.7
K	2.2	0.68	0.69	0.73	0.80	Industrial - Light	228.0	220.0	450	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	5.7	6.9	8.4	13.0
L	0.34	0.68	0.69	0.73	0.80	Industrial - Light	222.0	220.0	100	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	0.9	1.1	1.3	2.0
M	2.37	0.68	0.69	0.73	0.80	Industrial - Light	220.0	213.5	400	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	6.2	7.5	9.0	14.0
N	2.02	0.68	0.69	0.73	0.80	Industrial - Light	224.0	217.0	450	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	5.3	6.4	7.7	11.9
O	0.35	0.68	0.69	0.73	0.80	Industrial - Light	220.0	217.0	100	15.0	15.0	15.0	15.0	3.83	4.56	5.22	7.37	0.9	1.1	1.3	2.1
P (from Hydraflow West Pond)										15.0	15.0	15.0	15.0					6.42	7.95	10.64	19.15
Q	0.94	0.68	0.69	0.73	0.80	Industrial - Light	214.0	211.0	400	16.6	16.2	15.0	15.0	3.72	4.43	5.22	7.37	2.4	2.9	3.6	5.5
R	1.13	0.68	0.69	0.73	0.80	Industrial - Light	214.0	211.0	400	16.6	16.2	15.0	15.0	3.72	4.43	5.22	7.37	2.9	3.5	4.3	6.7
S	12.66	0.68	0.69	0.73	0.80	Industrial - Light	218.0	204.0	2200	41.2	40.2	36.3	29.4	2.21	2.76	3.41	5.49	19.0	24.1	31.5	55.6

Appendix L
Hydraflow Storm Sewer by Intelisolve
Output

Hydraflow Plan View



Project file: Area B 5-yr.stm	IDF file: SedgwickCoKS.IDF	No. Lines: 1	04-04-2006

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	340.0	90.0	Curb	10.30	0.00	0.00	0.0	210.64	0.20	211.32	24	Cir	0.013	1.00	215.00	

Project File: Area B 5-yr.stm | IDF File: SedgwickCoKS.IDF | Total number of lines: 1 | Date: 04-04-2006

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		10.30	24 c	340.0	210.64	211.32	0.200	211.78	213.31	0.17	End

Project File: Area B 5-yr.stm	IDF File: SedgwickCoKS.IDF	Total No. Lines: 1	Run Date: 04-04-2006

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

Hydraflow Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	340.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	10.30	10.12	4.43	24	0.20	211.32	210.64	213.31	211.78	215.00	0.00	

Project File: Area B 5-yr.stm

IDF File: SedgwickCoKS.IDF

Total number of lines: 1

Run Date: 04-04-2006

NOTES: Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; Initial tailwater elevation = 211.78 (ft)

Hydraflow Inlet Report

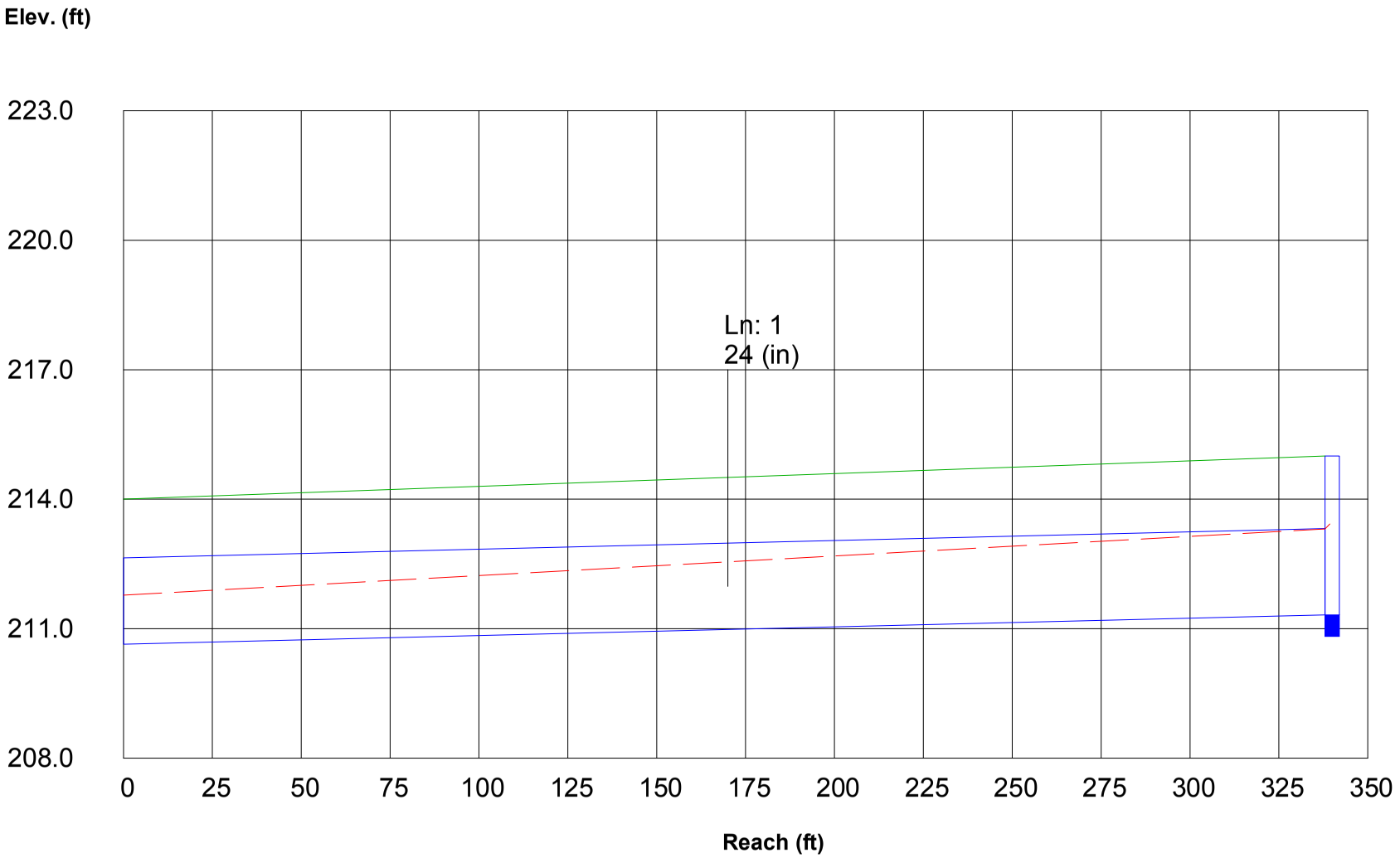
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	depth (ft)	spread (ft)	depth (ft)	spread (ft)	Dep (in)	
1		10.30*	0.00	10.30	0.00	Curb	6.0	10.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.62	15.84	0.64	15.84	2.00	Off

