SHELLY'S ORCHARD DRAINAGE ANAL 8/12/97

SOIL TYPE: B FROM SEDGWICK COUNTY SOIL SURVEY

FOR FRONT YARDS:
C_2 = .52
C_{100} = .67

FOR BACK YARDS:
C_2 = .25
C_{100} = .41

T_c

Area A

76' OVERLAND LAWN FLOW @ .28 ft/s ⇒ 9.52 min
500' SHALLOW GUTTER FLOW @ .77 ft/s ⇒ 6.49 min
512 FULL GUTTER FLOW @ 1.5 ft/s ⇒ 3.47 min
19.48 min
USE 15 min

Area B
62' OVERLAND LAWN FLOW @ .28 ft/s ⇒ 3.69 min
500' SHALLOW GUTTER FLOW @ .77 ft/s ⇒ 6.49 min
1038' FULL GUTTER FLOW @ 1.5 ft/s ⇒ 11.53 min
21.72 min
USE 21 min

AREA C
300' OVERLAND LAWN FLOW @ .23 ft/s = 17.86 min
507' GRASSED WATERWAY @ 1.12 ft/s = 7.54 min
25.40 min
USE 25 min

Area D
300' OVERLAND LAWN FLOW @ .23 ft/s = 17.86 min
110' GRASSED WATERWAY @ 1.12 ft/s = 1.64 min
500' SHALLOW GUTTER FLOW @ .77 ft/s = 6.49 min
132' FULL GUTTER FLOW @ 1.5 ft/s = 1.47 min
27.46 min
USE 27 min

Area E T_c = 15 by inspection

Area F
75' OVERLAND LAWN FLOW @ .23 ft/s = 9.46 min
323' SHALLOW GUTTER FLOW @ .77 ft/s = 6.99 min
245' FULL GUTTER FLOW @ 1.5 ft/s = 2.72 min
19.67 min
USE 15 min

Area G
300' OVERLAND LAWN FLOW @ .23 ft/s = 17.86 min
140' GRASSED WATERWAY @ 1.12 ft/s = 2.08 min
19.94 min
USE 19 min

Area H
300' OVERLAND LAWN FLOW @ .23 ft/s = 17.86 min
128' GRASSED WATERWAT @ 1.12 ft/s = 1.90 min
19.76 min
USE 19 min

Area I
62' OVERLAND LAWN FLOW @ .23 ft/s = 3.69 min
300' SHALLOW GUTTER FLOW @ .77 ft/s = 6.49 min
200' FULL GUTTER FLOW @ 1.5 ft/s = 2.22 min
12.4 min
USE 15 min

INLET ROUTING

Area (A) Q_2 = 3.43 cfs Q_{100} = 3.50 cfs
INLET (D)
1 L=10' INLET SUMP @ 20cfs

Area (B) Q_2 = 13.38 cfs Q_{100} = 33.90
INLETS (3) & (2)
2 L=10' INLETS @ 5 cfs ea. = 10 cfs
Q_{B2} = 3.38 Q_{B100} = 23.90
Q_{B100} = 7.16 cfs
to inlet (7) (6)

AREA (C) Q_2 = 2.19 cfs

INLET (F) DROP INLET cap = 13.99 cfs

AREA (D) Q_2 = 8.00 cfs Q_{100} = 20.66 cfs
INLET (E) & (6) L=10' S=.36%
Q_A = 8.00 cfs Q_A = 20.66 cfs
Q_L = 2.00 cfs Q_L = 3.6 cfs
Q_B = 6.00 cfs Q_B = 17.06 cfs

AREA (E) Q_2 = 1.05 cfs Q_{100} = 3.32 cfs
INLET (5) & (8) L=10' S=.35%
Q_A = 7.05 cfs Q_A = 44.28 cfs
Q_L = 1.82 cfs Q_L = 5.02 cfs
Q_B = 5.23 cfs Q_B = 39.30 cfs to inlet (12) (13)

