

**LEGEND**

- Drainage Basin Boundary
- Drainage Direction Major Storm
- Drainage Direction Minor Storm
- Prop. Storm Water Sewer & Manhole
- 2.16% Street Grade
- ⊙ Basin Designation
- ⊙ Storm Sewer Node No.
- ⊙ Exist. Storm Water Sewer & Manhole
- V.G. Valley Gutter
- x 208.0 Prop. Elev.

# DRAINAGE PLAN 3-15-93

## FOURTH ADDITION TO CRESTVIEW HEIGHTS

OWNER : SOCORA VILLAGE COMPANY  
 % LARRY A. CHAMBERS, PRESIDENT  
 104 S. BROADWAY, SUITE 200  
 WICHITA, KANSAS 67202-4165

ENGINEER: PROFESSIONAL ENGINEERING CONSULTANTS, P.A.  
 303 S. TOPEKA  
 WICHITA, KANSAS 67202

City B.M. Disc at N.E. Cor. retaining wall  
 at S.W. Cor. of Woodlawn & 21st Street No.  
 Elev. = 203.65 City Datum.

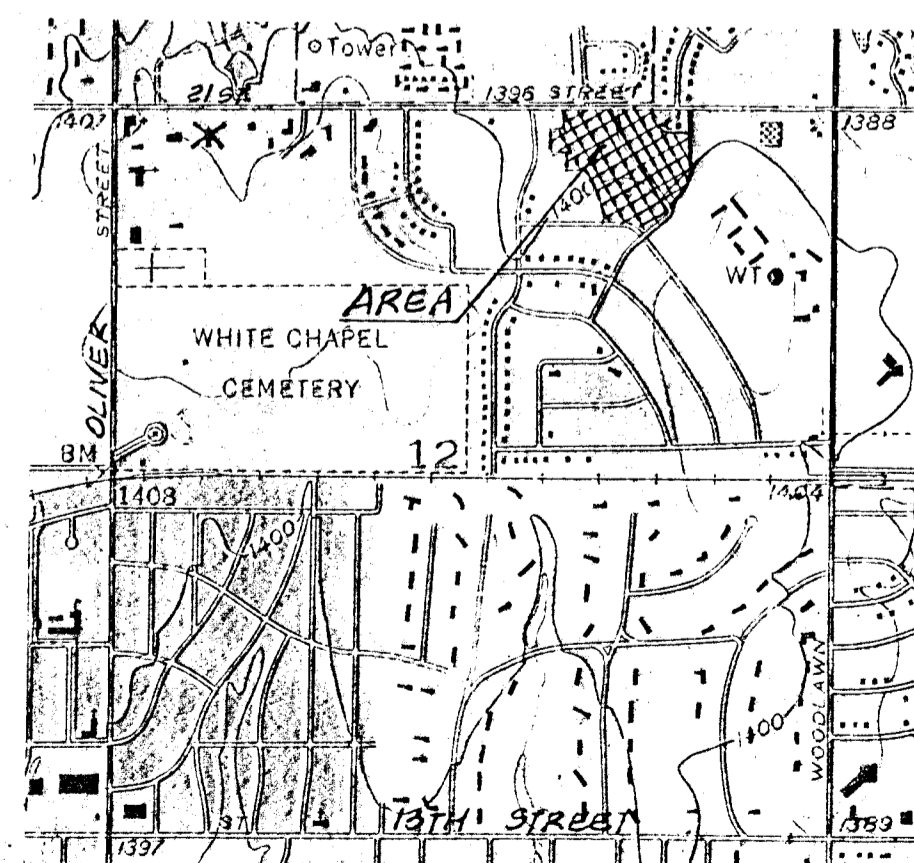
SCALE: 1" = 100'  
 Feb. 1993

AT S.W. CORNER 21ST AND FARMSTEAD,  
 APPROX. 190' WEST OF BEAUMONT  
 ELEV. = 204.84 CITY DATUM

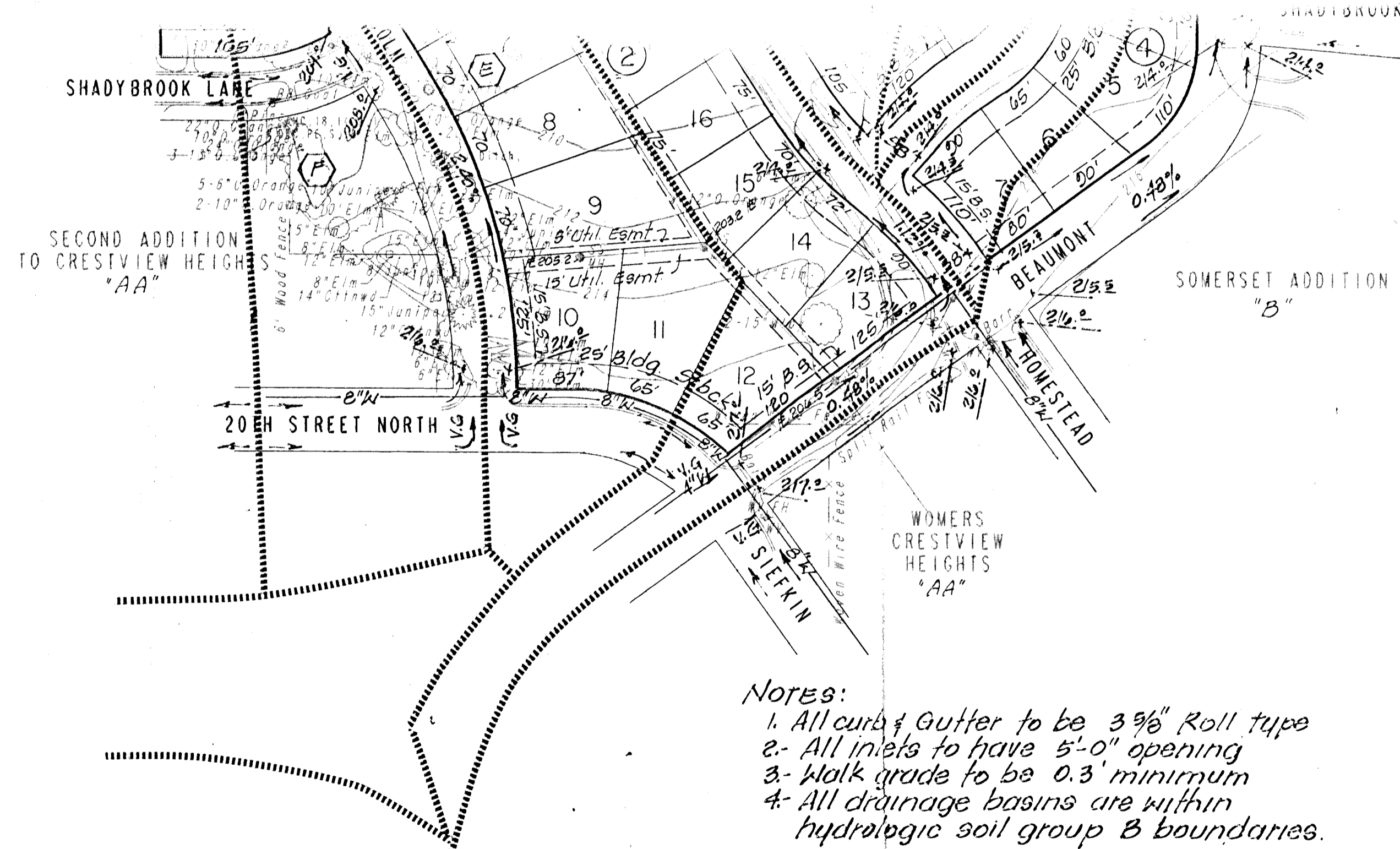
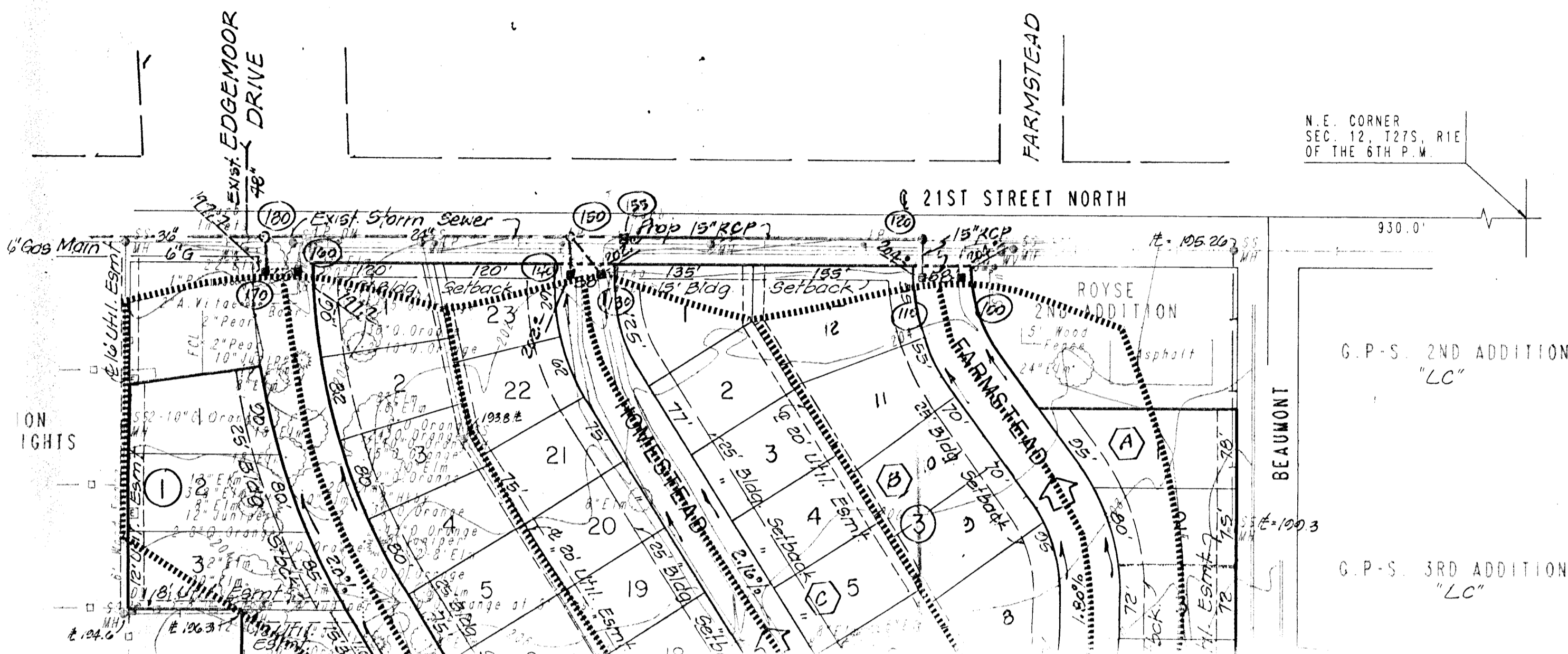
Topo: Feb. 1993

