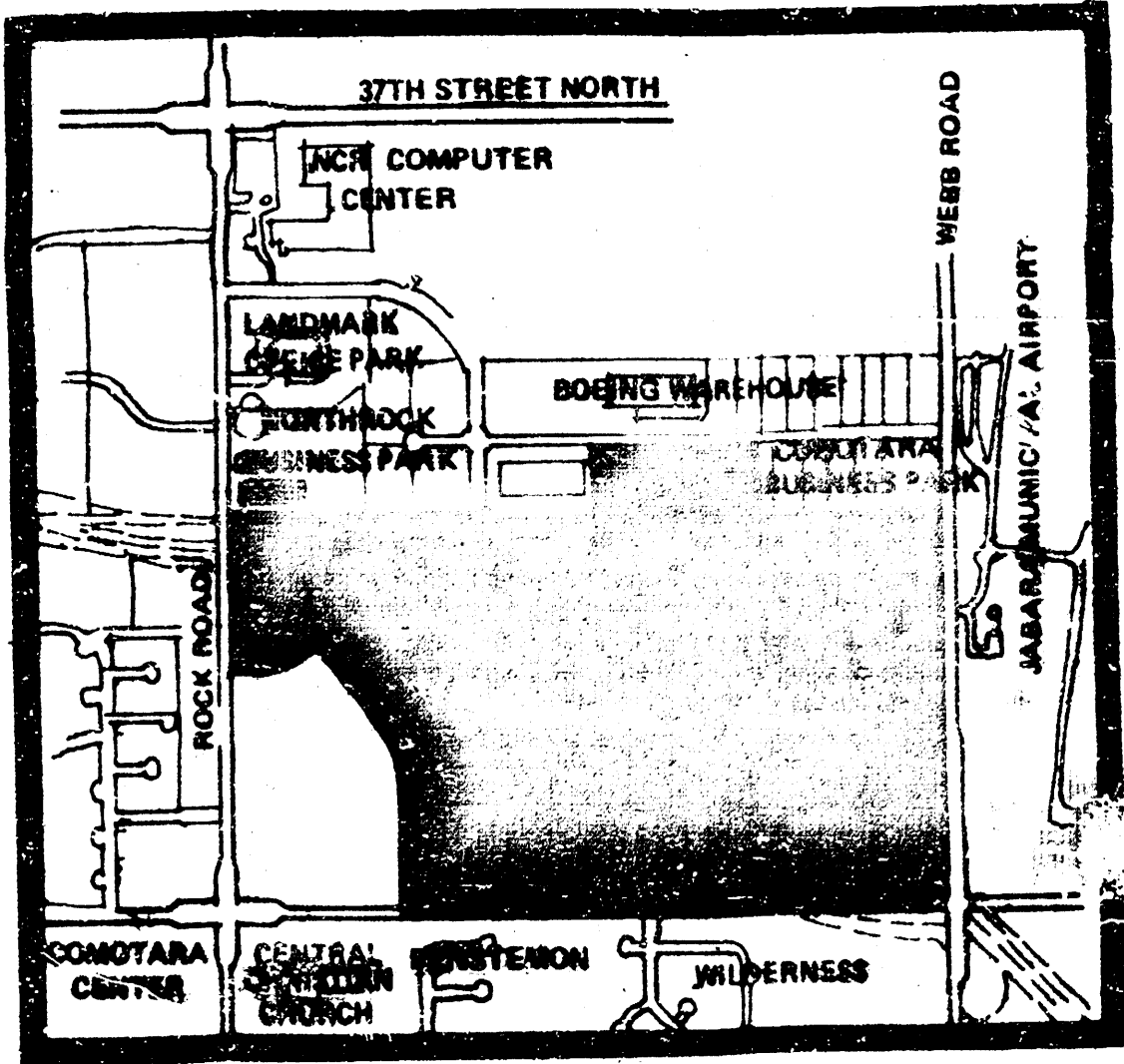
