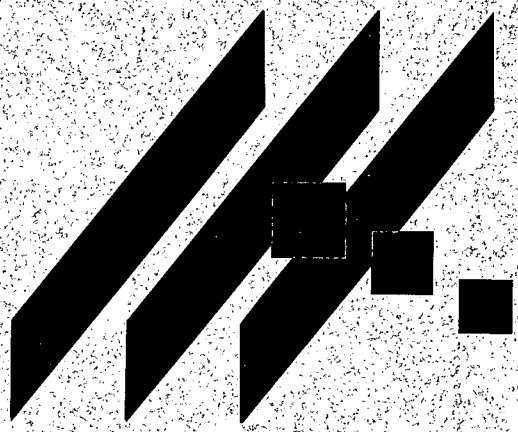
MKEC ENGINEERING CONSULTANTS, INC.



DRAINAGE REPORT

FOR

STOCKYARD INDUSTRIAL PARK ADDITION

APRIL 2003

411 N WEBB ROAD • WICHITA KS 67206 • 316-684-9600 • FAX 316-684-5100

Drainage Report for the Stockyard Industrial Park Addition
Wichita, Sedgwick County, Kansas

Location

The subject property is in Wichita, Sedgwick County, Kansas. The proposed development is located north of 21st Street North between Broadway Avenue and Washington Avenue. The site lies in the Northeast Quarter of Section 8, Township 27 South, Range 2 East. The dimensions of the property are approximately 14,600 feet north to south and 1000 feet east to west at the widest point. The area of the plat is 49.0 acres. The site is shown on the Wichita East, 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 mostly urban land in the Tabler Complex. The site comprises Urban land – Tabler Complex (Ue - HSG "D"), Tabler-Drummond complex (Tb – HSG "D"), and in the southwest corner Urban land – Elandco complex (Ub – HSG "B"). The Hydrological Soil Group (HSG) used to select runoff coefficients is "D".

Existing Conditions

Current Development
The site is a developed lot used as an auto salvage yard, auto sales, and as a vacant lot.

Current Landform and Slope
Slopes vary from 0.5% to 10%. Most of the site has very flat slopes. A large mound located near an existing pond has steep slopes. Elevations vary from 135' at the top of the mound to 120' at the edge of the pond.

Current Drainage Conditions
According to the Federal Emergency Management Agency (FEMA), the site is in Zone B – areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. The nearest Zone A's (areas of 100-year flooding) are approximately 200 feet west of the site near Chisholm Creek and 400 feet east of the site (FIRM Panel 10, Wichita, Sedgwick County, Kansas, May 15, 1986) (shown in Appendix C).

Current Runoff Characteristics
A detention pond is located in the northeast corner of the site (shown in the Drainage and Utility Plan in Appendix D). It discharges into a drainage canal to the east of the site. The canal flows from north to south. The northern portion is grass lined. The channel is

lined with concrete south of the pond's discharge point. Most of the site drains into the pond and the channel. The southern portion of the site drains into 21st Street. Chisholm Creek is located west and south of the site. The site does not pick up offsite drainage.

The site was analyzed using the SCS Method in Hydraflow Hydrographs by Intelisolve. Computer output is shown in Appendix E. Existing runoff from the site was calculated assuming industrial conditions. The site was divided into two areas. Area A drains into the existing pond. Area B drains into 21st Street North. Thirty minutes was used for the time of concentration (t_c) for Area A and 15 minutes for Area B. Existing runoff to the pond is shown in Table 1. In the 100-year design event, peak flow from the site into the pond is 231.9 cfs.

Table 1. Runoff.

	2-Year (cfs)	5-Year (cfs)	10-Year (cfs)	100-Year (cfs)
Existing to Pond – Area A	94.2	128.7	151.1	231.9
Proposed to Pond – Area A	94.2	128.7	151.1	231.9
Existing to 21st Street – Area B	16.7	22.8	26.7	41.0
Proposed to 21st Street – Area B	16.7	22.8	26.7	41.0

Proposed Conditions

Proposed Development
The use of the site will not change. The auto salvage operation will continue to occupy the southern portion of the site.

Proposed Landform and Slope
Final slopes in the development have not been determined. Much of the site will not change. Areas that are graded will slope into the existing detention pond. The lot-grading plan is shown in Appendix F.

