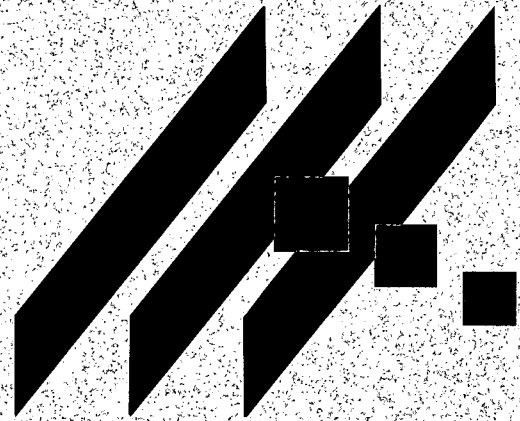


M K E C E N G I N E E R I N G C O N S U L T A N T S , I N C .



PRELIMINARY DRAINAGE REPORT

FOR

THE SHADY RIDGE ADDITION

March 2004

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

Location

The subject property is in Wichita, Sedgwick County, Kansas. The site has been platted as Woodland Heights 2nd Addition. The proposed development is located approximately 600 feet east of Ridge Road between Central Avenue and Maple Street. The site is between Shade Lane and Wayside Lane. Residential developments and vacant lots surround the site. Shady Ridge is in the South Half of the Southeast Quarter, of Section 29, Township 29 South, Range 1 East. The dimensions of the property are approximately 300 feet by 1300 feet. The area of the plat is 11.0 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 is made up of Milan loam, 1-3% slopes, (Ma - HSG "B") and Pits (Pa). The HSG used to select runoff coefficients is "B".

Pre-developed Conditions

Current Development

The site is currently vacant land zoned as Multi-Family.

Current Landform and Slope

Slopes in the site vary from 1.5% to 3.5%. Elevations vary from 149' at the southwest corner to 125' at street northeast corner of the site.

Current Drainage Conditions

The site drains from Southwest to Northeast. The Wichita-Valley Center Floodway is approximately 500 feet northeast of the site. The northeast corner of the site is designated as Zone B – areas protected by levees from the base flood (FIRM Panel 125, Sedgwick, County, Kansas, January 16, 1987) (shown in Appendix C). The remaining site is in Zone C – areas of minimal flooding. The nearest Zone A is approximately 500 feet northeast of the site.

Current Runoff Characteristics

The site currently drains into Shade Lane and into a drainage ditch north of the site. The drainage ditch crosses under Winterset Lane through a 2-9'x4' RCB. Approximately 45.8 acres from offsite drain into the ditch as it runs parallel with the site. Peak flow during the 100-year design event is 165 cfs. Before crossing under Winterset Lane, a storm water pipe from the north outlets into the drainage ditch just before the RCB. Approximately

17.3 acres drain into the ditch, in addition to the 45.8 acres, before crossing under Winterset Lane. The RCB has a peak flow of 228 cfs during the 100-year design event. Existing runoff calculations were done using the rational method and are shown in the spreadsheet in Appendix D. Drainage boundaries are shown in the Drainage and Utility Plan in Appendix E. Time of Concentration was calculated using the FAA method. Under existing conditions, 17.2 cfs leaves the site in the 100-year design event. A summary of the runoff values is shown in Table 1.

Table 1. Pre-developed Runoff.

Sub-Watershed	2-Year (cfs)	5-Year (cfs)	10-Year (cfs)	100-Year (cfs)
A	1.5	1.7	2.7	6.7
B	2.3	2.6	4.3	10.5
From Shady Ridge	3.8	4.3	7.0	17.2
To RCB	70.4	95.9	125.7	228.0

Developed Conditions

Proposed Development

The site will develop as Multi-family lots. There will be approximately 36 lots roughly ¼ acre in size. Duplex housing units are planned for this lot.

Proposed Landform and Slope

Final slopes in the development have not been determined, but the minimum will be 0.5% within street right-of-way. The preliminary lot-grading plan is shown in Appendix F.

Proposed Runoff Characteristics

The site will continue to drain into Shade Lane and into the drainage ditch north of the site. Proposed runoff calculations were done using the rational method and are shown in the spreadsheet in Appendix D. Time of Concentration was calculated using the FAA method. Under proposed conditions, 50.6 cfs leaves the site in the 100-year design event. A summary of the runoff values is shown in Table 2.

Table 3. Developed Runoff.

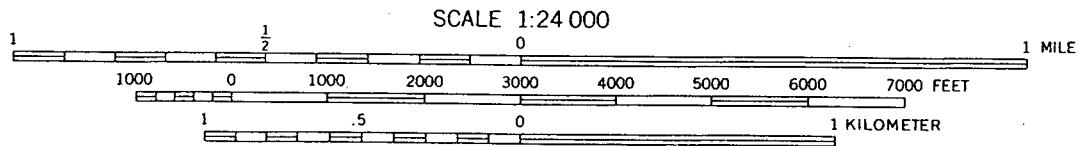
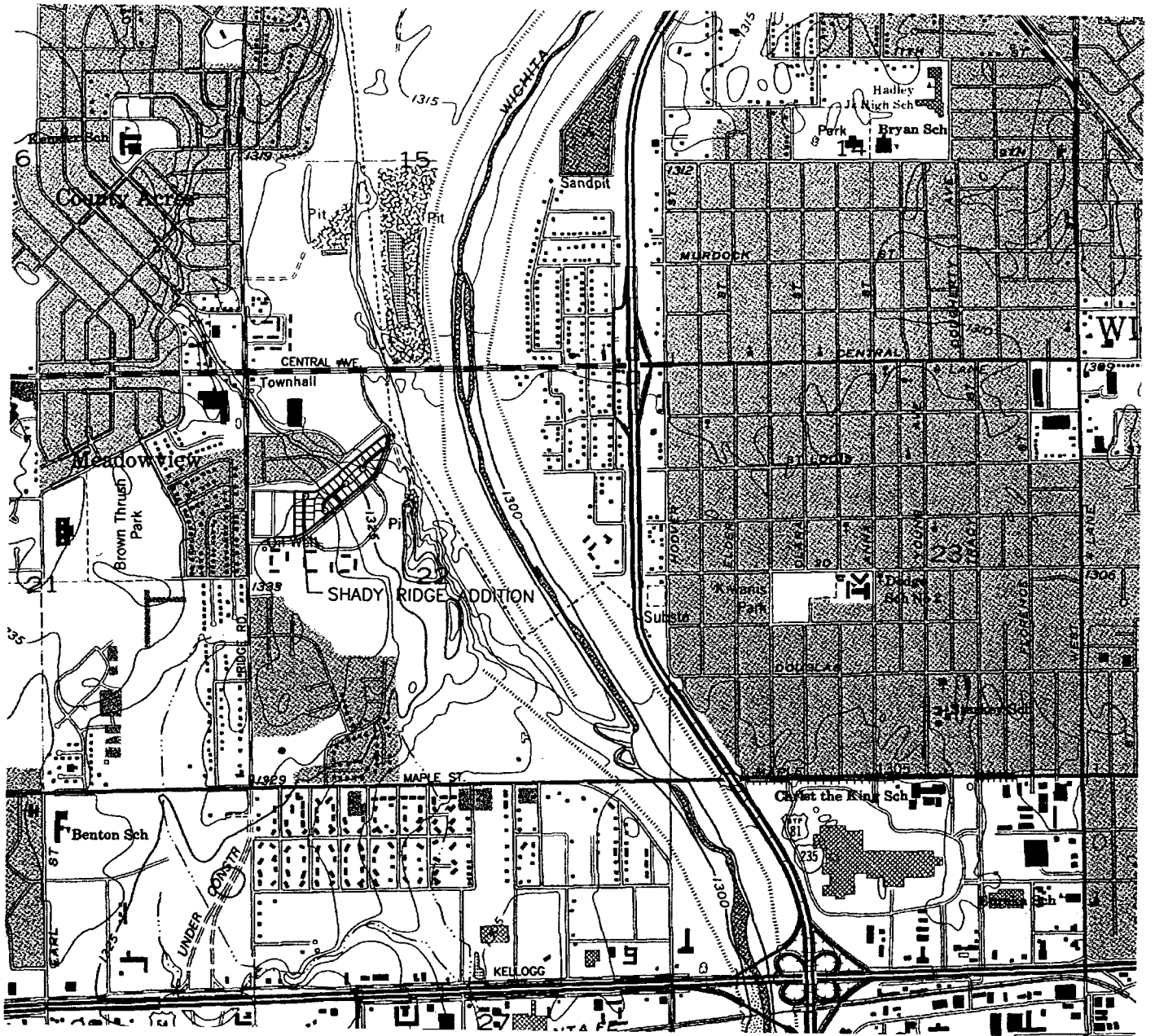
Sub-Watershed	2-Year (cfs)	5-Year (cfs)	10-Year (cfs)	100-Year (cfs)
A	6.7	8.9	11.6	19.8
B	10.5	13.9	18.1	30.8
From Shady Ridge	17.2	22.8	29.8	50.6
To RCB	76.5	104.0	138.0	242.1

An HY-8 run has been completed on the RCB under Winterset Lane and is shown in Appendix G. The 100-year water surface elevation from the Wichita-Valley Center Floodway was used as a constant water surface elevation. The box can handle 650 cfs before overtopping the street.