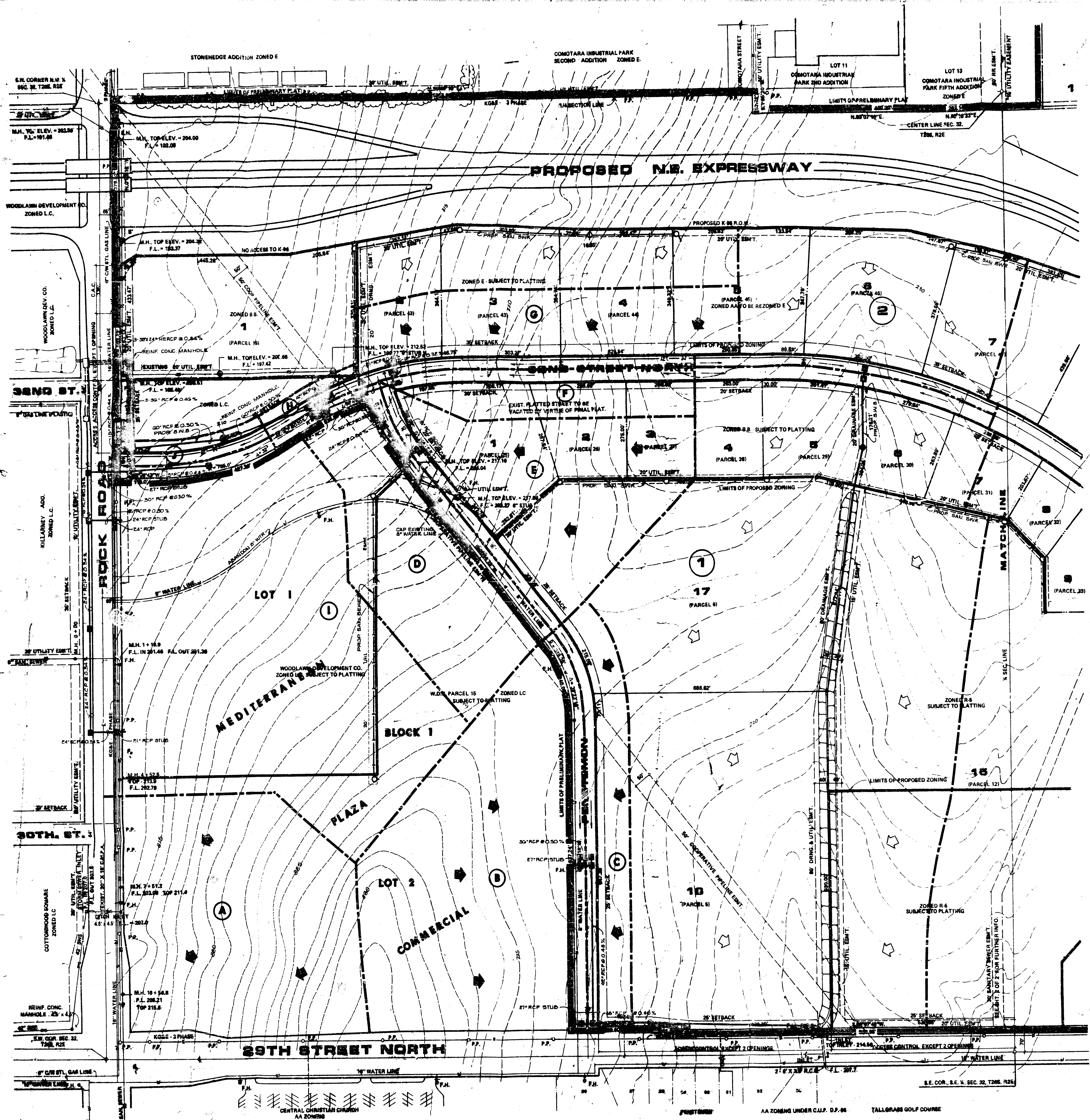




