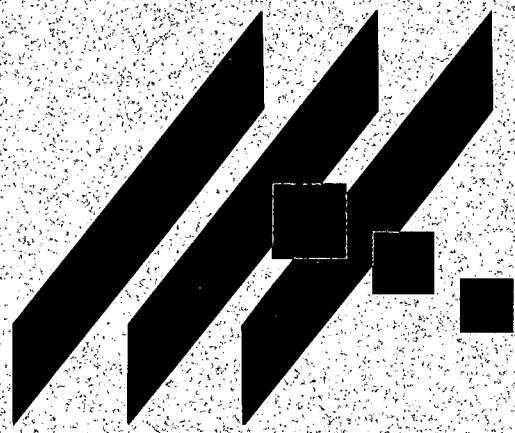


M K E C - E N G I N E E R I N G C O N S U L T A N T S , I N C



DRAINAGE REPORT  
FOR  
**THE FOX RIDGE ADDITION**

FEBRUARY 2003

# Preliminary Drainage Report for the Fox Ridge Addition Wichita, Sedgwick County, Kansas

## Location

The subject property is in Wichita, Sedgwick County, Kansas. The proposed development is located north of West 29<sup>th</sup> Street North between Maize Road and Tyler Road. It is a portion of the south half, of Section 32, Township 26 South, Range 1 West. Tyler Road bounds the property to the east, Maize Road to the west, 29<sup>th</sup> Street to the south, and Maize Schools (USD #266) property to the north. The dimensions of the property are approximately 2500 feet north to south and 5100 feet east to west at the widest point. The area of the plat is 260 acres. The site is shown on the Wichita West, Kansas Quadrangle, located in Appendix A.

## Soils

According to the NRCS (SCS) Sedgwick County Soil Survey in Appendix B, the soil on the site is silty loam. The site comprises Farnum Loam, 0-1% slopes (Fa - HSG "B"), Farnum Loam 1-3% slopes (Fb - HSG "B"), Blanket Silt Loam 0-1% slopes (Ba - HSG "C"), Waurika Silt Loam (Wb - HSG "D"), and vanoss silt loam, 1-3% slopes (Vb - HSG "B"). Approximately 69% of the site is Hydrological Soil Group (HSG) "B", approximately 15% is HSG "C", and approximately 16% is HSG "D". The HSG used to select runoff coefficients is "B".

The Cadillac Lake Watershed is approximately 60% HSG "B", 10% HSG "C", and 40% HSG "D". The HSG used to select runoff coefficients for the watershed is "B".

## Pre-developed Conditions

### *Current Development*

The site is undeveloped agricultural land. An irrigation well and ¼ mile center pivot sprinkler are located in the center of the half of the property.

### *Current Landform and Slope*

Slopes in the site vary from steep to nearly zero. A ridge in the northeast corner of the site has slopes of around 5.0%. The northwest corner of the site has slopes of approximately 0.1%. Elevations vary from 1368' at the northeast corner to 1348' at the south property line. For comparison to FEMA elevations USGS datum was used for this report. Survey of the site is shown in City of Wichita datum (City = USGS - 1187.4)

### *Current Drainage Conditions*

The south-central portion of the site lies in an area designated as Zone A - areas of 100-year flood; base flood elevations and flood hazard factors not determined (FIRM Panel 125, Sedgwick, County, Kansas, June 3, 1986) (shown in Appendix C).

*Current Runoff Characteristics*

Runoff enters the site from the north through the Maize School property and exits to the south under 29<sup>th</sup> Street. After exiting the site, runoff enters Cadillac Lake and then runs into the Chadsworth 2<sup>nd</sup> Addition.

Maize School District is developing the half section of land to the north. It will consist of three schools: Elementary, Middle, and High Schools. The plans for the schools include buildings, parking, athletic fields, playgrounds, and detention ponds (shown in Appendix D). Design is complete for the middle school and construction is underway. Runoff from the new middle school will drain into a proposed detention pond in the northeast corner of the site. A channel will carry runoff from the south edge of the Maize School District site into the same proposed detention pond. Runoff from the area draining to the channel (approximately 69 acres) to Fox Ridge will be virtually none. The peak runoff rate from the rest of the Maize School District parcel is assumed to be less than or equal to pre-developed conditions for the purpose of this report.

South of the site, design of improvements for 29<sup>th</sup> Street is underway. Currently, a 30" elliptical pipe carries flow under 29<sup>th</sup> Street. According to the design engineer (Baughman Co.), preliminary design will install an 8'x3' Reinforced Concrete Box (RCB) with a flow line elevation of 1346.2' as part of 29<sup>th</sup> Street improvements. Runoff will flow through this box into Cadillac Lake. It is understood that there will be a master basin plan that will further study this area to determine the final size.

The total watershed draining into Cadillac Lake is approximately 2191 acres. The pre-development watersheds are shown on the drawing in Appendix E. An area of 514 acres drains through Fox Ridge and crosses 29<sup>th</sup> Street North. The remaining 1509 acres does not cross the Fox Ridge Addition before entering Cadillac Lake. Professional Engineering Consultants completed the drainage plan for Maize Road. It shows that runoff east of Maize road from 125 acres north of 37<sup>th</sup> Street and 42 acres in the northeast corner of Maize Road and 29<sup>th</sup> Street are diverted away from the Fox Ridge Addition by a drainage ditch running parallel to the street. Areas west of Maize Road drain south through ditches to Cadillac Lake. The Oak Ridge Addition east of the proposed development has 10 acres that drain into Fox Ridge through a 15" pipe under Tyler Road. An area east of Tyler Road drains onto the northeast corner of the site, which drains to the north onto the Maize School property. The volume of runoff from the site was determined using a watershed bounded by Maize Road totaling 514 acres. The FAA method was used to calculate a Time of Concentration ( $T_c$ ) of 236 minutes, shown in Appendix F. Hydraflow Hydrographs by Intelisolve computer software using the SCS method was used to calculate a peak 100-year runoff value of 227 cfs prior to development of Fox Ridge and the Maize School District parcel. Pre-developed Hydraflow Hydrographs output is in Appendix G.

The area designated on the FIRM as Zone A (Appendix C) corresponds with the 1350' contour shown on the Quadrangle (Appendix A). The 100-year water surface elevation

of Cadillac Lake is apparently 1350'. Runoff exits Cadillac Lake to the south into the Chadsworth 2<sup>nd</sup> Addition. According to the Chadsworth 2<sup>nd</sup> Addition drainage plan, the allowable peak outflow from Cadillac Lake in the 100-year event is 130 cfs. Cadillac Lake discharge passes through 2-36" Reinforced Concrete Pipes (RCP) under Chartwell Circle and into the Chadsworth detention pond. The pond also has a maximum peak discharge of 130 cfs to the south in the 100-year design event.

A stage-storage relationship was developed for Cadillac Lake using the best available data including the USGS Quadrangle, aerial photos, and site inspection. Using this relationship and the maximum peak outflow of 130 cfs at elevation 1350', a preliminary model was prepared for Cadillac Lake's detention performance in Hydraflow Hydrographs. According to the model, the existing elevation of Cadillac Lake is 1349.88'. The model was used to calculate peak runoff values at three significant locations in the watershed. Runoff was calculated at 29<sup>th</sup> Street, which is the location at which runoff leaves Fox Ridge. Runoff to 29<sup>th</sup> Street does not include all runoff entering Cadillac Lake. The total runoff entering Cadillac Lake includes runoff from Fox Ridge and the additional 1509 acres that do not cross Fox Ridge. Peak discharge from Cadillac Lake includes the entire watershed after routing through Cadillac Lake. Table 1 summarizes the results of these calculations. See Appendix G for full output.

**Table 1. Pre-developed Runoff.**

Sub-Watershed	2-Year (cfs)	5-Year (cfs)	10-Year (cfs)	100-Year (cfs)
To 29 <sup>th</sup> Street (from Fox Ridge)	44.6	82.21	110.3	227.1
Total to Cadillac Lake	226.6	403.9	534.1	1067.0
Cadillac Lake Discharge	51.3	72.7	85.1	126.2

For the purpose of this report, it is assumed that the detention characteristics of Cadillac Lake will remain equivalent to the existing conditions.

### Developed Conditions

#### *Proposed Development*

The 260-acre site will develop as 390 residential lots. Lots are approximately 1/3 acre in size on average. Several reserve areas have been platted for lakes and landscaping. The site will include a clubhouse, pool, tot-lots, and sidewalks and/or bicycle paths.

#### *Proposed Landform and Slope*

Five lakes will be excavated, providing fill that will elevate streets and lots. Final slopes in the development have not been determined, but the minimum will be 0.5% within street right-of-way and 1-2% in back yards. Lakes will have side slopes of 4:1 to 6:1.

### *Proposed Runoff Characteristics*

The developed site was divided into 5 watersheds to model each lake, shown in Appendix H. Lakes 2 and 3 were modeled to take runoff from the Maize Schools equivalent to existing conditions. Lake 3 also receives runoff that crosses from the East Side of Tyler Road through an 18" pipe. Lake 5 also takes flow from the Oak Ridge Addition East of Tyler Road. This runoff flows to a 15" pipe under Tyler Road. The pipes under Tyler Road are not large enough to carry a 100-year design event. Both areas were modeled without the pipes restricting flow to allow for future modifications to the structures under Tyler Road.

Detention performance for the proposed lakes was modeled using Hydraflow Hydrographs. Proposed contours and elevations were used to create the stage-storage relationships. Outlet structures were designed to detain runoff and maintain a reasonable 100-year water surface elevation. The normal pool elevation of Lake 1 and Lake 2 will be equal. The structure between the two lakes will equalize the two lakes rather than act as a control structure. For this reason, Lake 1 and Lake 2 were modeled as one lake. One weir will control elevations of both lakes. The weir serving as the outlet structure for Lakes 1 and 2 will be north of 29<sup>th</sup> Street and will be 44 feet wide to detain the 100-year storm. It will have a 2' wide by 1.5' tall notch to allow smaller storms to pass in a more controlled manner. Data and results from the Hydraflow modeling are summarized in Table 2. Hydraflow Hydrographs output is found in Appendix I. Time of Concentration values are found in Appendix F.

**Table 2. Proposed Lakes.**

	Lake 1	Lake 2	Lake 3	Lake 4	Lake 5
Drainage Area (ac)	107.9	164.4	88.0	71.2	46.6
100-Year Flow In (cfs)	321.6	168.2	88.4	154.0	120.3
100-Year Flow Out (cfs)	926.8		47.4	112.0	48.8
Normal Pool (feet)	1347.0		1350.0	1350.0	1350.0
100-Year Elevation (feet)	1350.3		1353.4	1352.8	1353.6
Outlet Structure	44' weir at 1348.5' with 2' notch at 1347.0'		36" pipe	8' weir	36" pipe
100-Year Storage (ac-ft)	71.0		7.7	6.6	7.5

Runoff from the site was calculated in the Hydraflow Hydrographs model used to design the lakes. Peak runoff values for developed conditions at key locations are shown in

Table 3. The developed runoff peak flow rates reflect detention effects of the five proposed lakes.

**Table 3. Developed Runoff.**

Sub-Watershed	2-Year (cfs)	5-Year (cfs)	10-Year (cfs)	100-Year (cfs)
To 29 <sup>th</sup> Street (from Fox Ridge)	1.0	23.9	66.7	226.4
Total to Cadillac Lake	182.1	321.9	457.6	1063.0
Cadillac Lake Discharge	48.5	72.5	84.9	125.9

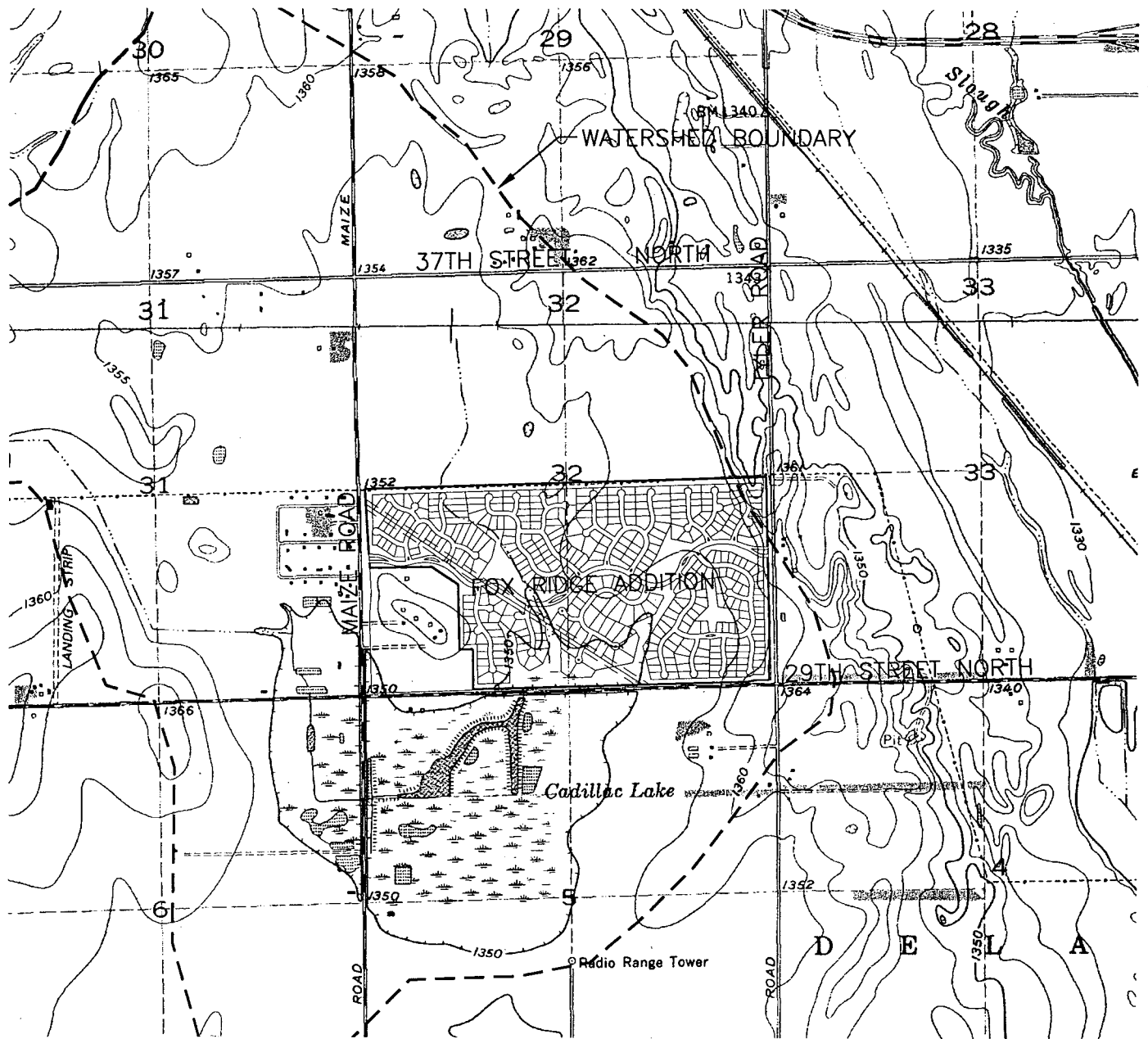
The site has been divided into smaller watersheds for the purpose of sizing storm water sewer pipe and inlets. The Drainage Plan in Appendix J shows the sub-watersheds and storm water sewer. The rational method was used to analyze each sub-watershed shown in the Drainage and Utility Plan. Times of concentration ( $T_c$ ) were assumed to be 15 minutes because of the small size of each watershed. The spreadsheet in Appendix K displays the area, runoff coefficient ( $c$ ), time of concentration ( $t_c$ ), and flow rate ( $Q$ ) for the 2, 5, 10, and 100-year event for each sub-watershed.

### Summary

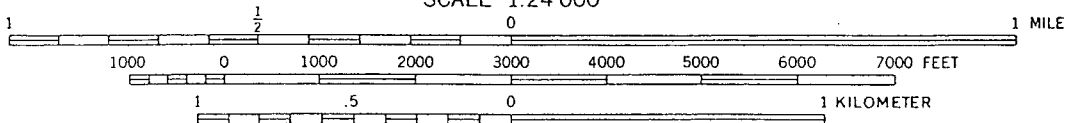
The Fox Ridge Addition is a proposed 260-acre development north of 29<sup>th</sup> Street, between Maize and Tyler Roads. The Maize School District is currently constructing a middle school north of the site and has plans for more schools. A total of 390 residential lots are planned for the development. The area will include 5 lakes, a pool and clubhouse, tot-lots, and landscaping. The watershed to Cadillac Lake has been analyzed under existing conditions and after Fox Ridge Addition's development.

