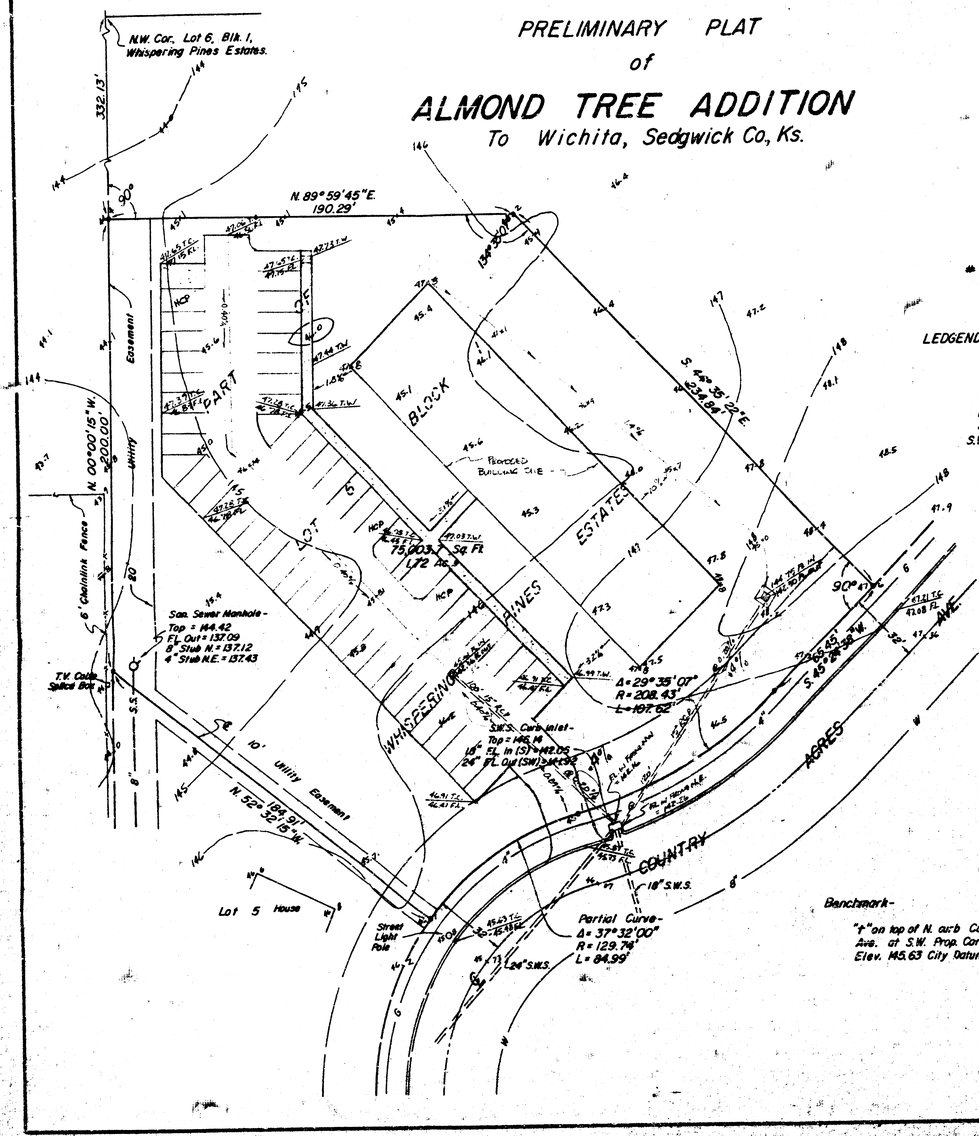
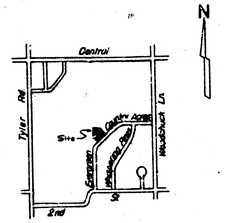
ALMOND TREE ADDITION
(Drainage)

PRELIMINARY PLAT
of
ALMOND TREE ADDITION
To Wichita, Sedgwick Co., Ks.



N

1" = 30'
• = Iron
85-115-SD



VICINITY MAP

LEDGEND-

S.S. = Sanitary Sewer
W = Water Main
G = Gas Main
T.C. = Top of Curb
F.L. = Flow Line
411.6 = Spot Elevation
S.W.S. = Storm Water Sewer

Note - Telephone & Electric Service Not Yet Extended To Lot 6.

