

DATE: 06/13/2018		STORM SEWER PIPE AND STRUCTURE TABLE																																
TITLE: WHISPERSING WOODS, LEE'S SUMMIT, MO																																		
JOB #: 04078																																		
DESIGN CONDITIONS: PUBLIC - 10 YEAR STORM EVENT																																		
STRUCTURES		RUNOFF CALCULATIONS										PIPE DESIGN																						
FROM	TO	DIRECT AREA (ACRES)	TOTAL AREA (ACRES)	C	KC (K=1.0)	Tc (MIN)	FLOW TIME (MIN)	INTENSITY (IN/HR)	DESIGN Q (CFS)	DESCRIPTION	PIPE LENGTH (L.F.)	PIPE SLOPE (%)	PIPE DIA (IN)	Q FULL (CFS)	PIPE AREA (SQ.FT.)	V FULL (F/S)	DESIGN V (F/S)	Hw/D	MH TOP ELEVATION	UPSTREAM FLOWLINE	DOWNSTREAM FLOWLINE	DOWNSTREAM WATER ELEVATION	FRICTION HEAD (h f)	ENTRY LOSS COEFFICIENT (k)	ACTUAL ENTRY LOSS (k)	ENTRY LOSS (h m)	h f + h m (FT)	HGL Pipe U/S	HW, INLET CONTROL	HW, OUTLET CONTROL	HYDRAULIC GRADE ELEV.	HYDRAULIC GRADE (MAX)	Comments	
H-2	C-8, D-1, H-1	1.53	1.53	0.66	0.66	5.00	0.24	7.35	7.43	Field Inlet										984.57														
				0.66	0.66	5.00		7.35	7.43	24" HDPE	127.25	2.44	24	46.06	3.14	14.66	8.91	0.80		979.6	976.50	977.84	0.08	0.40	1.00	1.23	1.32	980.22	981.19	979.60	981.19	983.07		
D-2	C-8, D-1, H-1	0.42	0.42	0.66	0.66	5.00	0.10	7.35	2.04	Curb Inlet										981.96														
				0.66	0.66	5.00		7.35	2.04	18" RCP	34.75	2.01	18	19.43	1.77	11.00	5.92	0.72		978.00	977.30	977.84	0.01	0.40	1.00	0.54	0.55	978.37	979.09	978.39		979.09	980.46	
E-2	C-7, E-1	0.53	0.53	0.66	0.66	5.00	0.34	7.35	2.57	Curb Inlet										975.39														
				0.66	0.66	5.00		7.35	2.57	18" RCP	127.25	2.00	18	19.39	1.77	10.97	6.32	0.73		970.25	967.70	968.12	0.05	0.40	1.00	0.62	0.67	970.67	971.34	970.25		971.34	973.89	
F-2	C-5, F-1	0.35	0.35	0.66	0.66	5.00	0.43	7.35	1.70	Curb Inlet										968.62														
				0.66	0.66	5.00		7.35	1.70	18" RCP	97.55	1.59	18	17.27	1.77	9.77	3.80	0.69		964.20	962.65	963.10	0.02	0.40	1.00	0.22	0.24	964.65	965.24	964.20		965.24	967.12	
C-8, D-1, H-1	C-7, E-1	1.12	7.21	0.66	0.66	5.00	0.27	7.35	5.44	Curb Inlet										982.09														
				0.66	0.66	7.05		6.77	32.22	36" RCP	250.68	3.99	36	173.67	7.07	24.57	15.52	0.95		975.00	965.00	967.62	0.35	0.40	0.40	1.50	1.84	976.00	977.84	975.00		977.84	980.59	
C-7, E-1	C-6	0.71	8.45	0.66	0.66	5.00		7.35	3.45	Curb Inlet										972.61														
				0.66	0.66	7.31	0.03	6.70	37.37	36" RCP	35.75	6.15	36	215.61	7.07	30.50	18.91	1.04		964.50	962.30	965.20	0.07	0.40	0.40	2.22	2.29	965.47	967.62	967.49		967.62	971.11	
C-6	C-5, F-1	0.30	8.75	0.66	0.66	7.35	0.18	6.69	38.65	Curb Inlet										972.62														
