REMINGTON PLACE 3RD ADDITION
DRAINAGE REPORT
Amending Remington Place Addition Drainage Report

SEPTEMBER 2003

Remington Place 3rd Addition
Drainage Report

This report summarizes the findings of the drainage analysis for Remington Place 3rd Addition to Wichita, Sedgwick County, Kansas. It is presented as an amendment to the drainage report previously submitted for Remington Place Addition, and modifies the earlier drainage concept.

The report presents storm sewer design calculations, street flow analysis at critical locations, inlet capacity analysis, and detention pond analysis used to establish minimum openings and four corner elevations.

The hydrologic analysis summary is shown in Table 1. Of note is the 100 year event flows shown for system 300. This system was originally designed to accommodate the 100 year event and was partially constructed as part of Phase 2 improvements. The modified system is also designed to accommodate the 100 year event.

Storm sewer hydraulic analysis is given in tables 2A thru 5B for the pipe systems shown on the accompanying drainage plan. (See Attachment A)

Table 6 summarizes the results of street flow analysis at three critical points. It was determined that roll curb would not contain the 2 year event south of Lot 6, Block 1 (Point 1).
Point 2 is located at the proposed on-grade inlets at node 510 and 505. This result illustrates the adequacy of standard curb and inlet interception requirements.
Point 3 represents the sump at nodes 410 and 405. Again the standard curb is adequate to contain the design storm and the required size of the inlet in sump in given.

HEC-1 was used to model the proposed detention ponds. The results are displayed on Attachment A and in Appendix A.

The HEC-1 analysis develops inflow and outflow hydrographs for Ponds #1, #2 and #4 as depicted on the revised drainage plan. The analysis also considers stage/storage/discharge relationships for each pond.

For existing, or pre-project conditions, the 100-year peak discharge for the 38.5-acre drainage basin which in the future will drain to Pond #2 was computed to be 139 cfs. For proposed, or post-project conditions, the 100-year peak discharge at the outlet for Pond #2 was computed to be 98 cfs.

Please note that the original drainage calculations submitted for Remington Place show a computed 100-year discharge at the outlet for Pond #2 to be 77 cfs. For the revised drainage plan, the 100-year discharge at the same location

was computed to be 98 cfs. This rise in discharge may be attributed to the elimination of Pond #3, the effects of which were not considered for the revised conditions analysis. However, it should also be noted that the peak discharge for the revised drainage plan is still lower than the existing conditions discharge for the same area; therefore the plan provides sufficient detention storage to comply with City requirements.

The proposed four corner plan is included as Attachment B.

Table 1

					RAINFALL INTENSITY - SCS METHOD													
					2 Year Event													
		a =	57.46	m =	0.82	b =	12.2	HYDRO-35 IDF FORMULA										
					SOIL GROUP NO.				80									
Basin	NO.	AREA	LEN	Y	%IMP	%HLM	CN	S	LAG	Fi	Fh	Tc	i	RI	C	Q2	Q100	
A1	235	0.50	180	2.00	100	100	98.00	0.20	0.03	0.88	0.88	15.00	3.83	2	0.50	0.96	1.84	
A	225	0.40	60	2.00	100	100	98.00	0.20	0.01	0.88	0.88	15.00	3.83	2	0.50	0.77	1.47	
B	220	0.87	110	1.50	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	1.67	3.21	
C	215	0.77	100	1.50	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	1.47	2.84	
N	210	0.55	400	1.50	100	100	98.00	0.20	0.06	0.88	0.88	15.00	3.83	2	0.50	1.05	2.03	
D	205	0.93	400	1.50	100	100	98.00	0.20	0.06	0.88	0.88	15.00	3.83	2	0.50	1.78	3.43	
H	n/a	2.40	400	1.50	100	100	98.00	0.20	0.06	0.88	0.88	15.00	3.83	2	0.50	4.59	8.84	
S	116	1.64	200	2.00	100	100	98.00	0.20	0.03	0.88	0.88	15.00	3.83	2	0.50	3.14	6.04	
T	117	0.28	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	0.54	1.03	
Q	119	1.55	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.97	5.71	
L	121	1.22	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.34	4.50	
W	109	1.18	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.26	4.35	
UU	108	1.13	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.16	4.16	
J	310	0.70	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	1.34	2.58	
I	315	0.38	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	0.73	1.40	
K	320	0.50	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	0.96	1.84	

Soil Group			
A	B	C	D
39	61	74	80

Table 2A

sys200-11.OUT

Date: 09-23-2003
Time: 18:16:44

Remington 3rd Sys 200

Input File: sys200.txt

Storm Frequency = 2-Year

* * * H Y D R O L O G Y * * *

Node to Node		Tributary Area C	Area (Ac)	Slope (%)	Length (Ft)	TC(0) (Min)	I(0) (In/Hr)	Q(0) (CFS)	Hydrology Summation TC (Min)	I (In/Hr)	Q (CFS)	Sum Q (CFS)	Conduit Data Size	Velocity (Ft/Sec)	Length (Ft)	TT (Min)	TT+TC (Min)
205	200	.00	.00	.00	.0	15.00	3.83	.96	20.84	3.26	.82	7.07	24"	2.25	50.00	.37	21.21
210	205	.00	.00	.00	.0	15.00	3.83	.77	19.99	3.33	.67	6.25	18"	3.54	180.00	.85	20.84
215	210	.00	.00	.00	.0	15.00	3.83	1.67	19.33	3.39	1.48	5.58	15"	4.55	180.00	.66	19.99
220	215	.00	.00	.00	.0	15.00	3.83	1.47	18.43	3.47	1.33	4.10	15"	3.34	180.00	.90	19.33
225	220	.00	.00	.00	.0	15.00	3.83	1.05	17.07	3.61	.99	2.77	15"	2.26	185.00	1.37	18.43
235	225	.00	.00	.00	.0	15.00	3.83	1.78	15.00	3.83	1.78	1.78	15"	1.45	180.00	2.07	17.07