AREA MAP

FOR SHEETS 1 AND 2

BENCH MARK: CITY STANDARD, 44' S. & 44' W. OF
CENTERLINE OF ROCK ROAD AND 29TH ST. NORTH. ELEV. 213.30



CONTOUR INTERVAL - 1'
SCALE: 1" = 100'

NO.	DETAILED	ELEVATION	NOTE THE RESULTS FOR THIS SIMULATION FOLLOWED ARE									
1	0	213.0	NO. OF TRIALS = 5 - ACCURACY ATTAINED = 0.418342E+03									
2	0	209.5	PIPE	NO.	NO.	NO.	HEAD	MINOR	PUMP	HEAD	HEAD	
3	0	209.0		#1	#2	RATE	LOSS	LOSS				
4	0	208.0	1	0	1	4.93	0.00	0.06	0.00			
5	0	206.5	4	0	1	4.38	0.00	0.06	0.00			
6	0	206.0	3	0	2	11.60	0.00	0.22	0.00			
7	0	204.7	4	2	5	16.55	1.65	1.10	0.00			
8	0	204.5	4	2	5	4.12	0.00	0.06	0.00			
9	0	204.7	5	0	4	6.52	0.07	0.15	0.00			
10	0	204.4	7	0	4	5.54	0.01	0.27	0.00			
11	0	204.3	10	0	5	10.45	0.07	0.39	0.00			
12	0	202.2	3	0	5	5.38	0.00	0.08	0.00			
13	0	202.3	10	5	5	27.98	0.02	0.51	0.00			
14	0	200.0	12	6	6	33.21	0.38	0.74	0.00			
15	0	199.6	13	6	7	13.53	0.61	0.44	0.00			
16	0	198.5	14	7	8	25.39	0.91	0.77	0.00			
17	0	206.0	17	8	8	35.95	0.81	0.61	0.00			
18	0	203.5	18	9	9	27.15	0.62	0.19	0.00			
19	0	202.7	17	8	11	42.83	0.68	0.44	0.00			
20	0	201.4	18	9	9	11.54	0.00	0.31	0.00			
21	0	200.5	11	5	10	11.54	0.00	0.31	0.00			
22	0	200.6	20	0	10	15.67	0.81	0.66	0.00			
23	0	200.5	21	10	11	55.66	0.62	0.15	0.00			
24	0	200.5	0	11	22	21.21	0.81	0.51	0.00			
25	0	202.5	23	11	12	119.50	0.51	0.86	0.00			
26	0	200.1	24	12	13	119.50	0.51	0.86	0.00			
27	0	199.3	0	14	26	6.25	0.00	0.06	0.00			
28	0	198.9	26	14	13	5.25	0.27	0.51	0.00			
29	0	198.9	22	13	15	41.32	0.80	0.60	0.00			
30	0	198.0	29	13	15	41.32	0.80	0.82	0.00			
31	0	199.9	15	16	16	31.37	0.68	0.35	0.00			
32	0	201.8	31	15	16	31.37	0.27	0.35	0.00			
33	0	206.4	32	15	13	31.51	0.28	0.36	0.00			
34	0	205.7	31	15	13	31.51	0.00	0.06	0.00			
35	0	206.0	34	0	16	51.33	0.00	0.06	0.00			
36	0	206.4	35	16	29	33.54	0.45	0.06	0.00			
37	0	211.4	36	16	29	34.27	0.87	0.14	0.00			
38	0	212.6	37	31	30	34.27	0.87	0.14	0.00			
39	0	212.6	38	31	30	34.27	0.87	0.14	0.00			
40	0	209.2	40	0	23	39.00	0.00	0.06	0.00			
41	0	209.2	42	0	18	17.04	0.00	0.34	0.00			
42	0	208.6	42	0	18	12.94	0.00	0.56	0.00			
			43	18	19	5.73	0.31	0.58	0.00			
			44	19	44	19.41	0.00	0.06	0.00			
			45	19	20	15.32	1.07	0.85	0.00			
			46	0	20	0.00	45.43	7.81	0.00			
			47	20	23	15.32	1.07	0.85	0.00			
			48	32	22	56.33	0.07	0.80	0.00			
			49	22	23	56.33	0.01	0.10	0.34	0.00		
			50	21	22	8.00	0.00	0.06	0.00			