Summary

The Shady Ridge Addition is currently vacant lots platted as Woodland Heights 2nd Addition. The site will develop as approximately 36 residential lots roughly 1/4-acre in size. A drainage ditch flows from west to northeast, north of the site. Peak runoff from the site will increase by 33.4 cfs during the 100-year design event. The site enters the Wichita-Valley Center Floodway through a 2-9x4' RCB under Winterset. Flow to the RCB will increase from 228.0 cfs to 242.1 cfs. This increase of 14.1 cfs is 6.2% of the total flow to the RCB. According to the HY-8 model, the 100-year water surface elevation is 124.26 feet under current conditions and 124.30 feet after development. The RCB will handle the increased flow from the development of this site. The site is at the base of the drainage area, before it outlets into the Wichita-Valley Center Floodway. The site will have a negligible effect on runoff through the ditch and to the RCB. Minimum pad elevations will be provided with the final plat.

**APPENDIX A
QUADRANGLE MAP**



CONTOUR INTERVAL 5 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929



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

SHADY RIDGE

PROJECT NAME

**USGS GEOLOGICAL SURVEY
 SEDGWICK COUNTY, KANSAS**

SHEET TITLE

KLA

DESIGN BY.

MARCH 2004

DATE

JFL

DRAWN BY.

04071

JOB NO.

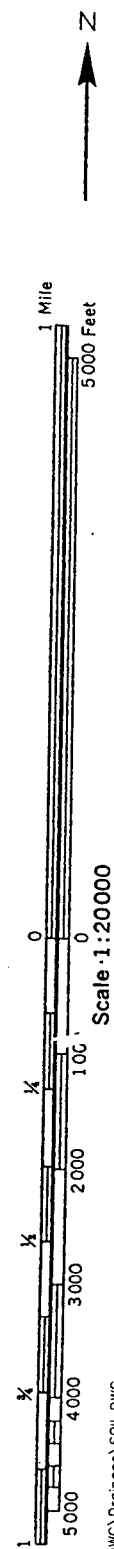
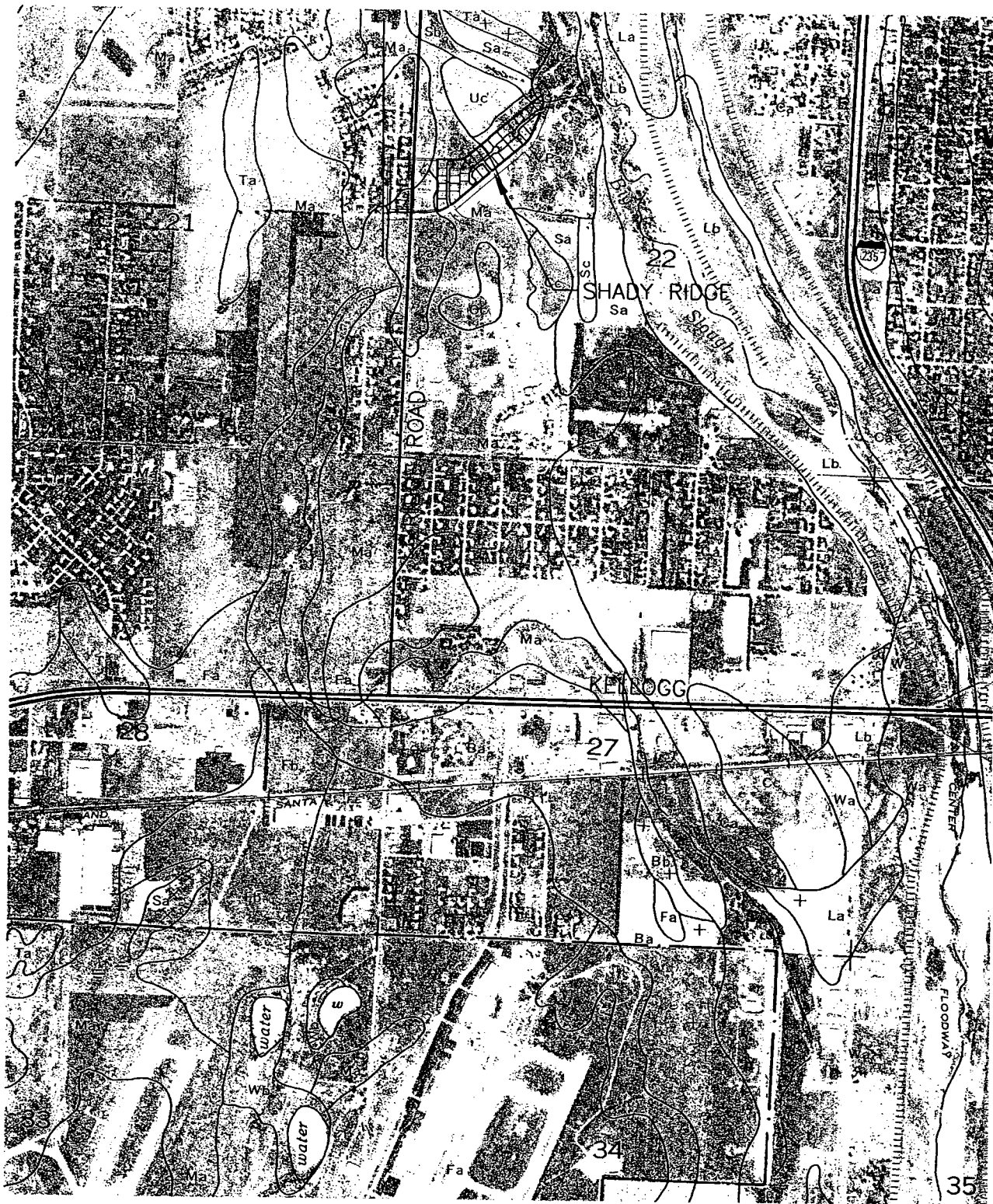
GJA

CHECKED BY.

1 / 1

SHEET/OF

**APPENDIX B
SOIL SURVEY**



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

SHADY RIDGE
PROJECT NAME

SOIL SURVEY
SEDGWICK COUNTY, KANSAS
SHEET TITLE

KLA DESIGN BY.	JFL DRAWN BY.	GJA CHECKED BY.
MARCH 2004 DATE	04071 JOB NO.	1 / 1 SHEET/OF

APPENDIX C
FIRM



NATIONAL FLOOD INSURANCE PROGRAM


FIRM
FLOOD INSURANCE RATE MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

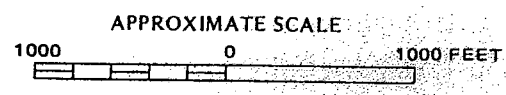

PANEL 20 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0020 B

EFFECTIVE DATE:
MAY 15, 1986



Federal Emergency Management Agency

MKEC
ENGINEERING
CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67203
316 - 684 - 9800

SHADY RIDGE
PROJECT NAME

FLOOD INSURANCE RATE MAP
SEDGWICK COUNTY, KANSAS
SHEET TITLE

KLA DESIGN BY.	JFL DRAWN BY.	GJA CHECKED BY.
MARCH 2004 DATE	04071 JOB NO.	1 / 1 SHEET/OF

C:\CVIL\04071\DWG\Drainage\FIRM.DWG



NATIONAL FLOOD INSURANCE PROGRAM


FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

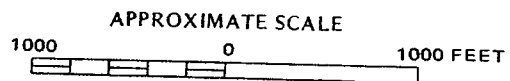
PANEL 20 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0020

EFFECTIVE DATE:
MAY 15, 1986



Federal Emergency Management Agency



MKEC
ENGINEERING
CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67204
316 - 684 - 9600

SHADY RIDGE

PROJECT NAME

FLOOD BOUNDARY AND FLOODWAY MAP
SEDGWICK COUNTY, KANSAS

SHEET TITLE

KLA
DESIGN BY.