The proposed lakes will provide adequate detention for the site. The lakes were designed to retain all increased runoff from the site. In all design events, proposed peak runoff to 29<sup>th</sup> Street, into Cadillac Lake, and out of Cadillac Lake is equal or less than existing conditions, as shown in Tables 1 and 3. Peak runoff from the site, to 29<sup>th</sup> Street, is 227 cfs in the 100-year event under pre-developed conditions. After development, peak runoff from the site would remain nearly the same at 226 cfs in the 100-year event. Total runoff to Cadillac Lake will not have an observable change. The peak runoff will be 1067 cfs under existing conditions and 1063 under proposed conditions.

**APPENDIX A  
QUADRANGLE MAP**



SCALE 1:24 000



CONTOUR INTERVAL 5 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



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

**FOX RIDGE ADDITION**

PROJECT NAME

**USGS GEOLOGICAL SURVEY  
WICHITA WEST, KANSAS QUADRANGLE**

SHEET TITLE

KLA

DESIGN BY:

KLA

DRAWN BY:

GJA

CHECKED BY:

JANUARY 2003

DATE

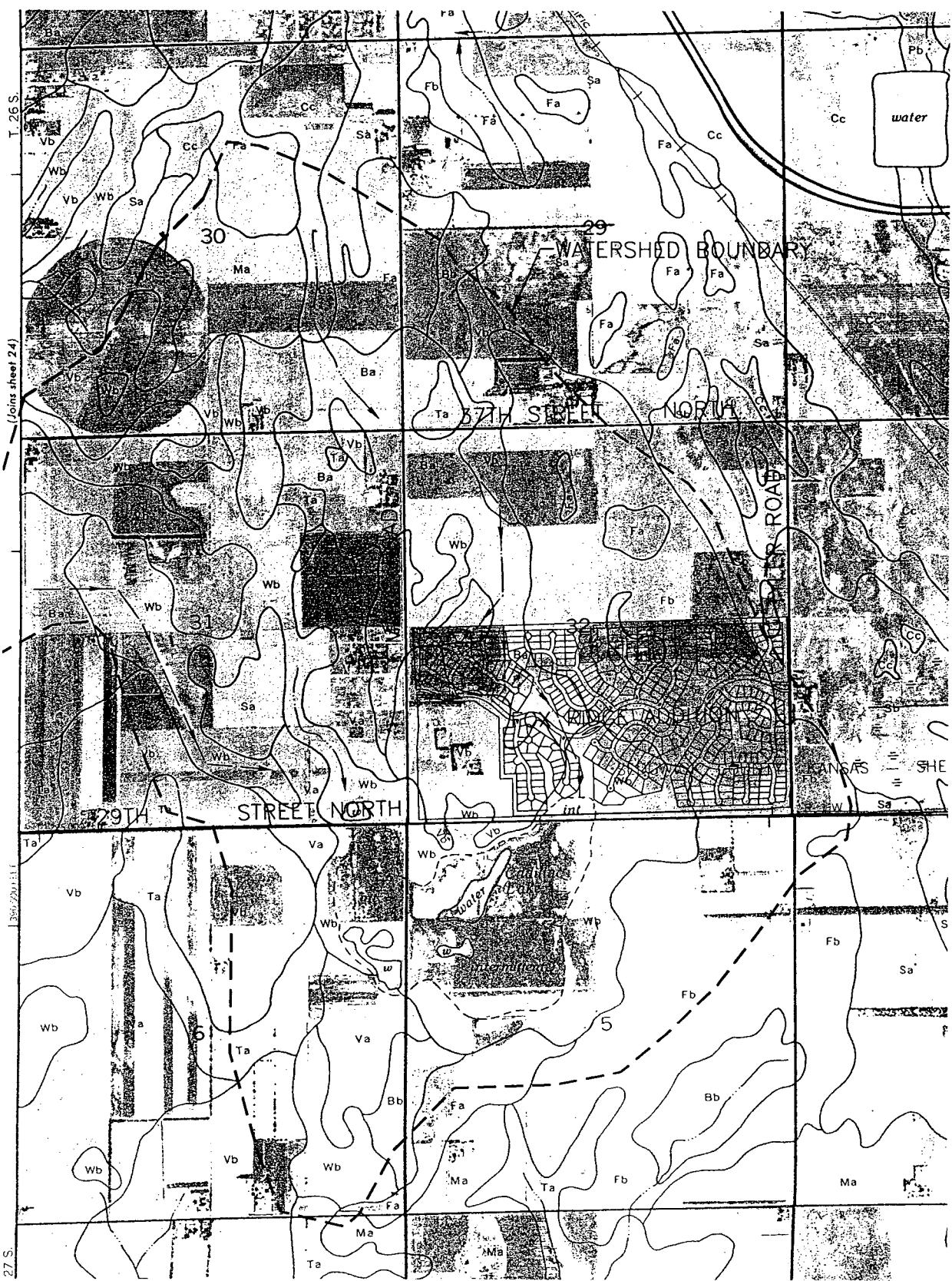
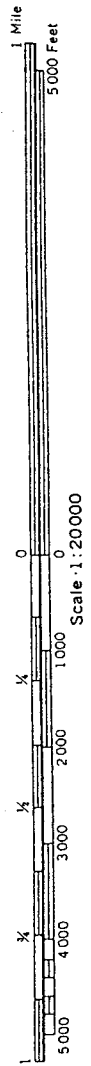
99118

JOB NO.

1 / 1

SHEET/OF

**APPENDIX B  
SOIL SURVEY**



T. 26 S.

(Join sheet 24)

R. 29W.11E

27 S.



**MKEC**  
ENGINEERING  
CONSULTANTS  
411 N. WEBB ROAD  
WICHITA, KS. 67206  
316 - 684 - 9400

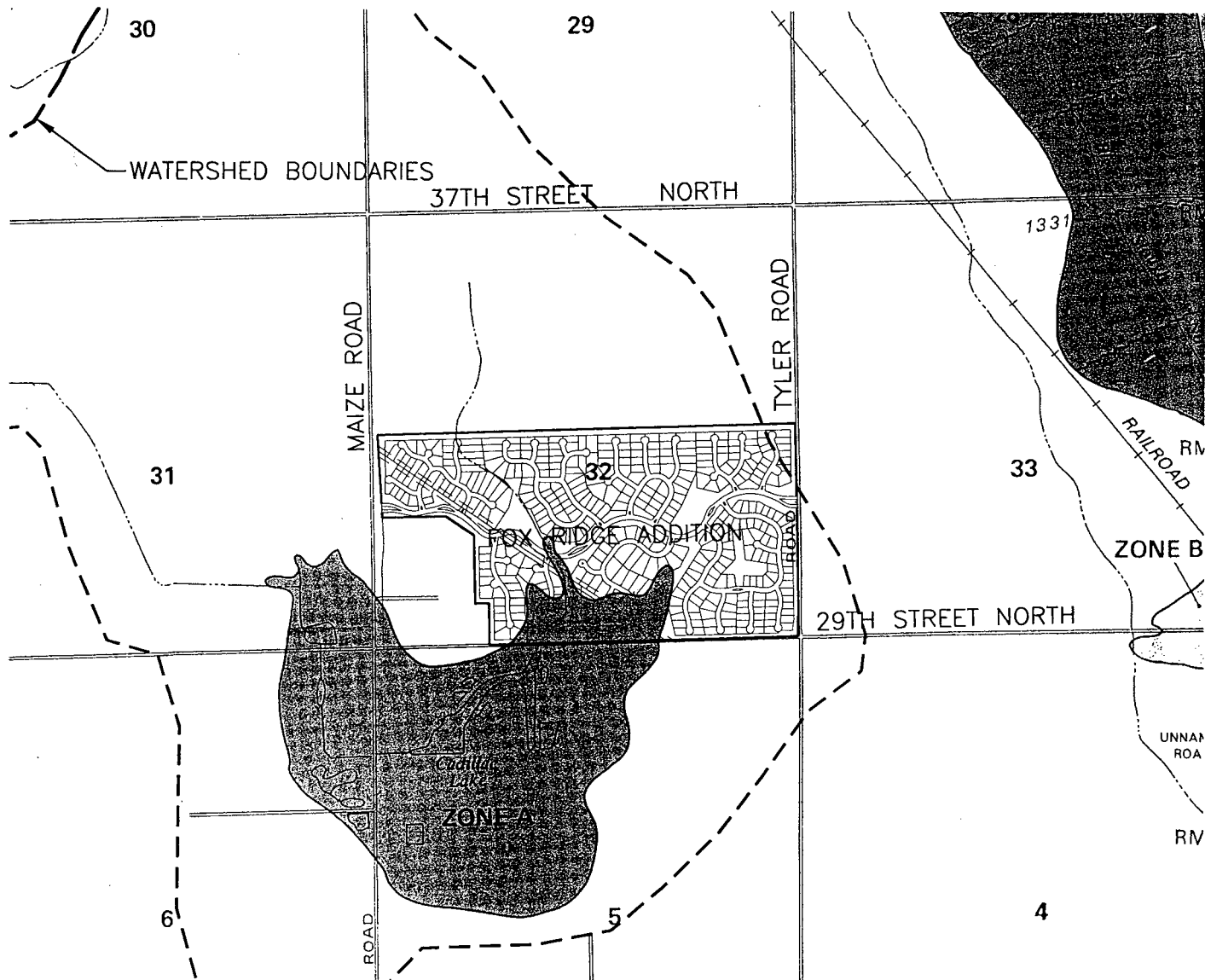
**FOX RIDGE ADDITION**  
PROJECT NAME

**SOIL SURVEY**  
**SEDGWICK COUNTY, KANSAS**  
SHEET TITLE

**KLA** / **KLA** / **GJA**  
DRAWN BY. / DRAWN BY. / CHECKED BY.

**JANUARY 2003** / **99118** / **1 / 1**  
DATE / JOB NO. / SHEET/OF

**APPENDIX C**  
**FEMA FIRM**



NATIONAL FLOOD INSURANCE PROGRAM


**FIRM**  
FLOOD INSURANCE RATE MAP

SEDGWICK,  
COUNTY,  
KANSAS  
(UNINCORPORATED AREAS)

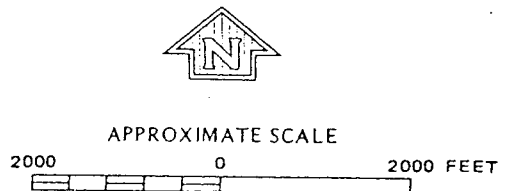

PANEL 125 OF 300

COMMUNITY-PANEL NUMBER  
200321 0125 A

EFFECTIVE DATE:  
JUNE 3, 1986



Federal Emergency Management Agency

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

**FOX RIDGE ADDITION**  
PROJECT NAME

**FIRM PANEL 125**  
**SEDGWICK, COUNTY, KANSAS**  
SHEET TITLE

KLA DESIGN BY.	KLA DRAWN BY.	GJA CHECKED BY.
JANUARY 2003 DATE	99118 JOB NO.	1 / 1 SHEET/OF

C:\CIVIL\99118\DWG\DRNG\99118FM.DWG

**APPENDIX D  
MAIZE SCHOOL SITE PLAN**

**APPENDIX E**  
**PRE-DEVELOPED WATERSHEDS**

**APPENDIX F**  
**TIME OF CONCENTRATION CALCULATIONS**

## Time of Concentration Calculations

Equation:

$$T_c = \frac{1.8(1.1 - C)L^2}{S^{\frac{1}{3}}}$$

$$S = \frac{\Delta H}{L}$$

Existing to 29<sup>th</sup> Street:

$L = 8280$  feet

$\Delta H = 11$  feet

$C = 0.37$

$S = 0.13\%$

$T_c = 236$  minutes

Undeveloped to Pond #2:

$L = 5171$  feet

$\Delta H = 6$  feet

$C = 0.37$

$S = 0.10\%$

$T_c = 203$  minutes

Undeveloped to Pond #3:

$L = 3210$  feet

$\Delta H = 7$  feet

$C = 0.37$

$S = 0.22\%$

$T_c = 123$  minutes

For all Developed Areas Time of Concentration is assumed to be 15 minutes

**APPENDIX G**  
**PRE-DEVELOPED HYDRAFLOW HYDROGRAPHS OUTPUT**

# Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	—	—	44.62	—	82.21	110.26	156.08	193.28	227.10	To 29th Street - Undeveloped
2	SCS Runoff	—	—	182.14	—	321.89	424.05	588.59	720.70	839.89	To Cadillac Lake - Undeveloped
3	Combine	1, 2	—	226.63	—	403.90	534.14	744.38	913.68	1066.73	Combined Undeveloped
4	Reservoir	3	—	51.33	—	72.66	85.06	103.14	115.27	126.24	Undeveloped Cad Lake
5	SCS Runoff	—	—	240.25	—	404.44	518.90	696.98	836.03	959.23	To 29th Street - Developed Site

# 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	SCS Runoff	227.10	6	906	174.240	---	---	---	To 29th Street - Undeveloped
2	SCS Runoff	839.89	6	894	615.957	---	---	---	To Cadillac Lake - Undeveloped
3	Combine	1066.73	6	894	790.196	1, 2	---	---	Combined Undeveloped
4	Reservoir	126.24	6	1632	772.526	3	1349.88	643.992	Undeveloped Cad Lake
5	SCS Runoff	959.23	6	726	103.258	---	---	---	To 29th Street - Developed Site

Proj. file: Existing.gpw

Return Period: 100 yr

Run date: 02-10-2003

# Hydrograph Report

## Hyd. No. 1

To 29th Street - Undeveloped

Hydrograph type	= SCS Runoff	Peak discharge	= 227.10 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 514.00 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 236 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 256

Hydrograph Volume = 174.240 acft

## Hydrograph Discharge Table

Time -- Outflow  
(hrs      cfs)

14.40	222.60
14.50	224.04
14.60	225.14
14.70	225.93
14.80	226.48
14.90	226.83
15.00	227.04
15.10	227.10 <<
15.20	227.03
15.30	226.84
15.40	226.54
15.50	226.14
15.60	225.65
15.70	225.07
15.80	224.41
15.90	223.66
16.00	222.85

...End

# Hydrograph Report

## Hyd. No. 2

To Cadillac Lake - Undeveloped

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Drainage area = 1677.00 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 7.80 in  
Storm duration = 24 hrs

Peak discharge = 839.89 cfs  
Time interval = 6 min  
Curve number = 71  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 233 min  
Distribution = Type II  
Shape factor = 256

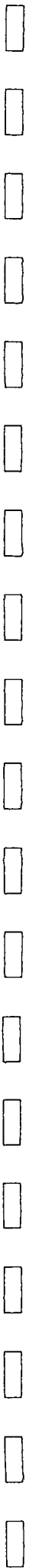
Hydrograph Volume = 615.957 acft

## Hydrograph Discharge Table

Time -- Outflow  
(hrs cfs)

14.30	827.72
14.40	832.38
14.50	835.72
14.60	837.95
14.70	839.25
14.80	839.86
14.90	839.89 <<
15.00	839.40
15.10	838.41
15.20	836.98
15.30	835.15
15.40	832.96
15.50	830.42
15.60	827.55
15.70	824.38

...End



# Hydrograph Report

## Hyd. No. 3

Combined Undeveloped

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Inflow hyds. = 1, 2

Peak discharge = 1066.73 cfs  
Time interval = 6 min

Hydrograph Volume = 790.196 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 = (cfs)	Outflow (cfs)
14.30	220.75	827.72	1048.47
14.40	222.60	832.38	1054.98
14.50	224.04	835.72	1059.77
14.60	225.14	837.95	1063.08
14.70	225.93	839.25	1065.18
14.80	226.48	839.86	1066.34
14.90	226.83	839.89 <<	1066.73 <<
15.00	227.04	839.40	1066.44
15.10	227.10 <<	838.41	1065.51
15.20	227.03	836.98	1064.01
15.30	226.84	835.15	1061.99
15.40	226.54	832.96	1059.50
15.50	226.14	830.42	1056.56
15.60	225.65	827.55	1053.20
15.70	225.07	824.38	1049.45

...End

# Hydrograph Report

## Hyd. No. 4

Undeveloped Cad Lake

Hydrograph type = Reservoir  
 Storm frequency = 100 yrs  
 Inflow hyd. No. = 3  
 Max. Elevation = 1349.88 ft

Peak discharge = 126.24 cfs  
 Time interval = 6 min  
 Reservoir name = Cadillac Lake  
 Max. Storage = 643.992 acft

Storage Indication method used.

