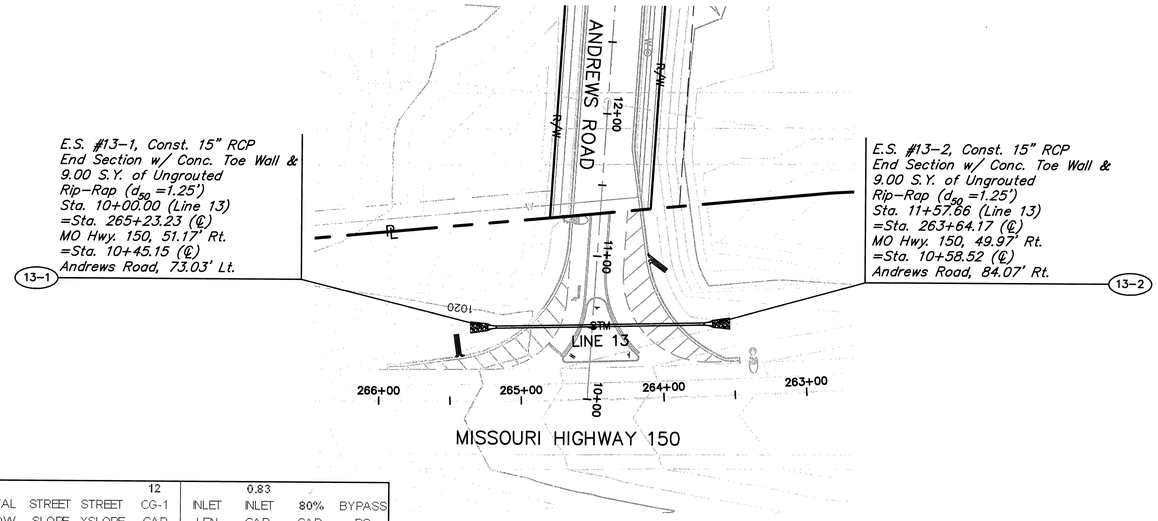
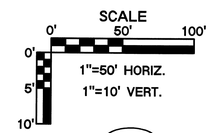


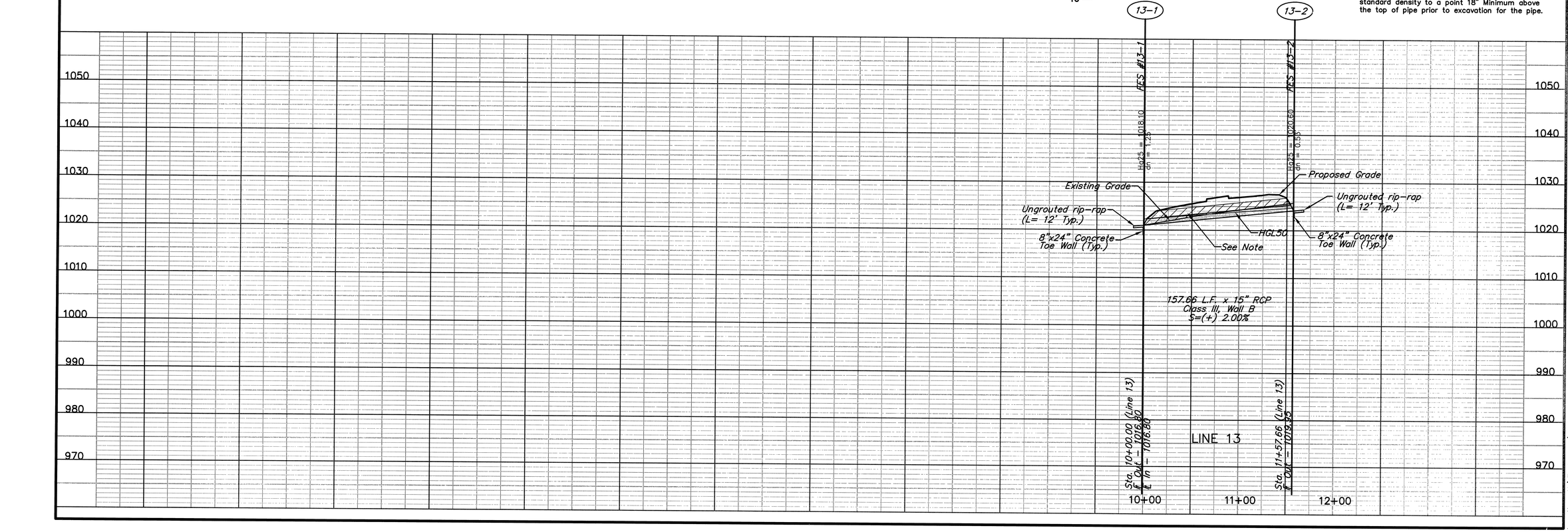
LINE NO.	LINE STA.	STRUC. NO.	OVERLAND FLOW LEN (ft)	OVERLAND FLOW S (%)	OVERLAND FLOW "C"	OVERLAND FLOW TIME (min)	GUTTER FLOW LEN (ft)	GUTTER FLOW S (%)	GUTTER FLOW VEL (fps)	GUTTER FLOW TIME (min)	INLET TIME (min)	50-YR "K"	50-YR "C"	50-YR I (in/hr)	50-YR A (Ac)	50-YR Q (cfs)	US BYPASS (cfs)	TOTAL FLOW (cfs)	STREET SLOPE (%)	STREET XSLOPE (%)	12 CG-1 CAP (cfs)	INLET LEN (ft)	0.83 INLET CAP. (cfs) 0.83	80% CAP. (cfs)	BYPASS DS (cfs)
13	10+00.00	13-1																							
13	11+57.66	13-2	130	2.3%	0.30	12.44					12.44	1.20	0.40	7.23	1.29	4.48		4.48		2.08%	SUMP	5	15.46	12.37	

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)	50-YR "K"	50-YR "C" (ave.)	50-YR I (in/hr)	50-YR A (Ac)	50-YR Q (cfs)	PIPE DIA. (in) [3]	MANN N	PIPE SLOPE (%)	MANN'S FULL CAP (cfs)	MANN'S FULL VEL (fps)	DES VEL (fps)	VEL HEAD (ft)	FLOW DEPTH (in)	PIPE LEN (ft)	FLOW TIME (min)
13	10+00.00	13-1	-	0.00	0.00	0.00	0.52	0.00	12.79	1.20	0.40	7.15	1.29	4.43	15	0.013								
13	11+57.66	13-2	13-1	0.40	1.29	0.52	0.52	12.44	12.44	1.20	0.40	7.23	1.29	4.48	15	0.013	2.00%	9.14	7.44	7.41	0.85	7.41	157.66	0.35



Line 13, FES #13–2
Direct A = 1.18 ac
Direct C = 0.40
Local CxA = 0.47 ac
Total CxA = 0.47 ac
Ant. K = 1.10
i = 6.50 in/hr
25 yr Q = 3.37 cfs
Cap. = 9.14 cfs
Vel. = 6.88 fps
Mann n = 0.013

NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.



DATE	DESCRIPTION
03-07-08	R.J.S. Prepared for Review.
04-23-08	R.J.S. ⚠Added calculation tables

P.E. SIGNATURE

STORM SEWER PLAN & PROFILE

CENTERPOINT–KCS INTERMODAL CENTER

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

Reviewed By:	S.E.C.
Designed By:	R.J.S.
Drafted By:	J.W.W.
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