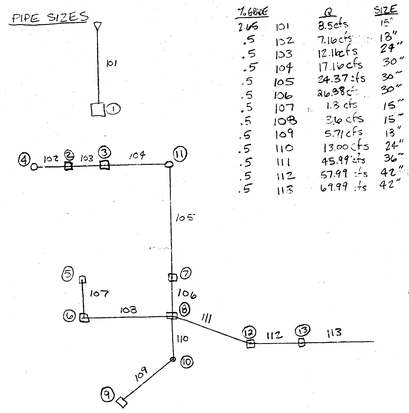
AREA (F) Q_2 = 1.81 cfs Q_{100} = 5.71
INLET (9)
1 L=5' INLET @ 13 cfs > 2.90 OK

AREA (G) Q_2 = 2.90 cfs Q_{100} = 7.29 cfs
INLET (10) DROP INLET cap = 18.5 cfs > 7.29 OK

AREA H Q_2 = 2.86 cfs Q_{100} = 7.21 cfs
INLET (11) DROP INLET CAP = 18.5 cfs > 7.21 cfs ok

AREA I Q_2 = 5.97 cfs Q_{100} = 14.77 cfs
Q_A = 11.20 cfs Q_A = 54.05 cfs
INLET (12) & (13) 2 L=10' INLET > 2 12 cfs = 24 cfs
Q_L = 11.20 Q_L = 24 cfs $Q_{B(EAST)}$ = 30.05 cfs

FIPE SIZES



		Q	SIZE
2%	101	8.5 cfs	15"
.5	102	7.16 cfs	12"
.5	103	12.16 cfs	24"
.5	104	17.16 cfs	30"
.5	105	24.37 cfs	30"
.5	106	26.88 cfs	30"
.5	107	1.3 cfs	15"
.5	108	3.6 cfs	15"
.5	109	5.71 cfs	18"
.5	110	13.00 cfs	24"
.5	111	45.99 cfs	36"
.5	112	57.99 cfs	42"
.5	113	69.99 cfs	42"

