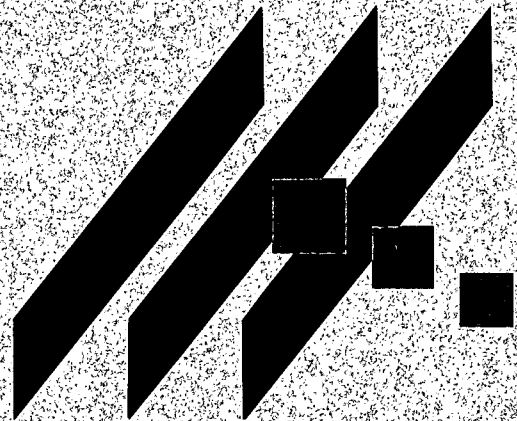


M K E C ENGINEERING CONSULTANTS, INC.



DRAINAGE REPORT

FOR

ALLEN ELEMENTARY SCHOOL

OCTOBER 2001

Drainage Report for Allen Elementary School

Location

The site lies in the Northwest Quarter of the Northeast Quarter of Section 36, Township 27 South, Range 1 East. The site is located at the intersection of Mount Vernon Street and Elpyco Street. The address is 4814 East Mount Vernon Street. The dimensions are roughly 850 feet east to west and 300 feet north to south. The total site area is approximately 5.6 acres.

Soils

According to the NRCS (SCS) Sedgwick County Soil Survey, the drainage watershed is in the Urban land-Farnum complex with 0 to 3 percent slopes (Uc). The Hydrological Soil Group (HSG) to select runoff coefficients is "B".

Pre-Developed Condition

Current Development

The site is developed as an Elementary School consisting of one main building and eight smaller buildings. There is a basketball court and assorted playground equipment on the site. A gravel parking lot is located to the east of the main building.

Current Landform and Slope

The slopes in the area range from 0.6% to 3.0%. The site in relation to the watershed boundary is shown in Appendix A.

Current Runoff Characteristics

Storm sewer inlets are located to the southeast of the site at the intersection of Mount Vernon Road and Elpyco Avenue. The inlet on the west side of Elpyco Avenue collects most of the water from the site. The inlet on the north side of Mount Vernon Avenue collects runoff from roughly one-tenth of the site's runoff. Approximately one-tenth of the site also drains onto Glendale Avenue. Drainage boundaries for the current site are found in Appendix B. The rational method was used to analyze the current watershed, these calculations are found in the spreadsheet in Appendix C.

Post-Developed Condition

Proposed Development

All existing buildings will be demolished. One large school building will be constructed near the center of the site. A parking lot will be on the north end of the site.

Proposed Landform and Slope

The proposed site will have slopes ranging from 0.6% to 3.0%.

Proposed Runoff Characteristics

Additional storm sewer is proposed to collect runoff from the site. The current system will be extended from the inlet on the west side of Elpyco Avenue to the proposed driveway and into the proposed parking lot. Two inlets will be added in the parking lot.

The rational method was used to analyze the watersheds and determine the size of storm sewers shown in the Drainage and Utility Plan, Appendix D. The spreadsheet in Appendix B displays the area, runoff coefficient (c), time of concentration (t_c), and the flow rate (Q) for each sub-watershed, for the 2, 5, 10, and 100-year events. Table 1 shows the runoff before and after the proposed development occurs. Once the discharge was determined for each of the sub-watersheds, we used the Manning's nomograph to determine a preliminary size for the structures. The structure sizes are listed in the spreadsheet also.