Legal Description -

PART OF LOT 6, BLOCK 1, WHISPERING PINES ESTATES, WICHITA, SEDGWICK COUNTY, KANSAS, DESCRIBED AS BEGINNING AT A POINT IN THE WEST LINE AND 332.13' SOUTH OF THE NORTHWEST CORNER OF SAID LOT 6; THENCE EAST AT AN INCLUDED ANGLE OF 90°00'00", A DISTANCE OF 190.29'; THENCE SOUTHEASTERLY AT AN INCLUDED ANGLE OF 134°35'22", A DISTANCE OF 234.84' TO A POINT ON THE SOUTHEASTERLY LINE OF SAID LOT 6; THENCE SOUTHWESTERLY AT AN INCLUDED ANGLE OF 90°41'00", A DISTANCE OF 85.43' TO THE P.C. OF A CURVE; THE RIGHT HAVING A RADIUS OF 238.43'; THENCE ALONG SAID CURVE TO THE RIGHT AND THROUGH A CENTRAL ANGLE OF 29°35'07", A DISTANCE OF 107.62' TO THE P.T. OF SAID CURVE; AND THE P.C. OF A CURVE TO THE LEFT HAVING A RADIUS OF 129.74'; THENCE ALONG SAID CURVE TO THE LEFT AND THROUGH A CENTRAL ANGLE OF 37°32'00", A DISTANCE OF 84.99'; THENCE NORTHWESTERLY ALONG THE SOUTHWESTERLY SIDE OF SAID LOT 6, A DISTANCE OF 184.91' TO A POINT IN THE WEST LINE OF SAID LOT 6; THENCE NORTH 356.80' TO THE POINT OF BEGINNING.

Benchmark -

"t" on top of N. curb Country Acres Ave. at S.W. Prop. Corner. Elev. 145.63 City Datum.

JOHN C. MOEHRING 3463 LICENSED PROFESSIONAL ENGINEER KANSAS

MOEHRING & ASSOCIATES
CONSULTING ENGINEERS
WICHITA
Oct. 11, 1985

10-29-85

ALMOND TREE ADDITION
DRAINAGE CALCULATIONS:

① EXISTING SOIL TYPE - MILAN LOAM (See attached sheet for soil characteristics)
Hydrologic Soil Group "B".

② Existing Runoff Calculations - Consider the Rational Formula method for determining discharge rates;
Coefficient of runoff "C", from the Ad Hoc Drainage Committee for Urban Lawn, Group "B" = 0.20
Site Area = 1.72 Ac.
From F.A.A. method for time of concentration,
$T_{ic} = 1.8(1.1-C)L_o^{1/2}/S_o^{1/3}$; Where L_o = Length of overland flow = 340'
S_o = Average Slope of overland flow in percent. = 484 - 440 / 340 = 1.29%

$\therefore T_{ic} = 1.8(1.1-0.20)340^{1/2}/1.29^{1/3}$
= 27 min.
i_2 = Rainfall intensity per 2 year frequency
= 3.13 in/hr
$\therefore Q = C \times i_2 \times A = 0.20 \times 3.13 \times 1.72$
= 1.6 cfs

③ Developed Runoff Calculations - Applying the same method as above. For developed conditions, a weighted "C" value may be found;