Project File: Area B 5-yr.stm | I-D-F File: SedgwickCoKS.IDF | Total number of lines: 1 | Run Date: 04-04-2006

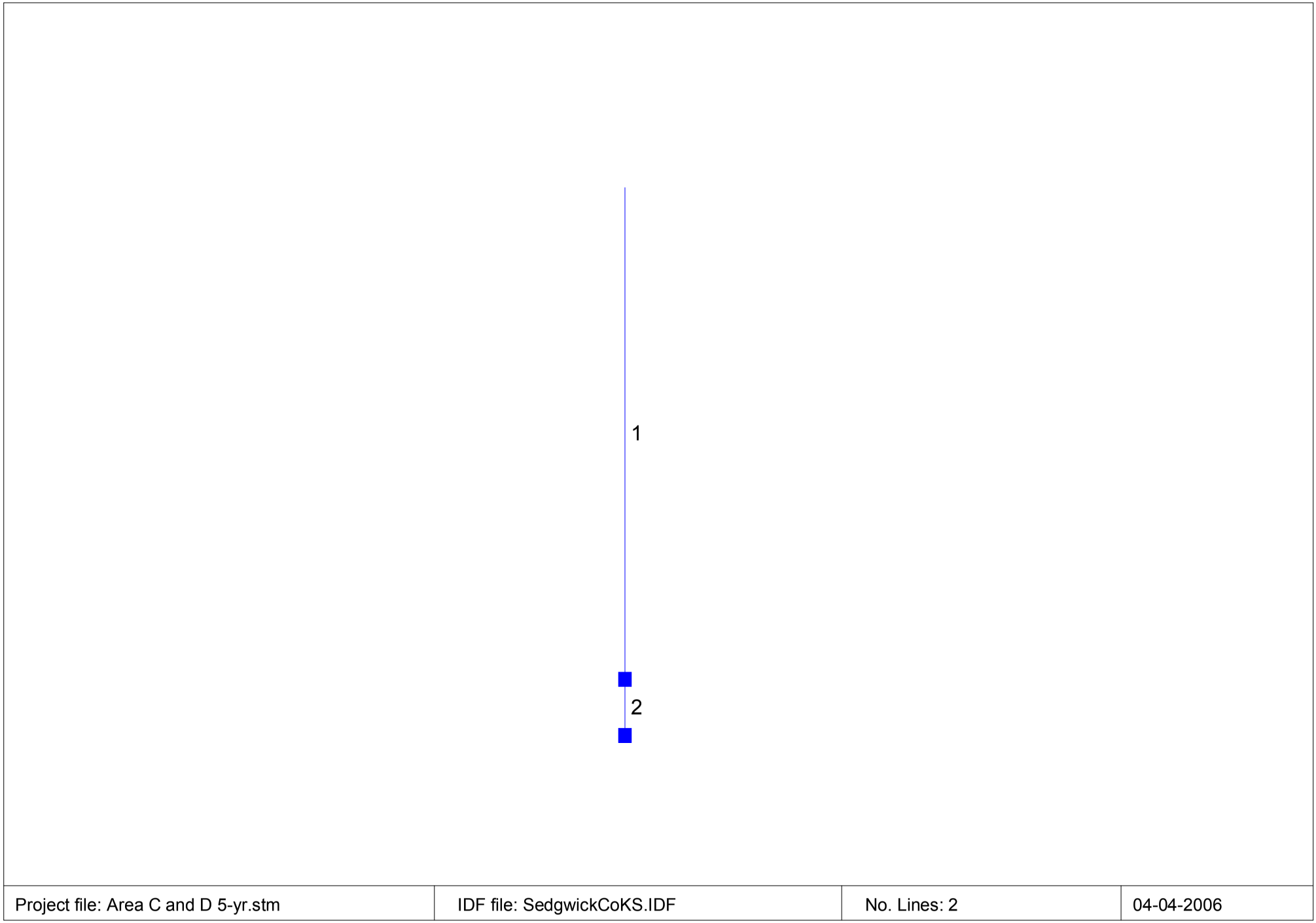
NOTES: Inlet N-Values = 0.016 ; Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; * Indicates Known Q added

Storm Sewer Profile

Proj. file: Area B 5-yr.stm



Hydraflow Plan View



Project file: Area C and D 5-yr.stm	IDF file: SedgwickCoKS.IDF	No. Lines: 2	04-04-2006

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	350.0	90.0	Curb	2.50	0.00	0.00	0.0	208.64	0.20	209.34	24	Cir	0.013	0.50	213.50	
2	1	40.0	0.0	Curb	6.60	0.00	0.00	0.0	209.84	0.40	210.00	18	Cir	0.013	1.00	213.50	

Project File: Area C and D 5-yr.stm | IDF File: SedgwickCoKS.IDF | Total number of lines: 2 | Date: 04-04-2006

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		9.10	24 c	350.0	208.64	209.34	0.200	209.71	211.16	0.07	End
2		6.60	18 c	40.0	209.84	210.00	0.400	211.23	211.36	0.24	1

Project File: Area C and D 5-yr.stm | IDF File: SedgwickCoKS.IDF | Total No. Lines: 2 | Run Date: 04-04-2006

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

Hydraflow Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	350.0	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	9.10	10.11	4.18	24	0.20	209.34	208.64	211.16	209.71	213.50	211.00	
2	1	40.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.60	6.64	3.89	18	0.40	210.00	209.84	211.36	211.23	213.50	213.50	

Project File: Area C and D 5-yr.stm

IDF File: SedgwickCoKS.IDF

Total number of lines: 2

Run Date: 04-04-2006

NOTES: Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; Initial tailwater elevation = 209.71 (ft)