Proposed Runoff Characteristics
The site was again analyzed using Hydraflow Hydrographs using the SCS Method. Computer output is found in Appendix E. Proposed runoff was calculated assuming industrial conditions and the same two drainage areas. Area A had a 30-minute time of concentration (t_c) and Area B had a 14-minute time of concentration. Proposed runoff values are shown in Table 1. The peak flow from the site into the pond in the 100-year design event is 231.9 cfs.

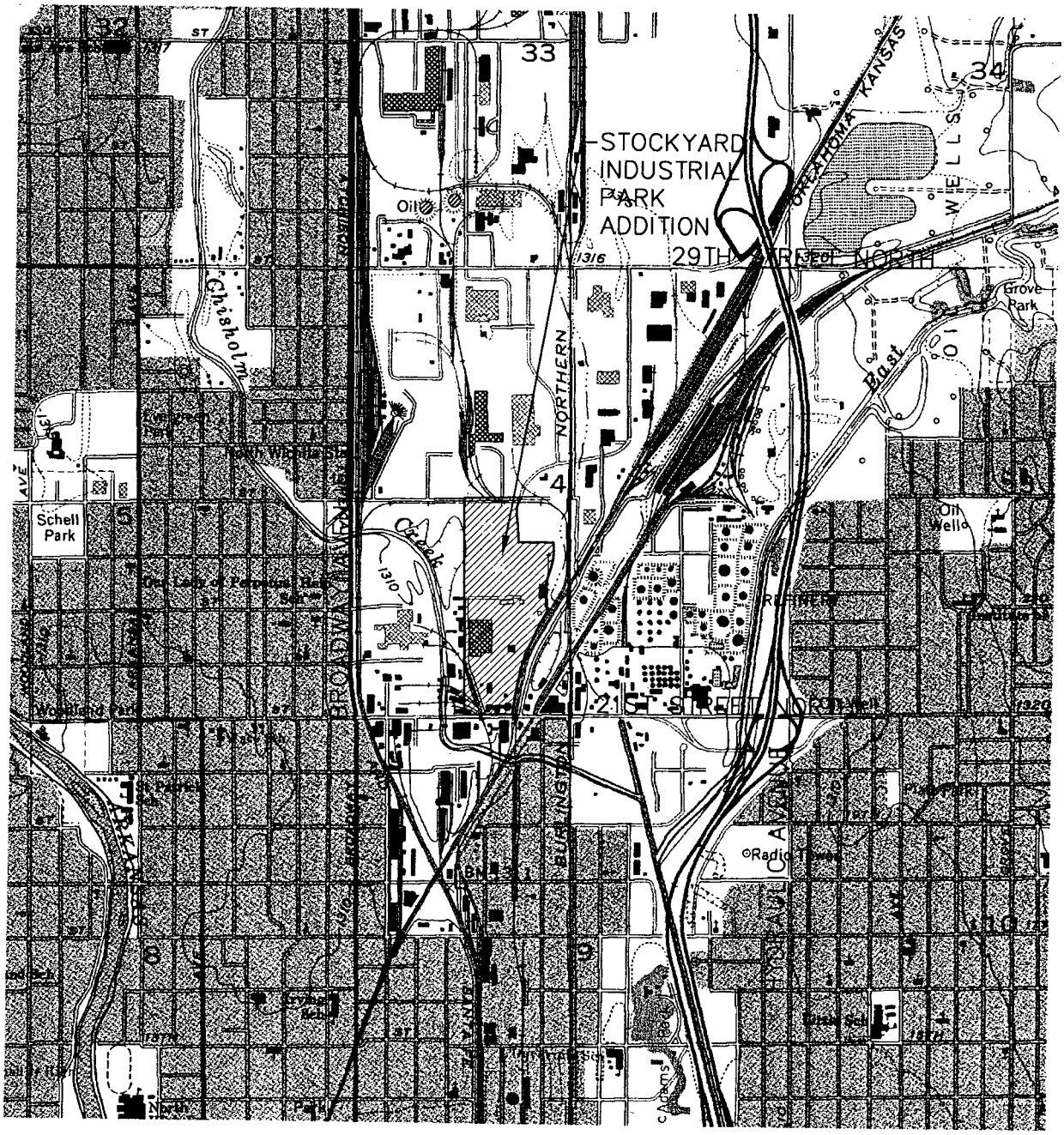
Summary

The Stockyard Industrial Park Addition will be used as an auto salvage and sales operation under existing and proposed conditions. The site was analyzed as an industrial use

under existing and proposed conditions. Runoff for the site does not change with the development. The salvage yard will continue to drain to the existing detention pond and the drainage canal adjacent to the site. Any future grading will direct runoff into the existing detention pond, which empties into the drainage canal.