Sheet1

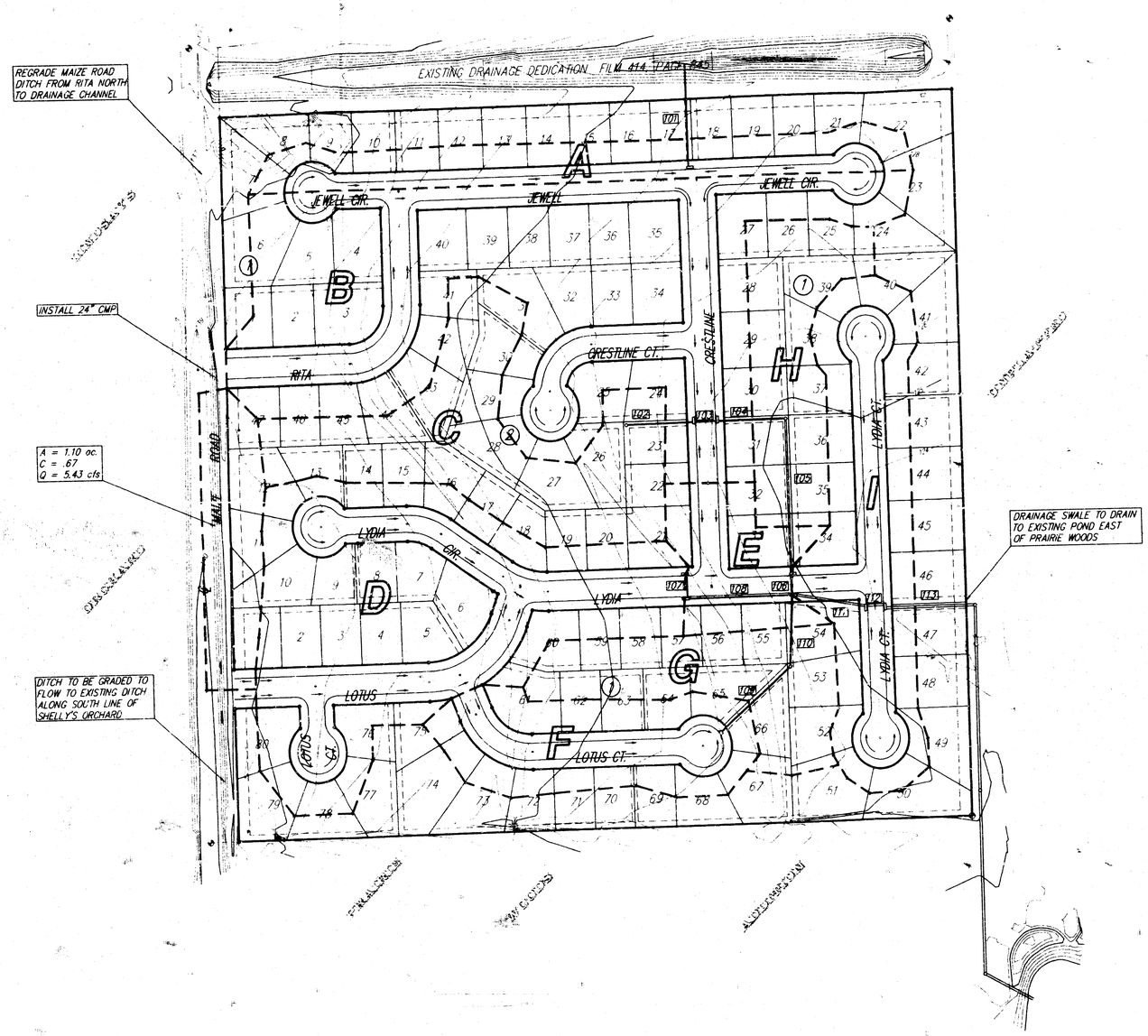
SHELLY'S ORCHARD 8/7/97
SOIL TYPE: B

2-year Design Storm

	Area (ac.)	Tc	i	c	Q
A	1.720421	15	3.83	0.52	3.43
B	7.918596	21	3.25	0.52	13.38
C	2.957866	25	2.96	0.25	2.19
D	5.419037	27	2.84	0.52	8.00
E	1.097773	15	3.83	0.25	1.05
F	1.889933	15	3.83	0.25	1.81
G	1.627943	19	3.42	0.52	2.90
H	1.610331	19	3.42	0.52	2.86
I	2.995718	15	3.83	0.52	5.97

100-year Design Storm

	Area (ac.)	Tc	i	c	Q
A	1.720421	15	7.37	0.67	8.50
B	7.918596	21	6.39	0.67	33.90
C	2.957866	25	5.90	0.41	7.16
D	5.419037	27	5.69	0.67	20.66
E	1.097773	15	7.37	0.41	3.32
F	1.889933	15	7.37	0.41	5.71
G	1.627943	19	6.68	0.67	7.29
H	1.610331	19	6.68	0.67	7.21
I	2.995718	15	7.37	0.67	14.79



Pipe	Q (cfs)	Size	Grade
101	8.50	15"	2.65%
102	7.16	18"	0.50%
103	12.16	24"	0.50%
104	17.16	30"	0.50%
105	24.37	30"	0.50%
106	26.88	30"	0.50%
107	1.80	15"	0.50%
108	3.60	15"	0.50%
109	5.71	18"	0.50%
110	13.00	24"	0.50%
111	45.99	36"	0.50%
112	57.99	42"	0.50%
113	69.99	42"	0.50%

Area	Acres	tC	t2	t100	c2	c100	Q2	Q100
A	1.72	15	3.83	7.37	0.52	0.67	3.43	8.50
B	7.92	21	3.25	6.39	0.52	0.67	13.38	33.90
C	2.96	25	2.96	5.90	0.25	0.41	2.19	7.16
D	5.42	27	2.84	5.69	0.52	0.67	8.00	20.66
E	1.10	15	3.83	7.37	0.25	0.41	1.05	3.32
F	1.89	15	3.83	7.37	0.25	0.41	1.81	5.71
G	1.63	19	3.42	6.68	0.52	0.67	2.90	7.29
H	1.61	19	3.42	6.68	0.52	0.67	2.86	7.21
I	3.00	15	3.83	7.37	0.52	0.67	5.97	14.79