Outflow hydrograph volume = 772.526 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
23.50	272.32	1349.81	----	----	----	----	----	----	----	----	----	123.73
23.60	266.00	1349.81	----	----	----	----	----	----	----	----	----	123.86
23.70	260.07	1349.82	----	----	----	----	----	----	----	----	----	124.00
23.80	254.55	1349.82	----	----	----	----	----	----	----	----	----	124.12
23.90	249.53	1349.82	----	----	----	----	----	----	----	----	----	124.25
24.00	245.30	1349.83	----	----	----	----	----	----	----	----	----	124.37
24.10	241.55	1349.83	----	----	----	----	----	----	----	----	----	124.48
24.20	237.89	1349.83	----	----	----	----	----	----	----	----	----	124.59
24.30	234.31	1349.84	----	----	----	----	----	----	----	----	----	124.70
24.40	230.79	1349.84	----	----	----	----	----	----	----	----	----	124.80
24.50	227.31	1349.84	----	----	----	----	----	----	----	----	----	124.90
24.60	223.84	1349.85	----	----	----	----	----	----	----	----	----	124.99
24.70	220.37	1349.85	----	----	----	----	----	----	----	----	----	125.09
24.80	216.90	1349.85	----	----	----	----	----	----	----	----	----	125.18
24.90	213.41	1349.85	----	----	----	----	----	----	----	----	----	125.26
25.00	209.91	1349.86	----	----	----	----	----	----	----	----	----	125.35
25.10	206.38	1349.86	----	----	----	----	----	----	----	----	----	125.42
25.20	202.82	1349.86	----	----	----	----	----	----	----	----	----	125.50
25.30	199.21	1349.86	----	----	----	----	----	----	----	----	----	125.57
25.40	195.57	1349.87	----	----	----	----	----	----	----	----	----	125.64
25.50	191.88	1349.87	----	----	----	----	----	----	----	----	----	125.71
25.60	188.13	1349.87	----	----	----	----	----	----	----	----	----	125.77
25.70	184.34	1349.87	----	----	----	----	----	----	----	----	----	125.83
25.80	180.48	1349.87	----	----	----	----	----	----	----	----	----	125.88
25.90	176.57	1349.88	----	----	----	----	----	----	----	----	----	125.93
26.00	172.59	1349.88	----	----	----	----	----	----	----	----	----	125.98
26.10	168.56	1349.88	----	----	----	----	----	----	----	----	----	126.02
26.20	164.46	1349.88	----	----	----	----	----	----	----	----	----	126.06
26.30	160.30	1349.88	----	----	----	----	----	----	----	----	----	126.09
26.40	156.18	1349.88	----	----	----	----	----	----	----	----	----	126.12
26.50	152.15	1349.88	----	----	----	----	----	----	----	----	----	126.15
26.60	148.20	1349.88	----	----	----	----	----	----	----	----	----	126.17
26.70	144.33	1349.88	----	----	----	----	----	----	----	----	----	126.19
26.80	140.54	1349.88	----	----	----	----	----	----	----	----	----	126.21
26.90	136.82	1349.88	----	----	----	----	----	----	----	----	----	126.22
27.00	133.17	1349.88 <<	----	----	----	----	----	----	----	----	----	126.23
27.10	129.60	1349.88	----	----	----	----	----	----	----	----	----	126.23
27.20	126.09	1349.88	----	----	----	----	----	----	----	----	----	126.24 <<

Continues on next page...

### 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
27.30	122.65	1349.88	----	----	----	----	----	----	----	----	----	126.23
27.40	119.28	1349.88 <<	----	----	----	----	----	----	----	----	----	126.23
27.50	115.97	1349.88	----	----	----	----	----	----	----	----	----	126.22
27.60	112.73	1349.88	----	----	----	----	----	----	----	----	----	126.21
27.70	109.54	1349.88	----	----	----	----	----	----	----	----	----	126.19
27.80	106.42	1349.88	----	----	----	----	----	----	----	----	----	126.18
27.90	103.36	1349.88	----	----	----	----	----	----	----	----	----	126.16
28.00	100.35	1349.88	----	----	----	----	----	----	----	----	----	126.13
28.10	97.41	1349.88	----	----	----	----	----	----	----	----	----	126.11
28.20	94.52	1349.88	----	----	----	----	----	----	----	----	----	126.08
28.30	91.68	1349.88	----	----	----	----	----	----	----	----	----	126.05
28.40	88.91	1349.88	----	----	----	----	----	----	----	----	----	126.01
28.50	86.19	1349.88	----	----	----	----	----	----	----	----	----	125.98
28.60	83.52	1349.88	----	----	----	----	----	----	----	----	----	125.94
28.70	80.90	1349.87	----	----	----	----	----	----	----	----	----	125.89
28.80	78.34	1349.87	----	----	----	----	----	----	----	----	----	125.85
28.90	75.84	1349.87	----	----	----	----	----	----	----	----	----	125.80
29.00	73.38	1349.87	----	----	----	----	----	----	----	----	----	125.75
29.10	70.98	1349.87	----	----	----	----	----	----	----	----	----	125.70
29.20	68.63	1349.87	----	----	----	----	----	----	----	----	----	125.65
29.30	66.33	1349.87	----	----	----	----	----	----	----	----	----	125.59
29.40	64.07	1349.86	----	----	----	----	----	----	----	----	----	125.54
29.50	61.87	1349.86	----	----	----	----	----	----	----	----	----	125.48
29.60	59.71	1349.86	----	----	----	----	----	----	----	----	----	125.42
29.70	57.61	1349.86	----	----	----	----	----	----	----	----	----	125.35
29.80	55.55	1349.86	----	----	----	----	----	----	----	----	----	125.29
29.90	53.53	1349.85	----	----	----	----	----	----	----	----	----	125.22
30.00	51.57	1349.85	----	----	----	----	----	----	----	----	----	125.15
30.10	49.64	1349.85	----	----	----	----	----	----	----	----	----	125.08
30.20	47.77	1349.85	----	----	----	----	----	----	----	----	----	125.00
30.30	45.93	1349.84	----	----	----	----	----	----	----	----	----	124.93
30.40	44.14	1349.84	----	----	----	----	----	----	----	----	----	124.85
30.50	42.39	1349.84	----	----	----	----	----	----	----	----	----	124.77
30.60	40.69	1349.84	----	----	----	----	----	----	----	----	----	124.70
30.70	39.02	1349.83	----	----	----	----	----	----	----	----	----	124.61
30.80	37.40	1349.83	----	----	----	----	----	----	----	----	----	124.53
30.90	35.81	1349.83	----	----	----	----	----	----	----	----	----	124.45
31.00	34.27	1349.83	----	----	----	----	----	----	----	----	----	124.36
31.10	32.77	1349.82	----	----	----	----	----	----	----	----	----	124.28
31.20	31.30	1349.82	----	----	----	----	----	----	----	----	----	124.19
31.30	29.87	1349.82	----	----	----	----	----	----	----	----	----	124.10
31.40	28.47	1349.82	----	----	----	----	----	----	----	----	----	124.01
31.50	27.12	1349.81	----	----	----	----	----	----	----	----	----	123.91
31.60	25.80	1349.81	----	----	----	----	----	----	----	----	----	123.82
31.70	24.51	1349.81	----	----	----	----	----	----	----	----	----	123.73

...End

# Reservoir Report

Reservoir No. 2 - Cadillac Lake

Hydraflow Hydrographs by Intelisolve

## Pond Data

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

## Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1346.00	176,111	0.000	0.000
1.00	1347.00	4,334,190	51.771	51.771
2.00	1348.00	7,492,260	135.749	187.520
3.00	1349.00	10,650,300	208.248	395.768
4.00	1350.00	13,808,410	280.747	676.515
5.00	1351.00	13,808,410	316.998	993.513

## Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	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	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	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

## Stage / Storage / Discharge Table

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

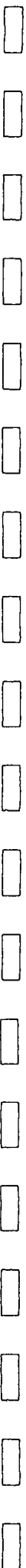
Stage ft	Storage acft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0.000	1346.00	---	---	---	---	---	---	---	---	---	0.00
0.10	5.177	1346.10	---	---	---	---	---	---	---	---	---	3.25
0.20	10.354	1346.20	---	---	---	---	---	---	---	---	---	6.50
0.30	15.531	1346.30	---	---	---	---	---	---	---	---	---	9.75
0.40	20.708	1346.40	---	---	---	---	---	---	---	---	---	13.00
0.50	25.886	1346.50	---	---	---	---	---	---	---	---	---	16.25
0.60	31.063	1346.60	---	---	---	---	---	---	---	---	---	19.50
0.70	36.240	1346.70	---	---	---	---	---	---	---	---	---	22.75
0.80	41.417	1346.80	---	---	---	---	---	---	---	---	---	26.00
0.90	46.594	1346.90	---	---	---	---	---	---	---	---	---	29.25
1.00	51.771	1347.00	---	---	---	---	---	---	---	---	---	32.50
1.10	65.346	1347.10	---	---	---	---	---	---	---	---	---	35.75
1.20	78.921	1347.20	---	---	---	---	---	---	---	---	---	39.00
1.30	92.496	1347.30	---	---	---	---	---	---	---	---	---	42.25
1.40	106.071	1347.40	---	---	---	---	---	---	---	---	---	45.50
1.50	119.646	1347.50	---	---	---	---	---	---	---	---	---	48.75
1.60	133.221	1347.60	---	---	---	---	---	---	---	---	---	52.00
1.70	146.795	1347.70	---	---	---	---	---	---	---	---	---	55.25
1.80	160.370	1347.80	---	---	---	---	---	---	---	---	---	58.50
1.90	173.945	1347.90	---	---	---	---	---	---	---	---	---	61.75
2.00	187.520	1348.00	---	---	---	---	---	---	---	---	---	65.00
2.10	208.345	1348.10	---	---	---	---	---	---	---	---	---	68.25
2.20	229.170	1348.20	---	---	---	---	---	---	---	---	---	71.50
2.30	249.995	1348.30	---	---	---	---	---	---	---	---	---	74.75
2.40	270.819	1348.40	---	---	---	---	---	---	---	---	---	78.00
2.50	291.644	1348.50	---	---	---	---	---	---	---	---	---	81.25
2.60	312.469	1348.60	---	---	---	---	---	---	---	---	---	84.50
2.70	333.294	1348.70	---	---	---	---	---	---	---	---	---	87.75
2.80	354.119	1348.80	---	---	---	---	---	---	---	---	---	91.00
2.90	374.943	1348.90	---	---	---	---	---	---	---	---	---	94.25
3.00	395.768	1349.00	---	---	---	---	---	---	---	---	---	97.50
3.10	423.843	1349.10	---	---	---	---	---	---	---	---	---	100.75

Continues on next page...

**Stage / Storage / Discharge Table**

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Civ D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
3.20	451.918	1349.20	--	--	--	--	--	--	--	--	--	104.00
3.30	479.992	1349.30	--	--	--	--	--	--	--	--	--	107.25
3.40	508.067	1349.40	--	--	--	--	--	--	--	--	--	110.50
3.50	536.142	1349.50	--	--	--	--	--	--	--	--	--	113.75
3.60	564.217	1349.60	--	--	--	--	--	--	--	--	--	117.00
3.70	592.291	1349.70	--	--	--	--	--	--	--	--	--	120.25
3.80	620.366	1349.80	--	--	--	--	--	--	--	--	--	123.50
3.90	648.441	1349.90	--	--	--	--	--	--	--	--	--	126.75
4.00	676.515	1350.00	--	--	--	--	--	--	--	--	--	130.00
4.10	708.215	1350.10	--	--	--	--	--	--	--	--	--	130.00
4.20	739.915	1350.20	--	--	--	--	--	--	--	--	--	130.00
4.30	771.615	1350.30	--	--	--	--	--	--	--	--	--	130.00
4.40	803.314	1350.40	--	--	--	--	--	--	--	--	--	130.00
4.50	835.014	1350.50	--	--	--	--	--	--	--	--	--	130.00
4.60	866.714	1350.60	--	--	--	--	--	--	--	--	--	130.00
4.70	898.413	1350.70	--	--	--	--	--	--	--	--	--	130.00
4.80	930.113	1350.80	--	--	--	--	--	--	--	--	--	130.00
4.90	961.813	1350.90	--	--	--	--	--	--	--	--	--	130.00
5.00	993.513	1351.00	--	--	--	--	--	--	--	--	--	130.00

...End



# Hydrograph Report

## Hyd. No. 5

To 29th Street - Developed Site

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Drainage area = 257.00 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 7.80 in  
Storm duration = 24 hrs

Peak discharge = 959.23 cfs  
Time interval = 6 min  
Curve number = 75  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 15 min  
Distribution = Type II  
Shape factor = 256

Hydrograph Volume = 103.258 acft

## Hydrograph Discharge Table

**Time -- Outflow**  
**(hrs cfs)**

12.10 959.23 <<

...End

**APPENDIX H  
DEVELOPED WATERSHEDS**

**APPENDIX I**  
**DEVELOPED HYDRAFLOW HYDROGRAPHS OUTPUT**

# Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	----	----	38.39	----	65.15	----	----	----	156.09	Fox Ridge to Pond 2
2	SCS Runoff	----	----	10.74	----	19.93	----	----	----	55.46	Offsite from North to Pond 2
3	SCS Runoff	----	----	18.00	----	30.54	----	----	----	73.18	Fox Ridge to Pond 3
4	SCS Runoff	----	----	8.42	----	15.88	----	----	----	44.79	Offsite from North to Pond 3
5	SCS Runoff	----	----	32.30	----	54.81	----	----	----	131.33	Fox Ridge to Pond 4
6	SCS Runoff	----	----	5.84	----	11.30	----	----	----	32.20	Offsite from West to Pond 4
7	SCS Runoff	----	----	25.05	----	42.50	----	----	----	101.83	Fox Ridge to Pond 5
8	SCS Runoff	----	----	3.88	----	7.26	----	----	----	19.59	Oak Ridge 2nd to Pond 5
9	Combine	1, 2,	----	39.77	----	68.22	----	----	----	168.22	To Pond 2
10	Combine	3, 4,	----	19.98	----	34.81	----	----	----	88.41	To Pond 3
11	Reservoir	10	----	9.79	----	18.27	----	----	----	47.70	Pond 3
12	Combine	5, 6,	----	35.87	----	62.01	----	----	----	154.02	To Pond 4
13	Reservoir	12	----	18.71	----	38.92	----	----	----	112.02	Pond 4
14	Combine	7, 8,	----	28.51	----	49.18	----	----	----	120.29	To Pond 5
15	Reservoir	14	----	9.58	----	18.90	----	----	----	48.78	Pond 5
16	SCS Runoff	----	----	87.71	----	142.12	----	----	----	321.59	Pond 1
17	SCS Runoff	----	----	182.14	----	321.89	----	----	----	839.89	To Cadillac Lake - Undeveloped
18	Combine	9, 11, 13, 15, 16,	----	127.47	----	224.41	----	----	----	601.17	Into Cad Lake, P1& P2
19	Reservoir	18	----	0.00	----	23.94	----	----	----	226.40	Pond 1 & 2 Combined
20	Combine	17, 19	----	182.14	----	321.89	----	----	----	1063.00	
21	Reservoir	20	----	48.46	----	72.48	----	----	----	125.87	Cad. Lake

# 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	SCS Runoff	156.09	6	732	22.540	---	---	---	Fox Ridge to Pond 2
2	SCS Runoff	55.46	6	870	36.773	---	---	---	Offsite from North to Pond 2
3	SCS Runoff	73.18	6	732	10.567	---	---	---	Fox Ridge to Pond 3
4	SCS Runoff	44.79	6	810	21.062	---	---	---	Offsite from North to Pond 3
5	SCS Runoff	131.33	6	732	18.964	---	---	---	Fox Ridge to Pond 4
6	SCS Runoff	32.20	6	750	8.068	---	---	---	Offsite from West to Pond 4
7	SCS Runoff	101.83	6	732	14.705	---	---	---	Fox Ridge to Pond 5
8	SCS Runoff	19.59	6	738	3.548	---	---	---	Oak Ridge 2nd to Pond 5
9	Combine	168.22	6	732	59.313	1, 2,	---	---	To Pond 2
10	Combine	88.41	6	738	31.629	3, 4,	---	---	To Pond 3
11	Reservoir	47.70	6	876	29.759	10	1353.47	7.731	Pond 3
12	Combine	154.02	6	732	27.033	5, 6,	---	---	To Pond 4
13	Reservoir	112.02	6	768	24.927	12	1352.77	6.623	Pond 4
14	Combine	120.29	6	732	18.253	7, 8,	---	---	To Pond 5
15	Reservoir	48.78	6	786	16.412	14	1353.56	7.454	Pond 5
16	SCS Runoff	321.59	6	732	46.428	---	---	---	Pond 1
17	SCS Runoff	839.89	6	894	615.957	---	---	---	To Cadillac Lake - Undeveloped
18	Combine	601.17	6	738	176.839	9, 11, 13, 15, 16,	---	---	Into Cad Lake, P1 & P2
19	Reservoir	226.40	6	864	114.987	18	1350.28	71.022	Pond 1 & 2 Combined
20	Combine	1063.00	6	876	730.944	17, 19	---	---	
21	Reservoir	125.87	6	1590	716.511	20	1349.87	589.068	Cad. Lake