APPENDIX A

QUADRANGLE MAP



SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

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

STOCKYARD INDUSTRIAL PARK
PROJECT NAME

WICHITA EAST, KANSAS QUADRANGLE
SHEET TITLE

KLA	KLA	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2003	02307	1 / 1
DATE	JOB NO.	SHEET/OF

APPENDIX B

SURVEY

34

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

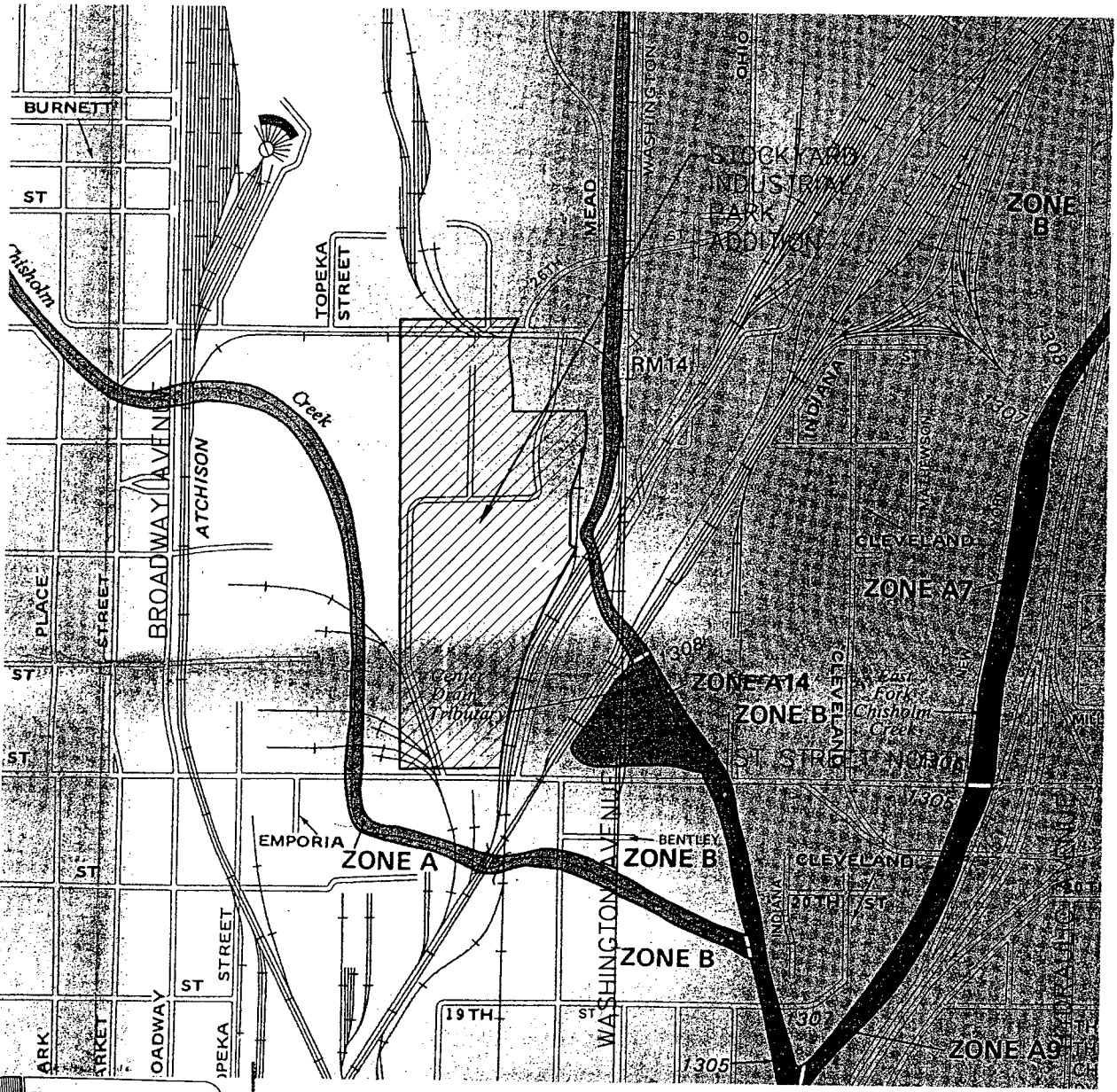
STOCKYARD INDUSTRIAL PARK
PROJECT NAME

SEDGWICK COUNTY, KANSAS SOIL SURVEY
SHEET TITLE

KLA	KLA	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2003	02307	1 / 1
DATE	JOB NO.	SHEET/OF

APPENDIX C

FIRM



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

PANEL 10 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0010 B

EFFECTIVE DATE:
MAY 15, 1986

Federal Emergency Management Agency

APPROXIMATE SCALE
1000 0 1000 F

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

STOCKYARD INDUSTRIAL PARK
PROJECT NAME

FLOOD INSURANCE RATE MAP
WICHITA, KANSAS - PANEL 10 OF 40
SHEET TITLE

KLA	KLA	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
APRIL 2003	02307	1 / 1
DATE	JOB NO.	SHEET/OF

APPENDIX D

DRAINAGE & UTILITY PLAN

APPENDIX E

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	------	------	94.18	------	128.65	151.06	------	------	231.90	Existing to Pond - Area A
2	SCS Runoff	------	------	94.18	------	128.65	151.06	------	------	231.90	Proposed to Pond - Area A
3	SCS Runoff	------	------	16.73	------	22.80	26.74	------	------	40.95	Existing to 21st Street - Area B
4	SCS Runoff	------	------	16.73	------	22.80	26.74	------	------	40.95	Proposed to 21st Street - Area B

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	231.90	6	732	28.249	---	-----	-----	Existing to Pond - Area A
2	SCS Runoff	231.90	6	732	28.249	---	-----	-----	Proposed to Pond - Area A
3	SCS Runoff	40.95	6	720	3.101	---	-----	-----	Existing to 21st Street - Area B