Hydraflow Inlet Report

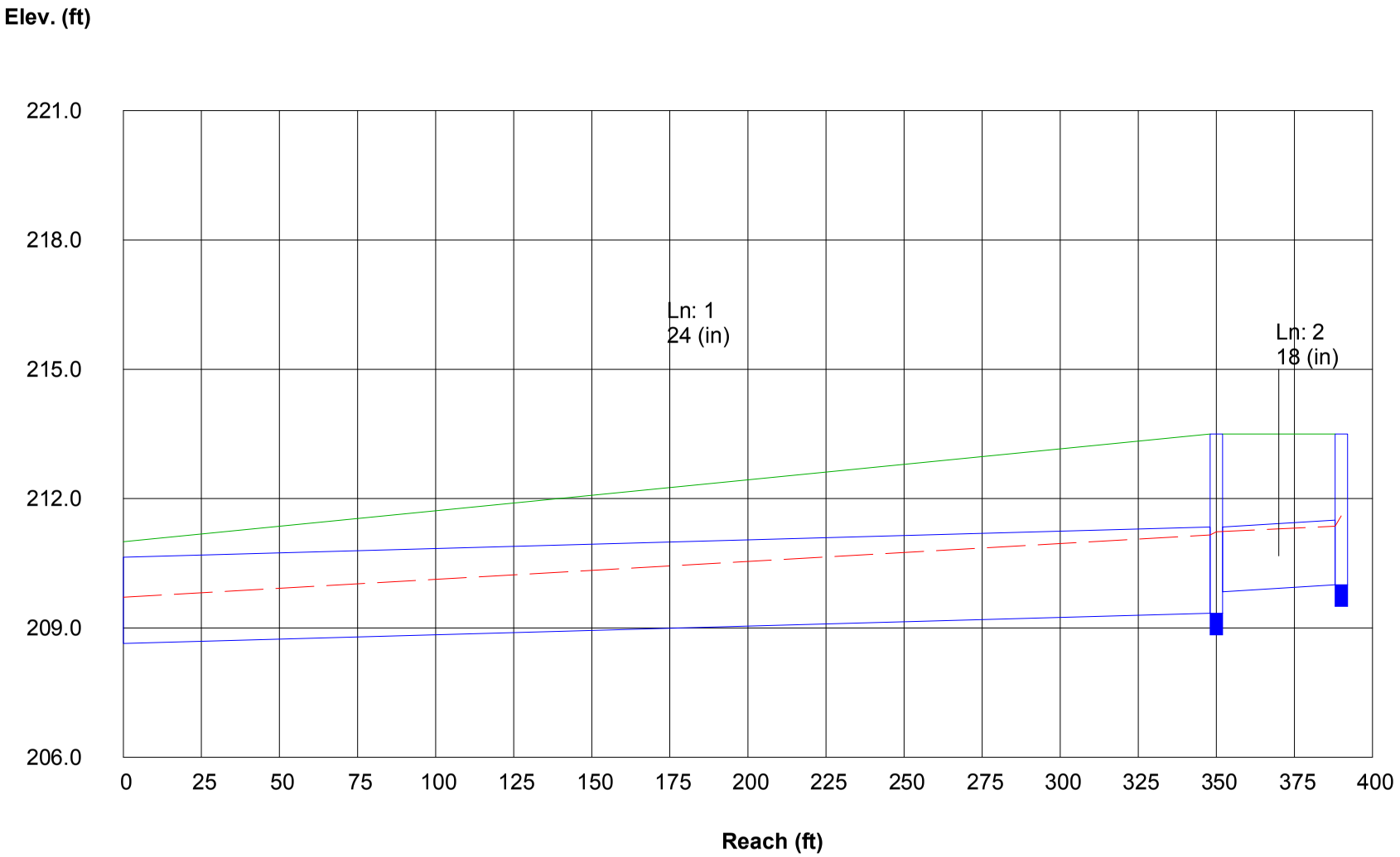
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	depth (ft)	spread (ft)	depth (ft)	spread (ft)	Dep (in)	
1		2.50*	0.00	2.50	0.00	Curb	6.0	10.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.32	6.13	0.35	6.13	2.00	Off
2		6.60*	0.00	6.60	0.00	Curb	6.0	10.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.49	11.75	0.52	11.75	2.00	1

Project File: Area C and D 5-yr.stm | I-D-F File: SedgwickCoKS.IDF | Total number of lines: 2 | Run Date: 04-04-2006

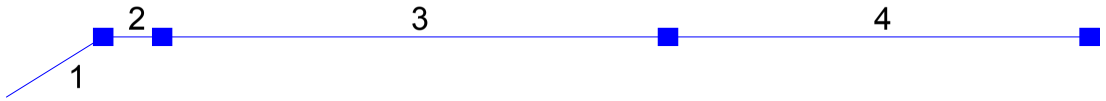
NOTES: Inlet N-Values = 0.016 ; Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; * Indicates Known Q added

Storm Sewer Profile

Proj. file: Area C and D 5-yr.stm



Hydraflow Plan View



Project file: Offsite D to J 100-yr.stm	IDF file: SedgwickCoKS.IDF	No. Lines: 4	04-04-2006

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	70.0	-35.0	Curb	3.70	0.00	0.00	0.0	209.70	6.00	213.90	30	Cir	0.013	1.10	220.00	
2	1	35.0	35.0	Curb	20.70	0.00	0.00	0.0	214.00	2.00	214.70	30	Cir	0.013	0.50	220.00	
3	2	300.0	0.0	Genr	12.60	0.00	0.00	0.0	215.20	2.00	221.20	24	Cir	0.013	0.50	228.00	
4	3	250.0	0.0	Genr	13.00	0.00	0.00	0.0	221.70	2.00	226.70	18	Cir	0.013	1.00	231.00	

Project File: Offsite D to J 100-yr.stm | IDF File: SedgwickCoKS.IDF | Total number of lines: 4 | Date: 04-04-2006

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		50.00	30 c	70.0	209.70	213.90	6.000	212.00	216.20	1.91	End
2		46.30	30 c	35.0	214.00	214.70	2.000	218.11*	218.56*	0.69	1
3		25.60	24 c	300.0	215.20	221.20	2.000	219.25	222.98	0.58	2
4		13.00	18 c	250.0	221.70	226.70	2.000	223.56	228.05	0.93	3

Project File: Offsite D to J 100-yr.stm | IDF File: SedgwickCoKS.IDF | Total No. Lines: 4 | Run Date: 04-04-2006

NOTES: c = circular; e = elliptical; b = box; Return period = 100 Yrs.; * Indicates surcharge condition.

