

Harrison Park 2nd Addn Drainage 4/12/96 1/10

From PEC Dwg. Plan for Harrison Park Addn, Node 115 = Drainage from this Site and beyond, Area = 42.2 Acres

Of this area, 31.0 Acres to be developed.

From Sedgwick County Soil Survey - Site is Type "D" Hydrological Group.

For Developed Areas

$$C_{100} = 0.79$$

$$C_2 = 0.57$$

For Inlet Runoff - Use $T_c = 15$ min All Areas.

PEC's drainage Plan Allows 125 cfs to exit the Site @ the North End of Todd Street. Detention Required to meet this existing condition.

For All Inlet Calcs, Rational Equation

$$Q = C I A$$

$$I_2 \text{ for } T_c = 15 \text{ min} \rightarrow 3.83''/\text{hr.}$$

$$I_{100} \text{ for } T_c = 15 \text{ min} \rightarrow 7.37''/\text{hr.}$$

Area	Acres	T_c	I_2	C_2	Q_2
A	3.68	15	3.83''/hr	0.57	8.0
B	2.88	15			6.3
C	2.23	15			4.9
D	2.82	15			6.2
E	3.78	15			6.3
F	0.38	15			0.8
G	8.14	15			17.8
H	2.45	15		0.57	5.3
I	2.02	15	3.83''/hr	0.57	4.4
J	11.2	20	3.83	0.26	9.7
K	0.89	15	3.83	0.57	1.9

Area	Ac	T_c	I_{100}	C_{100}	Q_{100}
A	3.68	15	7.37''/hr	0.79	21.4
B	2.88				16.7
C	2.23				13.0
D	2.82				16.4
E	3.78				22.0
F	0.38				2.2
G	8.14				47.4
H	2.45			0.79	14.3
I	2.02	15	7.37''/hr	0.79	11.9
J	11.2	20	6.53''/hr	0.61	44.6
K	0.89	15	7.37''/hr	0.79	5.2

Inlet Routing

Area A $Q_{100} = 21.4$ Inlet ① $L = 10'$ $S = 2.11\%$ $Q_A = 21.4$ $Q_i = 6.0 \text{ cfs}$ $Q_B = 15.4$	$Q_2 = 8.0$ $Q_A = 8.0$ ① $Q_i = 3.3$ $Q_B = 4.7 \text{ cfs}$
Area B $Q_{100} = 16.7$ $+ Q_B = 15.4$ $= Q_A = 32.1$ Inlet ② $L = 10'$ $S = 2.11\%$ $Q_i = 7.4$ $Q_B = 24.7 \text{ cfs}$	$Q_2 = 6.3$ $+ Q_B = 4.7$ $= Q_A = 11.0$ ② $Q_i = 4.0$ $Q_B = 7.0 \text{ cfs}$
Area C $Q_{100} = 13.0$ $+ Q_B = 24.7$ $= Q_A = 37.7$ Inlet ③ $L = 10'$ $S = 1.0\%$ $Q_i = 7.3$ $Q_B = 30.4$	$Q_2 = 4.9$ $+ Q_B = 7.0$ $= Q_A = 11.9$ " $Q_i = 5.1 \text{ cfs}$ $Q_B = 6.8$
Area D $Q_{100} = 16.4$ $+ Q_B = 30.4$ $= Q_A = 46.8$ Inlet ④ $L = 10'$ $S = 1.0\%$ $Q_i = 7.3 \text{ cfs}$ $Q_B = 39.5 \text{ cfs}$	$Q_2 = 6.2$ $+ Q_B = 6.8$ $= Q_A = 13.0 \text{ cfs}$ " $Q_i = 5.4$ $Q_B = 7.6 \text{ cfs}$

Area E $Q_{100} = 22.0$ Sump $+ Q_B = 39.5$ $= Q_A = 61.5$	$Q_2 = 8.3$ $+ Q_B = 7.6$ $= Q_A = 15.9$
Area F $Q_{100} = 2.2$	$Q_2 = 0.8$
Total $Q_A = 63.7$	$Q_A = 16.7$
Inlets ⑤, ⑥ $2 L = 10'$ Inlets, Sump @ $26 \text{ cfs}/\text{sq} = 52 \text{ cfs}$ cap Inlets ⑤, ⑥ $Q_B = 63.7 - 52 = 9.5 \text{ cfs}$ Spills east	$Q_2 = \text{Clean}$ No Bypass
Area G $Q_{100} = 47.4 \text{ cfs}$ Sump $+ Q_B = 9.5$ $Q_A = 56.9 \text{ cfs}$	$Q_2 = 17.8 \text{ cfs}$
Inlets ⑦, ⑧ $2 L = 10'$ Inlets; Cap = 52 cfs $Q_B (\text{Todd}) = 4.9 \text{ cfs}$	Clean 2 yr.
Area H $Q_{100} = 14.3 \text{ cfs}$	$Q_2 = 5.3 \text{ cfs}$
Inlet ⑩ $L = 10'$ $S = 0.7\%$ $Q_i = 6.3$ $Q_B = 8.0$ (RED OAKS)	Ditto $Q_i = 3.3 \text{ cfs}$ $Q_B = 2.0 \text{ cfs}$ Red Oaks