Table 2B

sys200-12.OUT

Date: 09-23-2003
Time: 18:16:44

Remington 3rd Sys 200

Input File: sys200.txt

Storm Frequency = 2-Year

* * * HYDRAULICS * * *

Node	Hyd-Slope (Ft/Ft)	Friction (Ft)	Bend (Ft)	Transition (Ft)	Manhole (Ft)	Deflection (Ft)	Junction (Ft)	Total (Ft)	Hyd-Gl Elevation	Desired Elevation	Diff. (Ft)
200	.00000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	203.0000	203.0000	.00
205	.00098	.0488	.0000	.0231	.0000	.0423	-.0674	.0469	203.0469	206.0000	2.95
210	.00354	.6377	.0000	.0254	.0000	.0000	-.0403	.6227	203.6697	206.0000	2.33
215	.00747	1.3438	.0000	.0148	.0000	.0000	.3248	1.6834	205.3530	206.5000	1.15
220	.00403	.7259	.0000	.0094	.0000	.0000	.2040	.9393	206.2923	207.0000	.71
225	.00184	.3399	.0000	.0046	.0000	.0000	.0994	.4439	206.7363	207.0000	.26
235	.00076	.1367	.0000	.0000	.0000	.0000	.0000	.1367	206.8729	207.0000	.13

Table 3A

sys300-2-11.OUT

Date: 09-24-2003
Time: 09:24:11

Remington 3rd Sys 200

Input File: o:\2003\03341\storm\sys300.txt

Storm Frequency = 2-Year

* * * H Y D R O L O G Y * * *

Tributary Area									Hydrology Summation				Conduit Data				
Node	to Node	C	Area (Ac)	Slope (%)	Length (Ft)	TC(0) (Min)	I(0) (In/Hr)	Q(0) (CFS)	TC (Min)	I (In/Hr)	Q (CFS)	Sum Q (CFS)	Size	Velocity (Ft/Sec)	Length (Ft)	TT (Min)	TT+TC (Min)
108	300	.00	.00	.00	.0	15.00	3.83	2.16	33.72	2.49	1.41	12.61	42"	1.31	50.00	.64	34.36
109	108	.00	.00	.00	.0	15.00	3.83	2.26	31.15	2.61	1.54	11.21	42"	1.16	180.00	2.58	33.72
117	109	.00	.00	.00	.0	15.00	3.83	.54	28.16	2.77	.39	9.67	42"	1.00	180.00	2.99	31.15
116	117	.00	.00	.00	.0	15.00	3.83	3.14	15.00	3.83	3.14	3.14	24"	1.00	180.00	3.00	18.00
119	117	.00	.00	.00	.0	15.00	3.83	2.97	25.93	2.90	2.25	6.80	30"	1.39	185.00	2.23	28.16
121	119	.00	.00	.00	.0	15.00	3.83	2.34	23.86	3.04	1.86	4.55	24"	1.45	180.00	2.07	25.93
310	121	.00	.00	.00	.0	15.00	3.83	1.34	22.99	3.10	1.09	2.69	18"	1.52	80.00	.88	23.86
315	310	.00	.00	.00	.0	15.00	3.83	.73	15.00	3.83	.73	.73	15"	.59	285.00	7.99	22.99
320	310	.00	.00	.00	.0	15.00	3.83	.96	15.00	3.83	.96	.96	15"	.78	200.00	4.26	19.26

sys300-2-12.OUT

Date: 09-24-2003
Time: 09:24:11

Remington 3rd Sys 200

Input File: o:\2003\03341\storm\sys300.txt

Storm Frequency = 2-Year

* * * H Y D R A U L I C S * * *

Node	Hyd-Slope (Ft/Ft)	Friction (Ft)	Bend (Ft)	Transition (Ft)	Manhole (Ft)	Deflection (Ft)	Junction (Ft)	Total (Ft)	Hyd-Gl Elevation	Desired Elevation	Diff. (Ft)
300	.00000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	202.0000	202.5000	.50
116	.00019	.0347	.0000	.0000	.0000	.0000	.0000	.0347	202.1336	206.0000	3.87
117	.00009	.0166	.0000	.0028	.0000	.0149	.0022	.0365	202.0990	206.0000	3.90
119	.00027	.0508	.0000	.0005	.0000	.0000	.0236	.0750	202.1739	206.5000	4.33
121	.00040	.0727	.0000	.0007	.0000	.0000	.0342	.1076	202.2815	207.0000	4.72
109	.00012	.0223	.0000	.0005	.0000	.0078	.0114	.0421	202.0625	207.0000	4.94
108	.00016	.0079	.0000	.0006	.0000	.0000	.0120	.0204	202.0204	207.0000	4.98
310	.00066	.0525	.0000	.0027	.0000	.0048	.0717	.1316	202.4132	204.5000	2.09
315	.00013	.0364	.0000	.0000	.0000	.0000	.0000	.0364	202.4496	206.0000	3.55
320	.00022	.0442	.0000	.0000	.0000	.0000	.0000	.0442	202.4574	204.5000	2.04