**Notes:**

- 1- 12KV 3φ, 4wire aerial Power Line East-West on South side 21st Street (K-G & E)
- 2- Underground East-West Telephone Line on South side 21st Street (S.Western Bell)
- 3- 12" H.P. Gas Main East-West on South side 21st St. (Gas Service.)



AREA MAP



- Notes:**
- 1- All curb & gutter to be 3% Roll type
  - 2- All inlets to have 5'-0" opening
  - 3- Walk grade to be 0.3' minimum
  - 4- All drainage basins are within hydrologic soil group B boundaries.

HYDROLOGY

RI = 2 RAINFALL INTENSITY

a = 57.46 m = 0.82 b = 12.2 HYDRO-35 IDF FORMULA

NO.	AREA (ACRES)	LEN	Y	IMP	HLM	CN	CN ADJ	S	LAG	F <sub>i</sub>	F <sub>h</sub>	T <sub>c</sub>	i	RI	C	Q
A	1.67	700	1.80	38	100	75	75	3.33	0.21	0.79	0.46	15	3.83	2	0.33	2.1
B	1.83	620	1.80	38	100	75	75	3.33	0.19	0.79	0.46	15	3.83	2	0.33	2.3
C	1.79	615	2.10	38	100	75	75	3.33	0.17	0.79	0.46	15	3.83	2	0.33	2.3
D	3.94	1450	2.10	38	100	75	75	3.33	0.34	0.79	0.46	15	3.83	2	0.33	5.0
E	3.75	970	2.20	38	100	75	75	3.33	0.24	0.79	0.46	15	3.83	2	0.33	4.8
F	3.87	1005	2.20	38	100	75	75	3.33	0.25	0.79	0.46	15	3.83	2	0.33	5.0

RI = 100 RAINFALL INTENSITY

a = 61.66 m = 0.66 b = 10 HYDRO-35 IDF FORMULA

NO.	AREA (ACRES)	LEN	Y	IMP	HLM	CN	CN ADJ	S	LAG	F <sub>i</sub>	F <sub>h</sub>	T <sub>c</sub>	i	RI	C	Q
A	1.67	700	1.80	38	100	75	75	3.33	0.21	0.79	0.46	15	7.37	100	0.49	6.0
B	1.83	620	1.80	38	100	75	75	3.33	0.19	0.79	0.46	15	7.37	100	0.49	6.5
C	1.79	615	2.10	38	100	75	75	3.33	0.17	0.79	0.46	15	7.37	100	0.49	6.4
D	3.94	1450	2.10	38	100	75	75	3.33	0.34	0.79	0.46	15	7.37	100	0.49	14.2
E	3.75	970	2.20	38	100	75	75	3.33	0.24	0.79	0.46	15	7.37	100	0.49	13.5
F	3.87	1005	2.20	38	100	75	75	3.33	0.25	0.79	0.46	15	7.37	100	0.49	13.9

FLOODED PAVEMENT: ROLL TYPE (3 5/8") COMBINED CURB & GUTTER

2-YEAR STORM : DRY CURB ON LOCAL STREETS - MAX. DEPTH d = 0.30 ft.  
 100-YEAR STORM : DRY R.O.W. ON ALL STREETS - MAX. DEPTH d = 0.60 ft.

EQUATION: ALL  $Q = 0.56(z/n)S^{1/2}d^{8/3}$

Z = Reciprocal of pavement cross-slope  
 n = Roughness coefficient  
 S = Longitudinal pavement slope (ft./ft.)  
 d = Maximum allowable depth (above)

NODE	FLOW AMOUNT FROM	2-YEAR Q (cfs)	100-YEAR Q (cfs)	Z	n	S	ALLOWABLE 2-YEAR Q (cfs)	ALLOWABLE 100-YEAR Q (cfs)
100	100% S	2.1	6.0	32	0.016	0.0180	6.1	38.5
110	100% S	2.3	6.5	32	0.016	0.0180	6.1	38.5
130	100% S	2.3	6.4	32	0.016	0.0216	6.6	42.2
140	100% S	5.0	14.2	32	0.016	0.0216	6.6	42.2
160	100% S	4.8	13.5	32	0.016	0.0200	6.4	40.6
170	100% S	5.0	13.9	32	0.016	0.0200	6.4	40.6

REQUIRED INLET LENGTHS FOR THE 2-YEAR STORM

2-YEAR STORM : 5' TYPE IA INLET - Q MAX. = 8.9 cfs  
 : 10' TYPE IA INLET - Q MAX. = 18.0 cfs

INLET NODE NUMBER	INLET CONDITION	Q INTERCEPTED (cfs)	LENGTH REQUIRED (ft.)
100	SUMP	2.1	5
110	SUMP	2.3	5
130	SUMP	2.3	5
140	SUMP	5.0	5
160	SUMP	4.8	5
170	SUMP	5.0	5