Area I $Q_{100} = 11.9$ ① $Q_{100} = 44.6$ 56.5 cfs	$Q_2 = 4.4$ $Q_{100} = 9.7$ 14.1 cfs
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Drop Inlet (Double)

Inlet ① $366''$ each grate $\times 2 = 5.1 \text{ ft}^2$ open

@ Depth = 1.0'

$$Q_i = 7.6 A \sqrt{2gh} = 0.6 (5.1) \sqrt{2(32.2)(1)}$$

$$Q_i = 24.5 \text{ cfs}$$

$$Q_B = 56.5 - 24.5 = 32.0 \text{ cfs}$$

Red Oaks

$$Q_B = 0$$

Clean 2 yr.

Area K $Q_{100} = 5.2$ $Q_2 = 1.9$

Both Bypass to Todd Street.

Red Oaks Bypass

$$Q_{100} = 8.0 + 32.0 = 40 \text{ cfs}$$

$$Q_2 = 2.0 + 0 = 2.0 \text{ cfs}$$

Total from Site =

Todd Bypass

$$Q_{100} = 4.9 + 5.2 = 10.1$$

$$Q_2 = 0 + 1.9 = 1.9$$

Detention Pond

Result Target = 125 cfs off site via Todd; Red Oaks; 27" RCP In Todd Street.

Total Pond Basin = 42.4 Acres

31.0 Ac Developed; CN = 85

11.2 Ac Undeveloped; CN = 74

T_c Developed w/ Pond = 45 minutes

$$CN = 0.73(85) + (0.27)(74) = 82.0$$

$$SLS \text{ Lag} = 0.6 T_c = 0.6 (45/60) = 0.45 \text{ hrs}$$

100 Year Storm; 7.8", SCS Type 2 Distribution

Pond Info: 4:1 Side Slopes.

Top Water Surface Not to Exceed Low R/W Elev.

Pond Can Overspill Via Concrete Flume to Todd Street.

Stage-Storage-Discharge

Elev	EI^2	Ac	WV	$Q_p(27'')$	Q_w	Q_T
1344	251	0.006	0.2	1.0	(weir)	
1345	10489	0.390	1.2	4.5		
1346	32932	0.756	2.2	15		
1347	59206	0.900	3.2	26		
1348	44274	1.016	4.2	35		
1349	49468	1.136	5.2	40		
1349.4	—	—	—	—	0	40
1349.5	—	—	—	—	5.2	45.2
1349.6	—	—	—	—	16.4	56.4
1349.7	—	—	—	—	32.1	72.1
1349.8	—	—	—	—	51.7	91.7
1349.9	—	—	—	—	141.7	114.7
13500	54788	1.258	6.2	40	—	—

Weir Spillway $L = 30'$ Concrete $m = 0.013$, slope = 0.5%

Elev	Depth	Area	WV	$V(\text{ft})$	$Q (=V \times A)$
1349.4	0	0	0	—	—
1349.5	0.1	3412	302	1.73	5.2 cfs
1349.6	0.2	6	30.4	16.4	16.4 cfs
1349.7	0.3	9	30.6	32.1	32.1 cfs
1349.8	0.4	12	30.8	51.7	51.7 cfs
1349.9	0.5	15 ft ²	31	74.7	74.7 cfs

$$\text{Where } V = \frac{1.49}{n} (A_p)^{2/3} \sqrt{S} \quad (\text{Mannings})$$

From Inlet Capacities Alone, some overspill will occur on Red Oaks and Todd streets. Not all of the plot and off site drainage will go to the detention pond.

For pond routing, Assume all drainage routes through the pond (conservative).