Table 3C

sys3b-100-11.OUT

Date: 09-24-2003
Time: 09:33:58

Remington 3rd Sys 300 100 yr

Input File: sys3b.txt

Storm Frequency = 100-Year

* * * HYDROLOGY * * *

Tributary Area									Hydrology Summation				Conduit Data				
Node	to Node	C	Area (Ac)	Slope (%)	Length (Ft)	TC(0) (Min)	I(0) (In/Hr)	Q(0) (CFS)	TC (Min)	I (In/Hr)	Q (CFS)	Sum Q (CFS)	Size	Velocity (Ft/Sec)	Length (Ft)	TT (Min)	TT+TC (Min)
108	300	.00	.00	.00	.0	15.00	7.37	4.16	24.20	5.99	3.38	27.78	42"	2.89	50.00	.29	24.49
109	108	.00	.00	.00	.0	15.00	7.37	4.35	23.02	6.13	3.62	24.40	42"	2.54	180.00	1.18	24.20
117	109	.00	.00	.00	.0	15.00	7.37	1.03	21.63	6.31	.88	20.78	42"	2.16	180.00	1.39	23.02
116	117	.00	.00	.00	.0	15.00	7.37	6.04	15.00	7.37	6.04	6.04	24"	1.92	180.00	1.56	16.56
119	117	.00	.00	.00	.0	15.00	7.37	5.71	20.58	6.45	5.00	14.51	30"	2.96	185.00	1.04	21.63
121	119	.00	.00	.00	.0	15.00	7.37	4.50	19.59	6.59	4.03	9.51	24"	3.03	180.00	.99	20.58
310	121	.00	.00	.00	.0	15.00	7.37	2.58	19.16	6.66	2.33	5.49	18"	3.11	80.00	.43	19.59
315	310	.00	.00	.00	.0	15.00	7.37	1.40	15.00	7.37	1.40	1.40	15"	1.14	285.00	4.16	19.16
320	310	.00	.00	.00	.0	15.00	7.37	1.84	15.00	7.37	1.84	1.84	15"	1.50	200.00	2.22	17.22

Table 3D

Sys3b-100-12.OUT

Date: 09-24-2003
Time: 09:33:58

Remington 3rd Sys 300 100 yr

Input File: sys3b.txt

Storm Frequency = 100-Year

* * * H Y D R A U L I C S * * *

Node	Hyd-Slope (Ft/Ft)	Friction (Ft)	Bend (Ft)	Transition (Ft)	Manhole (Ft)	Deflection (Ft)	Junction (Ft)	Total (Ft)	Hyd-Gl Elevation	Desired Elevation	Diff. (Ft)
300	.00000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	202.0000	202.5000	.50
116	.00071	.1283	.0000	.0000	.0000	.0000	.0000	.1283	202.6043	206.0000	3.40
117	.00043	.0768	.0000	.0127	.0000	.0679	.0126	.1699	202.4760	206.0000	3.52
119	.00125	.2316	.0000	.0013	.0000	.0000	.1165	.3495	202.8255	206.5000	3.67
121	.00177	.3184	.0000	.0015	.0000	.0000	.1604	.4803	203.3058	207.0000	3.69
109	.00059	.1059	.0000	.0027	.0000	.0362	.0575	.2023	202.3061	207.0000	4.69
108	.00076	.0381	.0000	.0030	.0000	.0000	.0627	.1038	202.1038	207.0000	4.90
310	.00273	.2184	.0000	.0115	.0000	.0175	.3058	.5532	203.8590	204.5000	.64
315	.00047	.1339	.0000	.0000	.0000	.0000	.0000	.1339	203.9929	206.0000	2.01
320	.00081	.1623	.0000	.0000	.0000	.0000	.0000	.1623	204.0213	204.5000	.48

Tab 4A

STORM11.OUT

Date: 09-25-2003
Time: 08:53:08

Remington 3rd Sys 400

Input File: sys400.txt

Storm Frequency = 2-Year

* * * HYDROLOGY * * *

Tributary Area									Hydrology Summation				Conduit Data				
Node	to Node	C	Area (Ac)	Slope (%)	Length (Ft)	TC(0) (Min)	I(0) (In/Hr)	Q(0) (CFS)	TC (Min)	I (In/Hr)	Q (CFS)	Sum Q (CFS)	Size	Velocity (Ft/Sec)	Length (Ft)	TT (Min)	TT+TC (Min)
405	400	.00	.00	.00	.0	15.00	3.83	5.15	15.27	3.80	5.11	14.85	24"	4.73	35.00	.12	15.39
410	405	.00	.00	.00	.0	15.00	3.83	9.74	15.00	3.83	9.74	9.74	24"	3.10	50.00	.27	15.27

Table 4B

STORM12.OUT

Date: 09-25-2003
Time: 08:53:08

Remington 3rd Sys 400

Input File: sys400.txt

Storm Frequency = 2-Year

* * * H Y D R A U L I C S * * *

Node	Hyd-Slope (Ft/Ft)	Friction (Ft)	Bend (Ft)	Transition (Ft)	Manhole (Ft)	Deflection (Ft)	Junction (Ft)	Total (Ft)	Hyd-Gl Elevation	Desired Elevation	Diff. (Ft)
400	.00000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	204.5000	204.5000	.00
405	.00431	.1508	.0000	.0198	.0000	.0000	.4114	.5819	205.0820	205.8000	.72
410	.00185	.0927	.0000	.0000	.0000	.0000	.0000	.0927	205.1746	205.8000	.63

Date: 09-25-2003
Time: 08:50:38

Remington 3rd Sys 500

Input File: sys500.txt

Storm Frequency = 2-Year

* * * H Y D R O L O G Y * * *

Tributary Area									Hydrology Summation				Conduit Data				
Node	to Node	C	Area (Ac)	Slope (%)	Length (Ft)	TC(0) (Min)	I(0) (In/Hr)	Q(0) (CFS)	TC (Min)	I (In/Hr)	Q (CFS)	Sum Q (CFS)	Size	Velocity (Ft/Sec)	Length (Ft)	TT (Min)	TT+TC (Min)
505	500	.00	.00	.00	.0	15.00	3.83	2.56	15.00	3.83	2.56	3.43	15"	2.80	35.00	.21	15.21
510	505	.00	.00	.00	.0	15.00	3.83	.96	15.00	3.83	.96	.96	18"	.54	50.00	1.53	16.53

Table 5B

STORM12.OUT

Date: 09-25-2003
Time: 08:50:38

Remington 3rd Sys 500

Input File: sys500.txt

Storm Frequency = 2-Year

* * * H Y D R A U L I C S * * *

Node	Hyd-Slope (Ft/Ft)	Friction (Ft)	Bend (Ft)	Transition (Ft)	Manhole (Ft)	Deflection (Ft)	Junction (Ft)	Total (Ft)	Hyd-Gl Elevation	Desired Elevation	Diff. (Ft)
500	.00000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	204.5000	204.5000	.00
505	.00282	.0987	.0000	.0117	.0000	.0000	.1958	.3062	204.8062	207.4000	2.59
510	.00008	.0042	.0000	.0000	.0000	.0000	.0000	.0042	204.8103	207.4000	2.59

