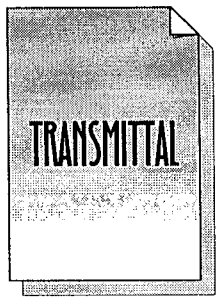
MUNICIPAL ENGINEERS, P.A.
Civil Engineers & Land Surveyors



To:

Vicki Huang, P.E.

City Engineer's Office

From:
Babar Khan, P.E.

Date and Time
Monday, August 02, 1999 at 8:45 AM

Number of Pages
cover page plus report

Smithmoor Commercial Addition

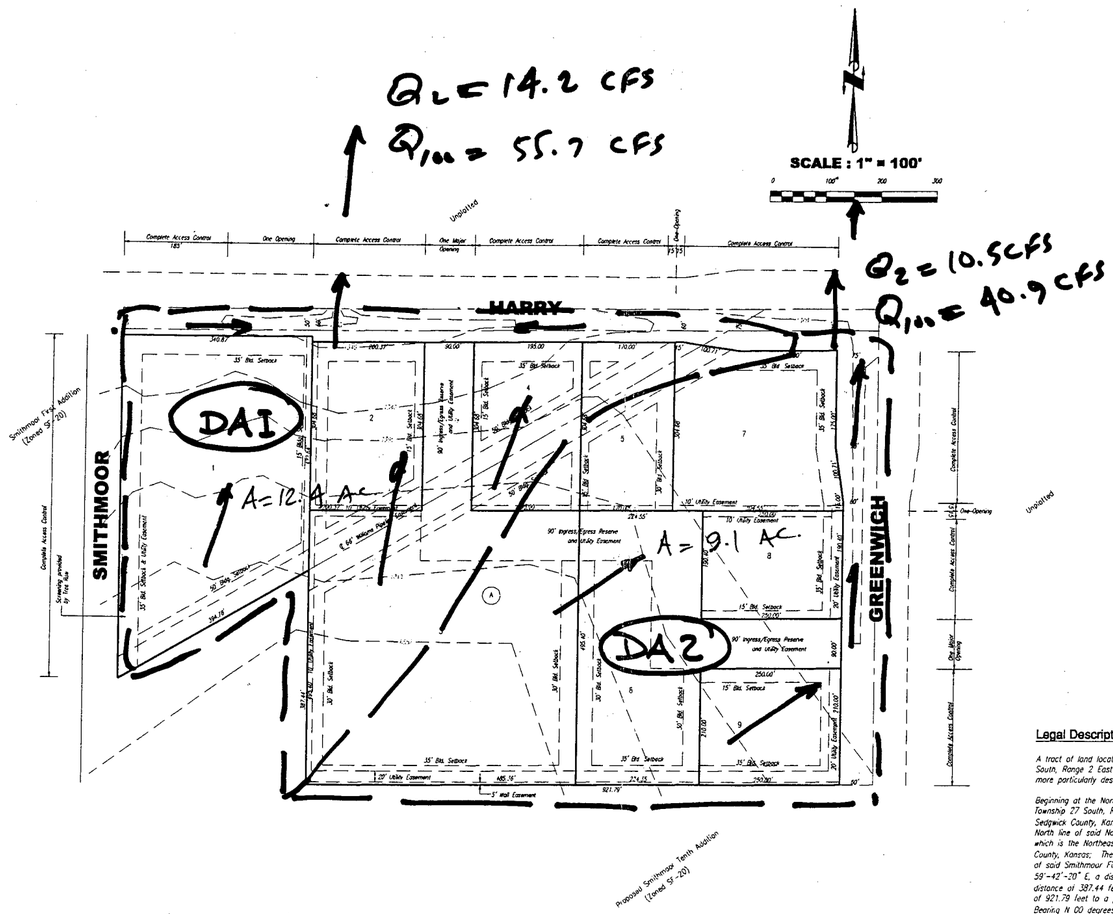
Dear Vicki:

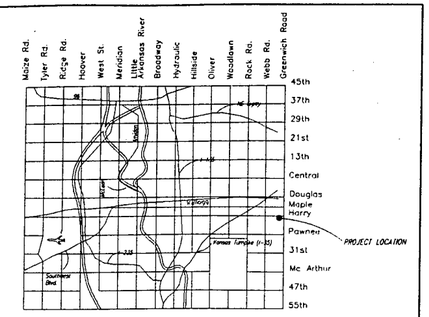
Attached please find a copy of drainage plan for the referenced addition.