To HEC-1 w/ Above pond data:

Results: (All drainage to pond)

$$Q_{in \text{ developed}} = 151 \text{ cfs (HEC-1)}$$

$$Q_{out \text{ pipe: Weir}} = 127 \text{ cfs}$$

Within 2 cfs of allowable peak.

$$\text{Max stage} = 1349.95 < \text{low 2/w Elev} = 1350.00 \text{ o.k.}$$

1	0955	116	0.02	0.01	0.01	5.	*	1	2140	261	0.01	0.00	0.01	4.
1	0940	117	0.02	0.01	0.01	5.	*	1	2145	262	0.01	0.00	0.01	4.
1	0945	118	0.02	0.01	0.01	5.	*	1	2150	263	0.01	0.00	0.01	4.
1	0950	119	0.02	0.01	0.01	5.	*	1	2155	264	0.01	0.00	0.01	4.
1	0955	120	0.02	0.01	0.01	6.	*	1	2200	265	0.01	0.00	0.01	4.
1	1000	121	0.02	0.01	0.01	6.	*	1	2205	266	0.01	0.00	0.01	4.
1	1005	122	0.03	0.01	0.02	6.	*	1	2210	267	0.01	0.00	0.01	4.
1	1010	123	0.03	0.01	0.02	6.	*	1	2215	268	0.01	0.00	0.01	4.
1	1015	124	0.03	0.01	0.02	7.	*	1	2220	269	0.01	0.00	0.01	4.
1	1020	125	0.03	0.01	0.02	7.	*	1	2225	270	0.01	0.00	0.01	4.
1	1025	126	0.03	0.01	0.02	7.	*	1	2230	271	0.01	0.00	0.01	4.
1	1030	127	0.03	0.01	0.02	8.	*	1	2235	272	0.01	0.00	0.01	4.
1	1035	128	0.04	0.01	0.03	8.	*	1	2240	273	0.01	0.00	0.01	4.
1	1040	129	0.04	0.01	0.03	8.	*	1	2245	274	0.01	0.00	0.01	4.
1	1045	130	0.04	0.01	0.03	9.	*	1	2250	275	0.01	0.00	0.01	4.
1	1050	131	0.04	0.01	0.03	9.	*	1	2255	276	0.01	0.00	0.01	4.
1	1055	132	0.04	0.01	0.03	10.	*	1	2300	277	0.01	0.00	0.01	4.
1	1100	133	0.04	0.01	0.03	11.	*	1	2305	278	0.01	0.00	0.01	4.
1	1105	134	0.06	0.02	0.04	11.	*	1	2310	279	0.01	0.00	0.01	3.
1	1110	135	0.06	0.02	0.04	12.	*	1	2315	280	0.01	0.00	0.01	3.
1	1115	136	0.06	0.02	0.04	13.	*	1	2320	281	0.01	0.00	0.01	3.
1	1120	137	0.06	0.02	0.05	14.	*	1	2325	282	0.01	0.00	0.01	3.
1	1125	138	0.06	0.02	0.05	16.	*	1	2330	283	0.01	0.00	0.01	3.
1	1130	139	0.06	0.02	0.05	17.	*	1	2335	284	0.01	0.00	0.01	3.
1	1135	140	0.49	0.11	0.38	20.	*	1	2340	285	0.01	0.00	0.01	3.
1	1140	141	0.49	0.09	0.40	26.	*	1	2345	286	0.01	0.00	0.01	3.
1	1145	142	0.49	0.07	0.42	38.	*	1	2350	287	0.01	0.00	0.01	3.
1	1150	143	0.49	0.06	0.43	57.	*	1	2355	288	0.01	0.00	0.01	3.
1	1155	144	0.49	0.05	0.44	80.	*	2	0000	289	0.01	0.00	0.01	3.
1	1200	145	0.49	0.04	0.45	105.	*							

TOTAL RAINFALL = 7.80, TOTAL LOSS = 1.90, TOTAL EXCESS = 5.90

PEAK FLOW (CFS)	TIME (HR)	6-HR (CFS)	24-HR (CFS)	72-HR (CFS)	24.00-HR (CFS)
151.	12.25	33.	10.	10.	10.
(INCHES)	4.656	5.858	5.858	5.858	5.858
(AC-FT)	16.	21.	21.	21.	21.