# Hydrograph Report

## Hyd. No. 1

Fox Ridge to Pond 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	156.09 cfs
Storm frequency	=	100 yrs	Time interval	=	6 min
Drainage area	=	56.10 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	25 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	256

Hydrograph Volume = 22.540 acft

## Hydrograph Discharge Table

Time -- Outflow	
(hrs	cfs)
12.20	156.09 <<

...End

# Hydrograph Report

## Hyd. No. 2

Offsite from North to Pond 2

Hydrograph type	= SCS Runoff	Peak discharge	= 55.46 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 108.30 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 200 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 256

Hydrograph Volume = 36.773 acft

## Hydrograph Discharge Table

Time -- Outflow  
(hrs      cfs)

14.00	54.62
14.10	54.96
14.20	55.21
14.30	55.36
14.40	55.44
14.50	55.46 <<
14.60	55.44
14.70	55.38
14.80	55.28
14.90	55.14
15.00	54.98
15.10	54.78
15.20	54.56

...End

# Hydrograph Report

## Hyd. No. 3

Fox Ridge to Pond 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	73.18 cfs
Storm frequency	=	100 yrs	Time interval	=	6 min
Drainage area	=	26.30 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	25 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	256

Hydrograph Volume = 10.567 acft

## Hydrograph Discharge Table

Time -- Outflow  
(hrs      cfs)

12.20    73.18 <<

...End

# Hydrograph Report

## Hyd. No. 4

Offsite from North to Pond 3

Hydrograph type	= SCS Runoff	Peak discharge	= 44.79 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 61.70 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 123 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 256

Hydrograph Volume = 21.062 acft

## Hydrograph Discharge Table

Time -- Outflow  
(hrs      cfs)

13.20	44.14
13.30	44.50
13.40	44.71
13.50	44.79 <<
13.60	44.76
13.70	44.64
13.80	44.45
13.90	44.20
14.00	43.91

...End

# Hydrograph Report

## Hyd. No. 5

Fox Ridge to Pond 4

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Drainage area = 47.20 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 7.80 in  
Storm duration = 24 hrs

Peak discharge = 131.33 cfs  
Time interval = 6 min  
Curve number = 75  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 20 min  
Distribution = Type II  
Shape factor = 256

Hydrograph Volume = 18.964 acft

## Hydrograph Discharge Table

**Time -- Outflow**  
**(hrs      cfs)**

12.20    131.33 <<

...End

# Hydrograph Report

## Hyd. No. 6

Offsite from West to Pond 4

Hydrograph type	= SCS Runoff	Peak discharge	= 32.20 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 24.00 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 60 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 256

Hydrograph Volume = 8.068 acft

## Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
12.50	32.20 <<
12.60	32.12
12.70	31.81

...End

# Hydrograph Report

## Hyd. No. 7

Fox Ridge to Pond 5

Hydrograph type	=	SCS Runoff	Peak discharge	=	101.83 cfs
Storm frequency	=	100 yrs	Time interval	=	6 min
Drainage area	=	36.60 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	20 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	256

Hydrograph Volume = 14.705 acft

## Hydrograph Discharge Table

Time --	Outflow
(hrs	cfs)

12.20	101.83 <<
-------	-----------

...End

# Hydrograph Report

## Hyd. No. 8

Oak Ridge 2nd to Pond 5

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Drainage area = 10.00 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 7.80 in  
Storm duration = 24 hrs

Peak discharge = 19.59 cfs  
Time interval = 6 min  
Curve number = 70  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 30 min  
Distribution = Type II  
Shape factor = 256

Hydrograph Volume = 3.548 acft

## Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
12.30	19.59 <<
12.40	19.23

...End

# Hydrograph Report

## Hyd. No. 9

To Pond 2

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Inflow hyds. = 1, 2

Peak discharge = 168.22 cfs  
Time interval = 6 min

Hydrograph Volume = 59.313 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Outflow (cfs)
12.20	156.09 <<	12.13	168.22 <<
...End			

# Hydrograph Report

## Hyd. No. 10

To Pond 3

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Inflow hyds. = 3, 4

Peak discharge = 88.41 cfs  
Time interval = 6 min

Hydrograph Volume = 31.629 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 3 + (cfs)	Hyd. 4 + (cfs)	Outflow (cfs)
12.20	73.18 <<	15.20	88.37
12.30	70.13	18.28	88.41 <<
12.40	66.31	21.44	87.75

...End

# Hydrograph Report

## Hyd. No. 11

Pond 3

Hydrograph type = Reservoir  
 Storm frequency = 100 yrs  
 Inflow hyd. No. = 10  
 Max. Elevation = 1353.47 ft

Peak discharge = 47.70 cfs  
 Time interval = 6 min  
 Reservoir name = Pond 3  
 Max. Storage = 7.731 acft

Storage Indication method used.

Outflow hydrograph volume = 29.759 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
13.90	53.42	1353.40	46.84	----	----	----	----	----	----	----	----	46.84
14.00	52.65	1353.41	47.07	----	----	----	----	----	----	----	----	47.07
14.10	51.87	1353.43	47.26	----	----	----	----	----	----	----	----	47.26
14.20	51.09	1353.44	47.41	----	----	----	----	----	----	----	----	47.41
14.30	50.32	1353.45	47.53	----	----	----	----	----	----	----	----	47.53
14.40	49.57	1353.46	47.62	----	----	----	----	----	----	----	----	47.62
14.50	48.82	1353.46	47.67	----	----	----	----	----	----	----	----	47.67
14.60	48.06	1353.47 <<	47.70	----	----	----	----	----	----	----	----	47.70 <<
14.70	47.31	1353.47	47.70	----	----	----	----	----	----	----	----	47.70
14.80	46.56	1353.46	47.67	----	----	----	----	----	----	----	----	47.67
14.90	45.80	1353.46	47.62	----	----	----	----	----	----	----	----	47.62
15.00	45.04	1353.45	47.54	----	----	----	----	----	----	----	----	47.54
15.10	44.26	1353.44	47.43	----	----	----	----	----	----	----	----	47.43
15.20	43.48	1353.43	47.31	----	----	----	----	----	----	----	----	47.31
15.30	42.69	1353.42	47.15	----	----	----	----	----	----	----	----	47.15
15.40	41.89	1353.41	46.98	----	----	----	----	----	----	----	----	46.98
15.50	41.07	1353.39	46.77	----	----	----	----	----	----	----	----	46.77

...End

# Reservoir Report

Reservoir No. 3 - Pond 3

Hydraflow Hydrographs by Intelisolve

## Pond Data

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

## Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1350.00	75,286	0.000	0.000
1.00	1351.00	87,599	1.870	1.870
2.00	1352.00	100,016	2.154	4.023
3.00	1353.00	112,538	2.440	6.463
4.00	1354.00	125,000	2.727	9.190

## Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 36.0	0.0	0.0	0.0
Span in	= 36.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 1350.00	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	= 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. = 1351.00 ft

## Stage / Storage / Discharge Table

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

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Civ D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0.000	1350.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	0.187	1350.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	0.374	1350.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	0.561	1350.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	0.748	1350.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	0.935	1350.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	1.122	1350.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	1.309	1350.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	1.496	1350.80	0.00	---	---	---	---	---	---	---	---	0.00
0.90	1.683	1350.90	0.00	---	---	---	---	---	---	---	---	0.00
1.00	1.870	1351.00	0.00	---	---	---	---	---	---	---	---	0.00
1.10	2.085	1351.10	8.90	---	---	---	---	---	---	---	---	8.90
1.20	2.300	1351.20	9.93	---	---	---	---	---	---	---	---	9.93
1.30	2.516	1351.30	11.67	---	---	---	---	---	---	---	---	11.67
1.40	2.731	1351.40	13.53	---	---	---	---	---	---	---	---	13.53
1.50	2.946	1351.50	14.74	---	---	---	---	---	---	---	---	14.74
1.60	3.162	1351.60	16.74	---	---	---	---	---	---	---	---	16.74
1.70	3.377	1351.70	18.80	---	---	---	---	---	---	---	---	18.80
1.80	3.592	1351.80	20.90	---	---	---	---	---	---	---	---	20.90
1.90	3.808	1351.90	22.25	---	---	---	---	---	---	---	---	22.25
2.00	4.023	1352.00	24.36	---	---	---	---	---	---	---	---	24.36
2.10	4.267	1352.10	26.45	---	---	---	---	---	---	---	---	26.45
2.20	4.511	1352.20	28.49	---	---	---	---	---	---	---	---	28.49
2.30	4.755	1352.30	30.46	---	---	---	---	---	---	---	---	30.46
2.40	4.999	1352.40	32.33	---	---	---	---	---	---	---	---	32.33
2.50	5.243	1352.50	34.10	---	---	---	---	---	---	---	---	34.10
2.60	5.487	1352.60	35.75	---	---	---	---	---	---	---	---	35.75
2.70	5.731	1352.70	37.62	---	---	---	---	---	---	---	---	37.62
2.80	5.975	1352.80	39.19	---	---	---	---	---	---	---	---	39.19
2.90	6.219	1352.90	40.61	---	---	---	---	---	---	---	---	40.61
3.00	6.463	1353.00	41.68	---	---	---	---	---	---	---	---	41.68
3.10	6.736	1353.10	43.05	---	---	---	---	---	---	---	---	43.05
3.20	7.008	1353.20	44.37	---	---	---	---	---	---	---	---	44.37

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
3.30	7.281	1353.30	45.66	---	---	---	---	---	---	---	---	45.66
3.40	7.554	1353.40	46.91	---	---	---	---	---	---	---	---	46.91
3.50	7.826	1353.50	48.13	---	---	---	---	---	---	---	---	48.13
3.60	8.099	1353.60	49.31	---	---	---	---	---	---	---	---	49.31
3.70	8.372	1353.70	50.47	---	---	---	---	---	---	---	---	50.47
3.80	8.644	1353.80	51.61	---	---	---	---	---	---	---	---	51.61
3.90	8.917	1353.90	52.72	---	---	---	---	---	---	---	---	52.72
4.00	9.190	1354.00	53.81	---	---	---	---	---	---	---	---	53.81

...End

# Hydrograph Report

## Hyd. No. 12

To Pond 4

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

Peak discharge = 154.02 cfs  
Time interval = 6 min

Hydrograph Volume = 27.033 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 5 + (cfs)	Hyd. 6 + (cfs)	Outflow (cfs)
12.20	131.33 <<	22.70	154.02 <<
12.30	125.87	27.11	152.98

...End

# Hydrograph Report

## Hyd. No. 13

Pond 4

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Inflow hyd. No. = 12  
Max. Elevation = 1352.77 ft

Peak discharge = 112.02 cfs  
Time interval = 6 min  
Reservoir name = Pond 4  
Max. Storage = 6.623 acft

Storage Indication method used.

Outflow hydrograph volume = 24.927 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
12.70	123.01	1352.76	----	----	----	----	110.80	----	----	----	----	110.80
12.80	111.84	1352.77 <<	----	----	----	----	112.02	----	----	----	----	112.02 <<
12.90	100.21	1352.76	----	----	----	----	110.92	----	----	----	----	110.92

...End

# Reservoir Report

Reservoir No. 4 - Pond 4

Hydraflow Hydrographs by Intelisolve

## Pond Data

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

## Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1350.00	85,047	0.000	0.000
1.00	1351.00	98,363	2.105	2.105
2.00	1352.00	111,784	2.412	4.517
3.00	1353.00	125,310	2.721	7.239

## Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	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	= 8.00	0.00	0.00	0.00
Crest El. ft	= 1350.00	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. = 1351.00 ft

## Stage / Storage / Discharge Table

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

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	1350.00	---	---	---	---	0.00	---	---	---	---	0.00
0.10	0.211	1350.10	---	---	---	---	0.00	---	---	---	---	0.00
0.20	0.421	1350.20	---	---	---	---	0.00	---	---	---	---	0.00
0.30	0.632	1350.30	---	---	---	---	0.00	---	---	---	---	0.00
0.40	0.842	1350.40	---	---	---	---	0.00	---	---	---	---	0.00
0.50	1.053	1350.50	---	---	---	---	0.00	---	---	---	---	0.00
0.60	1.263	1350.60	---	---	---	---	0.00	---	---	---	---	0.00
0.70	1.474	1350.70	---	---	---	---	0.00	---	---	---	---	0.00
0.80	1.684	1350.80	---	---	---	---	0.00	---	---	---	---	0.00
0.90	1.895	1350.90	---	---	---	---	0.00	---	---	---	---	0.00
1.00	2.105	1351.00	---	---	---	---	0.00	---	---	---	---	0.00
1.10	2.346	1351.10	---	---	---	---	14.14	---	---	---	---	14.14
1.20	2.588	1351.20	---	---	---	---	20.19	---	---	---	---	20.19
1.30	2.829	1351.30	---	---	---	---	25.62	---	---	---	---	25.62
1.40	3.070	1351.40	---	---	---	---	30.90	---	---	---	---	30.90
1.50	3.311	1351.50	---	---	---	---	36.16	---	---	---	---	36.16
1.60	3.553	1351.60	---	---	---	---	41.47	---	---	---	---	41.47
1.70	3.794	1351.70	---	---	---	---	46.86	---	---	---	---	46.86
1.80	4.035	1351.80	---	---	---	---	52.36	---	---	---	---	52.36
1.90	4.276	1351.90	---	---	---	---	57.96	---	---	---	---	57.96
2.00	4.517	1352.00	---	---	---	---	63.70	---	---	---	---	63.70
2.10	4.790	1352.10	---	---	---	---	69.54	---	---	---	---	69.54
2.20	5.062	1352.20	---	---	---	---	75.50	---	---	---	---	75.50
2.30	5.334	1352.30	---	---	---	---	81.59	---	---	---	---	81.59
2.40	5.606	1352.40	---	---	---	---	87.79	---	---	---	---	87.79
2.50	5.878	1352.50	---	---	---	---	94.11	---	---	---	---	94.11
2.60	6.150	1352.60	---	---	---	---	100.55	---	---	---	---	100.55
2.70	6.422	1352.70	---	---	---	---	107.11	---	---	---	---	107.11
2.80	6.695	1352.80	---	---	---	---	113.78	---	---	---	---	113.78
2.90	6.967	1352.90	---	---	---	---	120.57	---	---	---	---	120.57
3.00	7.239	1353.00	---	---	---	---	127.49	---	---	---	---	127.49

# Hydrograph Report

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 14

To Pond 5

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Inflow hyds. = 7, 8

Peak discharge = 120.29 cfs  
Time interval = 6 min

Hydrograph Volume = 18.253 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 7 + (cfs)	Hyd. 8 + (cfs)	Outflow (cfs)
12.20	101.83 <<	18.46	120.29 <<
...End			

# Hydrograph Report

## Hyd. No. 15

Pond 5

Hydrograph type = Reservoir  
 Storm frequency = 100 yrs  
 Inflow hyd. No. = 14  
 Max. Elevation = 1353.56 ft

Peak discharge = 48.78 cfs  
 Time interval = 6 min  
 Reservoir name = Pond 5 - NP=1350  
 Max. Storage = 7.454 acft

Storage Indication method used.

