PROJECT NAME : WINGHAVEN CENTRE
PROJECT NUMBER : 02-1020
ENGINEER/DESIGNER : J.R.S.
DATE COMPLETED : OCT 2002

CLIENT/DEVELOPER :

SHEET 1 OF 3 DATE REVISED :

STATE OF MISSOURI
JEFFREY R. SMITH
NUMBER 2004004672
REGISTERED PROFESSIONAL ENGINEER
2-5-03

HYDRAULIC COMPUTATIONS

LINE		PIPE CHARACTERISTICS					STRUCT. TOPS		DEPTH HYD. GRADE	ELEV. HYD. GR'D		HYD. GRADE	FRICT. HEAD LOSS	VEL.	$V^2/2g$	VEL. HEAD LOSS	TURN LOSS	INLETS		FLOW REQUIREMENTS				
UPPER	LOWER	LENGTH	SIZE	F.L. GRADE	F.L. UPPER	F.L. LOWER	UPPER	LOWER		UPPER	LOWER							STREET GRADE	CAPACITY	DRNG. AREA	A	Q	TOTAL Q	PIPE CAP.
											611.67													
CI 107	CI 106	102.20	12" RCP	0.02	609.03	606.99	613.19	613.19	1.52	611.28	610.06	0.0119	1.22	5.0	0.39	0.39	~	Low	4.00	1.01	3.85	3.89	3.89	5.04
CI 106	MH 105	120.00	12" RCP	0.02	606.99	604.59	613.19	612.80	3.13	609.70	607.58	0.0177	2.12	6.0	0.56	0.32	0.04/10°	Low	4.00	0.22	3.85	0.85	4.74	5.04
MH 105	MH 104	73.70	21" RCP	0.01	604.59	603.85	612.80	608.79	5.22	607.19	606.83	0.0049	0.36	4.6	0.33	0	0.15/15° | 0.23/85°	~	~	~	~	+6.39 ~	11.13	15.83
MH 104	CI 103A	90.00	21" RCP	0.01	603.85	602.95	608.79	607.31	1.96	606.70	606.17	0.0059	0.53	5.0	0.39	0.11	~ | 0.07/80°	~	~	~	~	+1.00 ~	12.13	15.83
CI 103A	GI 103	11.50	24" RCP	0.005	602.95	602.90	607.31	607.23	1.18	606.17	606.13	0.0037	0.04	4.4	0.30	0	~	Low	4.00	0.43	3.85	1.66	13.79	15.99
GI 103	CI 102	56.50	24" RCP	0.005	602.90	602.62	607.23	607.82	1.10	605.87	605.14	0.0041	0.23	4.6	0.33	0.06	0.20/85°	Low	4.00	0.16	3.85	0.62	14.41	15.99
CI 102	MH 101	100.00	24" RCP	0.005	602.62	602.12	607.82	608.84	2.18	605.35	604.89	0.0046	0.46	4.9	0.37	0.06	0.23/90°	Low	4.00	0.25	3.85	0.96	15.37	15.99
MH 101	AI 100	140.17	24" RCP	0.005	602.12	601.42	608.84	607.92	3.95	604.89	604.24	0.0046	0.65	4.9	0.37	0	~	~	~	~	~	~	15.37	15.99
											606.92													
CI 108	MH 104	80.00	12" RCP	0.01	604.65	603.85	608.00	608.79	1.08	606.89	606.83	0.0008	0.06	1.3	0.03	0.03	~	Low	4.00	0.26	3.85	1.00	1.00	3.57
											<FULL 618.09													
CI 114	CI 113	113.34	12" RCP	0.02	617.08	614.81	621.31	620.65	3.23	615.97	<FULL 615.81	0.0014	0.16	1.7	0.05	0.05	~	Low	4.00	0.35	3.85	1.35	1.35	3.57
CI 113	MH 112	58.31	12" RCP	0.02	614.81	613.64	620.65	620.50	4.84	614.85	<FULL 614.64	0.0035	0.21	2.7	0.11	0.10	0.03/90°	Low	4.00	0.20	3.85	0.77	2.12	3.57
MH 112	CI 111	121.15	12" RCP	0.01	613.64	612.43	620.50	621.70	5.86	614.16	<FULL 613.43	0.0060	0.73	3.5	0.19	0.10	0.01/10° | 0.01/90°	~	~	~	~	+0.68 ~	2.77	3.57
CI 111	CI 110	182.02	12" RCP	0.02	612.43	608.79	621.70	615.90	8.27	612.55	609.79	0.0152	2.76	5.6	0.49	0.49	0.13/90°	Low	4.00	0.42	3.85	1.62	4.39	9.15
CI 110	MH 109	50.00	15" RCP	0.02	608.79	607.79	615.90	612.50	6.11	609.74	609.44	0.00060	0.30	4.1	0.26	0.00	0.05/10°	Low	4.00	0.16	3.85	0.62	5.01	9.15
MH 109	MH 105	160.00	15" RCP	0.02	607.79	604.59	612.50	612.80	3.06	609.14	607.58	0.0098	1.56	5.2	0.42	0.27	~ | 0.03/75°	~	~	~	~	+1.38 ~	6.39	9.15