JFL
DRAWN BY.

GJA
CHECKED BY.

MARCH 2004
DATE

04071
JOB NO.

1 / 1
SHEET/OF

**APPENDIX D
DRAINAGE CALCULATIONS**

3/29/2004

COMPUTATION FORM

SHADY RIDGE ADDITION
PROPOSED CONDITIONS
STORM SEWER DESIGN

X Preliminary
Final
Design

Area ID	Conveyance		Area ac	Accum. Area ac	Runoff Coefficients					Slope Data			Time of Concentration										Rainfall Intensity				Storm Flow			
	From	To			C1	C2	C3	C4	C5	Elev Max	Elev Min	Flow Length	Tc2 Calc	Avg V2	Tc3 Calc	Avg V3	Tc10 Calc	Avg V10	Tc10 Calc	Tc5 min	Tc2 min	Tc10 min	Tc10 min	15 in/hr	100 in/hr	Q2 cfs	Q10 cfs	Q50 cfs	Q100 cfs	
Existing																														
A			4.30	0.20	0.18	0.24	0.37	Urban Lawn Areas 1-4% Slope - 0% Impervious	149.0	125.0	1700	59.54	0.48	60.87	0.47	56.90	0.50	48.30	60	61	57	48	1.72	2.15	2.64	4.23	1.48	1.86	2.72	6.73
B			6.70	0.20	0.18	0.24	0.37	Urban Lawn Areas 1-4% Slope - 0% Impervious	149.0	125.0	1700	59.54	0.48	60.87	0.47	56.90	0.50	48.30	60	61	57	48	1.72	2.15	2.64	4.23	2.30	2.59	4.25	10.49
A+B			11.00	0.20	0.18	0.24	0.37	Urban Lawn Areas 1-4% Slope - 0% Impervious	149.0	125.0	1700	59.54	0.48	60.87	0.47	56.90	0.50	48.30	60	61	57	48	1.72	2.15	2.64	4.23	3.78	4.26	6.97	17.22
C	West	RCB	45.80	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	170.0	125.0	4000	53.64	1.24	50.35	1.32	45.97	1.45	38.31	54	50	46	38	1.86	2.41	3.01	4.79	51.96	70.64	93.74	164.54
D	East	RCB	17.30	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	150.0	125.0	1500	28.81	0.87	27.05	0.92	24.70	1.01	20.58	29	27	25	21	2.78	3.43	4.22	6.53	29.34	37.98	49.64	84.73
A+C+D		RCB	67.40	0.59	0.61	0.65	0.73	Multi-Unit Attached 65% Impervious	170.0	125.0	4000	56.50	1.18	53.56	1.24	49.05	1.36	40.96	56	54	49	41	1.79	2.33	2.86	4.66	70.44	95.90	125.67	227.95
Proposed																														
A			4.30	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	149.0	125.0	1700	32.42	0.87	30.43	0.93	27.79	1.02	23.16	32	30	28	23	2.57	3.24	3.98	6.13	6.74	8.92	11.64	19.77
B			6.70	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	149.0	125.0	1700	32.42	0.87	30.43	0.93	27.79	1.02	23.16	32	30	28	23	2.57	3.24	3.98	6.13	10.50	13.89	18.13	30.80
A+B			11.00	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	149.0	125.0	1700	32.42	0.87	30.43	0.93	27.79	1.02	23.16	32	30	28	23	2.57	3.24	3.98	6.13	17.24	22.81	29.77	50.57
C	West	RCB	45.80	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	170.0	125.0	4000	53.64	1.24	50.35	1.32	45.97	1.45	38.31	54	50	46	38	1.86	2.41	3.01	4.79	51.96	70.64	93.74	164.54
D	East	RCB	17.30	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	150.0	125.0	1500	28.81	0.87	27.05	0.92	24.70	1.01	20.58	29	27	25	21	2.78	3.43	4.22	6.53	29.34	37.98	49.64	84.73
A+C+D		RCB	67.40	0.61	0.64	0.68	0.75	Multi-Unit Attached 65% Impervious	170.0	125.0	4000	53.64	1.24	50.35	1.32	45.97	1.45	38.31	54	50	46	38	1.86	2.41	3.01	4.79	76.47	103.96	137.95	242.13

**APPENDIX E
DRAINAGE & UTILITY PLAN**

**APPENDIX F
LOT GRADING PLAN**

APPENDIX G
HY - OUTPUT

CURRENT DATE: 03-29-2004

FILE DATE: 03-29-2004

CURRENT TIME: 13:37:17

FILE NAME: SHDYRDG

PERFORMANCE CURVE FOR CULVERT # 1 - 2 (9 BY 4) RCB

DIS- HEAD- INLET OUTLET

CHARGE WATER CONTROL CONTROL FLOW NORMAL CRITICAL OUTLET TAILWATER

FLOW ELEV. DEPTH DEPTH TYPE DEPTH DEPTH VEL. DEPTH VEL. DEPTH

(cfs) (ft) (ft) (ft) <F4> (ft) (ft) (fps) (ft) (fps) (ft)

DIS-CHARGE FLOW (cfs)	HEAD ELEV. (ft)	INLET DEPTH (ft)	OUTLET DEPTH (ft)	TYPE	NORMAL DEPTH (ft)	CRITICAL DEPTH (ft)	VEL. (fps)	OUTLET DEPTH (ft)	TAILWATER VEL. (fps)	TAILWATER DEPTH (ft)
0	124.00	0.00	3.82	0-NF	0.00	0.00	0.00	0.00	0.00	3.88
25	124.01	0.67	3.83	3-M1t	0.54	0.39	0.36	3.88	0.00	3.88
50	124.02	1.07	3.84	3-M1t	0.87	0.62	0.72	3.88	0.00	3.88
75	124.03	1.40	3.85	3-M1t	1.13	0.82	1.07	3.88	0.00	3.88
100	124.06	1.70	3.87	3-M1t	1.36	0.99	1.43	3.88	0.00	3.88
125	124.08	1.97	3.90	3-M1t	1.59	1.15	1.79	3.88	0.00	3.88
150	124.13	2.21	3.94	3-M1t	1.79	1.29	2.15	3.88	0.00	3.88
175	124.17	2.44	3.98	3-M1t	2.00	1.43	2.50	3.88	0.00	3.88
200	124.21	2.66	4.03	3-M1t	2.18	1.57	2.86	3.88	0.00	3.88
225	124.26	2.87	4.08	3-M1t	2.37	1.70	3.22	3.88	0.00	3.88
242	124.30	3.01	4.12	3-M1t	2.50	1.78	3.46	3.88	0.00	3.88