CUMULATIVE AREA = 0.07 SQ MI

*** NORMAL END OF REC-1 ***

15 KK
* POND
* *

HYDROGRAPH ROUTING DATA

STATION	STORAGE ROUTING	1 NUMBER OF SUBREACHES
16 RS	11TP	ELEV TYPE OF INITIAL CONDITION

RUNOFF SUMMARY FLOW IN CUBIC FEET PER SECOND TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR 24-HOUR 72-HOUR	Basin Area	Maximum Stage	Time of Max Stage
HYDROGRAPH AT	DEVEL	151.	12.25	33.	10.	10.	0.07
ROUTED TO	POND	127.	12.50	33.	10.	10.	0.07 1349.95 12.50

*** NORMAL END OF REC-1 ***

RSVRIC X	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1350.00	1350.20
17 SA	AREA	0.1	0.0	0.4	0.8	0.9	1.0	1.1	1.3
18 SE	ELEVATION	1342.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1350.20
19 SD	DISCHARGE	0.	1.	5.	15.	28.	35.	40.	45.
21 SE	ELEVATION	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1349.50

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.01	0.16	0.72	1.55	2.50	3.58	4.78	5.03
ELEVATION	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1350.00	1350.20

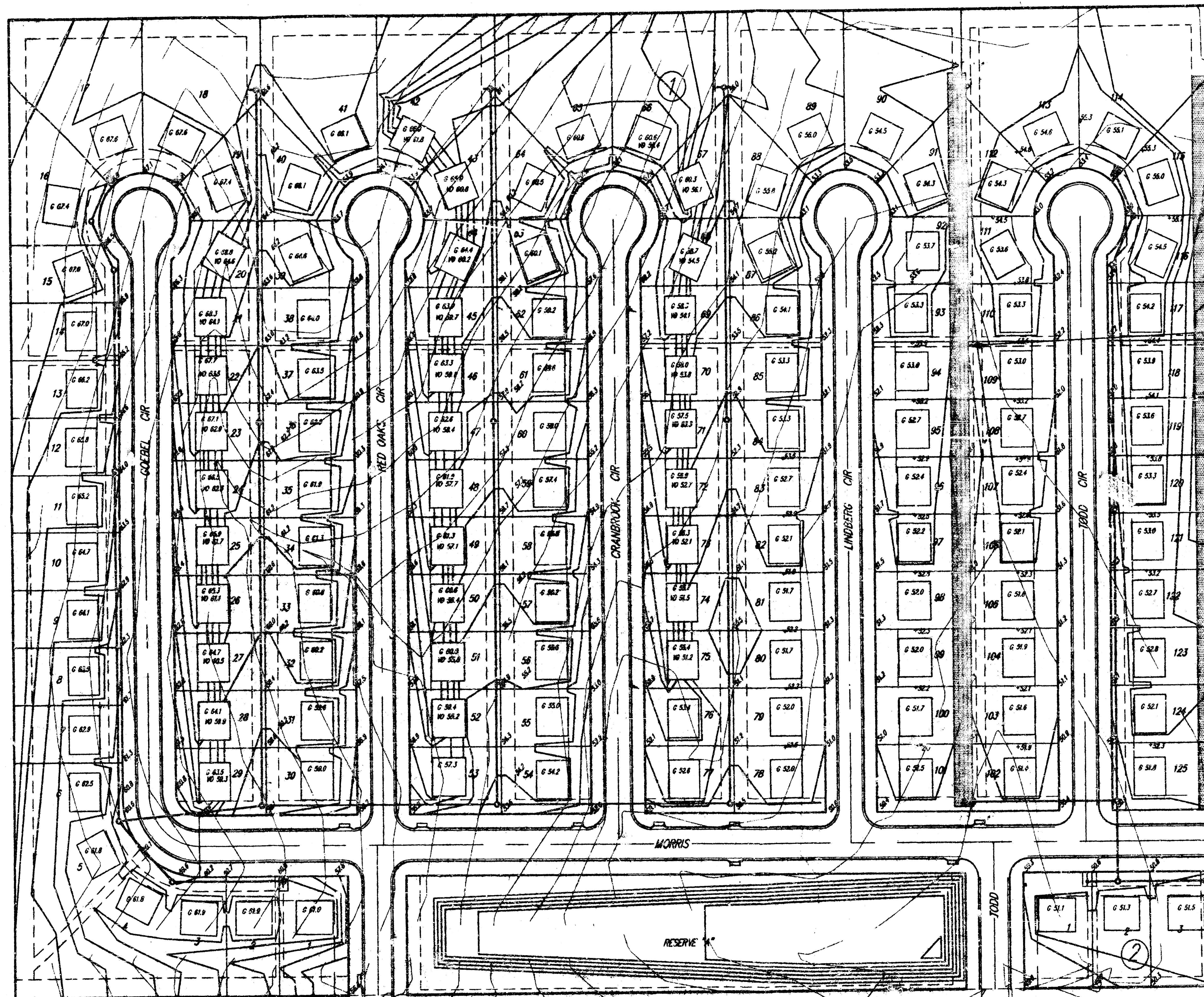
COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.16	0.72	1.55	2.50	3.58	4.04	4.16	4.28
OUTFLOW	0.10	1.00	4.50	15.00	26.00	35.00	40.00	40.00	45.20	56.40
ELEVATION	1343.80	1344.00	1345.00	1346.00	1347.00	1348.00	1349.00	1349.40	1349.50	1349.60