4	SCS Runoff	40.95	6	720	3.101	---	-----	-----	Proposed to 21st Street - Area B

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

Existing to Pond - Area A

Hydrograph type	= SCS Runoff	Peak discharge	= 231.90 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 47.20 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 30 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 28.249 acft

Hydrograph Discharge Table

Time (hrs)	Outflow cfs)	
11.80	64.79	
11.90	107.03	
12.00	159.76	
12.10	204.10	
12.20	231.90	<<
12.30	226.53	
12.40	198.59	
12.50	168.21	
12.60	135.85	
12.70	103.27	
12.80	73.16	

...End

Hydrograph Report

Hyd. No. 2

Proposed to Pond - Area A

Hydrograph type	= SCS Runoff	Peak discharge	= 231.90 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 47.20 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 30 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 28.249 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	
11.80	64.79	
11.90	107.03	
12.00	159.76	
12.10	204.10	
12.20	231.90	<<
12.30	226.53	
12.40	198.59	
12.50	168.21	
12.60	135.85	
12.70	103.27	
12.80	73.16	

...End

Hydrograph Report

Hyd. No. 3

Existing to 21st Street - Area B

Hydrograph type	= SCS Runoff	Peak discharge	= 40.95 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 5.70 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 15 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 3.101 acft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.80	16.88
11.90	29.81
12.00	40.95 <<
12.10	36.28
12.20	22.44
12.30	11.27

...End

Hydrograph Report

Hyd. No. 4

Proposed to 21st Street - Area B

Hydrograph type	= SCS Runoff	Peak discharge	= 40.95 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 5.70 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 15 min
Total precip.	= 7.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 3.101 acft