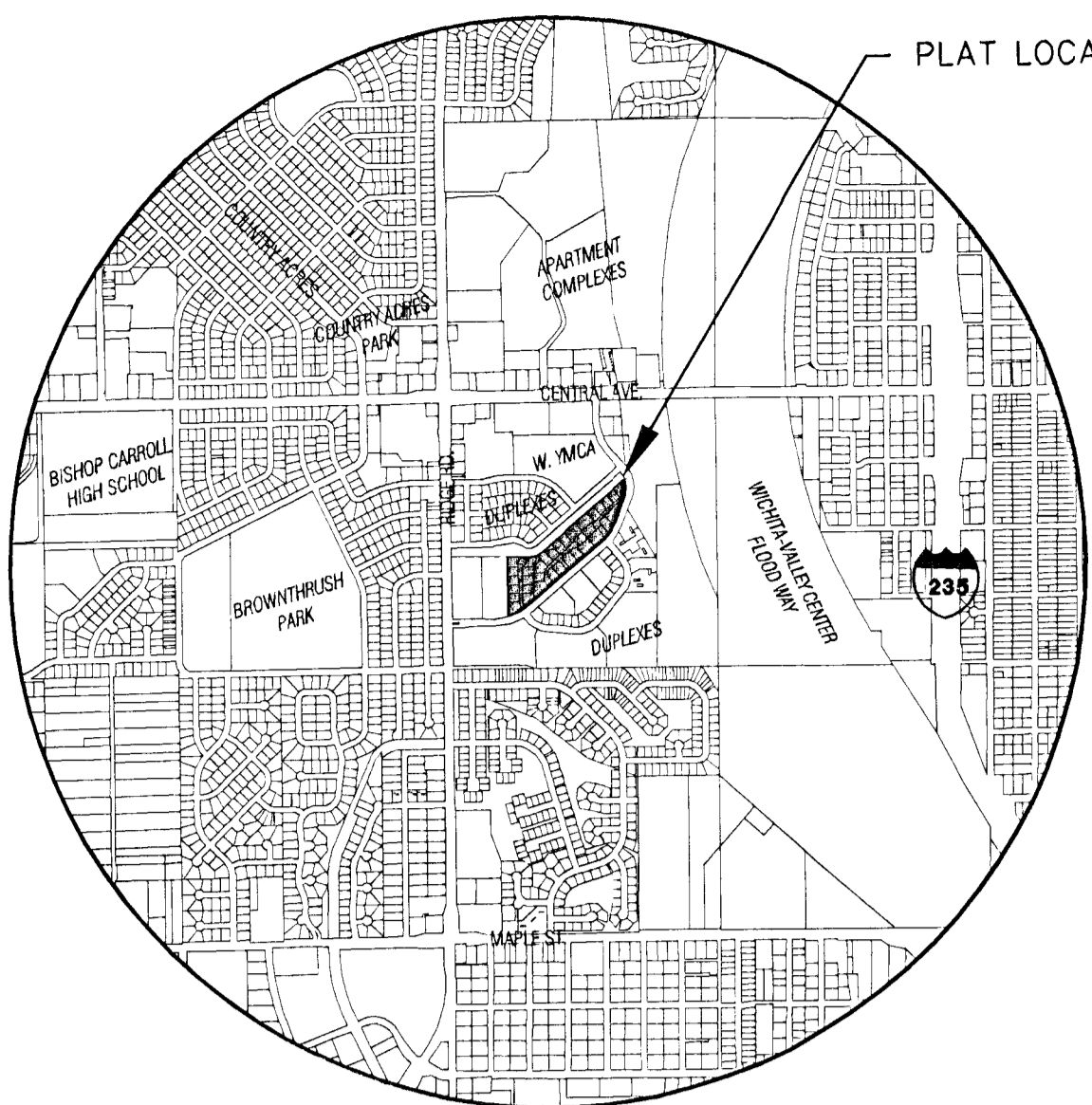
El. inlet face invert 120.18 ft El. outlet invert 120.12 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** EMBANKMENT TOE *****

UPSTREAM STATION (FT) 100.00
 UPSTREAM ELEVATION (FT) 120.20
 UPSTREAM EMBANKMENT SLOPE (X:1) 4.00
 DOWNSTREAM STATION (FT) 0.00
 DOWNSTREAM ELEVATION (FT) 120.10
 DOWNSTREAM EMBANKMENT SLOPE (X:1) 4.00

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

BARREL SHAPE BOX
 BARREL SPAN 9.00 FT
 BARREL RISE 4.00 FT
 BARREL MATERIAL CONCRETE
 BARREL MANNING'S N 0.012
 INLET TYPE CONVENTIONAL
 INLET EDGE AND WALL SQUARE EDGE (90-45 DEG.)
 INLET DEPRESSION NONE



VICINITY MAP

BENCH MARKS

- BM #1 City Disc NW corner RCBC West side of Shade and Winterset at SW corner of inlet. Elev. = 127.21' City Datum 1314.61' NGVD
- BM #2 Square cut NW corner S. side Shade at P.C. of Lot 1, Blk. 1, Farmington Square 2nd Add. Elev. = 148.06' City Datum 1333.46' NGVD

LEGAL DESCRIPTION

A replat of a portion of land lying in "Woodland Heights 2nd Addition", an addition to Wichita, Kansas. A replat of all of Lot 2, said addition, EXCEPT; West 260 feet thereof. TOGETHER WITH: A replat of Lots 3 and 4, Block 1, of said addition.

NOTES

- ZONING: Existing/Proposed Multi-Family District MF-18 Overlay - C.U.P. DP-59
- Plot Area = 14.58 Ac.
- Lot total = 36
- New Street = 1,600 L.F. - 32' R/W
- Avg. Lot Area = 0.27 Ac. or 11,380 sf.
- Proposed Housing Units = 69
- All easements encircling the streets are platted 15 foot street drainage, and utility easements, except where otherwise noted.
- No lot shall have direct access to Shade Lane.

LEGEND

- CONIFEROUS TREE & DIAMETER
- DECIDUOUS TREE & DIAMETER
- BUSH
- EDGE OF TREES
- FENCE
- SIGN
- GAS METER
- SANITARY SEWER MANHOLE
- LIGHT POLE
- POWER POLE AND ANCHOR
- WALL
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- TELEPHONE RISER
- INLET
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- TELEPHONE LINE
- UNDERGROUND ELECTRIC LINE
- OVERHEAD TELEPHONE
- OVERHEAD ELECTRIC
- PROPERTY CORNER FOUND
- BENCHMARK

CENTRAL-RIDGE ADDITION

COUNTRY ACRES SIXTH ADDITION

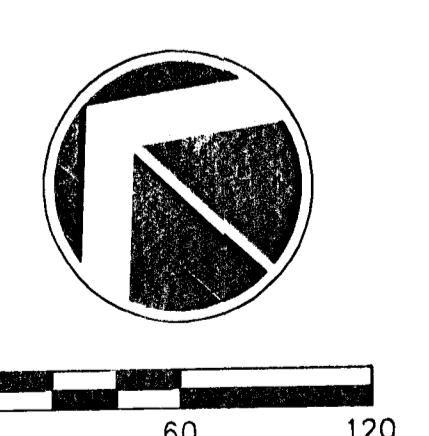
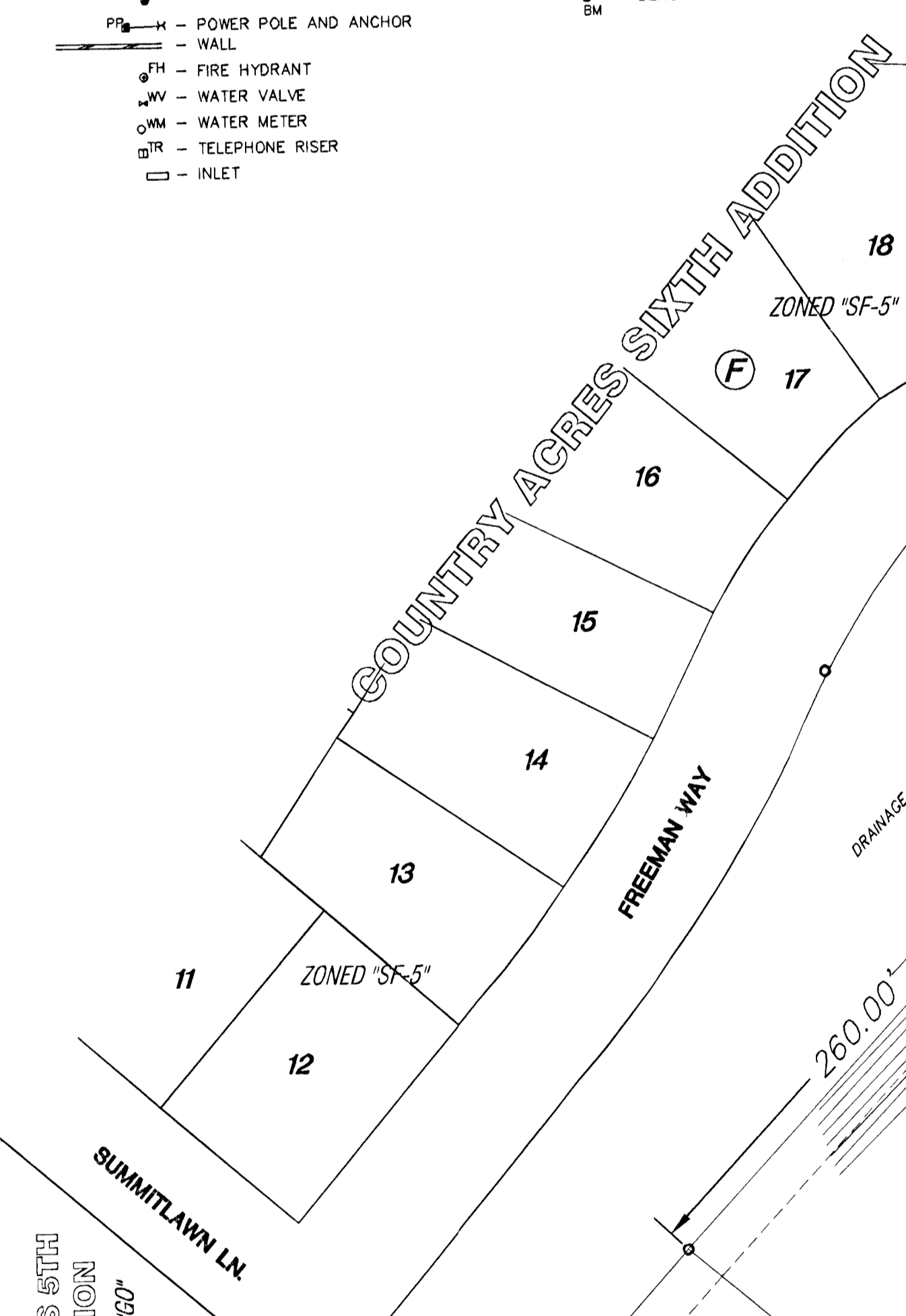
COUNTRY ACRES SIXTH ADDITION