Table 6

Street Flow Calculations

Node #	Area	C	tc	i2	Q2	Slope	Depth of Flow	Width of Flow	Inlet Length	Q in	Q by
Point 1	3.75	0.5	15	3.83	7.18	0.82%	0.37	11.8	n/a	n/a	n/a
510	4.45	0.5	15	3.83	8.52	0.50%	0.39	12.6	5'	2.56	5.97
										30%	56%
505	1.28	0.5	15	3.83	2.45	0.50%	0.23	7.4	5'	0.96	1.50
										39%	61%
410	1.97	0.5	15	3.83	3.77	sump	0.31	10	5'	9.74	n/a
					5.97	sump	0.38	12			
405	1.91	0.5	15	3.83	3.66	sump	0.31	10	5'	5.15	n/a
					1.50	sump					

APPENDIX A

5' WEIR AT POND #4

60.0 Maximum Q (cfs)
5.000 Weir Width (feet)
203.00 Weir Elevation

Q (cfs)	Weir Width (feet)	Weir Elevation	q	Critical Depth (feet)	Energy Head (feet)	**Water Surface Elevation**
0.0	5.000	203.00	0.0	0.00	0.00	**203.00**
6.0	5.000	203.00	1.2	0.35	0.53	**203.53**
12.0	5.000	203.00	2.4	0.56	0.85	**203.85**
18.0	5.000	203.00	3.6	0.74	1.11	**204.11**
24.0	5.000	203.00	4.8	0.89	1.34	**204.34**
30.0	5.000	203.00	6.0	1.04	1.56	**204.56**
36.0	5.000	203.00	7.2	1.17	1.76	**204.76**
42.0	5.000	203.00	8.4	1.30	1.95	**204.95**
48.0	5.000	203.00	9.6	1.42	2.13	**205.13**
54.0	5.000	203.00	10.8	1.54	2.30	**205.30**
60.0	5.000	203.00	12.0	1.65	2.47	**205.47**

10' WEIR AT POND #2

200.0 Maximum Q (cfs)
10.000 Weir Width (feet)
196.00 Weir Elevation

Q (cfs)	Weir Width (feet)	Weir Elevation	q	Critical Depth (feet)	Energy Head (feet)	**Water Surface Elevation**
0.0	10.000	196.00	0.0	0.00	0.00	**196.00**
20.0	10.000	196.00	2.0	0.50	0.75	**196.75**
40.0	10.000	196.00	4.0	0.79	1.19	**197.19**
60.0	10.000	196.00	6.0	1.04	1.56	**197.56**
80.0	10.000	196.00	8.0	1.26	1.89	**197.89**
100.0	10.000	196.00	10.0	1.46	2.19	**198.19**
120.0	10.000	196.00	12.0	1.65	2.47	**198.47**
140.0	10.000	196.00	14.0	1.83	2.74	**198.74**
160.0	10.000	196.00	16.0	2.00	2.99	**198.99**
180.0	10.000	196.00	18.0	2.16	3.24	**199.24**
200.0	10.000	196.00	20.0	2.32	3.47	**199.47**

Rating Curve for 30" RCP between Pond #1 and Pond #2

CURRENT DATE: 09-26-2003
CURRENT TIME: 09:22:08

FILE DATE: 09-25-2003
FILE NAME: 36-INCH

FHWA CULVERT ANALYSIS
HY-8, VERSION 3.2

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	197.10	196.00	50.01	1 RCP	2.50	2.50	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: 36-INCH DATE: 09-25-2003

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
197.10	0	0	0	0	0	0	0	0	1
198.28	7	7	0	0	0	0	0	0	1
198.87	14	14	0	0	0	0	0	0	1
199.34	21	21	0	0	0	0	0	0	1
199.82	28	28	0	0	0	0	0	0	1
200.37	35	35	0	0	0	0	0	0	1
201.04	42	42	0	0	0	0	0	0	1
201.82	49	49	0	0	0	0	0	0	1
202.71	56	56	0	0	0	0	0	0	1
203.70	63	63	0	0	0	0	0	0	1
204.80	70	70	0	0	0	0	0	0	1
300.00	278	278	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: 36-INCH DATE: 09-25-2003

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
197.10	0.00	0	0	0.00
198.28	0.00	7	0	0.00
198.87	0.00	14	0	0.00
199.34	0.00	21	0	0.00
199.82	0.00	28	0	0.00
200.37	0.00	35	0	0.00
201.04	0.00	42	0	0.00
201.82	0.00	49	0	0.00
202.71	0.00	56	0	0.00
203.70	0.00	63	0	0.00
204.80	0.00	70	0	0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

Rating Curve for 30" RCP between Pond #1 and Pond #2

CURRENT DATE: 09-26-2003
CURRENT TIME: 09:22:08

FILE DATE: 09-25-2003
FILE NAME: 36-INCH

CULVERT # 1

PERFORMANCE CURVE FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	FLOW TYPE	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	197.10	196.00	0.00	-1.10	0-NF	0.00	197.10	0.00	0.00
7	198.28	196.00	1.18	0.63	6-FF	0.00	0.00	0.00	9.04
14	198.87	196.00	1.77	0.98	6-FF	0.00	0.00	0.00	9.50
21	199.34	196.00	2.24	1.38	6-FF	0.00	0.00	0.00	10.36
28	199.82	196.00	2.72	1.85	6-FF	0.00	0.00	0.00	11.03
35	200.37	196.00	3.27	2.41	6-FF	0.00	0.00	0.00	11.63
42	201.04	196.00	3.94	3.04	6-FF	0.00	0.00	0.00	12.27
49	201.82	196.00	4.72	3.76	6-FF	0.00	0.00	0.00	12.88
56	202.71	196.00	5.61	4.59	6-FF	0.00	0.00	0.00	13.53
63	203.70	196.00	6.60	5.47	6-FF	0.00	0.00	0.00	14.06
70	204.80	196.00	7.70	6.42	6-FF	0.00	0.00	0.00	15.14