				0.66	0.66	5.00		7.35	1.02	36" RCP	156.68	2.87	36	147.29	7.07	20.84	14.48	1.07		962.00	957.50	960.14	0.31	0.40	0.40	1.30	1.62	963.21	965.20	962.00		965.20	971.12	
C-5, F-1	C-4	0.21	9.31	0.66	0.66	5.00	0.09	6.65	40.84	Curb Inlet										967.49														
				0.66	0.66	7.53		6.65	42.84	42" RCP	45.52	0.66	42	106.54	9.62	11.07	8.49	0.88		957.00	956.70	959.64	0.04	0.40	0.40	0.45	0.49	959.69	960.06	960.14		960.14	965.99	
C-4	C-3	0.40	9.71	0.66	0.66	5.00		7.35	1.94	Curb Inlet										966.75														
				0.66	0.66	7.53	0.07	6.65	42.60	42" RCP	35.25	0.57	42	99.01	9.62	10.29	8.12	0.89		956.50	956.30	959.20	0.04	0.40	0.40	0.41	0.45	959.23	959.63	959.64		959.64	965.25	
C-3	C-2	0.40	10.11	0.66	0.66	5.00	0.33	7.35	1.94	Curb Inlet										966.75														
				0.66	0.66	7.62		6.62	44.20	48" RCP	157.63	0.51	48	133.72	12.57	10.64	7.86	0.79		955.80	955.00	958.72	0.09	0.40	0.40	0.38	0.47	958.81	958.97	959.20		959.20	965.25	
C-2	C-1	0.00	10.11	0.66	0.66	5.00		7.35	0.00	Curb Inlet										962.07														
				0.66	0.66	7.95	0.63	6.54	44.20	48" RCP	284.05	0.46	48	126.87	12.57	10.10	7.56	0.79		954.80	953.50	958.12	0.16	0.50	0.50	0.44	0.60	958.28	957.97	958.72		958.72	960.57	
G-5, N-1	G-4	0.36	3.14	0.66	0.66	5.00	0.51	7.35	1.75	Curb Inlet										991.97														
				0.66	0.66	6.49		6.92	14.34	24" RCP	330.30	2.57	24	47.30	3.14	15.06	10.88	1.08		982.40	973.90	975.50	0.79	0.40	0.40	0.73	1.53	983.27	984.57	982.40		984.57	990.47	
G-4	G-3	0.31	3.45	0.66	0.66	5.00	0.04	7.35	1.50	Curb Inlet										978.42														
				0.66	0.66	7.00		6.78	15.45	24" HDPE	34.21	6.43	24	74.78	3.14	23.80	15.49	1.15		973.20	971.00	972.62	0.10	0.40	0.40	1.49	1.59	973.91	975.50	974.20		975.50	976.92	
G-3	G-2	0.53	3.98	0.66	0.66	5.00	0.08	7.35	2.57	Curb Inlet										978.40														
				0.66	0.66	7.04		6.77	17.79	24" RCP	78.42	7.01	24	78.07	3.14	24.85	16.63	1.31		970.00	964.50	965.25	0.29	0.40	0.40	1.72	2.01	970.75	972.62	970.00		972.62	976.90	
G-2	G-1	0.06	4.04	0.66	0.66	5.00	0.15	7.35	0.29	Curb Inlet										976.43														
				0.66	0.66	7.11		6.75	18.01	24" RCP	135.32	4.88	24	65.12	3.14	20.73	14.61	1.32		962.30	955.70	958.43	0.51	0.40	0.40	1.33	1.84	963.13	964.95	962.30		964.95	974.93	
G-1	G-0	0.00	4.04	0.66	0.66	5.00	0.10	7.35	0.00	Junction Box										976.43														
				0.66	0.66	7.27		6.71	18.01	42" RCP	42.50	0.70	42	109.84	9.62	11.42	6.97	0.71		954.20	953.90	958.12	0.01	0.40	0.40	0.30	0.31	958.13	956.68	958.43		956.68	965.95	
A-3	A-2	1.24	1.86	0.66	0.66	5.00	0.15	7.35	6.02	Curb Inlet										959.64														
				0.66	0.66	5.00		7.35	3.01	24" HDPE	43.00	0.50	24	20.85	3.14	6.64	4.73	0.74		953.30	953.09	954.31	0.02	0.40	1.00	0.35	0.37	954.33	954.79	954.68		954.79	958.14	