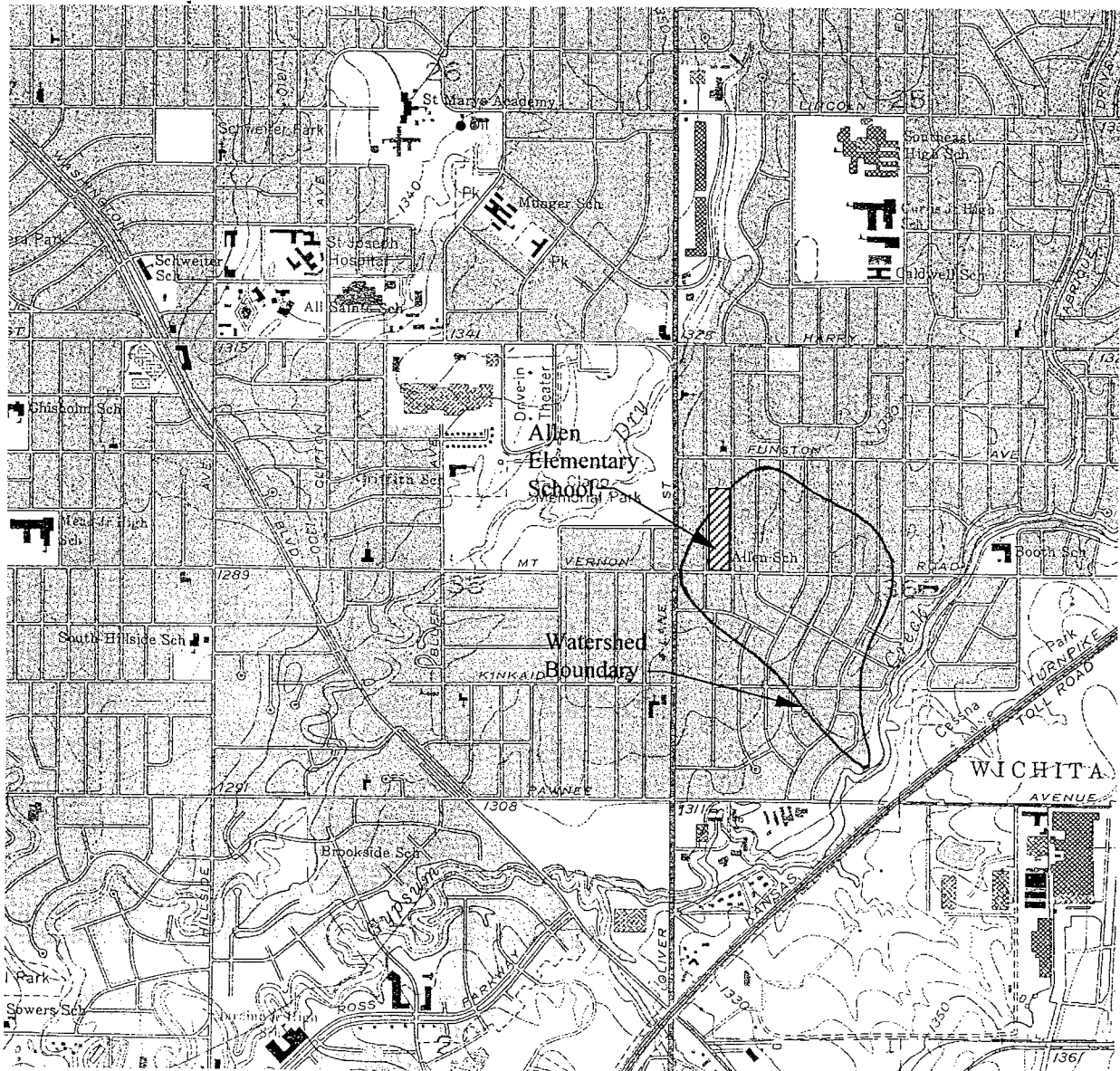
Summary

With the proposed reconstruction of Allen Elementary School the purpose of the site will not change. With the new school and parking lot, impervious area will increase causing an increase in runoff. Additional storm sewer will be constructed to control excess runoff, shown in Appendix D.