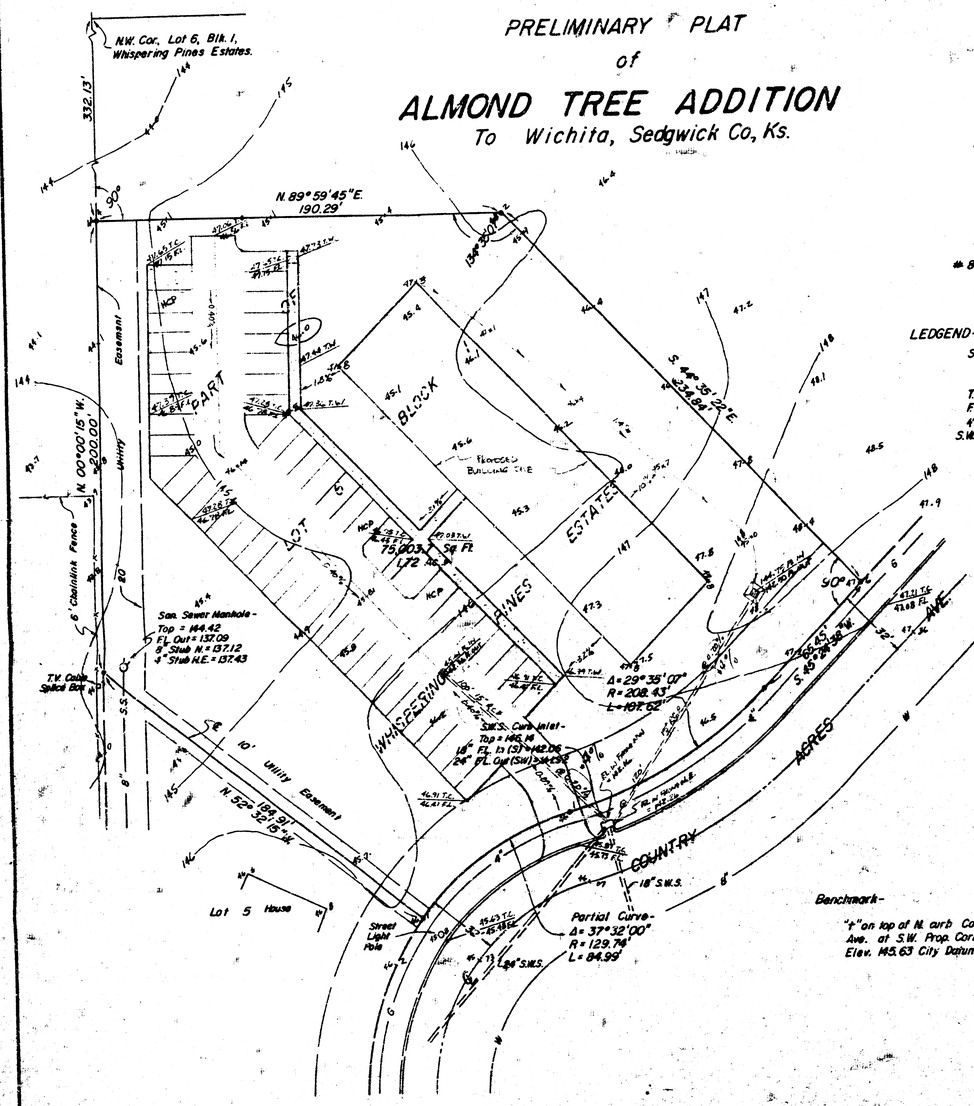
Description	Area	"C"	Area x "C"
Urban Lawn	1.07	0.20	0.214
Impervious Surfaces	0.65	0.85	0.552
	Σ = 1.72		Σ = 0.766

∴ Weighted "C" = 0.766/1.72 = 0.45
L_o = 240 ft, L_t = 50 ft, S_o = 0.80%; V_t = 2.0 fps
$T_{ic} = 1.8(1.1-0.45)250^{1/2}/0.80^{1/3}$ = 20 min.
T_t = 50/2×60 = 0.4
∴ USE T_c = 21 min.

OVER

ALMOND TREE ADDITION
(Drainage)

PRELIMINARY PLAT
of
ALMOND TREE ADDITION
To Wichita, Sedgwick Co., Ks.



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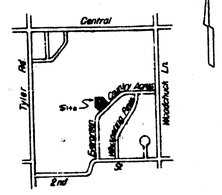
85-115-SD



VICINITY MAP

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Benchmark -

"+" on top of N. curb Country Acres Ave. at S.W. Prop. Corner. Elev. 145.63 City Datum.

DON C. MOEHRING
LICENSED
3463
KANSAS
PROFESSIONAL ENGINEER

MOEHRING & ASSOCIATES
CONSULTING ENGINEERS
WICHITA
Oct. 11, 1985

i_2 = 3.56 in/hr

$\therefore Q_2 = 3.56 \times 0.45 \times 1.72 = 2.8$ cfs

=> Try a 15" R.C.P. @ 0.40% gradient

Applying Mannings Formula to evaluate the hydraulic capacity;

$Q = \frac{1.486}{n} \times A \times R^{2/3} \times S^{1/2}$

where; n = Mannings roughness coefficient, for concrete pipe use (n = 0.012).

A = Cross-Sectional area of flow, for 15" pipe ($A = 1227$ ft^2).

R = Hydraulic radius, or flow area per wetted perimeter ($R = 0.312$ ft).

S = Slope of pipe, ($S = 0.004$ ft/ft).

$Q = \frac{1.486}{0.012} \times 1.227 \times (0.312)^{2/3} \times (0.004)^{1/2}$

$\therefore Q_{max} = 4.4$ cfs > 2.8 cfs OK

=> Try a 15" R.C.P. @ 0.20% gradient

$Q = \frac{1.486}{0.012} \times 1.227 \times (0.312)^{2/3} \times (0.002)^{1/2}$

$\therefore Q_{max} = 3.1$ cfs > 2.8 cfs OK