Hydraflow Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	70.0	0.00	0.00	0.00	0.00	0.00	0.0	1.2	0.0	50.00	100.5	10.57	30	6.00	213.90	209.70	216.20	212.00	220.00	0.00	
2	1	35.0	0.00	0.00	0.00	0.00	0.00	0.0	1.2	0.0	46.30	58.00	9.43	30	2.00	214.70	214.00	218.56	218.11	220.00	220.00	
3	2	300.0	0.00	0.00	0.00	0.00	0.00	0.0	0.6	0.0	25.60	31.99	8.41	24	2.00	221.20	215.20	222.98	219.25	228.00	220.00	
4	3	250.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	13.00	14.85	7.55	18	2.00	226.70	221.70	228.05	223.56	231.00	228.00	

Project File: Offsite D to J 100-yr.stm

IDF File: SedgwickCoKS.IDF

Total number of lines: 4

Run Date: 04-04-2006

NOTES: Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66; Return period = 100 Yrs. ; Initial tailwater elevation = 212.00 (ft)

Hydraflow Inlet Report

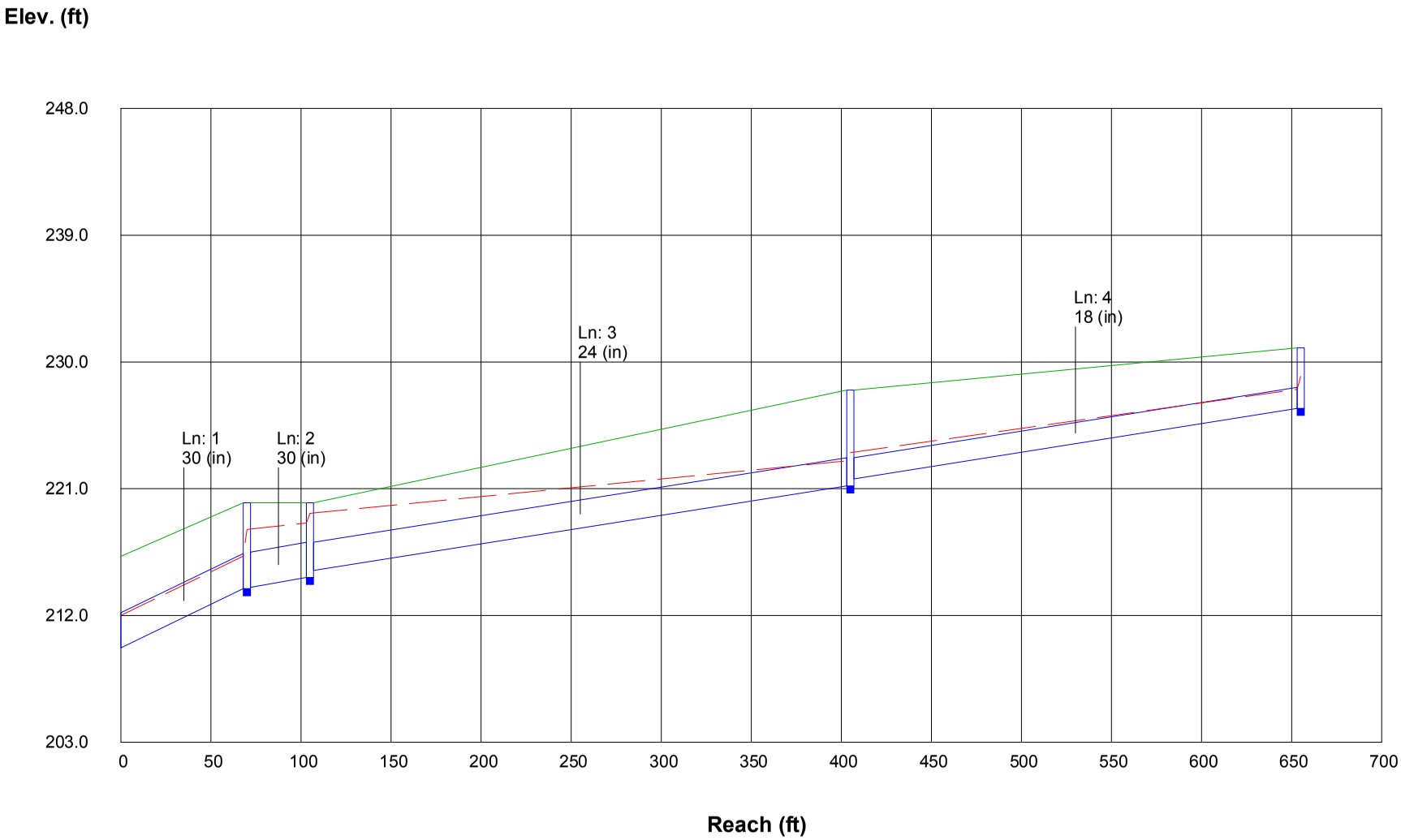
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	depth (ft)	spread (ft)	depth (ft)	spread (ft)	Dep (in)	
1		3.70*	0.00	3.70	0.00	Curb	6.0	10.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.38	7.98	0.41	7.98	2.00	Off
2		20.70*	0.00	20.70	0.00	Curb	6.0	20.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.63	16.34	0.66	16.34	2.00	1
3		12.60*	0.00	12.60	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.30	5.33	0.30	5.33	0.0	2
4		13.00*	0.00	13.00	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.30	5.33	0.30	5.33	0.0	3

Project File: Offsite D to J 100-yr.stm | I-D-F File: SedgwickCoKS.IDF | Total number of lines: 4 | Run Date: 04-04-2006

NOTES: Inlet N-Values = 0.016 ; Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added

Storm Sewer Profile

Proj. file: Offsite D to J 100-yr.stm



Hydraflow Plan View

Project file: Area K and L 5-yr.stm	IDF file: SedgwickCoKS.IDF	No. Lines: 2	04-04-2006

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	80.0	90.0	Curb	1.10	0.00	0.00	0.0	210.80	5.25	215.00	18	Cir	0.013	0.50	0.00	
2	1	35.0	0.0	Curb	6.90	0.00	0.00	0.0	215.10	0.40	215.24	18	Cir	0.013	1.00	0.00	