Please call me if you have questions or comments.

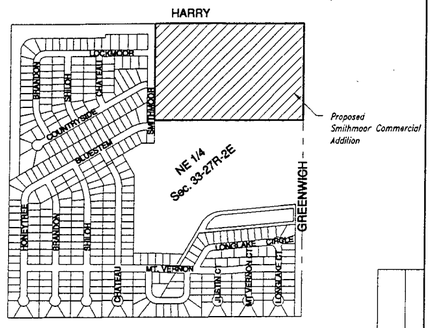
Thanks

254 Laura, Suite 201 • Wichita, Kansas 67211 • (316) 262-3842 • Fax (316) 262-8634
e-mail: mepa@southwind.net





Location Map



Development Plan

PRE-DEVELOPED CONDITION

DRAINAGE PLAN

SMITHMOOR COMMERCIAL ADDITION
TO
WICHITA, SEDGWICK COUNTY, KANSAS

EXHIBIT 'A'

Benchmarks

1. City Disk on Signal Base at the Northeast corner of Harry and Greenwich Roads.
   Elev. = 1,343.83

Legal Description

A tract of land located in the Northeast Quarter of Section 33, Township 27 South, Range 2 East of the 6th Principal Meridian, in Sedgwick County, Kansas, more particularly described as follows:

Beginning at the Northeast corner of the Northeast quarter of Section 33, Township 27 South, Range 2 East of the 6th Principal Meridian in Wichita, Sedgwick County, Kansas; Thence Bearing S 89 degrees-41'-28" W along the North line of said Northeast quarter, a distance of 1360.93 feet to a point which is the Northeast corner of Smithmoor First Addition to Wichita, Sedgwick County, Kansas; Thence Bearing S 00 degrees-00'-00" E, along the East line of said Smithmoor First Addition, a distance of 619.95 feet; Thence Bearing N 59-42'-20" E, a distance of 334.78 feet; Thence Bearing S 00'-00'-00" E, a distance of 387.44 feet; Thence Bearing N 89 degrees-41'-28" E, a distance of 921.79 feet to a point on the East line of said Northeast quarter; Thence Bearing N 00 degrees-01'-25" E, a distance of 860.08 feet to the point of beginning except road right of way for Harry and Greenwich.

Subdivider
Smith & Company
P.O. Box 785
Andover, Kansas 67002

Surveyor/Engineer
Babar M. Khan P.E., L.S.
Municipal Engineers, P.A.
254-Laura, Suite 201
Wichita, Kansas 67211

Total Area
23.8 ± Acres (Net)

Zoning
GO & LC

Min. Lot Size
40,000 S.F.

Total Number of Lots
9

DRAWN BY:
CHECKED:
SHEET NO.: 1 OF 1
OWNER:
APPROVED:
SCALE:
DATE:
PROJECT NO. 99-44

Babar M. Khan, L.S. # 985

MUNICIPAL ENGINEERS, P.A.
254-LAURA, SUITE 201
WICHITA, KANSAS 67211
316-262-3842

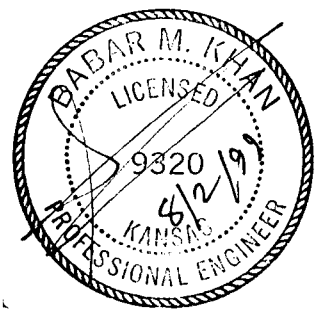
CITY OF WICHITA, KANSAS

DRAINAGE PLAN

SMITHMOOR COMMERCIAL ADDITION

TO WICHITA, SEDGWICK COUNTY, KANSAS

PROJECT NO.: 99-74 (MEPA)
AUGUST 1999



MUNICIPAL ENGINEERS, P.A.
254-LAURA, SUITE 201, WICHITA, KANSAS 67211
(316)-262-3842 (TEL.), (316) 262-8634 (FAX)

B.K. 8/2/99

(1)

SMITHMOOR COMMERCIAL ADDITION

DRAINAGE PLAN

(1) INTRODUCTION:

SMITHMOOR COMMERCIAL IS A 21.5 Ac.± DEVELOPMENT LOCATED AT THE SOUTHWEST CORNER OF HARRY AND GREENWICH ROADS INTERSECTION. APPROXIMATELY 12.4 ACRES ALONG THE NORTHWESTERLY SIDE OF THIS PLAT DRAINS TO THE NORTH ACROSS HARRY THROUGH A BOX CULVERT. BALANCE OF THE SITE (9.1 Ac.±) DRAINS TO THE NORTHEAST ACROSS HARRY THROUGH A CMP CLOSE TO THE INTERSECTION.