HYDROGRAPH AT STATION POND

DA	NON	HR	ORD	OUTFLOW	STORAGE	STAGE	DA	NON	HR	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	0.0	1343.8 * 1	0805 98	2.	0.1	1344.3 * 1	1610 195	13.	0.6	1345.8
1	0005	2	0.	0.0	1343.8 * 1	0810 99	2.	0.1	1344.3 * 1	1615 196	13.	0.6	1345.8
1	0010	3	0.	0.0	1343.8 * 1	0815 100	2.	0.1	1344.4 * 1	1620 197	12.	0.6	1345.7
1	0015	4	0.	0.0	1343.8 * 1	0820 101	2.	0.1	1344.4 * 1	1625 198	12.	0.5	1345.7
1	0020	5	0.	0.0	1343.8 * 1	0825 102	2.	0.1	1344.4 * 1	1630 199	11.	0.5	1345.6
1	0025	6	0.	0.0	1343.8 * 1	0830 103	3.	0.1	1344.4 * 1	1635 200	11.	0.5	1345.6
1	0030	7	0.	0.0	1343.8 * 1	0835 104	3.	0.1	1344.5 * 1	1640 201	10.	0.5	1345.5
1	0035	8	0.	0.0	1343.8 * 1	0840 105	3.	0.1	1344.5 * 1	1645 202	10.	0.4	1345.5
1	0040	9	0.	0.0	1343.8 * 1	0845 106	3.	0.1	1344.5 * 1	1650 203	10.	0.4	1345.5
1	0045	10	0.	0.0	1343.8 * 1	0850 107	3.	0.1	1344.6 * 1	1655 204	9.	0.4	1345.5
1	0050	11	0.	0.0	1343.8 * 1	0855 108	3.	0.1	1344.6 * 1	1700 205	9.	0.4	1345.4
1	0055	12	0.	0.0	1343.8 * 1	0900 109	3.	0.1	1344.6 * 1	1705 206	9.	0.4	1345.4
1	0100	13	0.	0.0	1343.8 * 1	0905 110	3.	0.1	1344.7 * 1	1710 207	8.	0.4	1345.4
1	0105	14	0.	0.0	1343.8 * 1	0910 111	3.	0.1	1344.7 * 1	1715 208	8.	0.4	1345.3
1	0110	15	0.	0.0	1343.8 * 1	0915 112	4.	0.1	1344.7 * 1	1720 209	8.	0.3	1345.3
1	0115	16	0.	0.0	1343.8 * 1	0920 113	4.	0.1	1344.8 * 1	1725 210	8.	0.3	1345.3
1	0120	17	0.	0.0	1343.8 * 1	0925 114	4.	0.1	1344.8 * 1	1730 211	7.	0.3	1345.3
1	0125	18	0.	0.0	1343.8 * 1	0930 115	4.	0.1	1344.8 * 1	1735 212	7.	0.3	1345.3
1	0130	19	0.	0.0	1343.8 * 1	0935 116	4.	0.1	1344.9 * 1	1740 213	7.	0.3	1345.2
1	0135	20	0.	0.0	1343.8 * 1	0940 117	4.	0.1	1344.9 * 1	1745 214	7.	0.3	1345.2
1	0140	21	0.	0.0	1343.8 * 1	0945 118	4.	0.1	1344.9 * 1	1750 215	7.	0.3	1345.2
1	0145	22	0.	0.0	1343.8 * 1	0950 119	4.	0.2	1345.0 * 1	1755 216	7.	0.3	1345.2