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		8.00	18 c	80.0	210.80	215.00	5.250	211.88	216.08	0.27	End
2		6.90	18 c	35.0	215.10	215.24	0.400	216.39	216.53	0.28	1

Project File: Area K and L 5-yr.stm	IDF File: SedgwickCoKS.IDF	Total No. Lines: 2	Run Date: 04-04-2006

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

Hydraflow Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	80.0	0.00	0.00	0.00	0.00	0.00	0.0	0.1	0.0	8.00	24.06	5.88	18	5.25	215.00	210.80	216.08	211.88	0.00	0.00	
2	1	35.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.90	6.64	4.27	18	0.40	215.24	215.10	216.53	216.39	0.00	0.00	

Project File: Area K and L 5-yr.stm

IDF File: SedgwickCoKS.IDF

Total number of lines: 2

Run Date: 04-04-2006

NOTES: Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; Initial tailwater elevation = 211.88 (ft)

Hydraflow Inlet Report

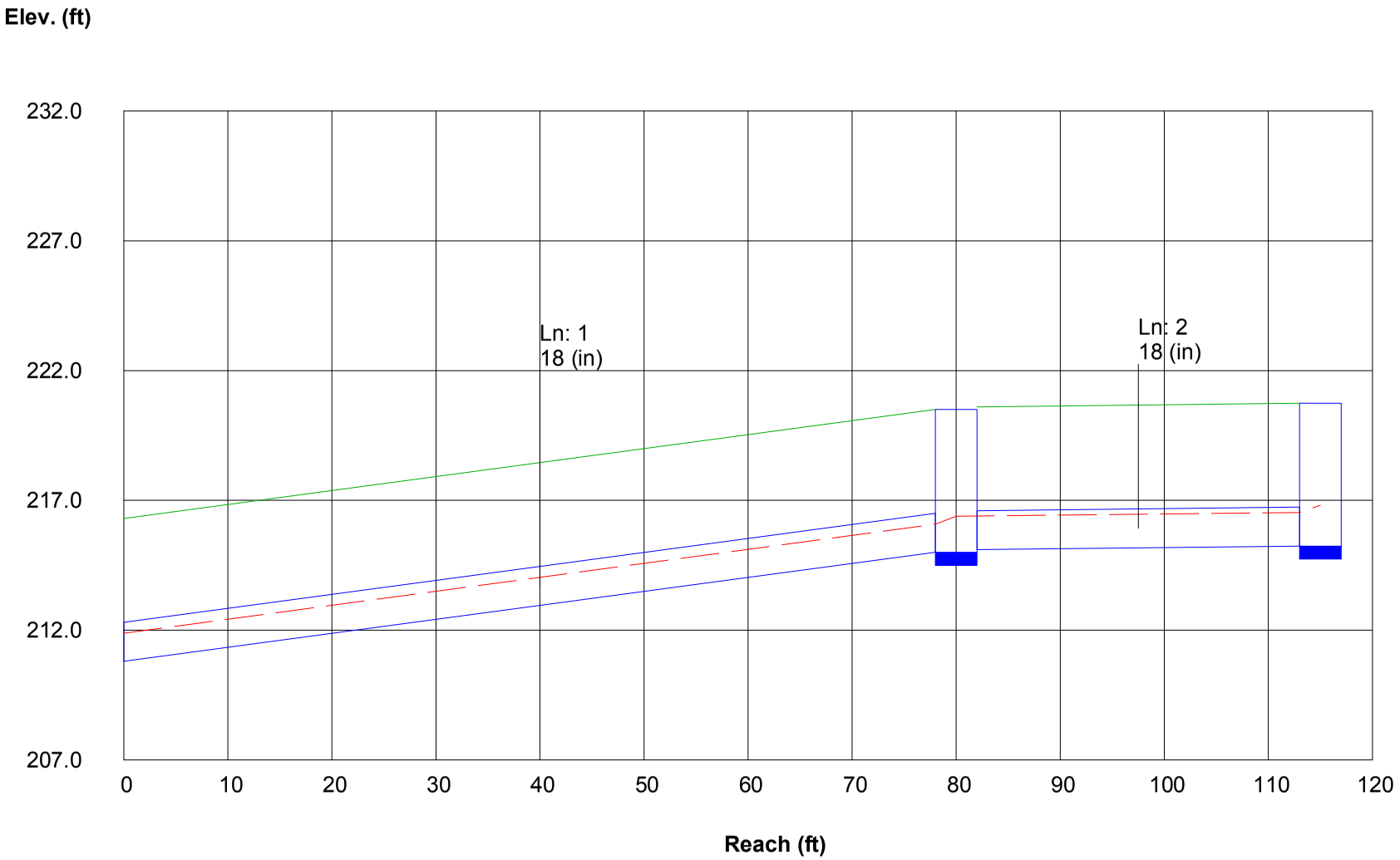
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	depth (ft)	spread (ft)	depth (ft)	spread (ft)	Dep (in)	
1		1.10*	0.00	1.10	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.28	4.81	0.31	4.81	2.00	Off
2		6.90*	0.00	6.90	0.00	Curb	6.0	10.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.50	12.11	0.53	12.11	2.00	1

Project File: Area K and L 5-yr.stm | I-D-F File: SedgwickCoKS.IDF | Total number of lines: 2 | Run Date: 04-04-2006

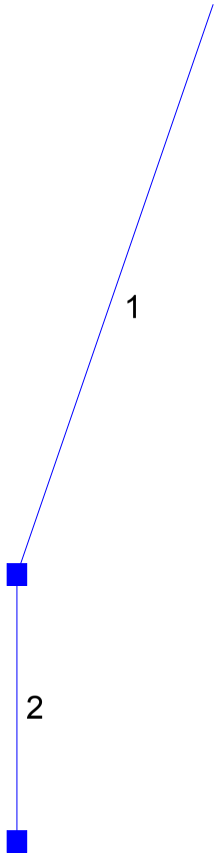
NOTES: Inlet N-Values = 0.016 ; Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; * Indicates Known Q added

Storm Sewer Profile

Proj. file: Area K and L 5-yr.stm



Hydraflow Plan View



Project file: Area N and O 5-yr.stm	IDF file: SedgwickCoKS.IDF	No. Lines: 2	04-04-2006