A	10.05	0.78	0.88	16	4.43	7.18	34.72	63.50	
B	11.82	0.78	0.88	16	4.43	7.18	40.84	74.68	
C	3.64	0.78	0.88	16	4.43	7.18	12.58	23.00	
B & C	15.46	0.73	0.88	18	4.20	6.84	50.64	93.06	48" RCP 0.40%
D	5.55	0.78	0.88	15	4.56	7.37	22.74	35.99	
E	7.37	0.78	0.88	16	4.43	7.18	25.46	46.56	
D & E	12.92	0.78	0.88	17	4.31	7.00	43.43	79.59	
F	2.65	0.78	0.88	15	4.56	7.37	9.42	17.18	
G	7.05	0.78	0.88	15	4.56	7.37	27.64	50.39	
F & G	9.70	0.78	0.88	15	4.56	7.37	37.06	67.58	30" RCP 0.84%
H	0.50	0.88	0.93	15	4.56	7.37	2.01	3.43	
D thru H	23.12	0.88	0.88	18	4.20	6.84	75.74	139.17	54" RCP 0.52%
I	8.97	0.78	0.88	18	4.20	6.84	29.38	53.99	
J	0.72	0.88	0.93	15	4.56	7.37	2.89	4.94	
I & J	9.69	0.78	0.88	18	4.20	6.84	31.74	58.32	42" RCP 0.34%
D thru J	32.81	0.78	0.88	22	3.81	6.26	97.51	180.74	3-30" x 24" HERC'S
K	8.83	0.78	0.88	18	4.20	6.84	29.12	53.15	25"

FUNCTION	ELEVATION	DEMAND	PRESSURE	HYDRAULIC
	(FT.)		(PSI.)	GRADE
1	210.0	0.0	2.6	215.5
2	209.0	0.0	2.6	215.5
3	208.0	0.0	2.1	214.0
4	208.0	0.0	2.1	213.5
5	206.0	0.0	1.5	212.0
6	206.0	0.0	1.5	212.0
7	204.0	0.0	2.0	211.5
8	204.0	0.0	2.0	211.5
9	204.0	0.0	2.0	211.4
10	204.0	0.0	2.0	211.5
11	202.0	0.0	2.0	210.5
12	202.0	0.0	2.0	209.5
13	201.0	0.0	2.8	207.5
14	200.0	0.0	2.8	207.5
15	199.0	0.0	2.7	206.5
16	199.0	0.0	2.3	205.5
17	196.0	0.0	2.3	205.5
18	196.0	0.0	2.3	211.4
19	205.0	0.0	2.0	215.5
20	202.0	0.0	2.2	207.7
21	202.0	0.0	2.7	207.7
22	201.0	0.0	2.7	207.7
23	200.0	0.0	2.0	207.2
24	200.0	0.0	2.0	207.2
25	201.0	0.0	2.9	206.5
26	200.0	0.0	2.7	206.5
27	200.0	0.0	2.7	206.1
28	199.0	0.0	1.1	204.7
29	196.0	0.0	2.0	203.5
30	196.0	0.0	2.0	203.4
31	199.0	0.0	2.0	205.0
32	201.0	0.0	2.0	211.1
33	205.0	0.0	2.0	214.4
34	206.0	0.0	2.0	214.6
35	205.0	0.0	2.0	217.0
36	210.0	0.0	2.0	217.0
37	211.0	0.0	2.0	217.0
38	212.0	0.0	2.0	217.0
39	213.0	0.0	2.0	217.0
40	202.0	0.0	2.0	209.6
41	206.0	0.0	2.0	205.0