A-2	A-1	0.62	1.86	0.66	0.66	5.00	0.13	7.35	8.97	Curb Inlet										959.50														
				0.66	0.66	5.15		7.31	8.97	24" HDPE	42.20	0.50	24	20.85	3.14	6.64	5.24	0.83		952.65	952.44	953.51	0.04	0.40	0.40	0.17	0.21	953.55	954.31	953.72		954.31	958.00	
A1 - 2	A1 - 1	0.50	0.50	0.66	0.66	5.00	0.28	7.35	2.43	FES										956.45														
				0.66	0.66	5.00		7.35	2.43	18" RCP	106.90	2.08	18	19.75	1.77	11.17	6.28	0.72		954.66	952.44	953.38	0.03	0.40	1.00	0.61	0.65	955.07	955.74	954.66		955.74	954.95	

Date: 06/13/2018

Slope #	Inlet	Area Number	Area (Acres)	Street Slope (ft/ft)	Max Gutter Flow	Gutter Flow, cfs (+bypass)		Cross Slope (%)	Gutter Spread (ft)		Inlet Length (ft)	Curb Type (A or B)	Inlet Intercept		Inlet Bypass	
						Q-10 yr	Q- 100 yr		10 yr	100 yr			10-Year	100-Year	10-Year	100-Year
1	A-3 (W)	1	0.07	2.18	5.84	0.34	0.60	2	3.97	4.90	5	A	0.33	0.56	0.01	0.03
2	A-3 (E)	2	1.17	6.16	9.81	5.68	9.96	2	9.40	11.60	5	A	1.96	2.08	3.71	7.88
-	A-3 (low pt)	21	1.24	0	-	6.02	10.56	2	-	-	5	A	6.02	10.56	0.00	0.00
1	A-2 (W)	3	0.07	2.18	5.84	0.34	0.60	2	3.97	4.90	5	A	0.33	0.56	0.01	0.03
2	A-2 (E)	4	0.55	6.16	9.81	2.67	4.68	2	7.08	8.74	5	A	1.52	1.88	1.15	2.80
-	A-2 (low pt)	22	0.62	0	-	3.01	5.28	2	-	-	5	A	3.01	5.28	0.00	0.00
4	B-2 (N)	5	0.29	1.84	5.36	1.67	4.26	2	7.44	10.58	5	A	1.43	2.87	0.24	1.39
3	B-2 (S)	6	0.45	3.64	7.54	2.18	3.83	2	7.25	8.95	5	A	1.57	2.19	0.61	1.64
-	B-2 (low pt)	23	0.74	0	-	3.85	8.09	2	-	-	5	A	3.85	8.09	0.00	0.00
4	B-1 (N)	7	0.19	1.84	5.36	2.29	6.13	2	8.38	12.13	5	A	1.85	3.52	0.44	2.61
3	B-1 (S)	8	0.38	3.64	7.54	1.84	3.24	2	6.80	8.40	5	A	1.40	2.01	0.45	1.23
-	B-1 (low pt)	24	0.57	0	-	4.13	9.36	2	-	-	5	A	4.13	9.36	0.00	0.00
8	C-7, D-1	9	1.12	3.78	7.68	6.94	13.43	2	11.10	14.22	5	A	2.68	2.93	4.25	10.50
8	C-6, E-1	10	0.71	3.78	7.68	7.70	16.55	2	11.54	15.38	5	A	2.75	2.95	4.95	13.60
8	C-5	11	0.30	3.78	7.68	3.05	6.79	2	8.16	11.01	5	A	1.92	2.67	1.13	4.12
5	C-4, F-1	12	0.21	1	3.95	2.15	5.91	2	9.18	13.42	5	A	1.89	4.13	0.26	1.79
4	C-3	13	0.40	1.84	5.36	4.21	8.57	2	10.54	13.75	5	A	2.85	4.06	1.36	4.51
8	D-2	14	0.71	3.78	7.68	3.73	6.92	2	8.79	11.09	5	A	2.13	2.68	1.60	4.24
6	F-2 (N)	16	0.46	5.62	9.37	2.23	3.92	2	6.74	8.32	5	A	1.42	1.86	0.81	2.06
5	F-2 (S)	17	0.44	1	3.95	2.14	3.75	2	9.16	11.31	5	A	1.88	2.98	0.26	0.77
-	F-2 (low pt)	25	0.90	0	-	4.37	7.66	2	-	-	5	A	4.37	7.66	0.00	0.00
15	G-4	18	0.31	2	5.59	1.95	3.86	2	7.78	10.04	5	A	1.61	2.64	0.34	1.22
15	G-3	19	0.43	2	5.59	2.21	4.03	2	8.14	10.21	5	A	1.77	2.71	0.44	1.32
6	G-2	20	0.86	5.62	9.37	4.17	7.32	2	8.52	10.52	5	A	1.90	2.16	2.27	5.17