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	80.0	111.0	Curb	1.10	0.00	0.00	0.0	207.30	6.80	212.74	18	Cir	0.013	0.70	216.00	
2	1	35.0	-21.0	Curb	6.40	0.00	0.00	0.0	212.84	0.40	212.98	18	Cir	0.013	1.00	216.00	

Project File: Area N and O 5-yr.stm | IDF File: SedgwickCoKS.IDF | Total number of lines: 2 | Date: 04-04-2006

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		7.50	18 c	80.0	207.30	212.74	6.800	208.35	213.79	0.35	End
2		6.40	18 c	35.0	212.84	212.98	0.400	214.14	214.25	0.25	1

Project File: Area N and O 5-yr.stm | IDF File: SedgwickCoKS.IDF | Total No. Lines: 2 | Run Date: 04-04-2006

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

Hydraflow Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	80.0	0.00	0.00	0.00	0.00	0.00	0.0	0.2	0.0	7.50	27.38	5.69	18	6.80	212.74	207.30	213.79	208.35	216.00	0.00	
2	1	35.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.40	6.64	3.97	18	0.40	212.98	212.84	214.25	214.14	216.00	216.00	

Project File: Area N and O 5-yr.stm

IDF File: SedgwickCoKS.IDF

Total number of lines: 2

Run Date: 04-04-2006

NOTES: Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; Initial tailwater elevation = 208.35 (ft)

Hydraflow Inlet Report

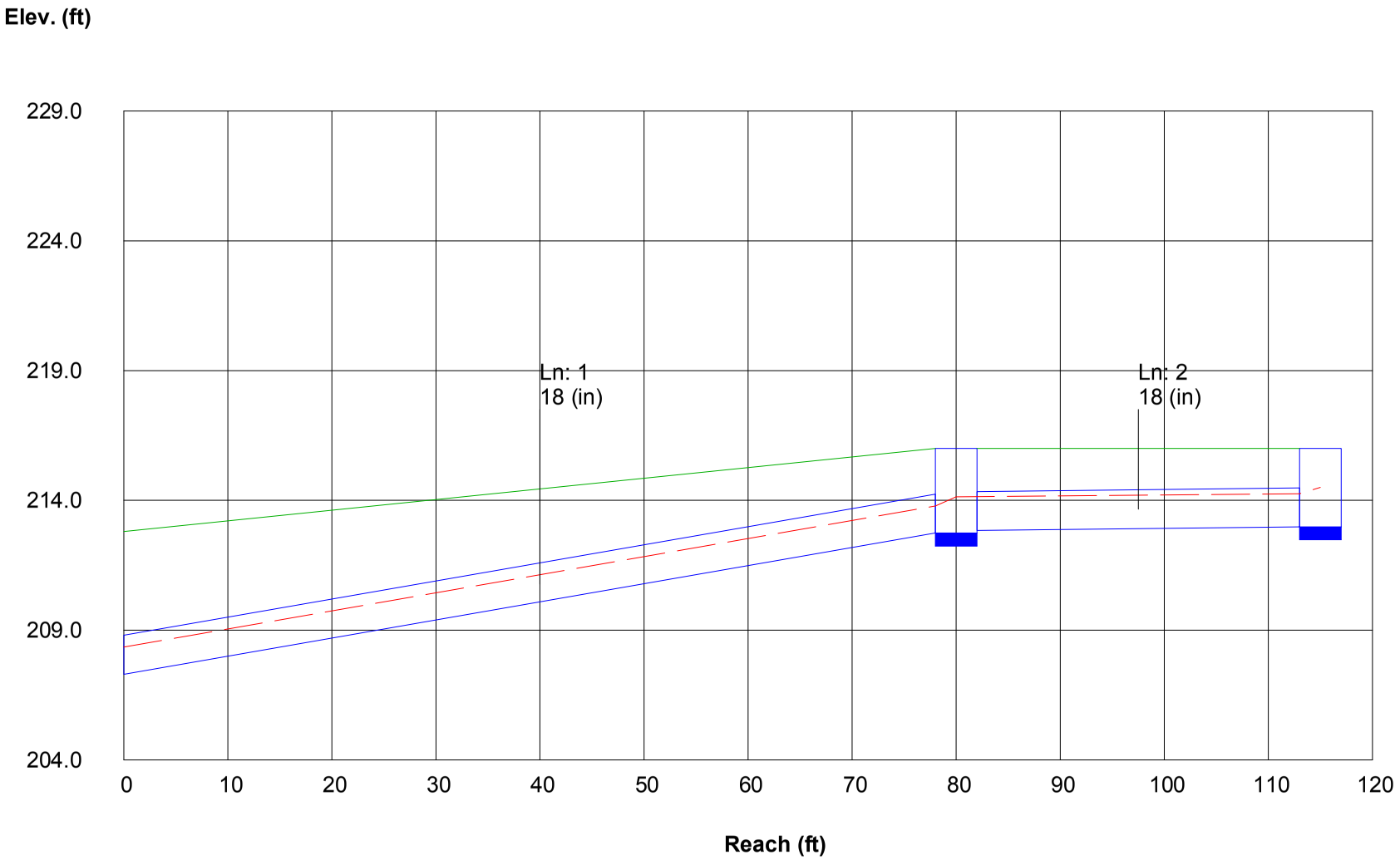
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	depth (ft)	spread (ft)	depth (ft)	spread (ft)	Dep (in)	
1		1.10*	0.00	1.10	0.00	Curb	6.0	5.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.28	4.81	0.31	4.81	2.00	Off
2		6.40*	0.00	6.40	0.00	Curb	6.0	10.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.49	11.51	0.51	11.51	2.00	1

Project File: Area N and O 5-yr.stm | I-D-F File: SedgwickCoKS.IDF | Total number of lines: 2 | Run Date: 04-04-2006