Outflow hydrograph volume = 16.412 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
12.90	68.99	1353.48	47.91	----	----	----	----	----	----	----	----	47.91
13.00	59.22	1353.54	48.55	----	----	----	----	----	----	----	----	48.55
13.10	49.48	1353.56 <<	48.78	----	----	----	----	----	----	----	----	48.78 <<
13.20	40.28	1353.54	48.63	----	----	----	----	----	----	----	----	48.63
13.30	32.38	1353.50	48.14	----	----	----	----	----	----	----	----	48.14

...End

# Reservoir Report

Reservoir No. 6 - Pond 5 - NP=1350

Hydraflow Hydrographs by Intelisolve

## Pond Data

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

## Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1350.00	76,128	0.000	0.000
1.00	1351.00	84,251	1.841	1.841
2.00	1352.00	92,481	2.029	3.870
3.00	1353.00	100,818	2.219	6.088
4.00	1354.00	113,523	2.460	8.549

## Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 36.0	0.0	0.0	0.0
Span in	= 36.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 1350.00	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	= 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. = 1351.00 ft

## Stage / Storage / Discharge Table

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

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	1350.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	0.184	1350.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	0.368	1350.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	0.552	1350.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	0.736	1350.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	0.920	1350.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	1.105	1350.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	1.289	1350.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	1.473	1350.80	0.00	---	---	---	---	---	---	---	---	0.00
0.90	1.657	1350.90	0.00	---	---	---	---	---	---	---	---	0.00
1.00	1.841	1351.00	0.00	---	---	---	---	---	---	---	---	0.00
1.10	2.044	1351.10	8.90	---	---	---	---	---	---	---	---	8.90
1.20	2.247	1351.20	9.93	---	---	---	---	---	---	---	---	9.93
1.30	2.449	1351.30	11.67	---	---	---	---	---	---	---	---	11.67
1.40	2.652	1351.40	13.53	---	---	---	---	---	---	---	---	13.53
1.50	2.855	1351.50	14.74	---	---	---	---	---	---	---	---	14.74
1.60	3.058	1351.60	16.74	---	---	---	---	---	---	---	---	16.74
1.70	3.261	1351.70	18.80	---	---	---	---	---	---	---	---	18.80
1.80	3.464	1351.80	20.90	---	---	---	---	---	---	---	---	20.90
1.90	3.667	1351.90	22.25	---	---	---	---	---	---	---	---	22.25
2.00	3.870	1352.00	24.36	---	---	---	---	---	---	---	---	24.36
2.10	4.091	1352.10	26.45	---	---	---	---	---	---	---	---	26.45
2.20	4.313	1352.20	28.49	---	---	---	---	---	---	---	---	28.49
2.30	4.535	1352.30	30.46	---	---	---	---	---	---	---	---	30.46
2.40	4.757	1352.40	32.33	---	---	---	---	---	---	---	---	32.33
2.50	4.979	1352.50	34.10	---	---	---	---	---	---	---	---	34.10
2.60	5.201	1352.60	35.75	---	---	---	---	---	---	---	---	35.75
2.70	5.423	1352.70	37.62	---	---	---	---	---	---	---	---	37.62
2.80	5.645	1352.80	39.19	---	---	---	---	---	---	---	---	39.19
2.90	5.866	1352.90	40.61	---	---	---	---	---	---	---	---	40.61
3.00	6.088	1353.00	41.68	---	---	---	---	---	---	---	---	41.68
3.10	6.334	1353.10	43.05	---	---	---	---	---	---	---	---	43.05
3.20	6.580	1353.20	44.37	---	---	---	---	---	---	---	---	44.37

Continues on next page...

**Stage / Storage / Discharge Table**

Stage ft	Storage acft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	Civ D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
3.30	6.826	1353.30	45.66	---	---	---	---	---	---	---	---	45.66
3.40	7.072	1353.40	46.91	---	---	---	---	---	---	---	---	46.91
3.50	7.318	1353.50	48.13	---	---	---	---	---	---	---	---	48.13
3.60	7.564	1353.60	49.31	---	---	---	---	---	---	---	---	49.31
3.70	7.810	1353.70	50.47	---	---	---	---	---	---	---	---	50.47
3.80	8.057	1353.80	51.61	---	---	---	---	---	---	---	---	51.61
3.90	8.303	1353.90	52.72	---	---	---	---	---	---	---	---	52.72
4.00	8.549	1354.00	53.81	---	---	---	---	---	---	---	---	53.81

...End

# Hydrograph Report

## Hyd. No. 16

Pond 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	321.59 cfs
Storm frequency	=	100 yrs	Time interval	=	6 min
Drainage area	=	107.90 ac	Curve number	=	78
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	20 min
Total precip.	=	7.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	256

Hydrograph Volume = 46.428 acft

## Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
12.20	321.59 <<

...End

# Hydrograph Report

## Hyd. No. 17

To Cadillac Lake - Undeveloped

Hydrograph type = SCS Runoff  
Storm frequency = 100 yrs  
Drainage area = 1677.00 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 7.80 in  
Storm duration = 24 hrs

Peak discharge = 839.89 cfs  
Time interval = 6 min  
Curve number = 71  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 233 min  
Distribution = Type II  
Shape factor = 256

Hydrograph Volume = 615.957 acft

## Hydrograph Discharge Table

Time -- Outflow  
(hrs cfs)

14.30	827.72
14.40	832.38
14.50	835.72
14.60	837.95
14.70	839.25
14.80	839.86
14.90	839.89 <<
15.00	839.40
15.10	838.41
15.20	836.98
15.30	835.15
15.40	832.96
15.50	830.42
15.60	827.55
15.70	824.38

...End

# Hydrograph Report

Hydraflow Hydrographs by Intelisolve

## Hyd. No. 18

Into Cad Lake, P1& P2

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Inflow hyds. = 9, 11, 13, 15, 16

Peak discharge = 601.17 cfs  
Time interval = 6 min

Hydrograph Volume = 176.839 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 9 + (cfs)	Hyd. 11 + (cfs)	Hyd. 13 + (cfs)	Hyd. 15 + (cfs)	Hyd. 16 + (cfs)	Outflow (cfs)
12.20	168.22 <<	15.45	62.03	24.46	321.59 <<	591.75
12.30	164.13	20.97	77.26	31.26	307.55	601.17 <<
12.40	158.42	25.37	89.97	36.54	290.17	600.46
12.50	151.17	29.47	99.94	40.62	269.60	590.80

...End

# Hydrograph Report

## Hyd. No. 19

Pond 1 & 2 Combined

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Inflow hyd. No. = 18  
Max. Elevation = 1350.28 ft

Peak discharge = 226.40 cfs  
Time interval = 6 min  
Reservoir name = Ponds 1 & 2 Combi  
Max. Storage = 71.022 acft

Storage Indication method used.

Outflow hydrograph volume = 114.987 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
14.10	245.76	1350.27	----	----	----	----	203.03	19.33	----	----	----	222.34
14.20	238.91	1350.28	----	----	----	----	205.21	19.50	----	----	----	224.72
14.30	232.39	1350.28	----	----	----	----	206.43	19.60	----	----	----	226.02
14.40	226.13	1350.28 <<	----	----	----	----	206.76	19.63	----	----	----	226.40 <<
14.50	220.47	1350.28	----	----	----	----	206.43	19.60	----	----	----	226.03
14.60	215.04	1350.28	----	----	----	----	205.50	19.53	----	----	----	225.05
14.70	209.87	1350.28	----	----	----	----	204.12	19.41	----	----	----	223.55

...End

# Reservoir Report

## Reservoir No. 8 - Ponds 1 & 2 Combined

Hydraflow Hydrographs by Intelisolve

### Pond Data

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

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1347.00	837,670	0.000	0.000
1.00	1348.00	899,928	19.945	19.945
2.00	1349.00	962,382	21.376	41.321
3.00	1350.00	1,025,032	22.812	64.134
4.00	1351.00	1,087,877	24.253	88.386
5.00	1352.00	1,150,917	25.698	114.084

### Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	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	= 42.00	2.00	0.00	0.00
Crest El. ft	= 1348.50	1347.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Rect	Rect	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 1349.92 ft

### Stage / Storage / Discharge Table

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

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	1347.00	---	---	---	---	0.00	0.00	---	---	---	0.00
0.10	1.994	1347.10	---	---	---	---	0.00	0.00	---	---	---	0.00
0.20	3.989	1347.20	---	---	---	---	0.00	0.00	---	---	---	0.00
0.30	5.983	1347.30	---	---	---	---	0.00	0.00	---	---	---	0.00
0.40	7.978	1347.40	---	---	---	---	0.00	0.00	---	---	---	0.00
0.50	9.972	1347.50	---	---	---	---	0.00	0.00	---	---	---	0.00
0.60	11.967	1347.60	---	---	---	---	0.00	0.00	---	---	---	0.00
0.70	13.961	1347.70	---	---	---	---	0.00	0.00	---	---	---	0.00
0.80	15.956	1347.80	---	---	---	---	0.00	0.00	---	---	---	0.00
0.90	17.950	1347.90	---	---	---	---	0.00	0.00	---	---	---	0.00
1.00	19.945	1348.00	---	---	---	---	0.00	0.00	---	---	---	0.00
1.10	22.083	1348.10	---	---	---	---	0.00	0.00	---	---	---	0.00
1.20	24.220	1348.20	---	---	---	---	0.00	0.00	---	---	---	0.00
1.30	26.358	1348.30	---	---	---	---	0.00	0.00	---	---	---	0.00
1.40	28.495	1348.40	---	---	---	---	0.00	0.00	---	---	---	0.00
1.50	30.633	1348.50	---	---	---	---	0.00	0.00	---	---	---	0.00
1.60	32.771	1348.60	---	---	---	---	0.00	0.00	---	---	---	0.00
1.70	34.908	1348.70	---	---	---	---	0.00	0.00	---	---	---	0.00
1.80	37.046	1348.80	---	---	---	---	0.00	0.00	---	---	---	0.00
1.90	39.184	1348.90	---	---	---	---	0.00	0.00	---	---	---	0.00
2.00	41.321	1349.00	---	---	---	---	0.00	0.00	---	---	---	0.00
2.10	43.603	1349.10	---	---	---	---	0.00	0.00	---	---	---	0.00
2.20	45.884	1349.20	---	---	---	---	0.00	0.00	---	---	---	0.00
2.30	48.165	1349.30	---	---	---	---	0.00	0.00	---	---	---	0.00
2.40	50.446	1349.40	---	---	---	---	0.00	0.00	---	---	---	0.00
2.50	52.727	1349.50	---	---	---	---	0.00	0.00	---	---	---	0.00
2.60	55.009	1349.60	---	---	---	---	0.00	0.00	---	---	---	0.00
2.70	57.290	1349.70	---	---	---	---	0.00	0.00	---	---	---	0.00
2.80	59.571	1349.80	---	---	---	---	0.00	0.00	---	---	---	0.00
2.90	61.852	1349.90	---	---	---	---	0.00	0.00	---	---	---	0.00
3.00	64.134	1350.00	---	---	---	---	96.64	9.99	---	---	---	106.64
3.10	66.559	1350.10	---	---	---	---	141.07	14.12	---	---	---	155.19

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
3.20	68.984	1350.20	---	---	---	---	177.95	17.29	---	---	---	195.24
3.30	71.410	1350.30	---	---	---	---	212.25	20.07	---	---	---	232.32
3.40	73.835	1350.40	---	---	---	---	245.51	22.64	---	---	---	268.15
3.50	76.260	1350.50	---	---	---	---	278.41	25.09	---	---	---	303.50
3.60	78.685	1350.60	---	---	---	---	311.30	27.46	---	---	---	338.75
3.70	81.111	1350.70	---	---	---	---	344.37	29.77	---	---	---	374.14
3.80	83.536	1350.80	---	---	---	---	377.76	32.05	---	---	---	409.81
3.90	85.961	1350.90	---	---	---	---	411.53	34.32	---	---	---	445.85
4.00	88.386	1351.00	---	---	---	---	445.83	36.57	---	---	---	482.40
4.10	90.956	1351.10	---	---	---	---	480.53	38.81	---	---	---	519.34
4.20	93.526	1351.20	---	---	---	---	515.72	41.06	---	---	---	556.78
4.30	96.096	1351.30	---	---	---	---	551.42	43.31	---	---	---	594.72
4.40	98.666	1351.40	---	---	---	---	587.64	45.56	---	---	---	633.20
4.50	101.235	1351.50	---	---	---	---	624.40	47.82	---	---	---	672.22
4.60	103.805	1351.60	---	---	---	---	661.68	50.09	---	---	---	711.77
4.70	106.375	1351.70	---	---	---	---	699.50	52.37	---	---	---	751.87
4.80	108.945	1351.80	---	---	---	---	737.84	54.67	---	---	---	792.51
4.90	111.515	1351.90	---	---	---	---	776.71	56.98	---	---	---	833.69
5.00	114.084	1352.00	---	---	---	---	816.21	59.30	---	---	---	875.52

...End

# Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 20

Hydrograph type = Combine  
Storm frequency = 100 yrs  
Inflow hyds. = 17, 19

Peak discharge = 1063.00 cfs  
Time interval = 6 min

Hydrograph Volume = 730.944 acft

## Hydrograph Discharge Table

Time (hrs)	Hyd. 17 + (cfs)	Hyd. 19 = (cfs)	Outflow (cfs)
14.20	821.53	224.72	1046.25
14.30	827.72	226.02	1053.73
14.40	832.38	226.40 <<	1058.78
14.50	835.72	226.03	1061.76
14.60	837.95	225.05	1063.00 <<
14.70	839.25	223.55	1062.81
14.80	839.86	221.63	1061.50
14.90	839.89 <<	219.37	1059.27
15.00	839.40	216.84	1056.24
15.10	838.41	214.11	1052.52
15.20	836.98	211.22	1048.21
15.30	835.15	208.23	1043.38

...End

# Hydrograph Report

## Hyd. No. 21

Cad. Lake

Hydrograph type = Reservoir  
 Storm frequency = 100 yrs  
 Inflow hyd. No. = 20  
 Max. Elevation = 1349.87 ft

Peak discharge = 125.87 cfs  
 Time interval = 6 min  
 Reservoir name = Cadillac Lake  
 Max. Storage = 589.068 acft

Storage Indication method used.

Outflow hydrograph volume = 716.511 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
23.00	290.14	1349.80	----	----	----	----	----	----	----	----	----	123.43
23.10	280.17	1349.80	----	----	----	----	----	----	----	----	----	123.58
23.20	270.46	1349.81	----	----	----	----	----	----	----	----	----	123.73
23.30	261.33	1349.81	----	----	----	----	----	----	----	----	----	123.86
23.40	253.27	1349.82	----	----	----	----	----	----	----	----	----	123.99
23.50	247.44	1349.82	----	----	----	----	----	----	----	----	----	124.11
23.60	243.32	1349.82	----	----	----	----	----	----	----	----	----	124.23
23.70	239.53	1349.83	----	----	----	----	----	----	----	----	----	124.34
23.80	236.02	1349.83	----	----	----	----	----	----	----	----	----	124.45
23.90	232.77	1349.83	----	----	----	----	----	----	----	----	----	124.55
24.00	229.72	1349.84	----	----	----	----	----	----	----	----	----	124.65
24.10	226.63	1349.84	----	----	----	----	----	----	----	----	----	124.75
24.20	223.23	1349.84	----	----	----	----	----	----	----	----	----	124.85
24.30	219.29	1349.84	----	----	----	----	----	----	----	----	----	124.94
24.40	214.87	1349.85	----	----	----	----	----	----	----	----	----	125.03
24.50	210.14	1349.85	----	----	----	----	----	----	----	----	----	125.11
24.60	205.22	1349.85	----	----	----	----	----	----	----	----	----	125.19
24.70	200.22	1349.85	----	----	----	----	----	----	----	----	----	125.27
24.80	195.22	1349.86	----	----	----	----	----	----	----	----	----	125.34
24.90	190.27	1349.86	----	----	----	----	----	----	----	----	----	125.40
25.00	185.42	1349.86	----	----	----	----	----	----	----	----	----	125.46
25.10	180.68	1349.86	----	----	----	----	----	----	----	----	----	125.51
25.20	176.10	1349.86	----	----	----	----	----	----	----	----	----	125.56
25.30	171.67	1349.87	----	----	----	----	----	----	----	----	----	125.61
25.40	167.42	1349.87	----	----	----	----	----	----	----	----	----	125.65
25.50	163.33	1349.87	----	----	----	----	----	----	----	----	----	125.69
25.60	159.40	1349.87	----	----	----	----	----	----	----	----	----	125.73
25.70	155.58	1349.87	----	----	----	----	----	----	----	----	----	125.76
25.80	151.83	1349.87	----	----	----	----	----	----	----	----	----	125.78
25.90	148.13	1349.87	----	----	----	----	----	----	----	----	----	125.81
26.00	144.44	1349.87	----	----	----	----	----	----	----	----	----	125.83
26.10	140.76	1349.87	----	----	----	----	----	----	----	----	----	125.84
26.20	137.08	1349.87	----	----	----	----	----	----	----	----	----	125.85
26.30	133.38	1349.87	----	----	----	----	----	----	----	----	----	125.86
26.40	129.77	1349.87 <<	----	----	----	----	----	----	----	----	----	125.87
26.50	126.26	1349.87 <<	----	----	----	----	----	----	----	----	----	125.87 <<
26.60	122.83	1349.87 <<	----	----	----	----	----	----	----	----	----	125.87
26.70	119.47	1349.87	----	----	----	----	----	----	----	----	----	125.86

Continues on next page...