WOODLAND HEIGHTS 2ND ADDITION

FARMINGTON SQUARE 2ND ADDITION

FARMINGTON SQUARE 2ND ADDITION

FARMINGTON SQUARE ADDITION

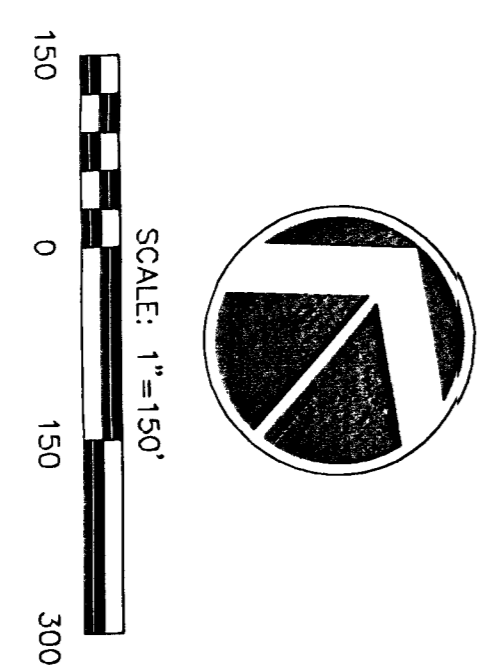
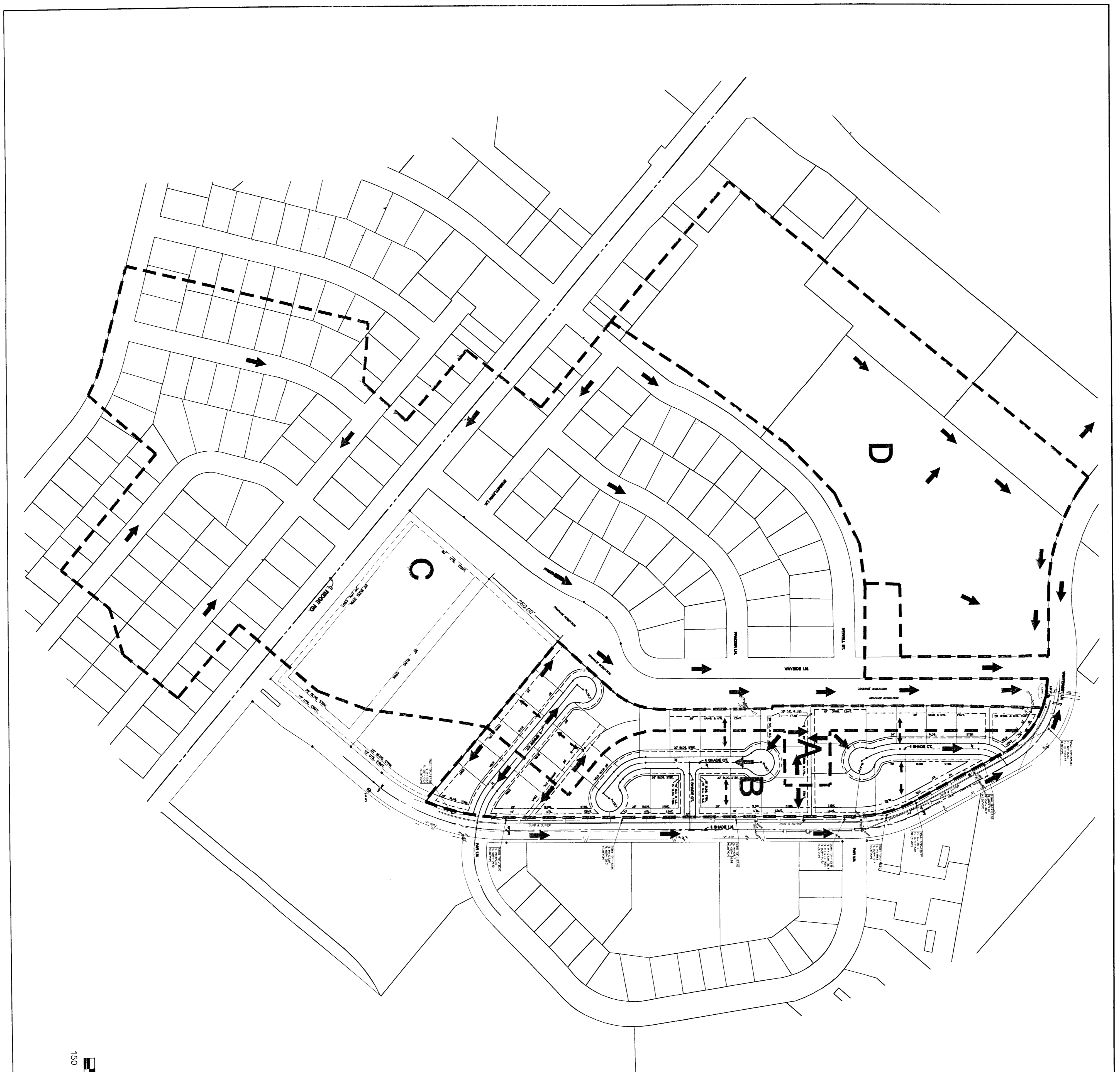


PRELIMINARY GRADING PLAN
SHADY RIDGE ADDITION

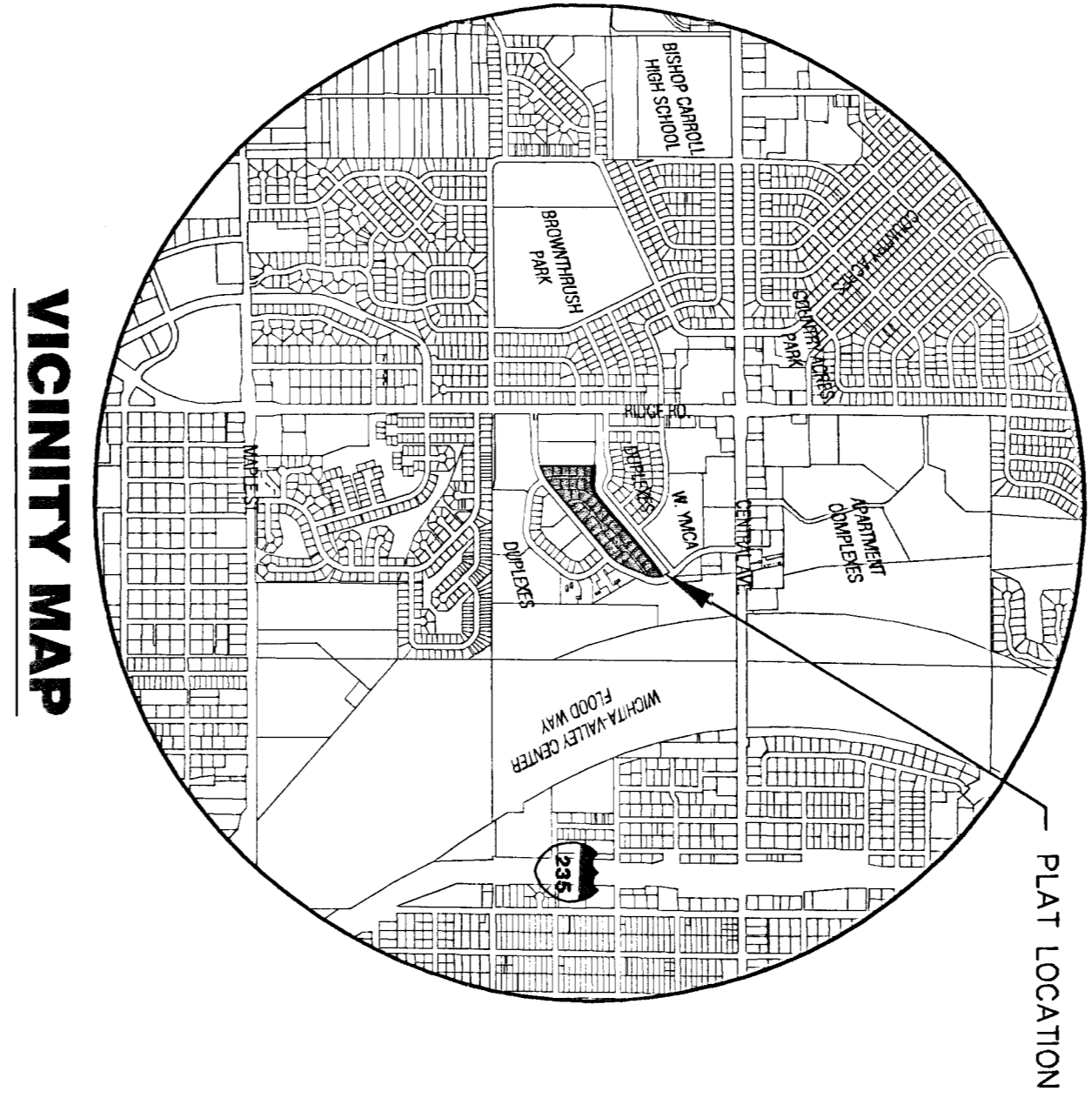
OWNER/DEVELOPER: THE CREW, a Kansas General Partnership, 7328 E. Elm Ct. Wichita, KS 67206 316-688-5560 DATE: MARCH 15th, 2004