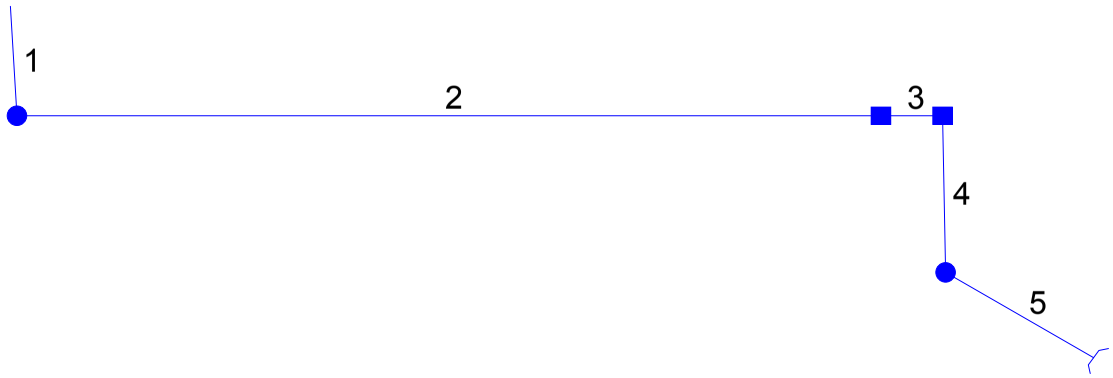
NOTES: Inlet N-Values = 0.016 ; Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; * Indicates Known Q added

Storm Sewer Profile

Proj. file: Area N and O 5-yr.stm



Hydraflow Plan View



Project file: System PQR 100-yr.stm	IDF file: SedgwickCoKS.IDF	No. Lines: 5	04-04-2006

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	70.0	87.0	MH	0.00	0.00	0.00	0.0	200.00	0.30	200.21	36	Cir	0.013	1.00	206.00	
2	1	490.0	-87.0	Curb	6.70	0.00	0.00	0.0	200.31	0.75	204.00	36	Cir	0.013	0.50	209.00	
3	2	35.0	0.0	Curb	5.50	0.00	0.00	0.0	204.50	0.20	204.57	30	Cir	0.013	1.50	209.00	
4	3	100.0	89.0	MH	0.00	0.00	0.00	0.0	204.67	1.00	205.67	30	Cir	0.013	0.85	211.00	
5	4	100.0	-56.0	Hdwl	19.15	0.00	0.00	0.0	206.47	3.53	210.00	24	Cir	0.013	1.00	214.00	

Project File: System PQR 100-yr.stm | IDF File: SedgwickCoKS.IDF | Total number of lines: 5 | Date: 04-04-2006

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		31.35	36 c	70.0	200.00	200.21	0.300	205.00*	205.15*	0.31	End
2		31.35	36 c	490.0	200.31	204.00	0.753	205.46	206.45	0.20	1
3		24.65	30 c	35.0	204.50	204.57	0.200	207.00*	207.13*	0.59	2
4		19.15	30 c	100.0	204.67	205.67	1.000	207.71	207.89	0.23	3
5		19.15	24 c	100.0	206.47	210.00	3.530	208.12	211.55	0.84	4

Project File: System PQR 100-yr.stm | IDF File: SedgwickCoKS.IDF | Total No. Lines: 5 | Run Date: 04-04-2006

NOTES: c = circular; e = elliptical; b = box; Return period = 100 Yrs.; * Indicates surcharge condition.

Hydraflow Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1	End	70.0	0.00	0.00	0.00	0.00	0.00	0.0	2.7	0.0	31.35	36.53	4.44	36	0.30	200.21	200.00	205.15	205.00	206.00	206.00	
2	1	490.0	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	31.35	57.88	4.75	36	0.75	204.00	200.31	206.45	205.46	209.00	206.00	
3	2	35.0	0.00	0.00	0.00	0.00	0.00	0.0	0.7	0.0	24.65	18.34	5.02	30	0.20	204.57	204.50	207.13	207.00	209.00	209.00	
4	3	100.0	0.00	0.00	0.00	0.00	0.00	0.0	0.3	0.0	19.15	41.01	4.03	30	1.00	205.67	204.67	207.89	207.71	211.00	209.00	
5	4	100.0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	19.15	42.49	7.13	24	3.53	210.00	206.47	211.55	208.12	214.00	211.00	

Project File: System PQR 100-yr.stm | IDF File: SedgwickCoKS.IDF | Total number of lines: 5 | Run Date: 04-04-2006

NOTES: Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66; Return period = 100 Yrs. ; Initial tailwater elevation = 205.00 (ft)