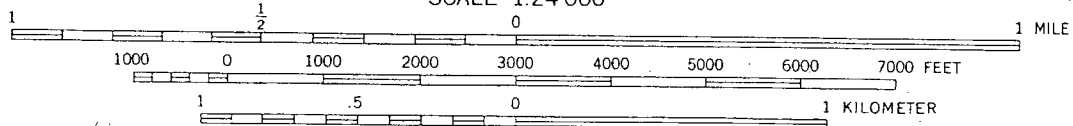
Appendix A

WICHITA EAST QUADRANGLE, Kansas

United States
Department of the Interior
Geological Survey



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Appendix B

Appendix C

10/4/01

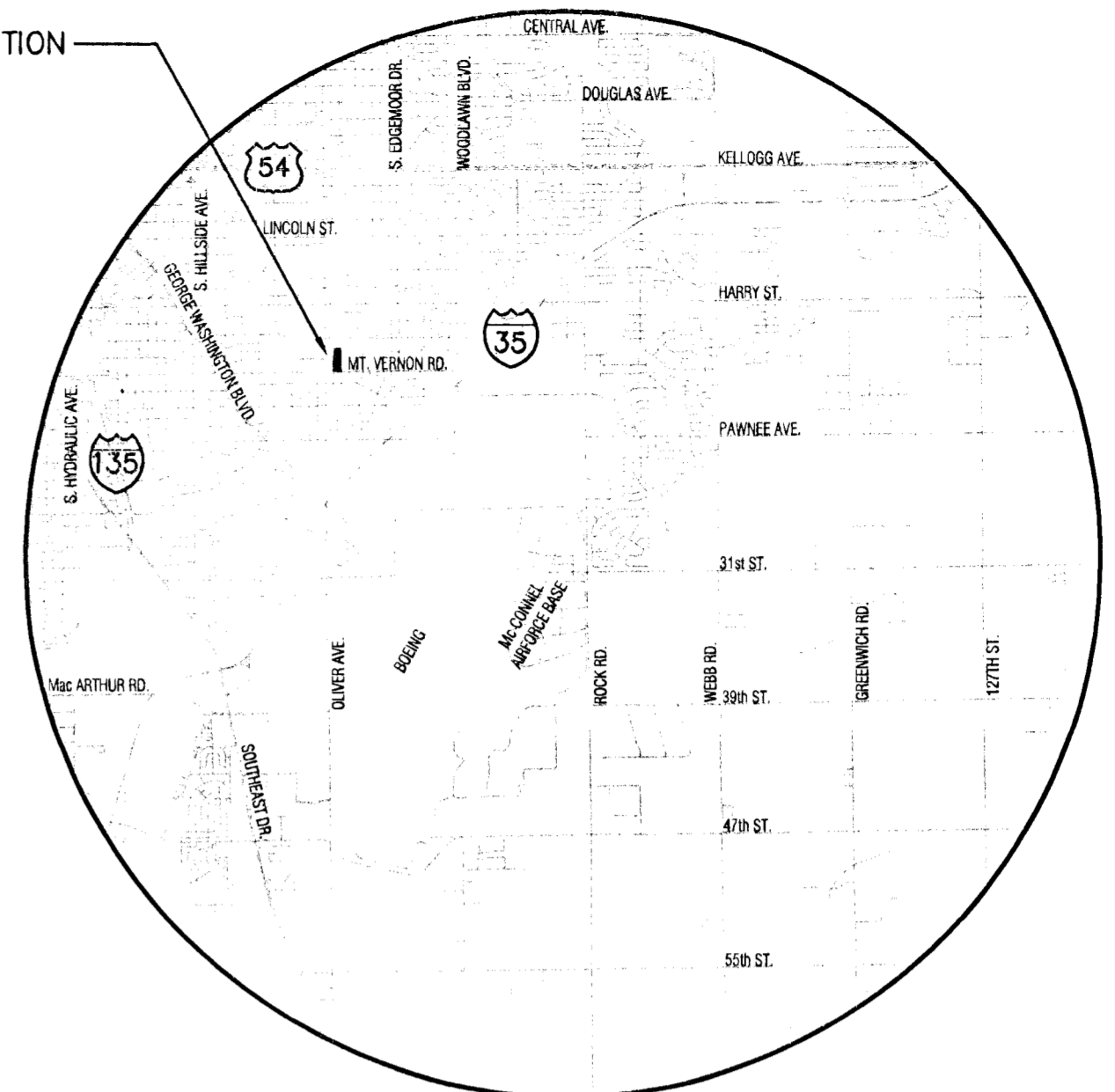
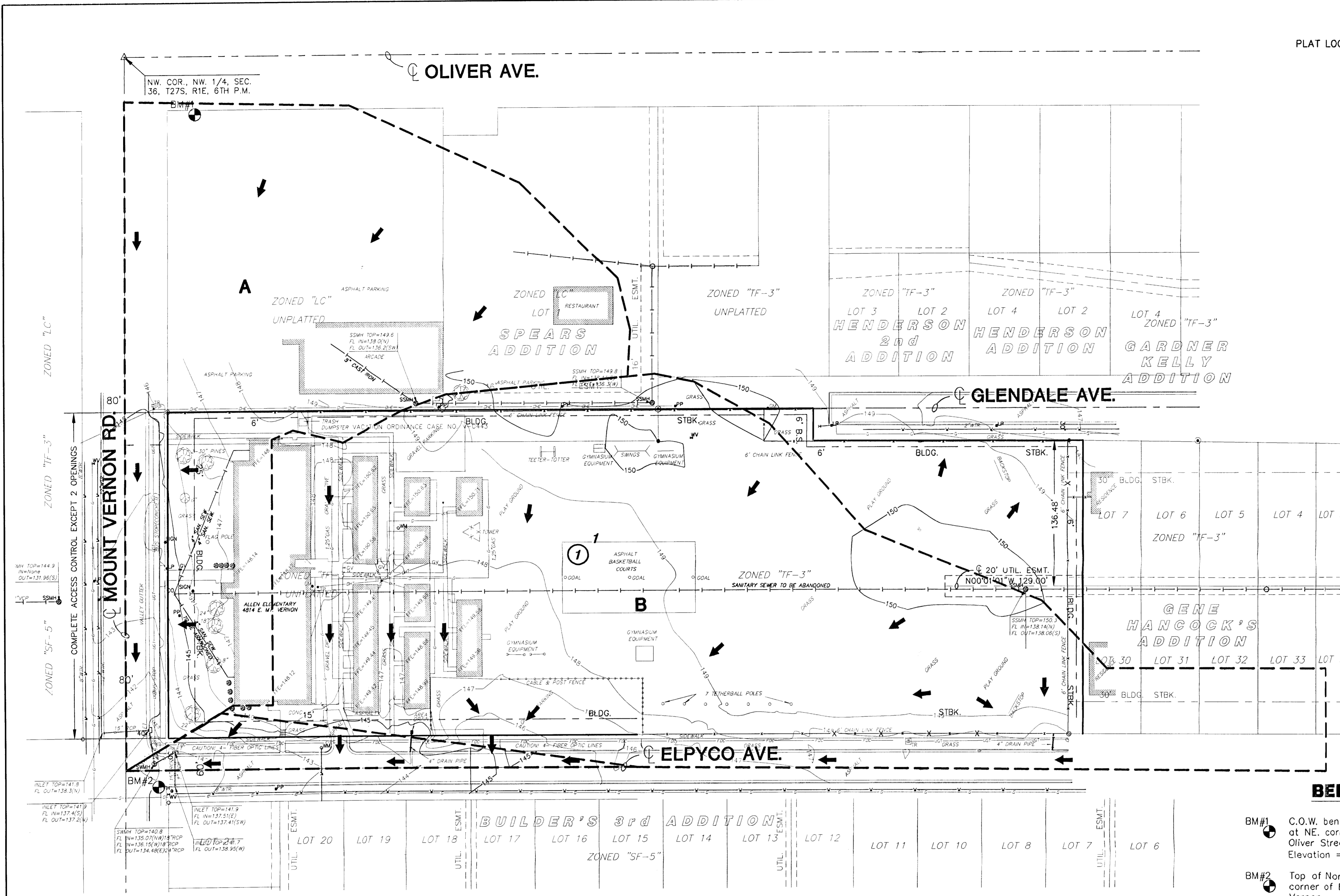
DRAINAGE ANALYSIS SUMMARY
GRIFFITH ELEMENTARY