THE NET SYSTEM DEMAND $\pm \theta$		SUMMARY OF INFLUENTS ¹ AND OUTFLOWS ²	
PIPE NO.	FLOW	PIPE NO.	FLOW
1	4.92	1	4.92
2	11.82	2	11.82
3	4.52	3	4.52
5	5.29	5	5.29
7	5.97	7	5.97
11	6.92	11	6.92
12	12.52	12	12.52
15	16.84	15	16.84
16	11.54	16	11.54
20	16.56	20	16.56
	-1.9		-1.9
	-2.25		-2.25
24	5.13	24	5.13
25	9.05	25	9.05
40	12.04	40	12.04
42	5.58	42	5.58
44	-41	44	-41
45	0	45	0
51	7.1	51	7.1
53	-5.64	53	-5.64
55	-9.26	55	-9.26
57	10.43	57	10.43
59	-2.72	59	-2.72
61	-4.37	61	-4.37
63	-1.52	63	-1.52
67	-114.95	67	-114.95
69	-115.14	69	-115.14
69	0	69	0
70	5.53	70	5.53
72	-3.79	72	-3.79
74	12.2	74	12.2
77	12.62	77	12.62
79	15.5	79	15.5
81	9.29	81	9.29
82	4.48	82	4.48
83	12.38	83	12.38

MID-KANSAS ENGINEERING CONSULTANTS P.A.
1000 W. 10th Street, Suite 200
Topeka, Kansas 66604
TEL: 325-2222 FAX: 325-2220
CALS/CALUS & SKETCHES

Project No. 232
By WJH
Checked By _____
Date 2 / 11 / 87

Location Medi-Terranean Plaza Commercial
Reference Internal Storm Sewer System

East North East Inlet: $h_{\text{loss}} = 0.75 + 0.58 = 1.22 \text{ ft.}$
 $T_{\text{in}} = 15 - \frac{3.14}{T_{\text{amb}}} = 16 \text{ min}$, $T_{\text{a}} = 4.93^\circ/\text{hr}$, $T_{\text{m}} = 7.13^\circ/\text{hr}$, $C_{\text{a}} = 0.84$
 $Q_{\text{a}} = 0.92 \text{ cfs}$, $Q_{\text{p}} = 5.18 + \left(\frac{3.14}{4.93} \times 0.91\right) = 13.84 \text{ cfs}$, $Q_{\text{m}} = 8.88 +$
 $\left(\frac{3.14}{15.21}\right) \times 123.70 \text{ cfs}$

For Q_{p} , Pipe Size = $21" \text{ RCP} @ 0.75\%$, $24" \text{ RCP} @ 0.37\%$
inlet opening area @ $h = 0.5' \text{ & } 6\frac{1}{2}" \text{ Factor } 0.8 \Rightarrow 1.95 \text{ sq. ft.} =$
 280.8 sq. in. $\left[\frac{24" \times 4.93" \text{ Min. Inlet}}{\text{Factor } 0.8 \times 15.21 \times 3600 \text{ sq. in.}} \right]$

For Q_{m} , Pipe Size = $27" \text{ RCP} @ 0.62\%$ & $30" \text{ RCP} @ 0.39\%$
inlet opening area @ $h = 0.5' \text{ & } 6\frac{1}{2}" \text{ Factor } 0.8 \Rightarrow 3.31 \text{ sq. ft.} =$
 475.2 sq. in. $\left[\begin{array}{l} \text{Special Drop Inlet} \\ \text{Factor size} = 74\% \text{ sq. in.} \end{array} \right]$

North North East Inlet: Area = $1.68 + 0.98 = 2.66 \text{ acres}$
 $T_{\text{in}} = 16 - \frac{3.14}{T_{\text{amb}}} = 16 \text{ min}$, $T_{\text{a}} = 15.64^\circ/\text{hr}$, $C_{\text{a}} = 0.93$, $T_{\text{p}} = 4.45^\circ/\text{hr}$
 $T_{\text{m}} = 21.8^\circ/\text{hr}$, $Q_{\text{a}} = 10.25 + 13.24 = 23.49 \text{ cfs}$
 $Q_{\text{m}} = 17.56 + 23.70 = 41.26 \text{ cfs}$