9/15/2004 8:21:12 AM CST
 C:\WORK\2004\SHADY RIDGE ADDITION\SHADY RIDGE ADDITION.DWG



- NOTES**
1. ZONING: Existing/Proposed Multi-Family District MF-18 Overlay - C.U.P. DP-59
 2. Plot Area = 14.58 Ac.
 3. Lot Total = 36
 4. New Street = 1,600 L.F. - 32' R/W
 5. Ayr Lot Area = 0.27 Ac. or 11,350 sf.
 6. Proposed Housing Units = 69
 7. All easements shown on the streets are utility easements for drainage and utility easements, except where otherwise noted.
 8. No lot shall have direct access to Shady Lane.



- BENCH MARKS**
- BM #11 City Disc NW corner 10222' West Side of Addition to Wichita, Kansas; Elev. = 1272.21' City Datum 1314.61' NGVD
 - BM #12 Square cut NW corner S. side Shady at P.C. of Lot 1, Blk. 1, Farmington Square 2nd Add. Elev. = 146.09' City Datum 1333.46' NSD
- LEGAL DESCRIPTION**
- A portion of land lying in "Woodford Heights 2nd Addition", an addition to Wichita, Kansas; West 260 feet thereof; A portion of all of Lot 2, said addition, EXCEPT: West 260 feet thereof; A portion of Lots 3 and 4, Block 1, of said addition.

- LEGEND**
- *N - CONCRETE TREE & DIAMETER
 - - DECIDUOUS TREE & DIAMETER
 - - RUSH
 - - BUSH
 - - EDGE OF TREES
 - - FENCE
 - - ONE METERS
 - - SANITARY SEWER MANHOLE
 - - LIGHT POLE
 - - POWER POLE AND ANCHOR
 - - WALL
 - - FIRE HYDRANT
 - - WATER VALVE
 - - GAS VALVE
 - - TELEPHONE RISER
 - - MET
 - - STORM SEWER PIPE
 - - WATER MAIN
 - - GAS MAIN
 - - GAS LINE
 - - UNDERGROUND ELECTRIC LINE
 - - OVERHEAD ELECTRIC LINE
 - - OVERHEAD TELEPHONE
 - - OVERHEAD ELECTRIC
 - - PROPERTY CORNER FOUND
 - - BENCHMARK