1	0150	23	0.	0.0	1343.8 * 1	0955 120	5.	0.2	1345.0 * 1	1800 217	7.	0.3	1345.2
1	0155	24	0.	0.0	1343.8 * 1	1000 121	5.	0.2	1345.0 * 1	1805 218	6.	0.3	1345.2
1	0200	25	0.	0.0	1343.8 * 1	1005 122	5.	0.2	1345.0 * 1	1810 219	6.	0.3	1345.2
1	0205	26	0.	0.0	1343.8 * 1	1010 123	5.	0.2	1345.0 * 1	1815 220	6.	0.3	1345.2
1	0210	27	0.	0.0	1343.8 * 1	1015 124	5.	0.2	1345.1 * 1	1820 221	6.	0.2	1345.2
1	0215	28	0.	0.0	1343.8 * 1	1020 125	5.	0.2	1345.1 * 1	1825 222	6.	0.2	1345.2
1	0220	29	0.	0.0	1343.8 * 1	1025 126	6.	0.2	1345.1 * 1	1830 223	6.	0.2	1345.1
1	0225	30	0.	0.0	1343.8 * 1	1030 127	6.	0.2	1345.1 * 1	1835 224	6.	0.2	1345.1
1	0230	31	0.	0.0	1343.8 * 1	1035 128	6.	0.2	1345.1 * 1	1840 225	6.	0.2	1345.1
1	0235	32	0.	0.0	1343.8 * 1	1040 129	6.	0.3	1345.2 * 1	1845 226	6.	0.2	1345.1
1	0240	33	0.	0.0	1343.8 * 1	1045 130	7.	0.3	1345.2 * 1	1850 227	6.	0.2	1345.1
1	0245	34	0.	0.0	1343.8 * 1	1050 131	7.	0.3	1345.2 * 1	1855 228	6.	0.2	1345.1
1	0250	35	0.	0.0	1343.8 * 1	1055 132	7.	0.3	1345.3 * 1	1900 229	6.	0.2	1345.1
1	0255	36	0.	0.0	1343.8 * 1	1100 133	8.	0.3	1345.3 * 1	1905 230	6.	0.2	1345.1
1	0300	37	0.	0.0	1343.8 * 1	1105 134	8.	0.3	1345.3 * 1	1910 231	6.	0.2	1345.1
1	0305	38	0.	0.0	1343.8 * 1	1110 135	8.	0.4	1345.4 * 1	1915 232	6.	0.2	1345.1
1	0310	39	0.	0.0	1343.8 * 1	1115 136	9.	0.4	1345.4 * 1	1920 233	6.	0.2	1345.1
1	0315	40	0.	0.0	1343.8 * 1	1120 137	10.	0.4	1345.5 * 1	1925 234	5.	0.2	1345.1
1	0320	41	0.	0.0	1343.8 * 1	1125 138	10.	0.5	1345.5 * 1	1930 235	5.	0.2	1345.1
1	0325	42	0.	0.0	1343.8 * 1	1130 139	11.	0.5	1345.6 * 1	1935 236	5.	0.2	1345.1
1	0330	43	0.	0.0	1343.8 * 1	1135 140	12.	0.6	1345.7 * 1	1940 237	5.	0.2	1345.1
1	0335	44	0.	0.0	1343.8 * 1	1140 141	13.	0.6	1345.8 * 1	1945 238	5.	0.2	1345.1
1	0340	45	0.	0.0	1343.8 * 1	1145 142	15.	0.8	1346.0 * 1	1950 239	5.	0.2	1345.1
1	0345	46	0.	0.0	1343.8 * 1	1150 143	18.	1.0	1346.3 * 1	1955 240	5.	0.2	1345.1
1	0350	47	0.	0.0	1343.8 * 1	1155 144	23.	1.3	1346.7 * 1	2000 241	5.	0.2	1345.1
1	0355	48	0.	0.0	1343.8 * 1	1200 145	24.	1.3	1346.7 * 1	2005 242	6.	0.2	1345.1
1	0400	49	0.	0.0	1343.8 * 1	1205 146	34.	2.4	1347.8 * 1	2010 243	6.	0.2	1345.1
1	0405	50	0.	0.0	1343.8 * 1	1210 147	38.	3.	1348.5 * 1	2015 244	6.	0.2	1345.1
1	0410	51	0.	0.0	1343.8 * 1	1215 148	40.	3.8	1349.0 * 1	2020 245	6.	0.2	1345.1
1	0415	52	0.	0.0	1343.8 * 1	1220 149	75.	4.4	1349.7 * 1	2025 246	6.	0.2	1345.1