For Q_{p} , Pipe Size = $27" \text{ RCP} @ 0.58\%$, $30" \text{ RCP} @ 0.39\%$
inlet opening area @ $h = 0.5' \text{ & } 6\frac{1}{2}" \text{ Factor } 0.8 \Rightarrow 3.7 \text{ sq. ft.} =$
 520.3 sq. in. $\left[\begin{array}{l} \text{Special Drop Inlet} \\ \text{Factor size} = 74\% \text{ sq. in.} \end{array} \right]$



TMD-KANSAS ENGINEERING CONSULTANTS P.A.
2200 S. W. 10TH AVE. SUITE 200
 ANCHORAGE, ALASKA 99518 TEL: 581-4407 FAX: 581-4408
CALCULATIONS & SKETCHES

Proj. No. <u>4/17/87</u>	
By <u>FCN</u>	Chk. <u> </u>
Date <u> </u>	Date <u> </u>
Dwn. <u>2</u>	Cr. <u> </u>

Location Med Plaza Canal

Reference Intersect 505

North West Inlet (Cont.) : Allocation 8: Only Q₈ picked up @ previous inlets. Difference in 2₈ (2), was 1 flow to be picked up @ the North West Inlet.

2₈ - 2₇ = 1 p.p.c = 41.25 - 29.00 = 12.17 cfs

Diff. in Q₈ & Q₇ = Q from previous flow = 11.25 - 10.6 = 17.97 cfs

2₈ 21 cfs

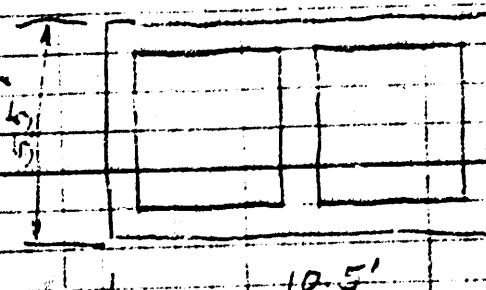
2₈ Inlet Opening @ 0.5', Eff. Factor = 0.8 ⇒ 10.99 cfs

50% c/s in Spec. 11. Design Inlet = 21.25 ⇒ 2(10.75) = 19.16

Spec. 11 Design Inlet = 19.16 cfs

Spec. 11 Design Inlet = 19.16 cfs

Spec. 11 Design Inlet = 19.16 cfs

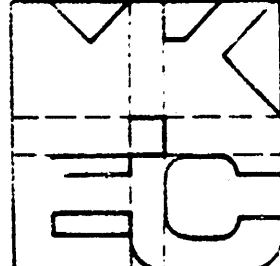


14 = 211.5 - 205.16 + 14.56 * 25

= 7.96' = 8'

11.75 * (0.5 * 55) = 62.75 * 1

(0.5 * 55) (2) = 10.85 * 4

	MID-KANSAS ENGINEERING CONSULTANTS P.A. 3022 CENTRAL EXPRESS AVENUE, SUITE 400 WICHITA, KANSAS 67209 (316) 262-0051		Proj. No. By <u>ESW</u> Date <u>4/17/87</u>
	CALCULATIONS & SKETCHES		Check By _____ Date _____
	Location <u>Mad. Plague Cause</u>		Sheet <u>5</u> Of _____
	Reference <u>Intercom. SWS</u>		_____
	North most I_n lot: $A_{area} = 0.93$ acres, $T_n = 15'$ min, $C_g = 7.88$, $C_{top} = 0.93$, $I_p = 4.55'"/in$, $I_w = 7.37'"/in$ $Q_3 = 5.75' cfs$, $Q_w = 6.37' cfs$ 18" RCP @ 2.36% I_n lot approx area @ $h = 0.5'$, $60'$ factor = $0.2 \Rightarrow 2.4$ sq ft = 345.6 sq. in. $2' \times 98'$ Drop = 16' Crest = 24.56 $\Rightarrow$ 362 sq. in.		