El. inlet face invert 197.10 ft El. outlet invert 196.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	197.10
OUTLET STATION (FT)	50.00
OUTLET ELEVATION (FT)	196.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0220
CULVERT LENGTH ALONG SLOPE (FT)	50.01

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	2.50 FT
BARREL MATERIAL	CONCRETE
BARREL MANNING'S N	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	GROOVED END IN HEADWALL
INLET DEPRESSION	NONE

Rating Curve for 30" RCP between Pond #1 and Pond #2

CURRENT DATE: 09-26-2003
CURRENT TIME: 09:22:08

FILE DATE: 09-25-2003
FILE NAME: 36-INCH

TAILWATER

CONSTANT WATER SURFACE ELEVATION
196.00

ROADWAY OVERTOPPING DATA

WEIR COEFFICIENT	3.00
EMBANKMENT TOP WIDTH (FT)	30.00
CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	300.00

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          FEBRUARY 1981                *
*         REVISED 02 AUG 88             *
*                                       *
*  RUN DATE  09/26/2003  TIME  09:46:57 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```


```
X     X  XXXXXXX   XXXXX          X
X     X  X       X     X        XX
X     X  X       X                X
XXXXXXX  XXXX    X       XXXXX    X
X     X  X       X                X
X     X  X       X     X          X
X     X  XXXXXXX  XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
         LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

           1           ID
           2           ID
           3           ID
*** LIST ***
*** FREE ***
                       *DIAGRAM
           4           IT       5 25SEP03    0000     400
           5           IO       5       0       0       5
           6           JR    PREC     7.8
                       *
                       *
                       *

           7           KK       A
           8           KO       5
           9           BA  0.0248
          10           PB    1.00
                       *
          11           PC   0.000   0.001   0.002   0.003   0.004   0.005   0.006   0.006   0.007   0.008
          12           PC   0.009   0.010   0.011   0.012   0.013   0.014   0.015   0.016   0.017   0.017
          13           PC   0.018   0.019   0.020   0.021   0.022   0.023   0.024   0.025   0.026   0.027
          14           PC   0.029   0.030   0.031   0.032   0.033   0.034   0.035   0.036   0.037   0.038
          15           PC   0.039   0.040   0.042   0.043   0.044   0.045   0.046   0.047   0.048   0.049
          16           PC   0.051   0.052   0.053   0.055   0.056   0.057   0.059   0.060   0.061   0.063
          17           PC   0.064   0.065   0.067   0.068   0.069   0.071   0.072   0.073   0.075   0.076
          18           PC   0.077   0.079   0.080   0.082   0.083   0.085   0.087   0.088   0.090   0.092
          19           PC   0.093   0.095   0.097   0.098   0.100   0.102   0.103   0.105   0.107   0.108
          20           PC   0.110   0.112   0.113   0.115   0.117   0.118   0.120   0.122   0.125   0.127
          21           PC   0.129   0.131   0.134   0.136   0.138   0.140   0.143   0.145   0.147   0.150
          22           PC   0.152   0.155   0.158   0.160   0.163   0.166   0.169   0.172   0.175   0.178
          23           PC   0.181   0.185   0.189   0.193   0.196   0.200   0.204   0.209   0.214   0.220
          24           PC   0.225   0.230   0.235   0.243   0.251   0.259   0.267   0.275   0.283   0.318
          25           PC   0.352   0.387   0.479   0.571   0.663   0.675   0.687   0.699   0.711   0.723
          26           PC   0.735   0.741   0.747   0.754   0.760   0.766   0.772   0.777   0.781   0.786
          27           PC   0.790   0.795   0.799   0.803   0.806   0.810   0.813   0.816   0.820   0.822
          28           PC   0.825   0.827   0.830   0.832   0.835   0.837   0.840   0.845   0.847   0.850
          29           PC   0.852   0.855   0.857   0.860   0.862   0.865   0.867   0.870   0.872   0.875
          30           PC   0.877   0.880   0.881   0.883   0.884   0.886   0.887   0.889   0.890   0.892
          31           PC   0.893   0.895   0.896   0.898   0.899   0.901   0.902   0.904   0.905   0.907
          32           PC   0.908   0.910   0.911   0.913   0.914   0.916   0.917   0.919   0.920   0.922
          33           PC   0.923   0.925   0.926   0.928   0.929   0.931   0.932   0.934   0.935   0.937
          34           PC   0.938   0.940   0.941   0.943   0.944   0.946   0.947   0.949   0.950   0.952
          35           PC   0.953   0.954   0.955   0.956   0.957   0.958   0.959   0.960   0.961   0.962
          36           PC   0.963   0.964   0.965   0.966   0.967   0.968   0.969   0.970   0.971   0.972
          37           PC   0.973   0.974   0.975   0.976   0.977   0.978   0.979   0.980   0.981   0.982
          38           PC   0.983   0.984   0.985   0.986   0.987   0.988   0.989   0.990   0.991   0.992
          39           PC   0.993   0.994   0.995   0.996   0.997   0.998   0.999   1.000
          40           LS       0      70      38
          41           UD    0.15
                       *
                       *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  42      KK   POND1
  43      RS      1    ELEV   198.6
  44      SA  1.460   1.588   1.620   1.790   1.960
  45      SE  198.6   198.8   199.0   200.0   201.0
          *
          *
          *    ROUTE POND #1 OUTLET THROUGH A 30  RCP CONNECTED TO POND #2
          *
          *
  46      SQ      0      14      21      28      35      42      49      56      63      70
  47      SE 198.60  198.87  199.34  199.82  200.37  201.04  201.82  202.71  203.70  204.80