8: \\G:\V\104071\104071.dwg\drainage\104071Dextra.dwg

MKEC
ENGINEERING
CONSULTANTS
1400 WEST 103RD
WICHITA, KS. 67208
316 - 694 - 9888

SHADY RIDGE
PROJECT NAME
DRAINAGE & UTILITY PLAN
SHEET TITLE

KJA
DESIGN BY

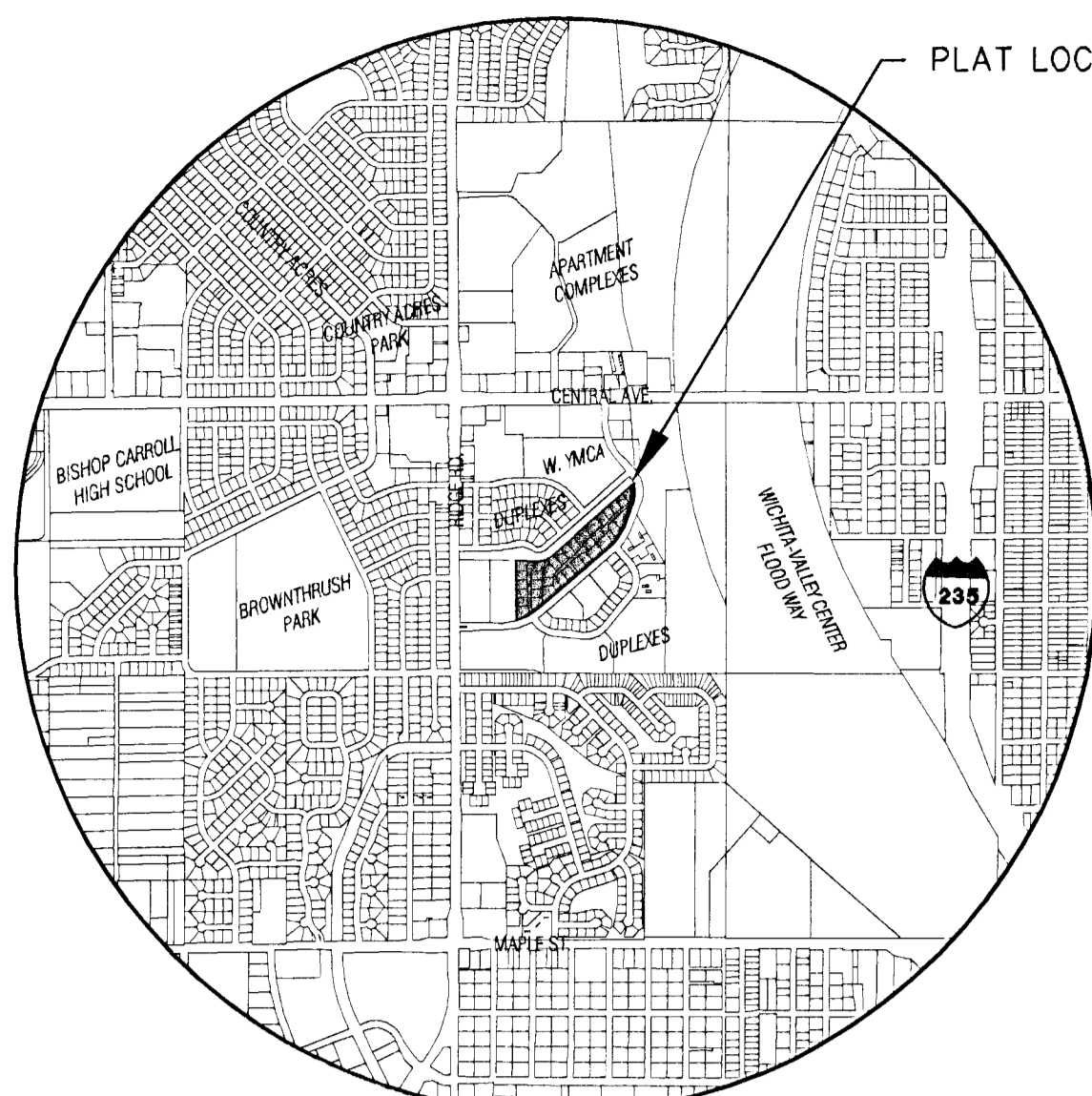
JLT
DRAWN BY

GJA
CHECKED BY

MARCH 2004
DATE

103 NO.
SHEET NO.

1 / 1



VICINITY MAP

BENCH MARKS

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LEGAL DESCRIPTION

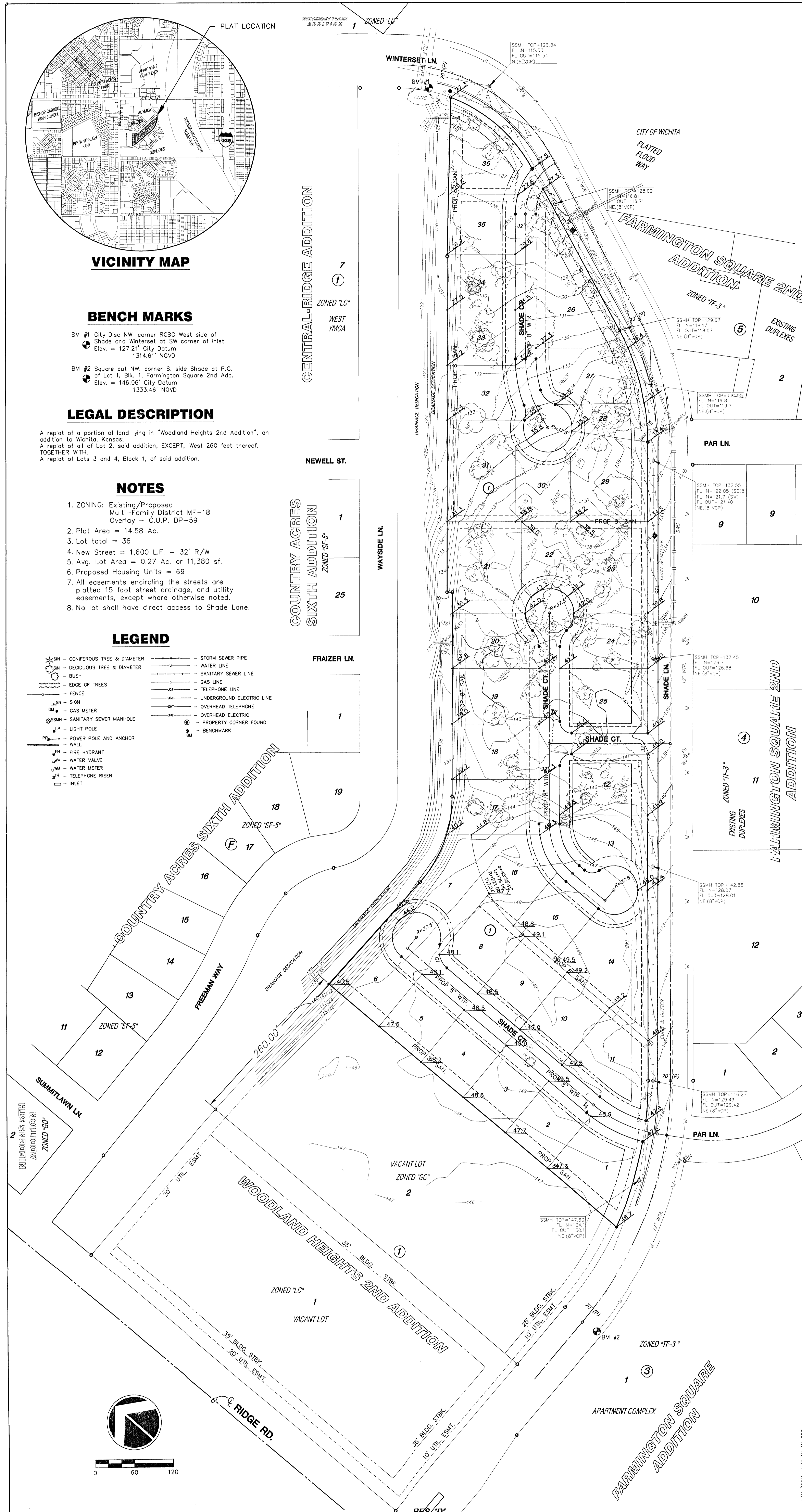
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6. Proposed Housing Units = 69
7. All easements encircling the streets are platted 15 foot street drainage, and utility easements, except where otherwise noted.
8. No lot shall have direct access to Shade Lane.

LEGEND

- | | |
|---|---|
| <ul style="list-style-type: none"> ● - CONIFEROUS TREE & DIAMETER ○ - DECIDUOUS TREE & DIAMETER ○ - BUSH — - EDGE OF TREES — - FENCE — - SIGN — - GAS METER — - SANITARY SEWER MANHOLE — - LIGHT POLE — - POWER POLE AND ANCHOR — - WALL — - FIRE HYDRANT — - WATER VALVE — - WATER METER — - TELEPHONE RISER — - INLET | <ul style="list-style-type: none"> — - STORM SEWER PIPE — - WATER LINE — - SANITARY SEWER LINE — - GAS LINE — - TELEPHONE LINE — - UNDERGROUND ELECTRIC LINE — - OVERHEAD TELEPHONE — - OVERHEAD ELECTRIC — - PROPERTY CORNER FOUND — - BENCHMARK |
|---|---|