Hydraflow Inlet Report

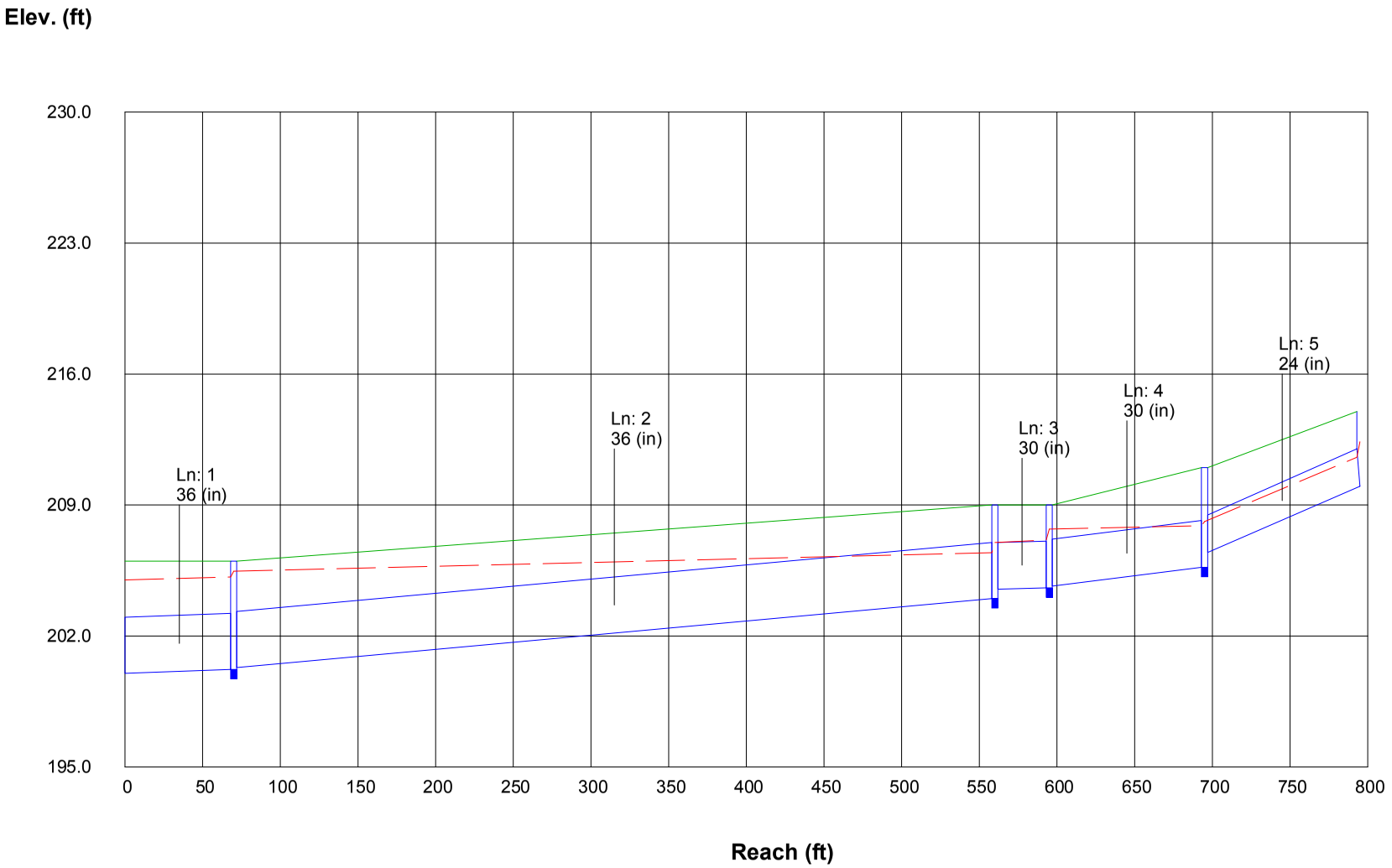
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	depth (ft)	spread (ft)	depth (ft)	spread (ft)	Dep (in)	
1		0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2		6.70*	0.00	6.70	0.00	Curb	6.0	11.54	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.47	11.05	0.50	11.05	2.00	1
3		5.50*	0.00	5.50	0.00	Curb	6.0	8.83	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.47	11.05	0.50	11.05	2.00	2
4		0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	3
5		19.15*	0.00	19.15	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.100	0.030	0.000	0.00	0.00	0.00	0.00	0.0	4

Project File: System PQR 100-yr.stm | I-D-F File: SedgwickCoKS.IDF | Total number of lines: 5 | Run Date: 04-04-2006

NOTES: Inlet N-Values = 0.016 ; Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added

Storm Sewer Profile

Proj. file: System PQR 100-yr.stm

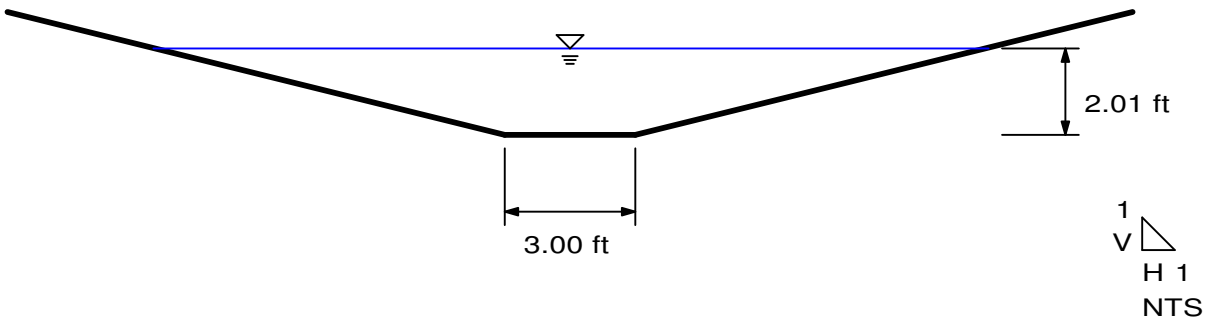


Appendix M
Flow Master Output

Northeast Swale
Cross Section for Trapezoidal Channel

Project Description	
Project File	k:\wp\project\2000\00315\drng\3-16-06\flowmaster\toben fi.fm2
Worksheet	Northeast Swale
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

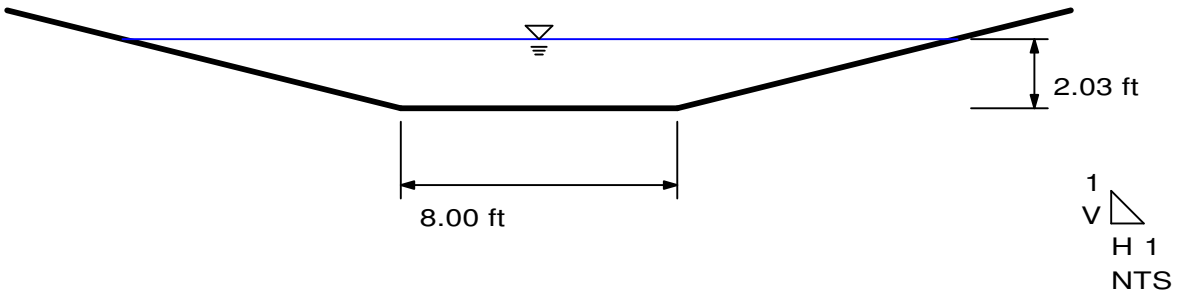
Section Data		
Mannings Coefficient	0.030	
Channel Slope	0.010000	ft/ft
Depth	2.01	ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	3.00	ft
Discharge	120.00	cfs



North Middle Swale
Cross Section for Trapezoidal Channel

Project Description	
Project File	k:\wp\project\2000\00315\drng\3-16-06\flowmaster\toben fi.fm2
Worksheet	North Middle Swale
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.030	
Channel Slope	0.005000	ft/ft
Depth	2.03	ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	8.00	ft
Discharge	138.00	cfs



Northwest Swale
Cross Section for Trapezoidal Channel

Project Description	
Project File	k:\wp\project\2000\00315\drng\3-16-06\flowmaster\toben fi.fm2
Worksheet	Northwest Swale
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.030	
Channel Slope	0.005000	ft/ft
Depth	2.00	ft
Left Side Slope	4.000000	H : V
Right Side Slope	4.000000	H : V
Bottom Width	12.00	ft
Discharge	175.00	cfs