          *
          *

  48      KK      B
  49      KO      5
  50      BA 0.0152
  51      PB   1.00
          *
  52      PC  0.000   0.001   0.002   0.003   0.004   0.005   0.006   0.006   0.007   0.008
  53      PC  0.009   0.010   0.011   0.012   0.013   0.014   0.015   0.016   0.017   0.017
  54      PC  0.018   0.019   0.020   0.021   0.022   0.023   0.024   0.025   0.026   0.027
  55      PC  0.029   0.030   0.031   0.032   0.033   0.034   0.035   0.036   0.037   0.038
  56      PC  0.039   0.040   0.042   0.043   0.044   0.045   0.046   0.047   0.048   0.049
  57      PC  0.051   0.052   0.053   0.055   0.056   0.057   0.059   0.060   0.061   0.063
  58      PC  0.064   0.065   0.067   0.068   0.069   0.071   0.072   0.073   0.075   0.076
  59      PC  0.077   0.079   0.080   0.082   0.083   0.085   0.087   0.088   0.090   0.092
  60      PC  0.093   0.095   0.097   0.098   0.100   0.102   0.103   0.105   0.107   0.108
  61      PC  0.110   0.112   0.113   0.115   0.117   0.118   0.120   0.122   0.125   0.127
  62      PC  0.129   0.131   0.134   0.136   0.138   0.140   0.143   0.145   0.147   0.150
  63      PC  0.152   0.155   0.158   0.160   0.163   0.166   0.169   0.172   0.175   0.178
  64      PC  0.181   0.185   0.189   0.193   0.196   0.200   0.204   0.209   0.214   0.220
  65      PC  0.225   0.230   0.235   0.243   0.251   0.259   0.267   0.275   0.283   0.318
  66      PC  0.352   0.387   0.479   0.571   0.663   0.675   0.687   0.699   0.711   0.723
  67      PC  0.735   0.741   0.747   0.754   0.760   0.766   0.772   0.777   0.781   0.786
  68      PC  0.790   0.795   0.799   0.803   0.806   0.810   0.813   0.816   0.820   0.822
  69      PC  0.825   0.827   0.830   0.832   0.835   0.837   0.840   0.845   0.847   0.850
  70      PC  0.852   0.855   0.857   0.860   0.862   0.865   0.867   0.870   0.872   0.875
  71      PC  0.877   0.880   0.881   0.883   0.884   0.886   0.887   0.889   0.890   0.892
  72      PC  0.893   0.895   0.896   0.898   0.899   0.901   0.902   0.904   0.905   0.907
  73      PC  0.908   0.910   0.911   0.913   0.914   0.916   0.917   0.919   0.920   0.922
  74      PC  0.923   0.925   0.926   0.928   0.929   0.931   0.932   0.934   0.935   0.937
  75      PC  0.938   0.940   0.941   0.943   0.944   0.946   0.947   0.949   0.950   0.952
  76      PC  0.953   0.954   0.955   0.956   0.957   0.958   0.959   0.960   0.961   0.962
  77      PC  0.963   0.964   0.965   0.966   0.967   0.968   0.969   0.970   0.971   0.972
  78      PC  0.973   0.974   0.975   0.976   0.977   0.978   0.979   0.980   0.981   0.982
  79      PC  0.983   0.984   0.985   0.986   0.987   0.988   0.989   0.990   0.991   0.992
  80      PC  0.993   0.994   0.995   0.996   0.997   0.998   0.999   1.000
  81      LS      0      70      38
  82      UD   0.15
          *
          *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  83      KK   POND4
  84      RS      1    ELEV   203.0
  85      SA  0.200   0.301
  86      SE  203.0   206.0
          *
          *
          *    ROUTE OUTLET FLOW FROM POND #4 OVER A 5  WEIR TO POND #2
          *
          *
  87      SQ      0       6      12      18      24      30      36      42      48      54
  88      SQ     60
  89      SE 203.00  203.53  203.85  204.11  204.34  204.56  204.76  204.95  205.13  205.30
  90      SE 205.47
          *
          *
          *

  91      KK    A+B
  92      KO      5
  93      HC      2       0
          *
          *
          *

  94      KK      C
  95      KO      5
  96      BA 0.0202
  97      PB   1.00
          *
  98      PC  0.000  0.001  0.002  0.003  0.004  0.005  0.006  0.006  0.007  0.008
  99      PC  0.009  0.010  0.011  0.012  0.013  0.014  0.015  0.016  0.017  0.017
 100      PC  0.018  0.019  0.020  0.021  0.022  0.023  0.024  0.025  0.026  0.027
 101      PC  0.029  0.030  0.031  0.032  0.033  0.034  0.035  0.036  0.037  0.038
 102      PC  0.039  0.040  0.042  0.043  0.044  0.045  0.046  0.047  0.048  0.049
 103      PC  0.051  0.052  0.053  0.055  0.056  0.057  0.059  0.060  0.061  0.063
 104      PC  0.064  0.065  0.067  0.068  0.069  0.071  0.072  0.073  0.075  0.076
 105      PC  0.077  0.079  0.080  0.082  0.083  0.085  0.087  0.088  0.090  0.092
 106      PC  0.093  0.095  0.097  0.098  0.100  0.102  0.103  0.105  0.107  0.108
 107      PC  0.110  0.112  0.113  0.115  0.117  0.118  0.120  0.122  0.125  0.127
 108      PC  0.129  0.131  0.134  0.136  0.138  0.140  0.143  0.145  0.147  0.150
 109      PC  0.152  0.155  0.158  0.160  0.163  0.166  0.169  0.172  0.175  0.178
 110      PC  0.181  0.185  0.189  0.193  0.196  0.200  0.204  0.209  0.214  0.220
 111      PC  0.225  0.230  0.235  0.243  0.251  0.259  0.267  0.275  0.283  0.318
 112      PC  0.352  0.387  0.479  0.571  0.663  0.675  0.687  0.699  0.711  0.723
 113      PC  0.735  0.741  0.747  0.754  0.760  0.766  0.772  0.777  0.781  0.786
 114      PC  0.790  0.795  0.799  0.803  0.806  0.810  0.813  0.816  0.820  0.822
 115      PC  0.825  0.827  0.830  0.832  0.835  0.837  0.840  0.845  0.847  0.850
 116      PC  0.852  0.855  0.857  0.860  0.862  0.865  0.867  0.870  0.872  0.875
 117      PC  0.877  0.880  0.881  0.883  0.884  0.886  0.887  0.889  0.890  0.892
 118      PC  0.893  0.895  0.896  0.898  0.899  0.901  0.902  0.904  0.905  0.907
 119      PC  0.908  0.910  0.911  0.913  0.914  0.916  0.917  0.919  0.920  0.922
 120      PC  0.923  0.925  0.926  0.928  0.929  0.931  0.932  0.934  0.935  0.937
 121      PC  0.938  0.940  0.941  0.943  0.944  0.946  0.947  0.949  0.950  0.952
 122      PC  0.953  0.954  0.955  0.956  0.957  0.958  0.959  0.960  0.961  0.962
```