1	0420	53	0.	0.0	1343.8 * 1	1225 150	75.	4.4	1349.7 * 1	2030 247	6.	0.2	1345.1
1	0425	54	0.	0.0	1343.8 * 1	1230 151	127.	4.7	1350.0 * 1	2035 248	5.	0.2	1345.1
1	0430	55	0.	0.0	1343.8 * 1	1235 152	115.	4.7	1349.9 * 1	2040 249	5.	0.2	1345.1
1	0435	56	0.	0.0	1343.8 * 1	1240 153	100.	4.6	1349.8 * 1	2045 250	5.	0.2	1345.1
1	0440	57	0.	0.0	1343.8 * 1	1245 154	87.	4.5	1349.8 * 1	2050 251	5.	0.2	1345.1
1	0445	58	0.	0.0	1343.8 * 1	1250 155	75.	4.5	1349.8 * 1	2055 252	5.	0.2	1345.1
1	0450	59	0.	0.0	1343.8 * 1	1255 156	68.	4.4	1349.7 * 1	2100 253	5.	0.2	1345.1
1	0455	60	0.	0.0	1343.8 * 1	1300 157	58.	4.3	1349.6 * 1	2105 254	5.	0.2	1345.1
1	0500	61	0.	0.0	1343.8 * 1	1305 158	52.	4.2	1349.5 * 1	2110 255	5.	0.2	1345.1
1	0505	62	0.	0.0	1343.8 * 1	1310 159	47.	4.2	1349.5 * 1	2115 256	5.	0.2	1345.0
1	0510	63	0.	0.0	1343.8 * 1	1315 160	43.	4.1	1349.5 * 1	2120 257	5.	0.2	1345.0
1	0515	64	0.	0.0	1343.8 * 1	1320 161	43.	4.1	1349.4 * 1	2125 258	5.	0.2	1345.0
1	0520	65	0.	0.0	1343.9 * 1	1325 162	40.	4.0	1349.3 * 1	2130 259	5.	0.2	1345.0
1	0525	66	0.	0.0	1343.9 * 1	1330 163	40.	3.9	1349.3 * 1	2135 260	5.	0.2	1345.0
1	0530	67	0.	0.0	1343.9 * 1	1335 164	40.	3.9	1349.3 * 1	2140 261	5.	0.2	1345.0
1	0535	68	1.	0.0	1343.9 * 1	1340 165	40.	3.7	1349.1 * 1	2145 262	4.	0.2	1345.0
1	0540	69	1.	0.0	1343.9 * 1	1345 166	40.	3.5	1349.0 * 1	2150 263	4.	0.2	1345.0
1	0545	70	1.	0.0	1343.9 * 1	1350 167	39.	3.4	1348.8 * 1	2155 264	4.	0.2	1345.0
1	0550	71	1.	0.0	1343.9 * 1	1355 168	38.	3.2	1348.7 * 1	2200 265	4.	0.1	1344.9
1	0555	72	1.	0.0	1343.9 * 1	1360 169	36.	3.1	1348.6 * 1	2205 266	4.	0.1	1344.9
1	0600	73	1.	0.0	1344.0 * 1	1405 170	37.	3.	1348.4 * 1	2210 267	4.	0.1	1344.9
1	0605	74	1.	0.0	1344.0 * 1	1410 171	36.	2.8	1348.3 * 1	2215 268	4.	0.1	1344.9
1	0610	75	1.	0.0	1344.0 * 1	1415 172	36.	2.7	1348.2 * 1	2220 269	4.	0.1	1344.8
1	0615	76	1.	0.0	1344.0 * 1	1420 173	35.	2.5	1348.0 * 1	2225 270	4.	0.1	1344.8
1	0620	77	1.	0.0	1344.0 * 1	1425 174	34.	2.4	1347.9 * 1	2230 271	4.	0.1	1344.8
1	0625	78	1.	0.0	1344.0 * 1	1430 175	33.	2.2	1347.7 * 1	2235 272	4.	0.1	1344.8
1	0630	79	1.	0.0	1344.0 * 1	1435 176	31.	2.1	1347.6 * 1	2240 273	4.	0.1	1344.8
1	0635	80	1.	0.0	1344.0 * 1	1440 177	30.	2.0	1347.5 * 1	2245 274	4.	0.1	1344.8
1	0640	81	0.	0.0	1344.0 * 1	1445 178	29.	1.9	1347.3 * 1	2250 275	4.	0.1	1344.8
1	0645	82	1.	0.0	1344.0 * 1	1450 179	28.	1.8	1347.2 * 1	2255 276	4.	0.1	1344.8