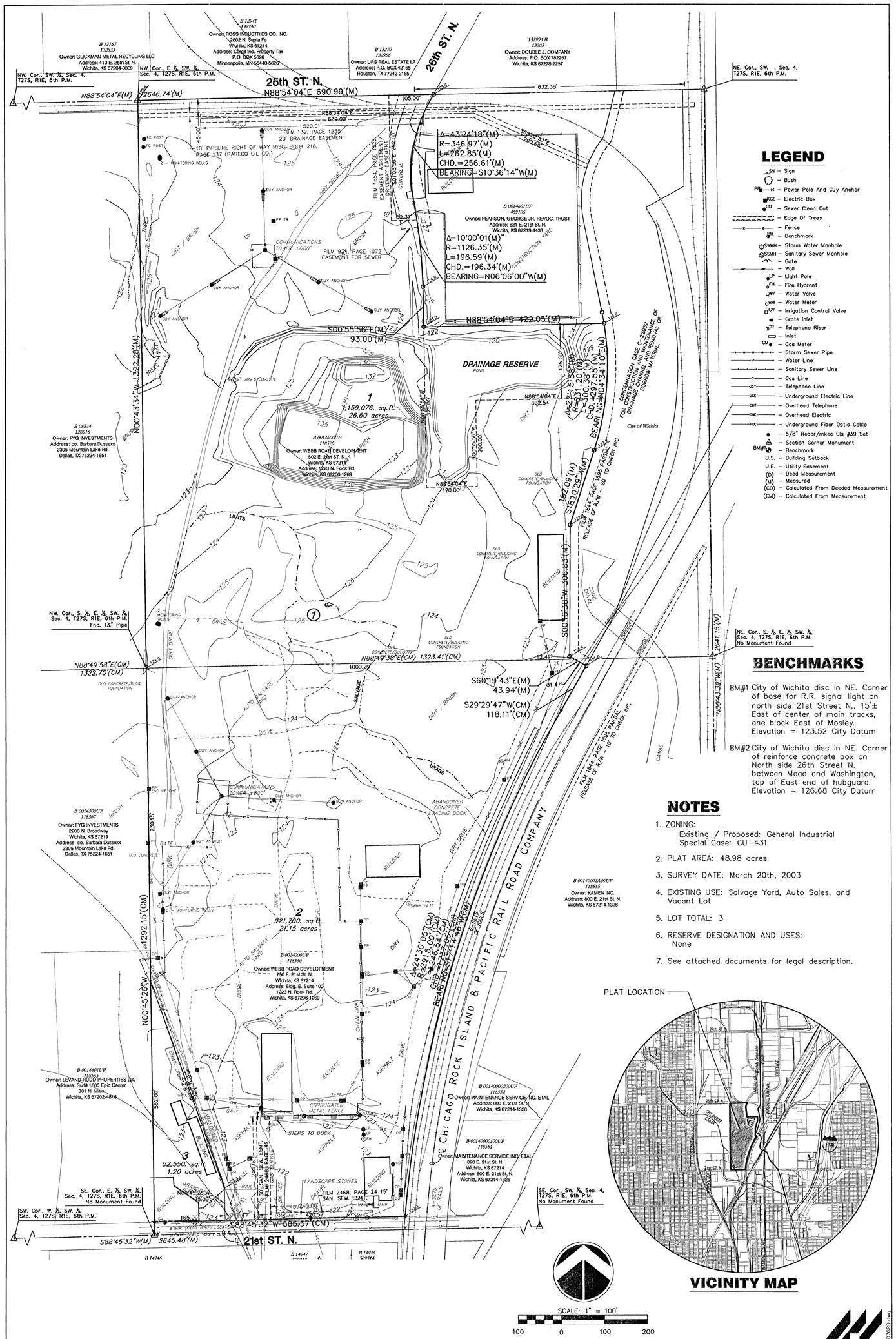
Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.80	16.88
11.90	29.81
12.00	40.95 <<
12.10	36.28
12.20	22.44
12.30	11.27

...End

APPENDIX F

GRADING PLAN



PRELIMINARY LOT GRADING PLAN

STOCKYARD INDUSTRIAL PARK ADDITION

DATE: APRIL 2003

OWNERS/DEVELOPER: WEBB ROAD DEVELOPMENT INC. BLDG. E SUITE 100, 1223 N. ROCK RD. WICHITA, KS 67206-1269 316-636-2100

MKEC ENGINEERING CONSULTANTS
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