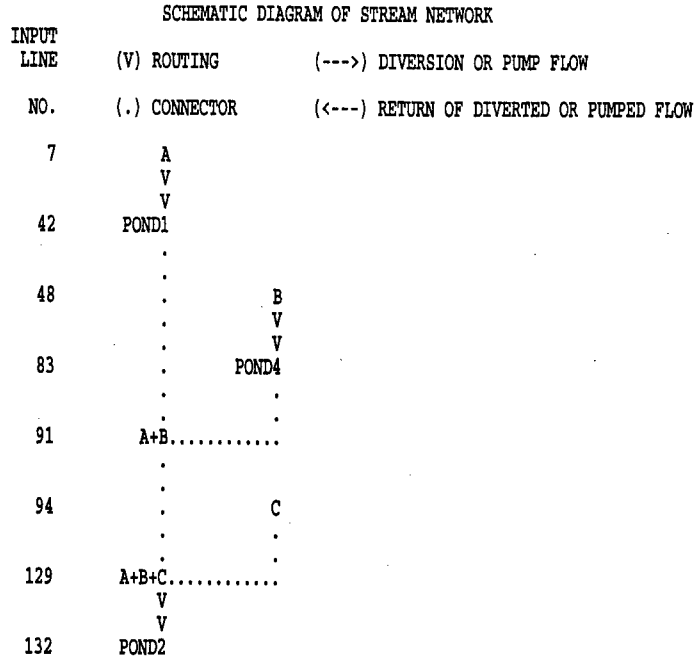
```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  123     PC   0.963   0.964   0.965   0.966   0.967   0.968   0.969   0.970   0.971   0.972
  124     PC   0.973   0.974   0.975   0.976   0.977   0.978   0.979   0.980   0.981   0.982
  125     PC   0.983   0.984   0.985   0.986   0.987   0.988   0.989   0.990   0.991   0.992
  126     PC   0.993   0.994   0.995   0.996   0.997   0.998   0.999   1.000
  127     LS      0      70      38
  128     UD   0.15
          *
          *
          *

  129     KK   A+B+C
  130     KO      5
  131     HC      2       0
          *
          *
          *

  132     KK   POND2
  133     RS      1    ELEV   196.0
  134     SA   1.160   1.468   1.468
  135     SE   196.0   199.0   205.0
          *
          *
          *    ROUTE OUTLET FLOW FROM POND #2 OVER AN 8  WEIR
          *
          *
  136     SQ      0      20      40      60      80     100     120     140     160     180
  137     SQ    200
  138     SE  196.00  196.75  197.19  197.56  197.89  198.19  198.47  198.74  198.99  199.24
  139     SE  199.47
          *
          *
          *
  140     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  09/26/2003  TIME  09:46:57 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```


```
*** ERROR *** SPECIFIED START AND END DATES RESULT IN TOO MANY TIME PERIODS

  5 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     25SEP 3  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     26SEP 3  ENDING DATE
                    NDTIME       0055  ENDING TIME
                    ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

         ENGLISH UNITS
              DRAINAGE AREA         SQUARE MILES
              PRECIPITATION DEPTH   INCHES
              LENGTH, ELEVATION     FEET
              FLOW                  CUBIC FEET PER SECOND
              STORAGE VOLUME        ACRE-FEET
              SURFACE AREA          ACRES
              TEMPERATURE           DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                   7.80

  8 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

 49 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

 92 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

 95 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

130 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 7.80
HYDROGRAPH AT					
+	A	.02	1	FLOW	89.
				TIME	12.08
ROUTED TO					
+	POND1	.02	1	FLOW	29.
				TIME	12.33
			** PEAK STAGES IN FEET **		
			1	STAGE	199.89
				TIME	12.33
HYDROGRAPH AT					
+	B	.02	1	FLOW	54.
				TIME	12.08
ROUTED TO					
+	POND4	.02	1	FLOW	47.
				TIME	12.08
			** PEAK STAGES IN FEET **		
			1	STAGE	205.10
				TIME	12.08
2 COMBINED AT					
+	A+B	.04	1	FLOW	74.
				TIME	12.17
HYDROGRAPH AT					
+	C	.02	1	FLOW	72.
				TIME	12.08
2 COMBINED AT					
+	A+B+C	.06	1	FLOW	144.
				TIME	12.08
ROUTED TO					
+	POND2	.06	1	FLOW	98.
				TIME	12.25
			** PEAK STAGES IN FEET **		
			1	STAGE	198.16
				TIME	12.25

*** NORMAL END OF HEC-1 ***

RAINFALL INTENSITY - SCS METHOD

2 Year Event

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

SOIL GROUP NO. 80

Soil Group			
A	B	C	D
39	61	74	80

Basin	NO.	AREA	LEN	Y	%IMP	%HLM	CN	S	LAG	Fi	Fh	Tc	i	RI	C	Q2	Q100
A1 ✓	235	0.50	180	2.00	100	100	98.00	0.20	0.03	0.88	0.88	15.00	3.83	2	0.50	0.96	1.84
A ✓	225	0.40	60	2.00	100	100	98.00	0.20	0.01	0.88	0.88	15.00	3.83	2	0.50	0.77	1.47
B ✓	220	0.87	110	1.50	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	1.67	3.21
C ✓	215	0.77	100	1.50	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	1.47	2.84
N ✓	210	0.55	400	1.50	100	100	98.00	0.20	0.06	0.88	0.88	15.00	3.83	2	0.50	1.05	2.03
D ✓	205	0.93	400	1.50	100	100	98.00	0.20	0.06	0.88	0.88	15.00	3.83	2	0.50	1.78	3.43
S	116	1.64	200	2.00	100	100	98.00	0.20	0.03	0.88	0.88	15.00	3.83	2	0.50	3.14	6.04
T	117	0.28	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	0.54	1.03
Q	119	1.55	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.97	5.71
L	121	1.22	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.34	4.50
W	109	1.18	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.26	4.35
UU	108	1.13	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	2.16	4.16
J	310	0.70	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	1.34	2.58
I	315	0.38	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	0.73	1.40
K	320	0.50	110	1.90	100	100	98.00	0.20	0.02	0.88	0.88	15.00	3.83	2	0.50	0.96	1.84

