STORM SEWER DESIGN CALCULATION TABLE (25–yr Return Frequency)

LINE NO	LINE STA	STRUC NUMBERS (from)	STRUC NUMBERS (to)	LOCAL C	LOCAL A (ac)	LOCAL C x A (ac)	TOTAL C x A (ac)	INLET TIME (min)	TOTAL Tc (min)	25-YR "K"	25-YR "C" (ave)	25-YR I (in/hr)	25-YR A (Ac)	25-YR Q (cfs)	PIPE DIA (in) [3]	MANN N	PIPE SLOPE (%)	MANN'S FULL CAP (cfs)	MANN'S FULL vEL (fps)	DES vEL (fps)	FLOW HEAD (ft)	FLOW DEPTH (in)	PIPE LEN (ft)	FLOW TIME (mn)
										1.1	203	188	262	288										
32	11+13.34	32-1	6-8	0.62	0.21	0.13	0.75	5.00	6.36	1.10	0.62	8.07	1.21	6.66	18	0.013	1.00%	10.50	5.94	6.39	0.62	10.42	113.34	0.30
32	15+20.28	32-2	32-1	0.62	0.39	0.24	0.48	5.00	5.17	1.10	0.62	8.47	0.78	4.51	15	0.013	1.00%	8.46	5.26	5.69	0.50	9.22	406.94	1.19
32	15+68.28	32-3	32-2	0.62	0.39	0.24	0.24	5.00	5.00	1.10	0.62	8.53	0.39	2.27	15	0.013	1.00%	8.46	5.26	4.80	0.36	6.14	48.00	0.17
33	10+48.64	33-1	32-1	0.62	0.22	0.14	0.14	5.00	5.00	1.10	0.62	8.53	0.22	1.28	15	0.013	1.00%	8.46	5.26	4.10	0.26	4.53	48.64	0.20

STORM SEWER DESIGN CALCULATION TABLE (100–yr Return Frequency)

LINE NO	LINE STA	STRUC NUMBERS (from)	STRUC NUMBERS (to)	UPSTREAM STRUCTURES 1	2	3	LOCAL C	LOCAL A (ac)	LOCAL C x A (ac)	TOTAL C x A (ac)	INLET TIME (mn)	TOTAL Tc (mn)	100 YR "K"	100 YR "C" (ave)	100 YR I (in/hr)	100 YR A (Ac)	100 YR Q (cfs)	PIPE DIA (in)	MANN N	PIPE SLOPE (%)	MANN'S FULL CAP (cfs)	MANN'S FULL vEL (fps)	DES vEL (fps)	FLOW HEAD (ft)	FLOW DEPTH (in)	PIPE LEN (ft)	FLOW TIME (mn)
32	11+13.34	32-1	6-8	32-2	33.1	-	0.62	0.21	0.13	0.75	5.00	6.28	1.25	0.62	9.81	1.21	9.20	18	0.013	1.00%	10.50	5.94	6.70	0.70	13.05	113.34	0.28
32	15+20.28	32.2	32.1	32-3	-	-	0.62	0.39	0.24	0.48	5.00	5.15	1.25	0.62	10.26	0.78	6.20	15	0.013	1.00%	8.46	5.26	5.00	0.56	11.79	406.94	1.13
32	15+68.28	32-3	32-2		-	-	0.62	0.39	0.24	0.24	5.00	5.00	1.25	0.62	10.32	0.39	3.12	15	0.013	1.00%	8.46	5.26	5.22	0.42	7.35	48.00	0.15
33	10+48.64	33.1	32-1		-		0.62	0.22	0.14	0.14	5.00	5.00	1.25	0.62	10.32	0.22	1.76	15	0.013	1.00%	8.46	5.26	4.48	0.31	5.35	48.64	0.18

INLET DESIGN TABLE (25–yr Return Frequency)

LINE NO	LINE STA	STRUC NO	OVERLAND FLOW LEN (ft)	OVERLAND FLOW S (%)	OVERLAND FLOW "C"	OVERLAND FLOW TIME (mn)	GUTTER FLOW LEN (ft)	GUTTER FLOW S (%)	GUTTER FLOW VEL (fps)	GUTTER FLOW TIME (min)	INLET TIME (mn)	100-YR "K"	100-YR "C"	100-YR I (in/hr)	100-YR A (Ac)	100-YR Q (cfs)	US BYPASS (cfs)	TOTAL FLOW (cfs)	STREET SLOPE (%)	STREET xSLOPE (%)	CG-1 CAP (cfs)	INLET LEN (ft)	INLET CAP (cfs)	80% CAP (cfs)	BYPASS DS (cfs)
												1.25	256.00	19.80	331.00	30.00							0.83		
32	11+13.34	32-1	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.21	1.68		1.68		2.08%	SUMP	30	92.79	74.23	
32	15+20.28	32-2	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.39	3.12		3.12		2.08%	SUMP	30	92.79	74.23	
32	15+68.28	32-3	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.39	3.12		3.12		2.08%	SUMP	30	92.79	74.23	
33	10+48.64	33-1	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.22	1.76		1.76		2.08%	SUMP	30	92.79	74.23	

BASED ON TRAVEL TIME CALCULATION APWA SECTION 5602.5.B
GUTTER CAPACITIES BASED ON MAXIMUM ALLOWABLE SPREAD.

INLET DESIGN TABLE (100–yr Return Frequency)

LINE NO	LINE STA	STRUC NO	OVERLAND FLOW LEN (ft)	OVERLAND FLOW S (%)	OVERLAND FLOW "C"	OVERLAND FLOW TIME (mn)	GUTTER FLOW LEN (ft)	GUTTER FLOW S (%)	GUTTER FLOW VEL (fps)	GUTTER FLOW TIME (min)	INLET TIME (mn)	100-YR "K"	100-YR "C"	100-YR I (in/hr)	100-YR A (Ac)	100-YR Q (cfs)	US BYPASS (cfs)	TOTAL FLOW (cfs)	STREET SLOPE (%)	STREET xSLOPE (%)	CG-1 CAP (cfs)	INLET LEN (ft)	INLET CAP (cfs)	80% CAP (cfs)	BYPASS DS (cfs)
												1.25	256.00	19.80	331.00	30.00							0.83		
32	11+13.34	32-1	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.21	1.68		1.68		2.08%	SUMP	30	92.79	74.23	
32	15+20.28	32-2	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.39	3.12		3.12		2.08%	SUMP	30	92.79	74.23	
32	15+68.28	32-3	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.39	3.12		3.12		2.08%	SUMP	30	92.79	74.23	
33	10+48.64	33-1	20	2.0%	0.50	3.83					5.00	1.25	0.62	10.32	0.22	1.76		1.76		2.08%	SUMP	30	92.79	74.23	

DATE	P.E. INITIALS	DESCRIPTION
10-27-08	R.J.S.	Issued for Bid
11-18-08	R.J.S.	Submitted for Permit Review

DRAINAGE TABLES

CENTERPOINT–KCS INTERMODAL CENTER
149th STREET

STATE OF MISSOURI
ROBERT J. SUNTA
E–25751
REGISTERED PROFESSIONAL ENGINEER

Reviewed By	S.E.C.
Designed By	R.J.S.
Drafted By	M.C.D.
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