**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
26.80	116.20	1349.87	----	----	----	----	----	----	----	----	----	125.86
26.90	112.99	1349.87	----	----	----	----	----	----	----	----	----	125.85
27.00	109.86	1349.87	----	----	----	----	----	----	----	----	----	125.83
27.10	106.79	1349.87	----	----	----	----	----	----	----	----	----	125.82
27.20	103.79	1349.87	----	----	----	----	----	----	----	----	----	125.80
27.30	100.86	1349.87	----	----	----	----	----	----	----	----	----	125.77
27.40	97.98	1349.87	----	----	----	----	----	----	----	----	----	125.75
27.50	95.16	1349.87	----	----	----	----	----	----	----	----	----	125.72
27.60	92.40	1349.87	----	----	----	----	----	----	----	----	----	125.69
27.70	89.69	1349.87	----	----	----	----	----	----	----	----	----	125.66
27.80	87.04	1349.87	----	----	----	----	----	----	----	----	----	125.62
27.90	84.44	1349.86	----	----	----	----	----	----	----	----	----	125.58
28.00	81.89	1349.86	----	----	----	----	----	----	----	----	----	125.54
28.10	79.39	1349.86	----	----	----	----	----	----	----	----	----	125.50
28.20	76.95	1349.86	----	----	----	----	----	----	----	----	----	125.45
28.30	74.55	1349.86	----	----	----	----	----	----	----	----	----	125.41
28.40	72.20	1349.86	----	----	----	----	----	----	----	----	----	125.36
28.50	69.90	1349.86	----	----	----	----	----	----	----	----	----	125.30
28.60	67.65	1349.85	----	----	----	----	----	----	----	----	----	125.25
28.70	65.45	1349.85	----	----	----	----	----	----	----	----	----	125.19
28.80	63.30	1349.85	----	----	----	----	----	----	----	----	----	125.14
28.90	61.19	1349.85	----	----	----	----	----	----	----	----	----	125.08
29.00	59.13	1349.85	----	----	----	----	----	----	----	----	----	125.01
29.10	57.11	1349.85	----	----	----	----	----	----	----	----	----	124.95
29.20	55.14	1349.84	----	----	----	----	----	----	----	----	----	124.88
29.30	53.22	1349.84	----	----	----	----	----	----	----	----	----	124.82
29.40	51.33	1349.84	----	----	----	----	----	----	----	----	----	124.75
29.50	49.49	1349.84	----	----	----	----	----	----	----	----	----	124.68
29.60	47.70	1349.83	----	----	----	----	----	----	----	----	----	124.60
29.70	45.94	1349.83	----	----	----	----	----	----	----	----	----	124.53
29.80	44.23	1349.83	----	----	----	----	----	----	----	----	----	124.45
29.90	42.56	1349.83	----	----	----	----	----	----	----	----	----	124.38
30.00	40.93	1349.83	----	----	----	----	----	----	----	----	----	124.30
30.10	39.34	1349.82	----	----	----	----	----	----	----	----	----	124.22
30.20	37.79	1349.82	----	----	----	----	----	----	----	----	----	124.13
30.30	36.28	1349.82	----	----	----	----	----	----	----	----	----	124.05
30.40	34.81	1349.81	----	----	----	----	----	----	----	----	----	123.97
30.50	33.37	1349.81	----	----	----	----	----	----	----	----	----	123.88
30.60	31.97	1349.81	----	----	----	----	----	----	----	----	----	123.79
30.70	30.61	1349.81	----	----	----	----	----	----	----	----	----	123.70
30.80	29.29	1349.80	----	----	----	----	----	----	----	----	----	123.62
30.90	28.00	1349.80	----	----	----	----	----	----	----	----	----	123.52
31.00	26.74	1349.80	----	----	----	----	----	----	----	----	----	123.43

...End

# Reservoir Report

Reservoir No. 9 - Cadillac Lake

Hydraflow Hydrographs by Intelisolve

## Pond Data

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

## Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1347.00	4,334,190	0.000	0.000
1.00	1348.00	7,492,260	135.749	135.749
2.00	1349.00	10,650,300	208.248	343.997
3.00	1350.00	13,808,410	280.747	624.744
4.00	1351.00	13,808,410	316.998	941.742

## Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	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	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	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

## Stage / Storage / Discharge Table

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

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	1347.00	---	---	---	---	---	---	---	---	---	0.00
0.10	13.575	1347.10	---	---	---	---	---	---	---	---	---	6.50
0.20	27.150	1347.20	---	---	---	---	---	---	---	---	---	13.00
0.30	40.725	1347.30	---	---	---	---	---	---	---	---	---	19.50
0.40	54.300	1347.40	---	---	---	---	---	---	---	---	---	26.00
0.50	67.875	1347.50	---	---	---	---	---	---	---	---	---	32.50
0.60	81.449	1347.60	---	---	---	---	---	---	---	---	---	39.00
0.70	95.024	1347.70	---	---	---	---	---	---	---	---	---	45.50
0.80	108.599	1347.80	---	---	---	---	---	---	---	---	---	52.00
0.90	122.174	1347.90	---	---	---	---	---	---	---	---	---	58.50
1.00	135.749	1348.00	---	---	---	---	---	---	---	---	---	65.00
1.10	156.574	1348.10	---	---	---	---	---	---	---	---	---	68.25
1.20	177.399	1348.20	---	---	---	---	---	---	---	---	---	71.50
1.30	198.223	1348.30	---	---	---	---	---	---	---	---	---	74.75
1.40	219.048	1348.40	---	---	---	---	---	---	---	---	---	78.00
1.50	239.873	1348.50	---	---	---	---	---	---	---	---	---	81.25
1.60	260.698	1348.60	---	---	---	---	---	---	---	---	---	84.50
1.70	281.523	1348.70	---	---	---	---	---	---	---	---	---	87.75
1.80	302.347	1348.80	---	---	---	---	---	---	---	---	---	91.00
1.90	323.172	1348.90	---	---	---	---	---	---	---	---	---	94.25
2.00	343.997	1349.00	---	---	---	---	---	---	---	---	---	97.50
2.10	372.072	1349.10	---	---	---	---	---	---	---	---	---	100.75
2.20	400.147	1349.20	---	---	---	---	---	---	---	---	---	104.00
2.30	428.221	1349.30	---	---	---	---	---	---	---	---	---	107.25
2.40	456.296	1349.40	---	---	---	---	---	---	---	---	---	110.50
2.50	484.371	1349.50	---	---	---	---	---	---	---	---	---	113.75
2.60	512.445	1349.60	---	---	---	---	---	---	---	---	---	117.00
2.70	540.520	1349.70	---	---	---	---	---	---	---	---	---	120.25
2.80	568.595	1349.80	---	---	---	---	---	---	---	---	---	123.50
2.90	596.670	1349.90	---	---	---	---	---	---	---	---	---	126.75
3.00	624.744	1350.00	---	---	---	---	---	---	---	---	---	130.00
3.10	656.444	1350.10	---	---	---	---	---	---	---	---	---	134.00
3.20	688.144	1350.20	---	---	---	---	---	---	---	---	---	138.00

Continues on next page...

Cadillac Lake

**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
3.30	719.843	1350.30	---	---	---	---	---	---	---	---	---	142.00
3.40	751.543	1350.40	---	---	---	---	---	---	---	---	---	146.00
3.50	783.243	1350.50	---	---	---	---	---	---	---	---	---	150.00
3.60	814.943	1350.60	---	---	---	---	---	---	---	---	---	154.00
3.70	846.642	1350.70	---	---	---	---	---	---	---	---	---	158.00
3.80	878.342	1350.80	---	---	---	---	---	---	---	---	---	162.00
3.90	910.042	1350.90	---	---	---	---	---	---	---	---	---	166.00
4.00	941.742	1351.00	---	---	---	---	---	---	---	---	---	170.00

...End

**APPENDIX J  
DRAINAGE PLAN**

**APPENDIX K  
PIPE SIZING CALCULATIONS**

2/10/03

**PIPE SIZING CALCULATIONS**  
Fox Ridge Addition

Area ID	Area ac	Accum. Area ac	C2	C5	C10	C100	Soil Group B					I100 in/hr	I10 in/hr	I5 in/hr	I2 in/hr	Tc100 min	Tc10 min	Tc5 min	Q2 cfs	Q5 cfs	Q10 cfs	Q100 cfs	ID #	Inlet Size ft	Pipe Size in	Min Slope %	
							Tc2 min	Tc10 min	Tc5 min	I5 in/hr	I2 in/hr																
1	2.5		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.92	2.52	3.67	7.58							12	12	0.40%
2	0.9		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.68	0.89	1.30	2.69							12	12	0.40%
3	1.2		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.09	2.60	3.37	5.57							12	12	0.40%
4	2.3		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.78	2.34	3.41	7.04							12	12	0.40%
5	4.6		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	7.70	9.59	12.40	20.55							24	24	0.21%
6	4.0		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	6.69	8.33	10.78	17.85							24	24	0.21%
7	1.2		0.87	0.88	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	3.90	4.69	5.50	8.02							15	15	0.40%
8	21.6		0.68	0.69	0.73	0.8	15	15	15	15	3.83	4.56	5.22	7.37	56.15	67.84	82.16	127.12							54	54	0.10%
9	1.3		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.16	2.68	3.47	5.75							12	12	0.40%
10	2.4		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	3.96	4.93	6.38	10.56							15	15	0.40%
11	1.6		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.65	3.29	4.26	7.06							15	15	0.40%
12	1.1		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.90	2.37	3.07	5.08							12	12	0.40%
13	1.3		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.98	1.28	1.87	3.87							12	12	0.40%
14	3.3		0.87	0.88	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	10.90	13.12	15.36	22.41							30	30	0.16%
15	5.2		0.87	0.88	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	17.39	20.95	24.52	35.78							36	36	0.12%
16	2.0		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	3.30	4.11	5.32	8.81							15	15	0.40%
17	2.5		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	4.28	5.33	6.89	11.42							18	18	0.32%
18	1.2		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.95	1.24	1.81	3.75							12	12	0.40%
19	1.1		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.77	2.20	2.85	4.72							12	12	0.40%
20	1.2		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.06	2.56	3.31	5.48							12	12	0.40%
21	37.5		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	28.73	37.63	54.82	113.34							42	42	0.12%
22	3.9		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	6.57	8.18	10.59	17.53							24	24	0.21%
23	15.6		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	11.98	15.69	22.86	47.26							30	30	0.16%
24	3.3		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	5.48	6.82	8.82	14.61							18	18	0.32%
25	1.1		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.85	1.11	1.62	3.35							12	12	0.40%
26	0.7		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.53	0.69	1.01	2.08							12	12	0.40%
27	1.4		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.31	2.87	3.72	6.16							15	15	0.40%
28	1.2		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.94	1.23	1.80	3.72							12	12	0.40%
29	3.0		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	5.06	6.29	8.14	13.49							18	18	0.32%
30	1.7		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.78	3.46	4.48	7.42							15	15	0.40%
31	1.4		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.05	1.37	2.00	4.14							12	12	0.40%
32	2.0		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	3.32	4.13	5.35	8.86							15	15	0.40%
33	3.0		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	5.12	6.38	8.25	13.67							18	18	0.32%
34	1.6		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.25	1.64	2.38	4.93							12	12	0.40%
35	1.5		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.49	3.10	4.02	6.65							15	15	0.40%
36	5.6		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	9.49	11.81	15.28	25.31							24	24	0.21%
37	3.0		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	4.99	6.21	8.03	13.31							18	18	0.32%
38	2.5		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	4.15	5.16	6.68	11.06							18	18	0.32%
39	1.7		0.44	0.46	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.80	3.48	4.51	7.46							15	15	0.40%
40	1.6		0.20	0.22	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.19	1.56	2.28	4.71							12	12	0.40%

2/10/03

**PIPE SIZING CALCULATIONS**  
Fox Ridge Addition

Area ID	Area ac	Accum. Area ac	C2	C5	C10	C100	Soil Group B					Q100 cfs	ID #	Inlet Size ft	Pipe Size in	Min Slope %			
							Tc2 min	Tc5 min	Tc10 min	Tc100 min	I2 in/hr						I5 in/hr	I10 in/hr	I100 in/hr
41	1.8	0.87	0.87	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	6.00	7.22	8.46	12.34	24	0.21%
42	2.9	0.87	0.87	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	9.56	11.52	13.48	19.67	24	0.21%
43	0.7	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.53	0.69	1.01	2.08	12	0.40%
44	0.8	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.38	1.72	2.23	3.69	12	0.40%
45	1.0	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.75	2.18	2.82	4.68	12	0.40%
46	7.7	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	5.88	7.70	11.23	23.21	18	0.32%
47	1.3	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.16	2.68	3.47	5.75	12	0.40%
48	1.2	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.95	2.43	3.15	5.22	12	0.40%
49	0.9	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.72	0.94	1.37	2.84	12	0.40%
50	0.8	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.57	0.75	1.10	2.27	12	0.40%
51	1.4	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.29	2.85	3.69	6.11	15	0.40%
52	2.2	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	3.69	4.59	5.94	9.85	15	0.40%
53	0.7	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.15	1.43	1.85	3.06	12	0.40%
54	0.8	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.62	0.81	1.18	2.45	12	0.40%
55	1.0	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.76	0.99	1.45	2.99	12	0.40%
56	1.2	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.88	1.15	1.68	3.47	12	0.40%
57	1.3	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.26	2.81	3.64	6.02	12	0.40%
58	1.1	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	2.58	3.21	4.15	6.88	15	0.40%
59	1.5	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	0.43	0.56	0.82	1.69	12	0.40%
60	0.6	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	7.30	9.08	11.75	19.47	24	0.21%
61	4.3	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.43	3.02	3.91	6.47	15	0.40%
62	1.4	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	0.43	0.56	0.82	1.69	12	0.40%
63	0.6	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	6.42	8.41	12.25	25.32	24	0.21%
64	8.4	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.89	2.35	3.04	5.04	12	0.40%
65	1.1	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.34	2.92	3.77	6.25	15	0.40%
66	1.4	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	2.83	3.53	4.13	6.03	15	0.40%
67	0.9	0.87	0.87	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	3.93	4.89	6.32	10.47	15	0.40%
68	2.3	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	4.47	5.56	7.19	11.91	18	0.32%
69	2.7	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.69	2.21	3.22	6.65	12	0.40%
70	2.2	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	10.89	13.55	17.54	29.04	30	0.16%
71	6.5	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.26	1.65	2.40	4.96	12	0.40%
72	1.6	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	2.17	2.71	3.50	5.80	12	0.40%
73	1.3	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	6.47	8.48	12.35	25.53	24	0.21%
74	8.5	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	14.21	17.68	22.88	37.90	30	0.16%
75	8.4	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	4.33	5.22	6.11	8.91	18	0.32%
76	1.3	0.87	0.87	0.90	0.93	15	15	15	15	3.83	4.56	5.22	7.37	2.85	3.54	4.59	7.60	15	0.40%
77	1.7	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.97	2.45	3.18	5.26	12	0.40%
78	1.2	0.44	0.44	0.52	0.61	15	15	15	15	3.83	4.56	5.22	7.37	1.56	2.05	2.98	6.16	12	0.40%
79	2.0	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37	0.76	0.99	1.45	2.99	12	0.40%
80	1.0	0.20	0.20	0.28	0.41	15	15	15	15	3.83	4.56	5.22	7.37						