H 2.4

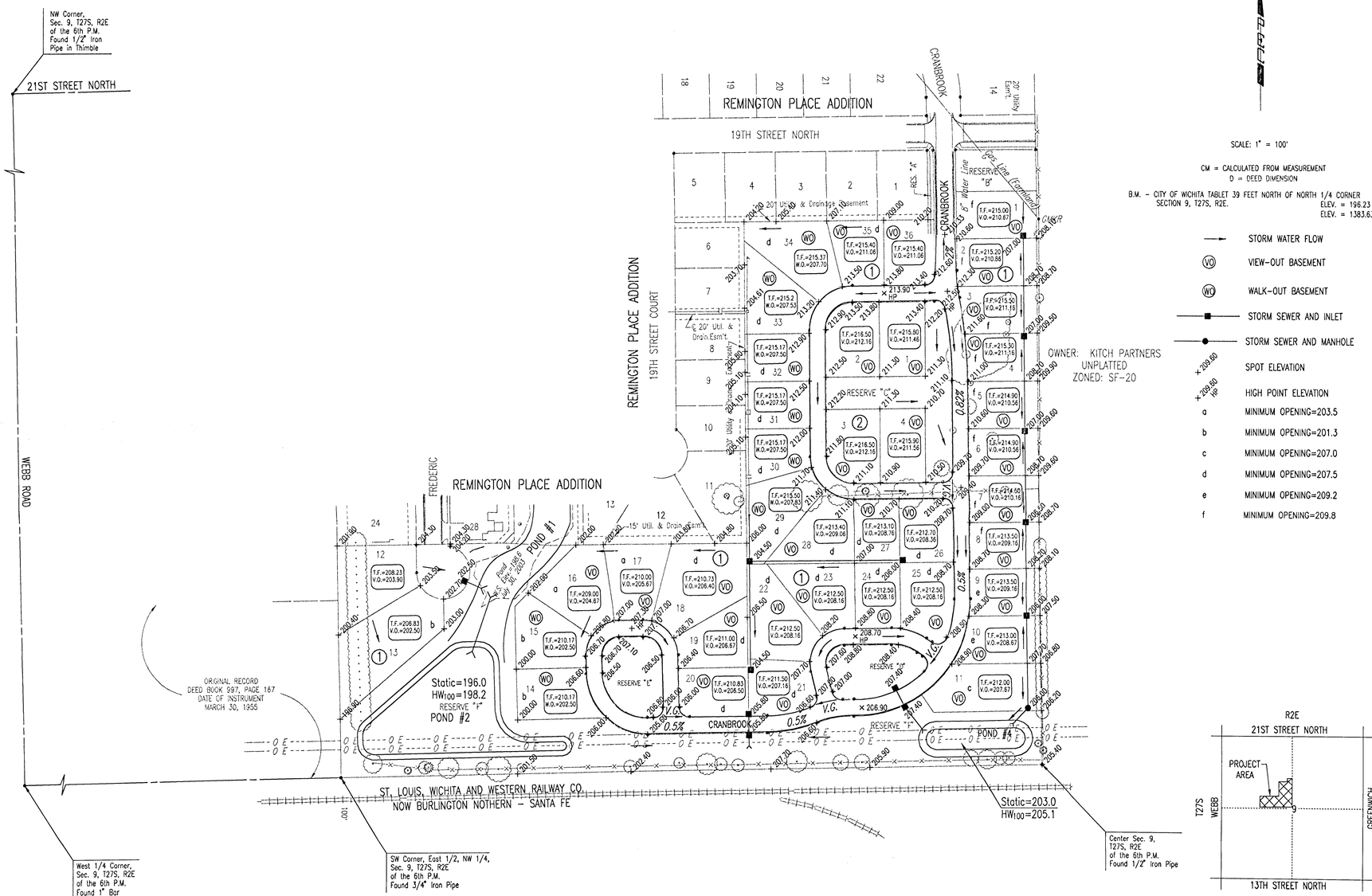
; 2.5

; 1.28

FOUR-CORNER PLAN

REMINGTON PLACE 3RD

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



SCALE: 1" = 100'

CM = CALCULATED FROM MEASUREMENT
D = DEED DIMENSION

B.M. - CITY OF WICHITA TABLET 39 FEET NORTH OF NORTH 1/4 CORNER
SECTION 9, T27S, R2E. ELEV. = 196.23 (City Datum)
ELEV. = 1383.63 N.G.V.D.

- STORM WATER FLOW
- (VO) VIEW-OUT BASEMENT
- (WO) WALK-OUT BASEMENT
- STORM SEWER AND INLET
- STORM SEWER AND MANHOLE
- SPOT ELEVATION
- HIGH POINT ELEVATION
- a MINIMUM OPENING=203.5
- b MINIMUM OPENING=201.3
- c MINIMUM OPENING=207.0
- d MINIMUM OPENING=207.5
- e MINIMUM OPENING=209.2
- f MINIMUM OPENING=209.8

VICINITY MAP

ATTACHMENT B

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

DSNR: SAW OPER: SAW SCALE: 1=100.00
Q:\2003\03341\LDD 03341.dwg\4CORNER 09-26-2003 04:32:26 pm