Area ID	Area ac	Accum. Area ac	Elev Max	Elev Min	Flow Length	Tc2 Calc	Avg V2 Calc	Tc5 Calc	Avg V5 Calc	Tc10 Calc	Avg V10 Calc	Tc100 Calc	Tc100 min	Tc10 min	Tc5 min	Tc2 min	Soil Group D					ID #	O10							
																	I10 in/hr	I5 in/hr	I2 in/hr	I1 in/hr	I00 in/hr		O2 CS	O5 CS	O10 CS	O100 CS	Inlet Size R	Pipe Size in	Min Slope %	
Proposed																														
A	4.5		149.0	141.9	1370	46.64	0.56	38.15	0.60	34.84	0.66	28.03	29	35	38	41	41	2.24	2.84	3.51	5.49	6.15	8.18	10.74	18.53					
B	1.0		149.0	143.3	420	16.33	0.38	18.66	0.38	16.99	0.41	14.33	15	17	19	19	19	3.42	4.20	5.08	7.37	1.78	2.27	3.00	4.94					
C	2.5		149.0	141.0	380	15.88	0.40	15.33	0.41	13.96	0.45	11.77	15	15	15	15	15	3.83	4.56	5.22	7.37	4.98	6.16	7.70	12.34					
B+C	3.5		149.0	141.0	550	21.61	0.42	20.86	0.44	19.00	0.48	16.02	19	19	21	21	21	3.25	4.00	4.71	7.18	5.92	7.56	9.73	16.84					
D	2.2		149.0	140.8	600	26.22	0.38	25.43	0.39	23.04	0.43	19.47	19	23	25	25	25	2.90	3.57	4.31	6.68	2.81	3.61	4.83	8.96					
B+C+D	5.7		149.0	140.8	1370	46.29	0.47	46.71	0.49	42.45	0.54	35.82	38	42	47	48	48	2.00	2.54	3.13	5.00	5.58	7.37	10.04	18.44					
Current																														
A	4.5		148.6	141.9	1370	36.36	0.63	33.82	0.68	30.44	0.75	25.37	30	34	34	36	36	2.39	3.05	3.76	5.90	7.21	9.61	12.52	21.24					
B	5.4		150.0	140.8	1100	48.79	0.38	47.52	0.39	44.35	0.41	37.38	44	48	48	49	49	2.00	2.50	3.05	4.86	3.56	4.73	6.59	13.38					