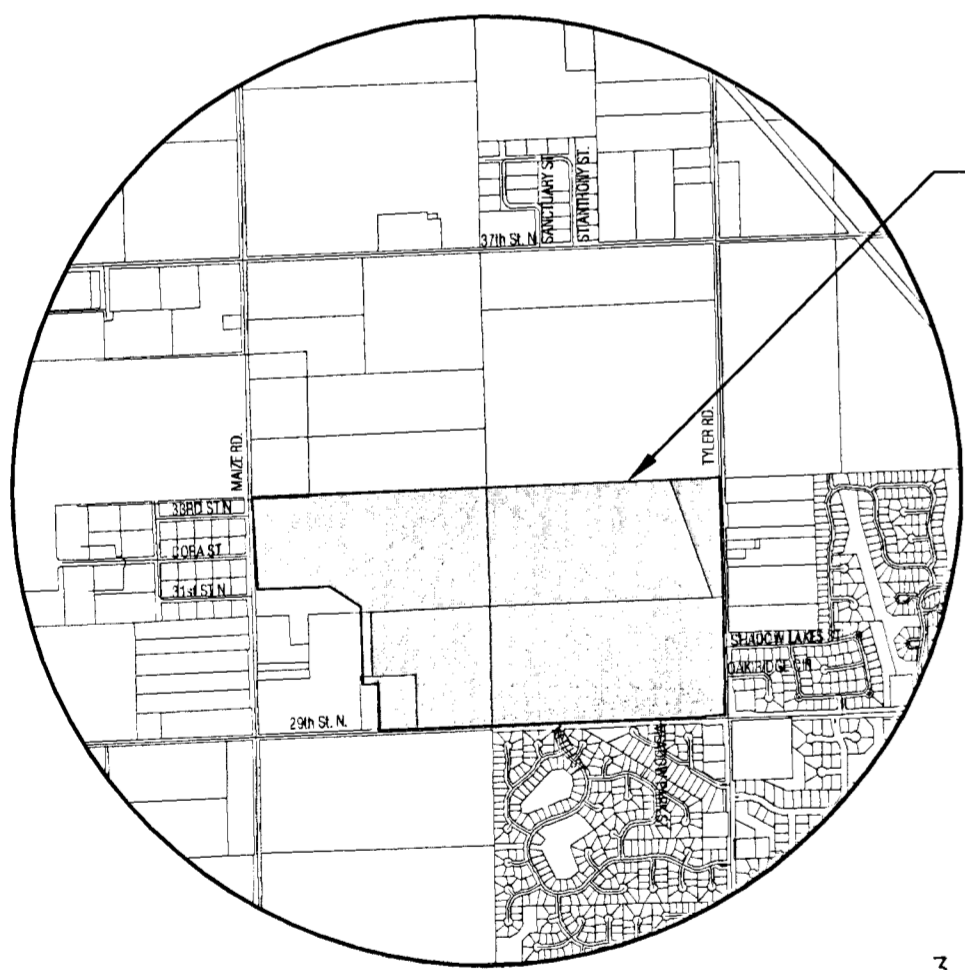
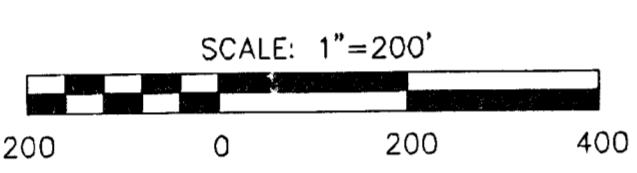
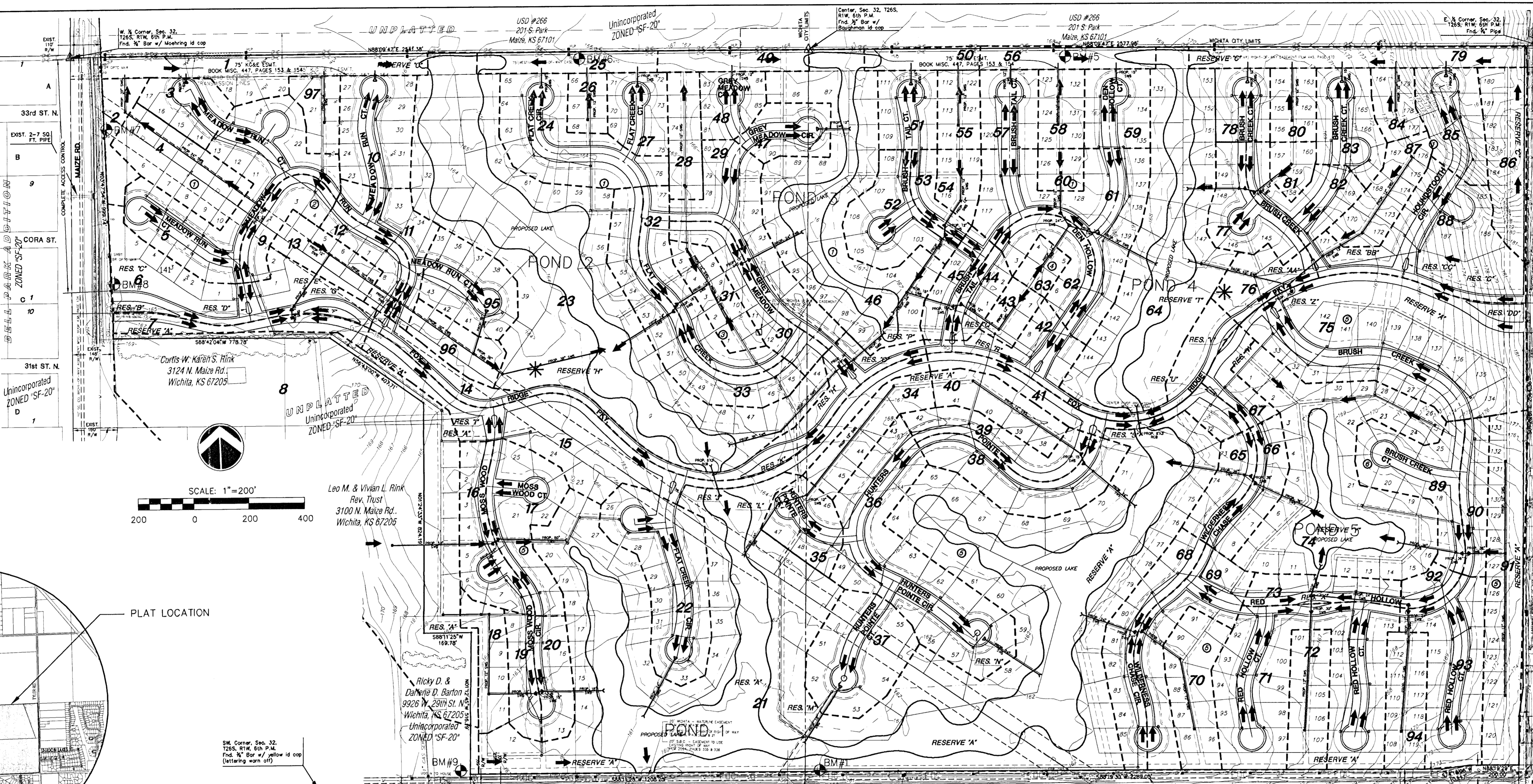


2/10/03  
PIPE SIZING CALCULATIONS  
Fox Ridge Addition  
Soil Group B

Area ID	Area ac	Accum. Area ac	C2	C5	C10	C100	Tc2 min	Tc5 min	Tc10 min	Tc100 min	I2 in/hr	I5 in/hr	I10 in/hr	I100 in/hr	Q2 cfs	Q5 cfs	Q10 cfs	Q100 cfs	ID #	Inlet Size ft	Pipe Size in	Min Slope %
55+50	1.7	0.20	0.22	0.28	0.41	0.41	15	15	15	15	3.83	4.56	5.22	7.37	1.33	1.75	2.54	5.26		12	12	0.40%
55+50+51	3.1	0.31	0.33	0.39	0.50	0.50	15	15	15	15	3.83	4.56	5.22	7.37	3.62	4.60	6.23	11.37		15	15	0.40%
54+53	1.5	0.31	0.33	0.39	0.50	0.50	15	15	15	15	3.83	4.56	5.22	7.37	1.77	2.24	3.03	5.50		12	12	0.40%
54+53+52	3.7	0.39	0.41	0.47	0.57	0.57	15	15	15	15	3.83	4.56	5.22	7.37	5.46	6.83	8.97	15.35		18	18	0.32%
43+44	1.5	0.33	0.35	0.41	0.52	0.52	15	15	15	15	3.83	4.56	5.22	7.37	1.91	2.41	3.23	5.77		12	12	0.40%
43+44+45	2.6	0.38	0.40	0.46	0.56	0.56	15	15	15	15	3.83	4.56	5.22	7.37	3.66	4.59	6.06	10.45		15	15	0.40%
54+53+52+43+44+45	6.2	0.38	0.40	0.46	0.56	0.56	15	15	15	15	3.83	4.56	5.22	7.37	9.12	11.43	15.03	25.80		24	24	0.21%
57+56	2.5	0.33	0.35	0.41	0.52	0.52	15	15	15	15	3.83	4.56	5.22	7.37	3.14	3.96	5.32	9.50		15	15	0.40%
57+56+58	3.6	0.29	0.31	0.37	0.49	0.49	15	15	15	15	3.83	4.56	5.22	7.37	3.96	5.04	6.88	12.73		15	15	0.40%
57+56+58+59	5.1	0.34	0.36	0.42	0.52	0.52	15	15	15	15	3.83	4.56	5.22	7.37	6.54	8.25	11.04	19.61		24	24	0.21%
60+61	4.9	0.41	0.43	0.49	0.59	0.59	15	15	15	15	3.83	4.56	5.22	7.37	7.73	9.64	12.57	21.16		24	24	0.21%
63+62	2.0	0.37	0.39	0.45	0.55	0.55	15	15	15	15	3.83	4.56	5.22	7.37	2.86	3.58	4.73	8.17		15	15	0.40%
60+61+62+63	6.9	0.40	0.42	0.48	0.58	0.58	15	15	15	15	3.83	4.56	5.22	7.37	10.58	13.23	17.30	29.32		30	30	0.16%
85+84	2.8	0.36	0.38	0.44	0.55	0.55	15	15	15	15	3.83	4.56	5.22	7.37	3.87	4.86	6.43	11.19		15	15	0.40%
85+84+83	4.6	0.39	0.41	0.47	0.57	0.57	15	15	15	15	3.83	4.56	5.22	7.37	7.00	8.76	11.48	19.55		24	24	0.21%
85+84+83+80	5.6	0.36	0.38	0.44	0.54	0.54	15	15	15	15	3.83	4.56	5.22	7.37	7.76	9.75	12.93	22.54		24	24	0.21%
85+84+83+80+78	6.8	0.37	0.39	0.45	0.55	0.55	15	15	15	15	3.83	4.56	5.22	7.37	9.73	12.21	16.10	27.80		24	24	0.21%
85+84+83+80+78+79	8.8	0.33	0.35	0.41	0.52	0.52	15	15	15	15	3.83	4.56	5.22	7.37	11.29	14.25	18.08	33.96		30	30	0.16%
87+88	6.0	0.38	0.40	0.46	0.56	0.56	15	15	15	15	3.83	4.56	5.22	7.37	8.73	10.94	14.42	24.83		24	24	0.21%
75+76	9.7	0.50	0.52	0.57	0.65	0.65	15	15	15	15	3.83	4.56	5.22	7.37	18.54	22.90	28.99	46.81		36	36	0.12%
87+88+75+76	15.8	0.45	0.47	0.53	0.62	0.62	15	15	15	15	3.83	4.56	5.22	7.37	27.26	33.84	43.41	71.63		42	42	0.12%
81+82	2.3	0.37	0.39	0.45	0.55	0.55	15	15	15	15	3.83	4.56	5.22	7.37	3.23	4.05	5.35	9.23		15	15	0.40%
81+82+77	4.0	0.40	0.42	0.48	0.58	0.58	15	15	15	15	3.83	4.56	5.22	7.37	6.08	7.60	9.93	16.83		24	24	0.21%
OR2+91	13.9	0.31	0.33	0.39	0.50	0.50	15	15	15	15	3.83	4.56	5.22	7.37	16.42	20.81	28.19	50.94		30	30	0.16%
OR2+91+90	15.1	0.32	0.34	0.40	0.51	0.51	15	15	15	15	3.83	4.56	5.22	7.37	18.40	23.29	31.39	56.24		36	36	0.12%
OR2+91+90+89	17.6	0.34	0.36	0.42	0.52	0.52	15	15	15	15	3.83	4.56	5.22	7.37	22.65	28.58	38.23	67.57		36	36	0.12%
94+93	4.8	0.36	0.38	0.44	0.54	0.54	15	15	15	15	3.83	4.56	5.22	7.37	6.64	8.35	11.07	19.31		24	24	0.21%
94+93+92	5.4	0.37	0.39	0.45	0.55	0.55	15	15	15	15	3.83	4.56	5.22	7.37	7.52	9.44	12.48	21.65		24	24	0.21%
72+71	8.1	0.39	0.41	0.47	0.57	0.57	15	15	15	15	3.83	4.56	5.22	7.37	12.14	15.20	19.93	34.00		30	30	0.16%
94+93+92+72+71+73	14.7	0.39	0.41	0.47	0.57	0.57	15	15	15	15	3.83	4.56	5.22	7.37	21.83	27.34	35.91	61.45		36	36	0.12%
66+65	2.5	0.44	0.46	0.52	0.61	0.61	15	15	15	15	3.83	4.56	5.22	7.37	4.23	5.26	6.81	11.28		18	18	0.32%
70+69	4.9	0.33	0.35	0.41	0.52	0.52	15	15	15	15	3.83	4.56	5.22	7.37	6.15	7.77	10.41	18.56		24	24	0.21%
70+69+68	7.2	0.37	0.39	0.45	0.55	0.55	15	15	15	15	3.83	4.56	5.22	7.37	10.08	12.65	16.73	29.04		24	24	0.21%
40+39	3.2	0.32	0.34	0.40	0.51	0.51	15	15	15	15	3.83	4.56	5.22	7.37	3.99	5.05	6.79	12.18		24	24	0.21%
40+39+38	5.7	0.37	0.39	0.45	0.56	0.56	15	15	15	15	3.83	4.56	5.22	7.37	8.14	10.21	13.46	23.24		24	24	0.21%
34+35	3.1	0.31	0.33	0.39	0.51	0.51	15	15	15	15	3.83	4.56	5.22	7.37	3.74	4.74	6.40	11.58		15	15	0.40%
8+16	23.5	0.66	0.67	0.71	0.78	0.78	15	15	15	15	3.83	4.56	5.22	7.37	59.45	71.95	87.48	135.93		54	54	0.10%
8+16+17	26.1	0.64	0.65	0.69	0.77	0.77	15	15	15	15	3.83	4.56	5.22	7.37	63.73	77.28	94.37	147.35		60	60	0.10%
18+19	2.3	0.31	0.33	0.39	0.50	0.50	15	15	15	15	3.83	4.56	5.22	7.37	2.72	3.45	4.66	8.47		15	15	0.40%
18+19+20	3.5	0.36	0.38	0.44	0.54	0.54	15	15	15	15	3.83	4.56	5.22	7.37	4.78	6.01	7.97	13.95		18	18	0.32%

**LEGEND**

- - - - - EDGE OF TREES
- - CONIFEROUS TREE & DIAMETER
- - DECIDUOUS TREE & DIAMETER
- - SIGN
- - BUSH
- PK - POWER POLE AND GUY ANCHOR
- WB - WESTAR ELECTRIC BOX
- GM - GAS METER
- LP - LIGHT POLE
- PH - FIRE HYDRANT
- WM - WATER VALVE
- WM - WATER METER
- CV - IRRIGATION CONTROL VALVE
- GI - GRATE INLET
- TR - TELEPHONE RISER
- IN - INLET
- SC - SECTION CORNER
- BM - BENCHMARK
- SMH - STORM WATER MANHOLE
- SMH - SANITARY SEWER MANHOLE
- TMH - TELEPHONE MANHOLE
- UT - 20' UTILITY EASEMENT
- - - - - DRAINAGE EASEMENT
- - - - - FENCE
- - - - - STORM SEWER PIPE
- - - - - WATER LINE
- - - - - SANITARY SEWER LINE
- - - - - GAS LINE
- - - - - GAS PIPELINE
- - - - - TELEPHONE LINE
- - - - - UNDERGROUND ELECTRIC LINE
- - - - - OVERHEAD ELECTRIC
- - - - - FIBER OPTIC CABLE
- \* - AREA DESIGNATED FOR PRIVATE PLAYGROUND, POOL, OR CLUBHOUSE
- - FLOW ARROW
- 15 - DRAINAGE AREA
- ⊙ - BLOCK NUMBER
- 141 - LOT NUMBER



**VICINITY MAP**

**NOTES**

1. ZONING: EXISTING SF-20 AND LC(SE. 600'x600') PROPOSED SF-5 AND LC(SE. 600'x600')
2. LOT MINIMUM PADS AS INDICATED ON DRAINAGE PLAN, PROVIDED AT THE TIME OF PLATTING.

**3. RESERVE DESIGNATION AND USES:**

- 1.) Irrigation (ALL RESERVES)
- 2.) Landscaping (ALL RESERVES)
- 3.) Berming (A, C, E, H, K, P, R, T, V, W, X, W, Y, BB, DD)
- 4.) Monuments (ALL RESERVES)
- 5.) Open Space (ALL RESERVES)
- 6.) Lakes (A, H, P, T, Y)
- 7.) Floodway (A, H)
- 8.) Drainage (A, C, P, T, Y) In designated areas
- 9.) Utilities (A, C, E, H, P, R, T, W, Y, BB, DD) In designated areas
- 10.) Tot-Lot (H, T)
- 11.) Pool/Clubhouse (T)
- 12.) Recreational open space (A, H, T, Y)
- 13.) Sidewalks and or bicycle paths (A, C, E, H, P, R, T, W, BB)

**4. PLAT AREA: 260 acres**

5. SURVEY DATE: January 15th, 2003
6. EXISTING USE: Agricultural

**9. UTILITY AND DRAINAGE EASEMENTS:**

All utility easements shown are 20' wide. All drainage easements shown as DRNG. & UTIL. ESMT. are also 20' wide.