SCALE: 1" = 60'

SHADED AREAS ARE TO BE GRADED
AS PART OF THIS PROJECT. W=20'

APPROVED
DRAINAGE PLAN

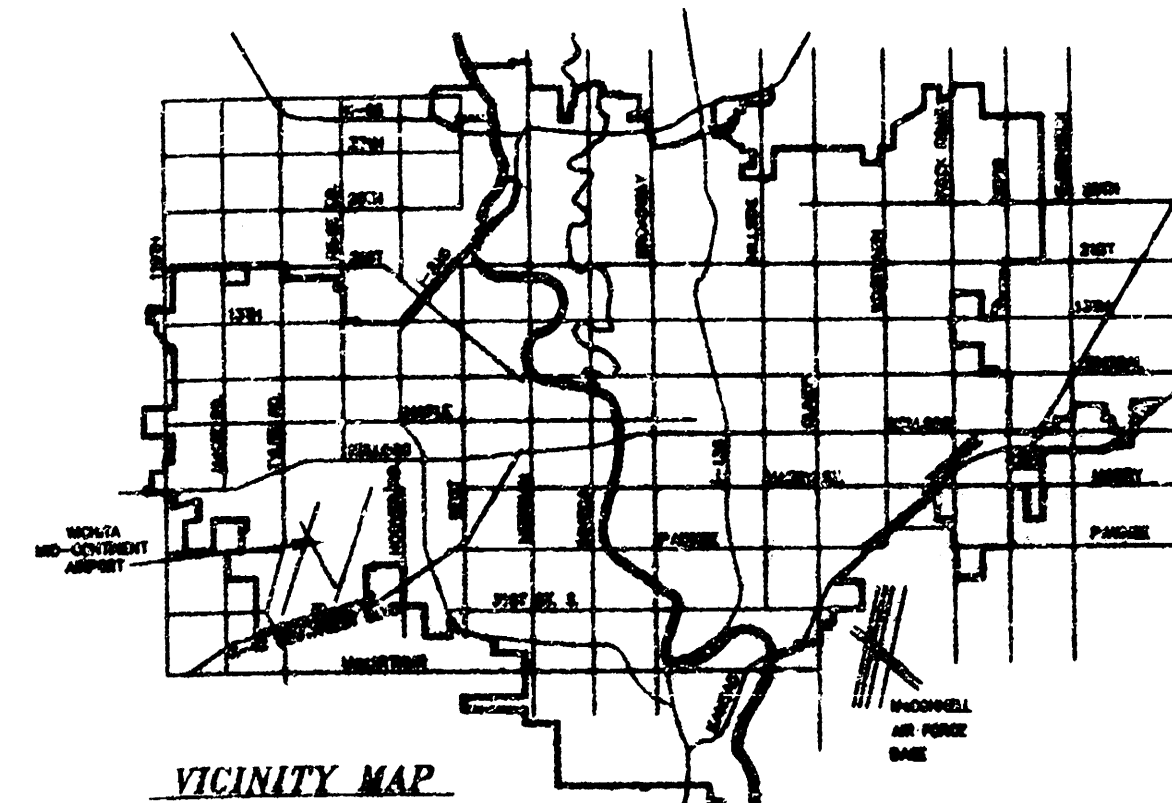
HARRISON PARK 2ND ADDITION SITE GRADING PLAN SEDGWICK COUNTY, KS			
SRB 924 NORTH MAIN WICHITA, KANSAS 67203 SAVOY, RUGGLES & BOHM, P.A. ENGINEERING & SURVEYING	316-264-5000 FAX 316-264-5021	PROJECT NUMBER 118	
DESIGN CMB	DRAWN AML	CHECKED JVB	DATE Sept. 24, 1998

DRAINAGE PLAN HARRISON PARK 2ND ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS.

CONDUIT DATA		
100	15"	0.86%
101	18"	1.63%
102	18"	0.49%
103	21"	0.85%
104	30"	0.98%
105	30"	2.64%
106	24"	1.32%
107	30"	1.61%
108	24"	1.17%
109	24"	1.85%
110	27"	0.90%

POND DATA:
SIDE SLOPES 4:1
FLOW OUT 27" RCP = 1343.80
TOP ELEVATION = 1351.00
100 YR. WATER SURFACE = 150.00
OUTLET WEIR: CONCRETE, L = 30'
FLOW ELEVATION WEIR = 1349.40
TOP OF WEIR ELEVATION = 1350.00



PROJECT SITE
HARRISON PARK 2ND ADDITION

DRAINAGE PLAN HARRISON PARK 2ND ADDITION			
SRB 924 NORTH MAIN WICHITA, KANSAS 67203		316-264-8009 FAX 264-4621	
SAVOY, RUGGLES & BOHM, P.A. ENGINEERING & SURVEYING			
PROJECT NUMBER			
DRAWN	DESIGN	REVIEW	DATE
AMS	CMB		4-12-88
UTILITY		SRB JOB	

DWG FILE: C:\p1\drainage\newharrison
PROJECT NO. 86420423P

