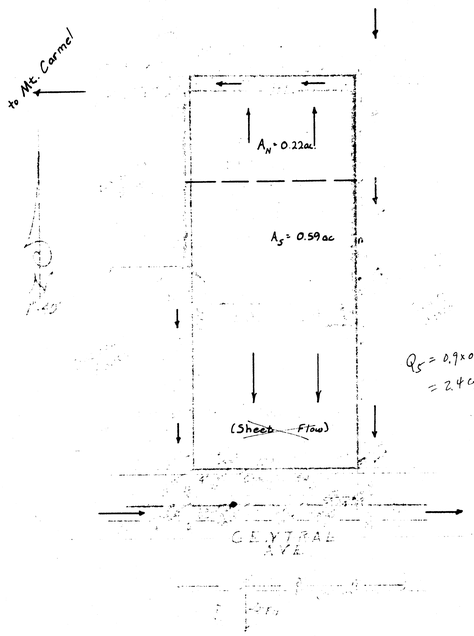
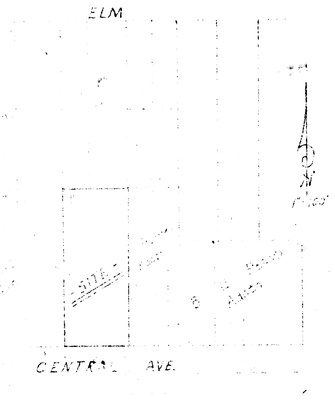
DRAINAGE PLAN FOR

RIFFEL'S ADDITION



$Q_S = 0.9 \times 0.59 \times 4.4\%$
$= 2.4$ cfs

Drain thru drive, flume or SWS at time of development



VICINITY MAP

OWNER/DEVELOPER:

Victor Riffel Jr.
928 West Douglas
Wichita, Kansas

ENGINEER:

S. E. Anderson
Rt. 1 Box 196
Whitewater, Kansas

LEGAL DESCRIPTION:

The South Half of the following described tract: Beginning 760 feet east of the Southwest corner of the Southeast Quarter of Section 13, T 27 S, R 1 W of the 6th P. M., Sedgwick County, Kansas; thence west 122½ feet; thence north 660 feet; thence east 122½ feet; thence south to the place of beginning.

GENERAL NOTES:

1. A BZA case has been filed requesting an exception to LC zoning for the proposed addition.
2. A vacation case has been filed requesting the vacation of the easterly portion of the platted 20 ft. alley adjacent to the northwest corner of the proposed addition.

S.E. Anderson PE/LS February 10, 1989

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Site Development

The site will be developed in two phases. Phase one will consist of the building shown and paved parking on the site except on the south 60 ft. Phase one will be constructed immediately upon completion of platting. Phase two will consist of paving the south 60 ft. of the site in the future.

Existing Drainage

Dotzour's Addition and Donley Addition, both adjoining the site, are presently graded to drain to adjoining streets. No drainage from either property will enter the proposed plat. Property to the rear of the site is lower in elevation and will not enter the site. An existing paved alley along the north line of Dotzour's Addition drains from the northeast corner of the site west to Mt. Carmel Street.

Proposed Drainage

Total initial storm runoff from Riffel's Addition, based on the National Formula is as follows:

Return period-5 yrs. t_c-15 min
I_c-4.56 in/hr Drainage Area-0.8 ac.
C-0.9
Q CIA 0.9 x 4.56 x 0.8 = 3.3 cfs

A covered flume is proposed to carry this runoff to Central Ave. since no drive will be constructed within the frontage. The proposed flume location is near the southeast corner which is the low corner of the site.

Tentative pavement grades shown hereon convey the runoff to the flume and prevent initial storm runoff from entering adjoining property and from crossing the city sidewalk. These grades may be relied upon for final site design.

It is proposed that temporary grassed swales be constructed to the approximate pavement grades shown until such time as phase two paving is completed.

Flume Design

The flume will be sized to carry all runoff from the site. However, some roof runoff may be conveyed from the site via the paved alley in Dotzour's Addition.

Check capacity of a 2 ft. wide by 0.5 ft. high covered flume:

A = 1 sf. V = Q/A = 3.3/1 = 3.3 fps

Available head = Back of walk elev. less Top of curb elev. =
120.17 - 119.53 = 0.64 ft.
(assuming ponding to top of walk on private property and street flow at top of curb)

Velocity head = $V^2/2g = 3.3^2/64.4 = 0.17$

Entrance loss = $0.5 \times V^2/2g = 0.08$

Head available for friction loss =
0.64 - 0.17 - 0.08 = 0.39

Assuming full flow, flume capacity is

$[1.49 \times 3.0 \times (1.025)^{0.67} \times (0.39/27)^{0.5}]/0.015$

4.7 cfs only 3.3 cfs capacity is required.

Increase flume height by velocity head, ignore entrance loss since flume is slightly oversized.

Final flume dimensions (inside):
2.0 ft by 0.67 ft.