Irwin Silty Clay Loam - Soil Group D; Rosehill Silty Clay - Soil Group D

Soil Group D

Appendix D



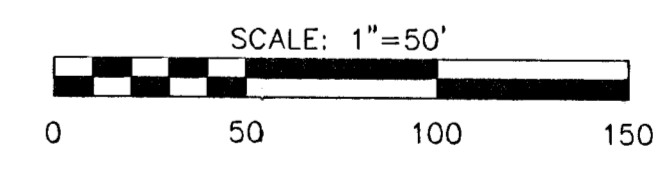
VICINITY MAP

LEGEND

- - GAS METER
- - GROUND YARD LIGHT
- - YARD LIGHT ON POLE
- - ELECTRIC MANHOLE
- - SIGNAL LIGHT
- - CONIFEROUS TREE & DIAMETER
- - DECIDUOUS TREE & DIAMETER
- - SIGN
- - BUSH
- - POWER POLE AND GUY ANCHOR
- - ELECTRIC BOX
- - SEWER CLEANOUT
- - EDGE OF TREES
- - BENCHMARK
- - STORM WATER MANHOLE
- - SANITARY SEWER MANHOLE
- - TELEPHONE MANHOLE
- - SECTION CORNER
- - 5/8" REBAR/MKEC CLS #39 SET
- - PROPERTY CORNER FOUND
- - POLE
- - GATE
- - TRAFFIC SIGNAL MANHOLE
- - SPRINKLER HEAD
- WALL
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- IRRIGATION CONTROL VALVE
- GRATE INLET
- TELEPHONE RISER
- INLET
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- TELEPHONE LINE
- UNDERGROUND ELECTRIC LINE
- OVERHEAD TELEPHONE
- OVERHEAD ELECTRIC
- UNDERGROUND FIBER OPTIC CABLE

BENCHMARK

- BM#1 C.O.W. benchmark top of brass top at NE. corner of Mount Vernon and Oliver Street. Elevation = 148.60' (city datum)
- BM#2 Top of North curb return at NE. corner of Elpyco Ave. and Mt. Vernon. Elevation = 141.33



NOTES

- 1. ZONING: EXISTING & PROPOSED TF-3

DRAINAGE AREAS FOR CURRENT CONDITIONS

ALLEN ELEMENTARY SCHOOL ADDITION

DATE: OCTOBER 2001

OWNER/DEVELOPER: Unified School District #259 201 N. Water Street, Wichita, KS 67202 316-973-4000



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