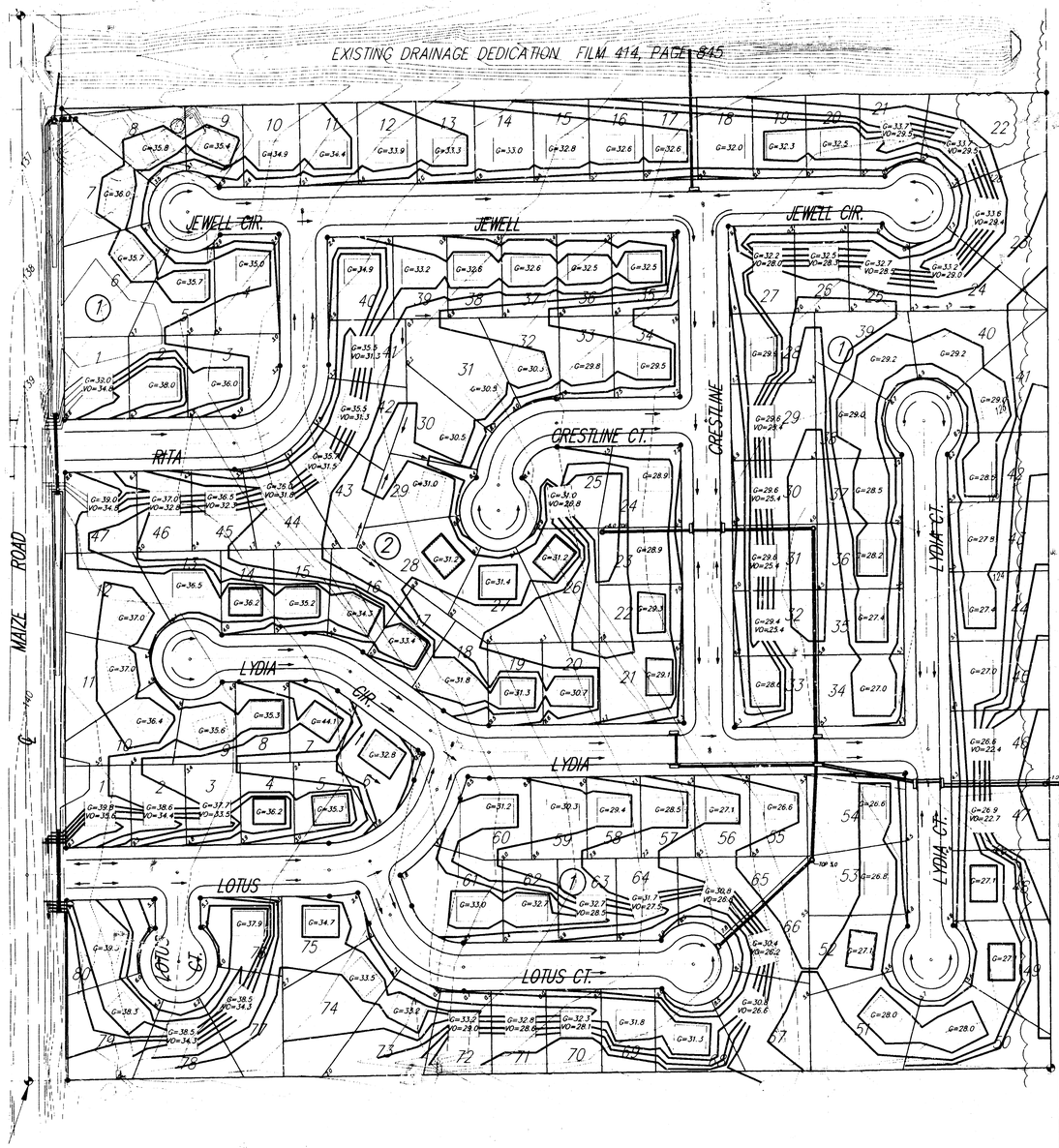
SCALE: 1" = 100'

DRAINAGE PLAN
SHELLY'S ORCHARD
WICHITA, KANSAS

SRB

SAVOY, RUGGLES & BOHM, P. A.
ENGINEERING & SURVEYING

DESIGN	DRAWN	CHECK	SCALE	DATE	REVISED
CMB	AML			Aug. 18, 1997	



SRB

SCALE: 1" = 80'

APPROVED
DRAINAGE PLAN

LOT GRADING PLAN
SHELLY'S ORCHARD
WICHITA, KANSAS

SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
http://www.feist.com/~srb
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SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

PROJECT NUMBER

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
CMB	AML			Jan. 13, 1998	

DRWG. TITLE: DRPLANLDNG

SRB JOB

SHEET 1

OF 1