PROPERTY OWNER TO THE NORTH (COLBY SANDLIAN) HAS CONTACTED RON SMITH (DEVELOPER) AND REQUESTED THAT NO ADDITIONAL RUNOFF BE DIRECTED TOWARDS HIS PROPERTY.

RON SMITH HAS BUILT A DETENTION POND SOUTH OF THIS PLAT (PLEASE REFER TO SMITHMOOR 9TH ADDITION DRAINAGE PLAN). THE DETENTION POND HAS DECREASED PEAK DISCHARGE TO THE STRUCTURE AT GREENWICH CONSIDERABLY.

THE OBJECTING OF THIS DRAINAGE PLAN IS TO KEEP DISCHARGES TO NORTH TO PRE-DEVELOPMENT CONDITIONS.

(2) GENERAL:

SOIL HYDRO GROUP = D

SLOPES 1% - 4%

USE PRE-DEVELOPMENT $C_2 = 0.3$

$C_{100} = 0.65$

$i_2 = 3.73"/HR$

$i_{100} = 7.37"/HR$

POST-DEVELOPMENT $C_2 = 0.41$ (GO ZONING)

$C_2 = 0.68$ (LC ZONING)

$C_{100} = 0.61$ (GO ZONING)

$C_{100} = 0.80$ (LC ZONING)

(3) PRE-DEVELOPMENT FLOWS:

(SEE EXHIBIT 'A')

DRAINAGE AREA DAI = 12.4 Ac.

$Q_2 = 12.4 \times 3.83 \times 0.3 = 14.2$ CFS

$Q_{100} = 12.4 \times 7.37 \times 0.61 = 55.7$ CFS

DRAINAGE AREA DA2:

$Q_2 = 9.1 \times 3.83 \times 0.3 = 10.5$ CFS

$Q_{100} = 9.1 \times 7.37 \times 0.61 = 40.9$ CFS

(4.) POST-DEVELOPMENT FLOWS:

SEE EXHIBIT 'B'

DRAINAGE AREA DA1

A = 8.5 Ac.

4 Ac (GO ZONING)

4.5 Ac (LC ZONING)

COMPOSIT $C_2 = \dfrac{0.41 \times 4 + 0.68 \times 4.5}{8.5} = 0.55$

COMPOSIT $C_{100} = \dfrac{0.61 \times 4 + 0.8 \times 4.5}{8.5} = 0.71$

$Q_2 = 8.5 \times 3.83 \times 0.55 = 17.9$ CFS

$Q_{100} = 8.5 \times 7.37 \times 0.71 = 44.5$ CFS

NOTE: Q_2 IS INCREASED BY 26%.

Q_{100} IS REDUCED BY 20%.

DRAINAGE AREA DA2

$A = 10.5$ Ac - LC ZONING

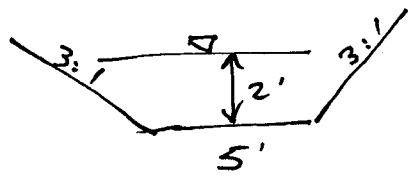
$C_2 = 0.68$

$C_{100} = 0.8$

$Q_2 = 0.68 \times 3.83 \times 10.5 = 27.3$ CFS

$Q_{100} = 0.8 \times 7.37 \times 10.5 = 61.9$ CFS

A 5' BOTTOM DITCH ALONG WEST SIDE OF GREENWICH ROAD WITH 0.3% SLOPE.



$Q_{CAL} = 69$ CFS

O.K.

DRAINAGE AREA DA2A.

$A = 2.5$ Ac. LC ZONING

$Q_2 = 0.68 \times 3.83 \times 2.5 = 6.5$ CFS

$Q_{100} = 0.8 \times 7.37 \times 2.5 = 14.7$ CFS

NOTE: Q_2 IS REDUCED BY 38%. Q_{100} IS REDUCED BY 64%.