**10. PIPELINE EASEMENT:**

The pipeline easement shall be confined to a 100' easement with a 100' building setback centered on said easement.

**BENCHMARKS**

- BM#1 C.O.W. disc 0.5 miles east of Maize Rd. on 29th St. N. 25'+/- N. of centerline of 29th St. Elev. = 160.86
- BM#2 Square cut top of curb N. end of island at Meadow Park, S. side of 29th St. N. Elev. = 168.33
- BM#3 Square cut top curb W. end of island at Shadow Lakes, East side of Tyler Rd. Elev. = 175.81
- BM#4 RR spike in W. face of South H-pole East of Tyler Rd., 3320 N. Tyler Rd. Elev. = 175.53
- BM#5 RR Spike in South face of South H-pole 3rd H-poles West of Tyler Rd. and 1/2 Mile N. of 29th St. N. Elev. = 169.24
- BM#6 RR Spike in South face of South H-pole 6th H-poles West of Tyler Rd. and 1/2 Mile N. of 29th St. N. Elev. = 166.37
- BM#7 PK nail (point numbered 201) in asphalt on bike path 60 feet South of 33rd St. N. on East side of Maize Rd. 28 feet NW. of PP. Elev. = 163.97
- BM#8 RR spike in W. face of PP East side Maize Rd., 100 feet ± S. of Cora St. Elev. = 165.58
- BM#9 RR spike in NW face of PP N. side of 29th St. N., 6th PP West of C.O.W. Disc (Disc 1/2 mile East of Maize Rd.) Elev. = 164.55

**LEGAL DESCRIPTION**

A tract of land lying in the Southwest and Southeast Quarters of Section 32, Township 26 South, Range 1 West, of the 6th Principal Meridian, Sedgwick County, Kansas; said tract described as follows:  
All of said Southeast Quarter EXCEPT; that portion dedicated for road right-of-way; AND ALSO; all of the said Southwest Quarter EXCEPT; that portion dedicated for road right-of-way; AND EXCEPT; a tract of land lying in the Southwest portion of said Southwest Quarter containing 41.7 acres of land more or less.

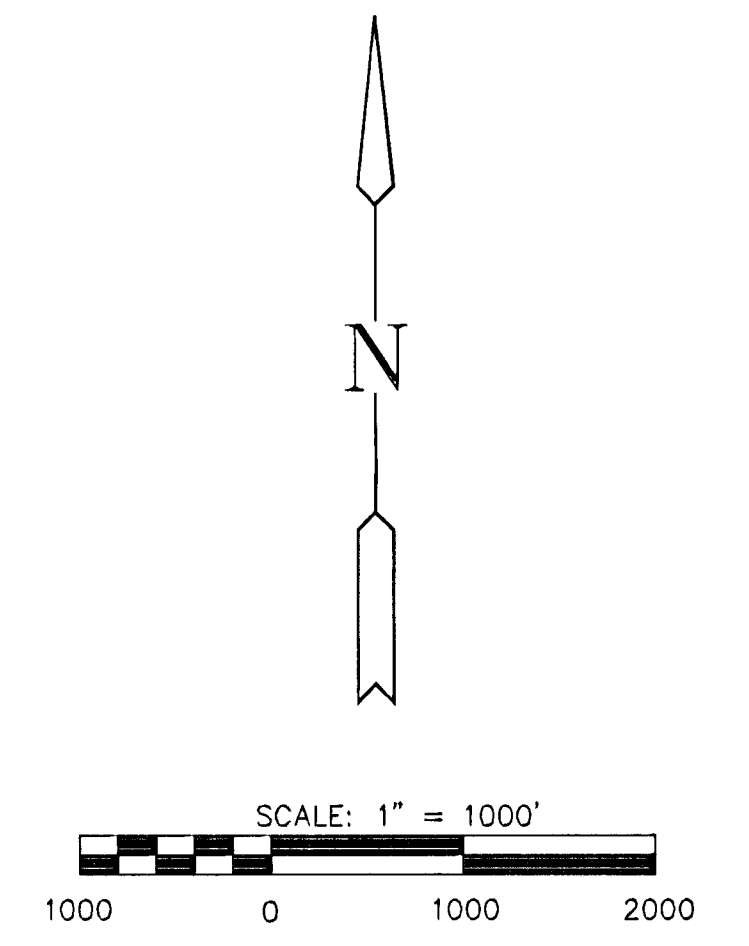
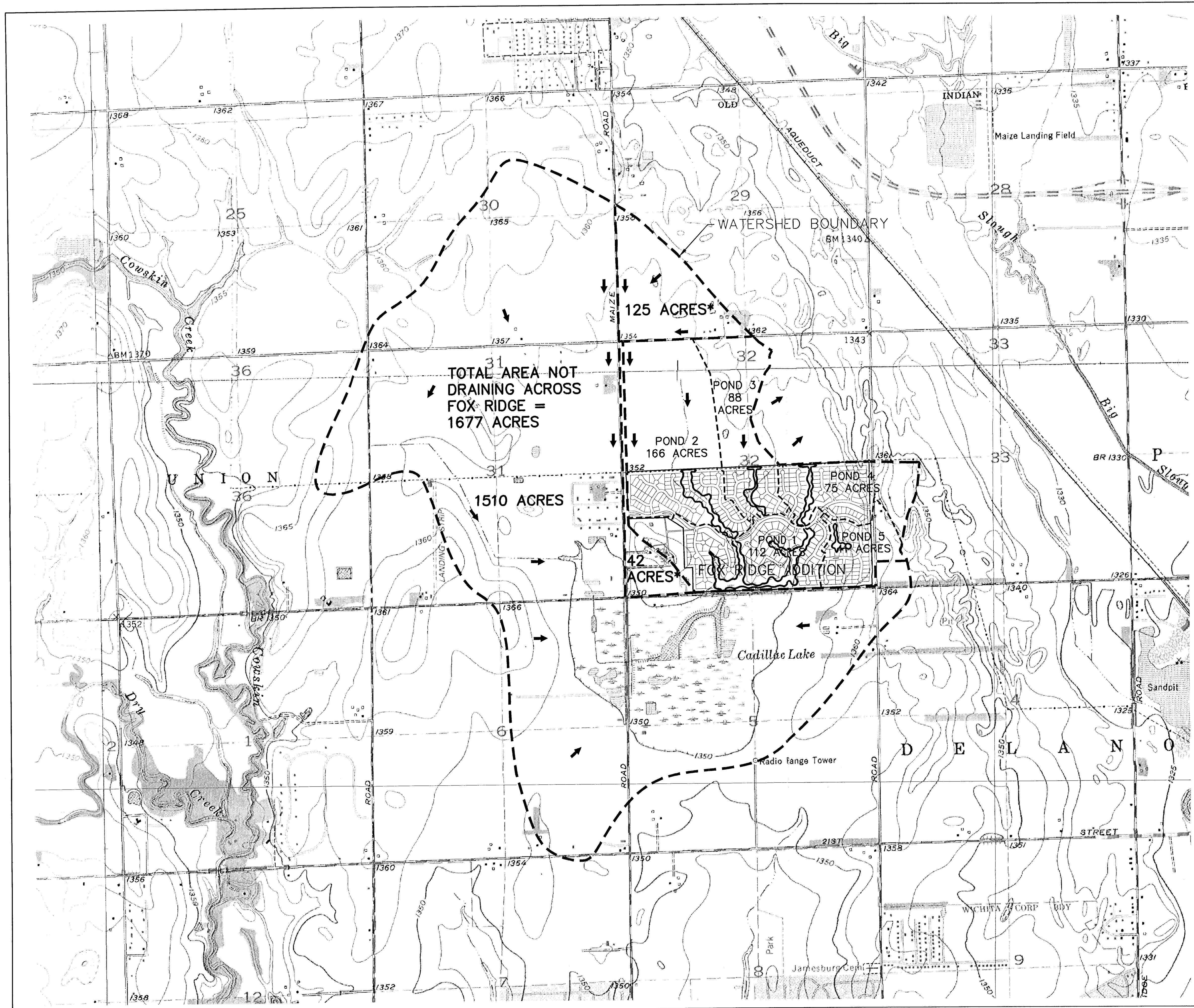
# DRAINAGE PLAN FOX RIDGE ADDITION

DEVELOPER: Fox Ridge Development Co. Inc. 7926 W 21st Wichita, KS 67205 (316) 721-2153  
 OWNERS: Leo M. and Vivian L. Rink 3100 N. Maize Rd. Wichita, KS 67205 (316) 722-0318  
 Curtis Q & Karen S. Rink 3124 N. Maize Rd. Wichita, KS 67205 (316) 722-8083  
 Ricky D. & Darlene D. Barton 9926 W. 29th St. N. Wichita, KS 67205 (316) 722-4897  
 First Mennonite Brethren Church 8000 W. 21st St. Wichita, KS 67205 (316) 722-5885

**DATE: FEBRUARY, 2003**



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



\* SHOWN ON MAIZE ROAD PLANS (BY PEC)

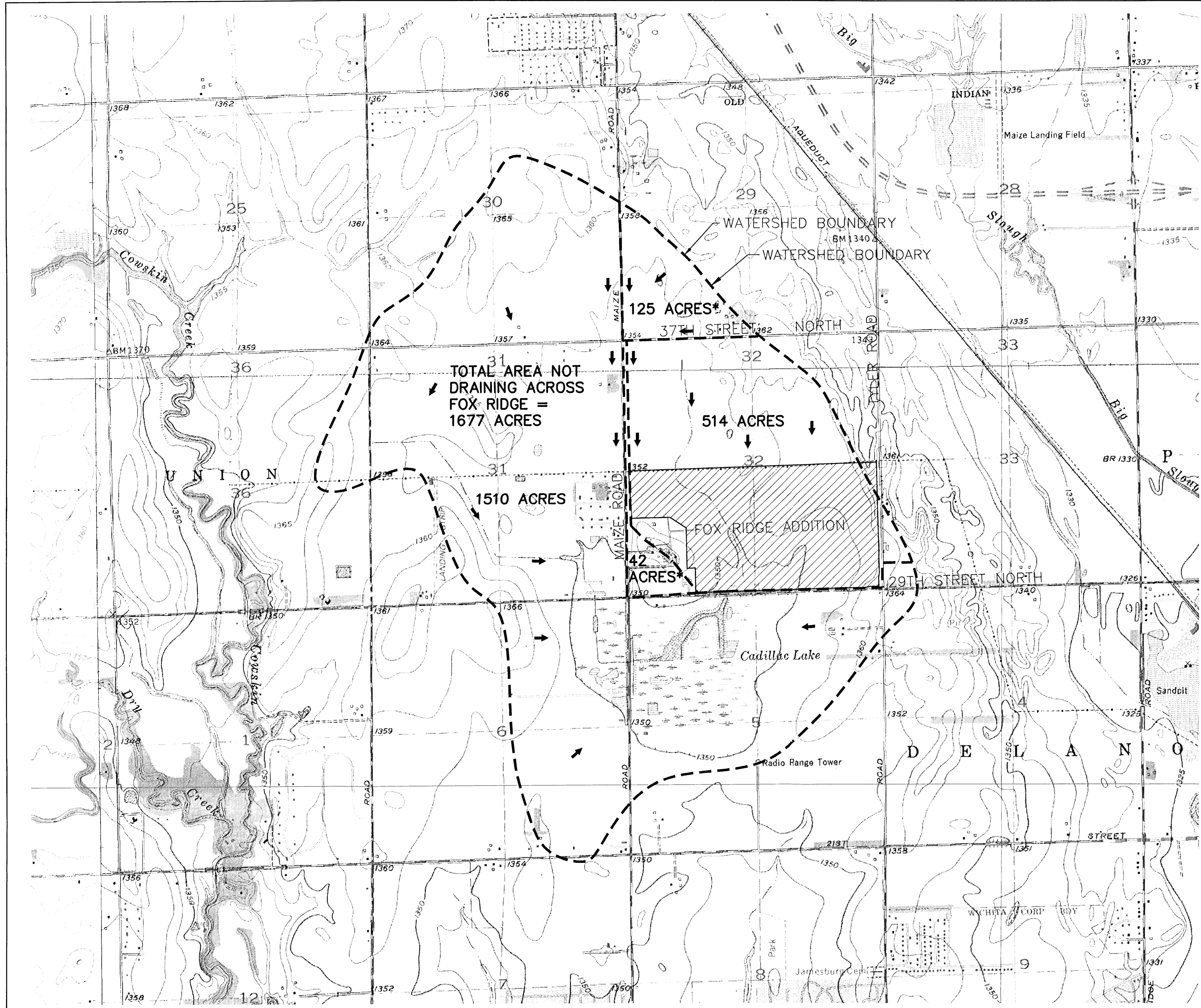
**MKEC**  
ENGINEERING CONSULTANTS  
411 N. WEBB ROAD  
WICHITA, KS. 67206  
316-684-9500

**FOX RIDGE ADDITION**  
PROJECT NAME

**DEVELOPED WATERSHEDS**  
SHEET TITLE

DESIGN BY: KLA	DRAWN BY: KLA	CHECKED BY: GJA
DATE: FEBRUARY 2003	JOB NO.: 99118	SHEET OF: 1 / 1

G:\CIVIL\99118\DMC\DRNC\99118DCVMT5HD.DWG



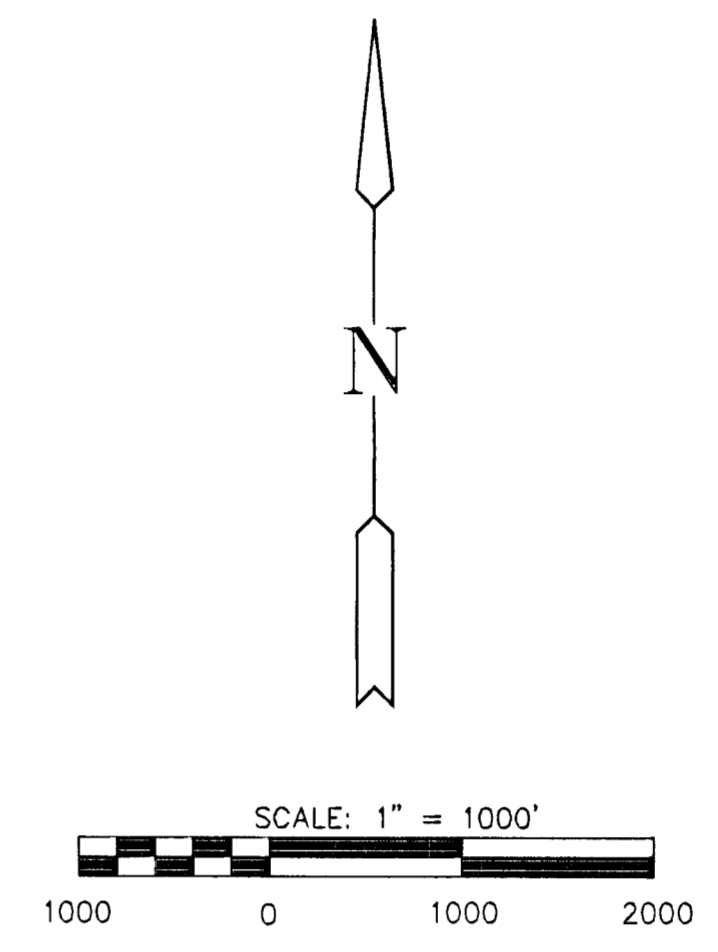
TOTAL AREA NOT DRAINING ACROSS FOX RIDGE = 1677 ACRES

125 ACRES\*


514 ACRES

1510 ACRES

42 ACRES\*



\* SHOWN ON MAIZE ROAD PLANS (BY PEC)



**FOX RIDGE ADDITION**  
PROJECT NAME

---

**PRE-DEVELOPED WATERSHEDS**  
SHEET TITLE

---

<i>KLA</i>	<i>KLA</i>	<i>GJA</i>
DESIGN BY:	DRAWN BY:	CHECKED BY:

---

FEBRUARY 2003	99118	1 / 1
DATE	JOB NO.	SHEET/OF

G:\CIVIL\99118\DWG\DRNG\99118PREWTSHD.DWG