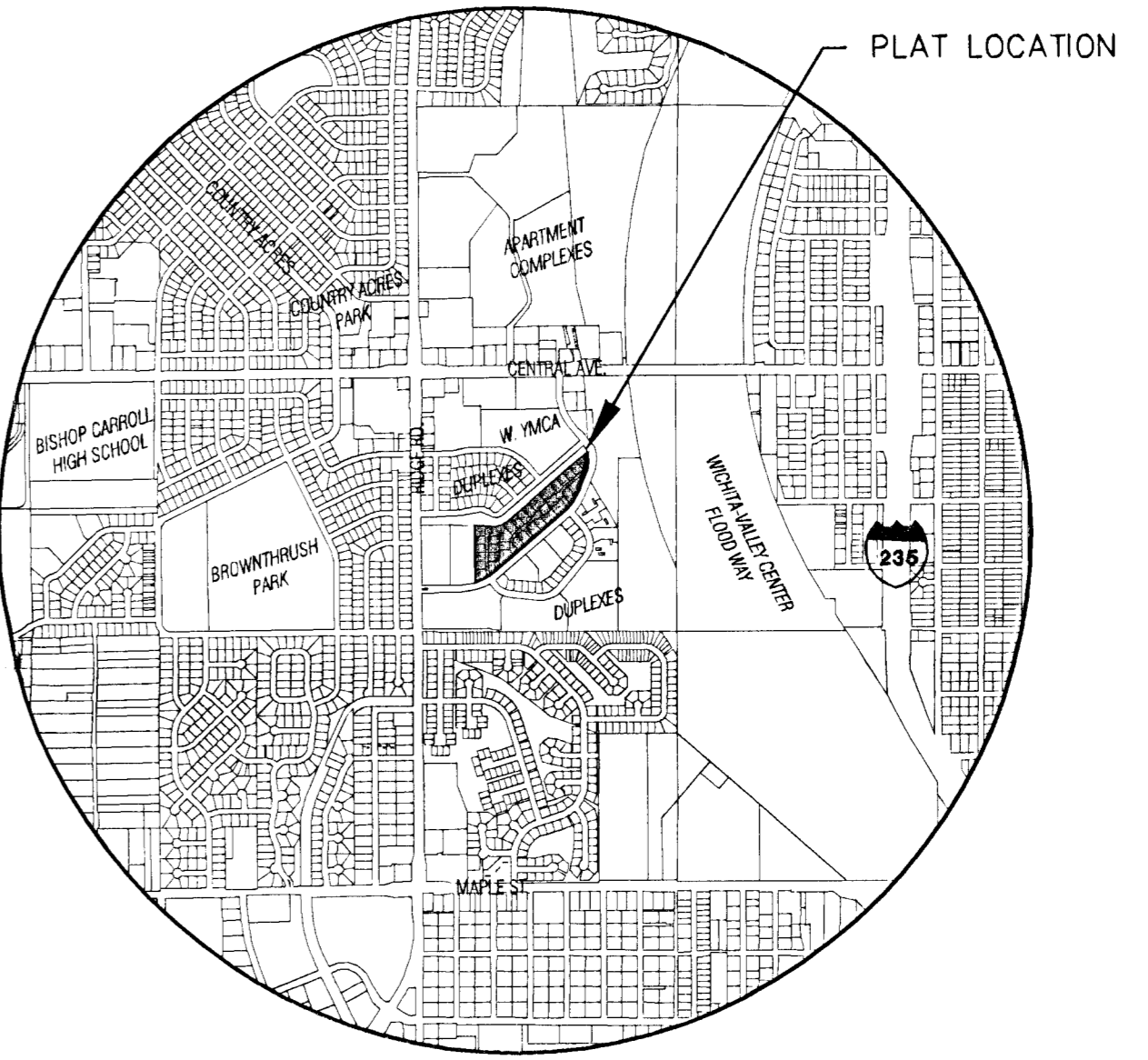
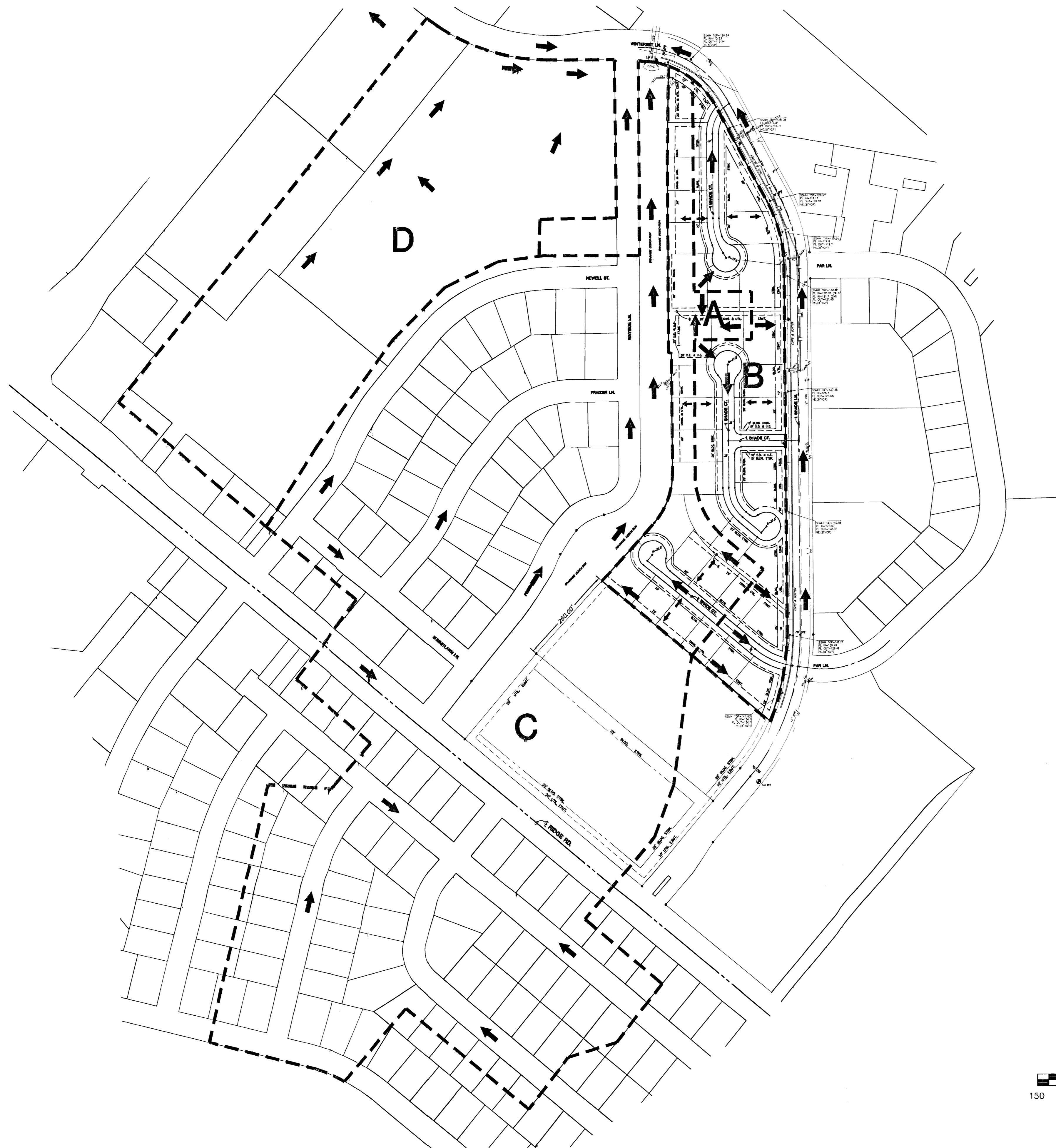


PRELIMINARY GRADING PLAN
SHADY RIDGE ADDITION

OWNER/DEVELOPER: THE CREW, a Kansas General Partnership, 7328 E. Elm Ct. Wichita, KS 67206 316-688-5560 **DATE: MARCH 15th, 2004**



MKEC ENGINEERING CONSULTANTS
 111 W. WEST 100th
 WICHITA, KS 67206
 316-262-2222
 3/15/2004 8:21:12 AM CST



VICINITY MAP

NOTES

1. ZONING: Existing/Proposed Multi-Family District MF-18 Overlay - C.U.P. DP-59
2. Plat Area = 14.58 Ac.
3. Lot total = 36
4. New Street = 1,600 L.F. - 32' R/W
5. Avg. Lot Area = 0.27 Ac. or 11,380 sf.
6. Proposed Housing Units = 69
7. All easements encircling the streets are platted 15 foot street drainage, and utility easements, except where otherwise noted.
8. No lot shall have direct access to Shade Lane.

BENCH MARKS

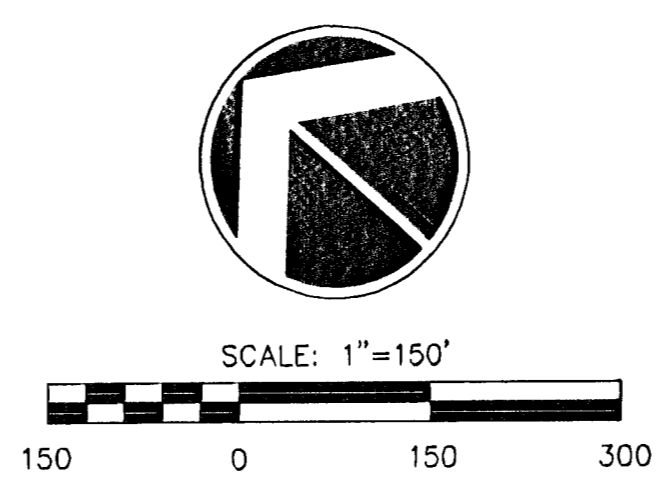
- BM #1 City Disc NW. corner RCBC West side of Shade and Winterset at SW corner of inlet. Elev. = 127.21' City Datum 1314.61' NGVD
- BM #2 Square cut NW. corner S. side Shade at P.C. of Lot 1, Blk. 1, Farmington Square 2nd Add. Elev. = 146.06' City Datum 1333.46' NGVD

LEGAL DESCRIPTION

A replat of a portion of land lying in "Woodland Heights 2nd Addition", an addition to Wichita, Kansas;
 A replat of all of Lot 2, said addition, EXCEPT; West 260 feet thereof.
 TOGETHER WITH;
 A replat of Lots 3 and 4, Block 1, of said addition.

LEGEND

- CT - CONIFEROUS TREE & DIAMETER
- DT - DECIDUOUS TREE & DIAMETER
- B - BUSH
- ET - EDGE OF TREES
- F - FENCE
- SN - SIGN
- GM - GAS METER
- SSMH - SANITARY SEWER MANHOLE
- LP - LIGHT POLE
- PPA - POWER POLE AND ANCHOR
- W - WALL
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- TR - TELEPHONE RISER
- I - INLET
- SS - STORM SEWER PIPE
- W - WATER LINE
- SSW - SANITARY SEWER LINE
- G - GAS LINE
- T - TELEPHONE LINE
- UE - UNDERGROUND ELECTRIC LINE
- OE - OVERHEAD TELEPHONE
- OE - OVERHEAD ELECTRIC
- PCF - PROPERTY CORNER FOUND
- BM - BENCHMARK



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SHADY RIDGE
PROJECT NAME

DRAINAGE & UTILITY PLAN
SHEET TITLE

DESIGN BY: KLA	DRAWN BY: JFL	CHECKED BY: GJA
DATE: MARCH 2004	JOB NO.: 04071	SHEET/OF: 1 / 1

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