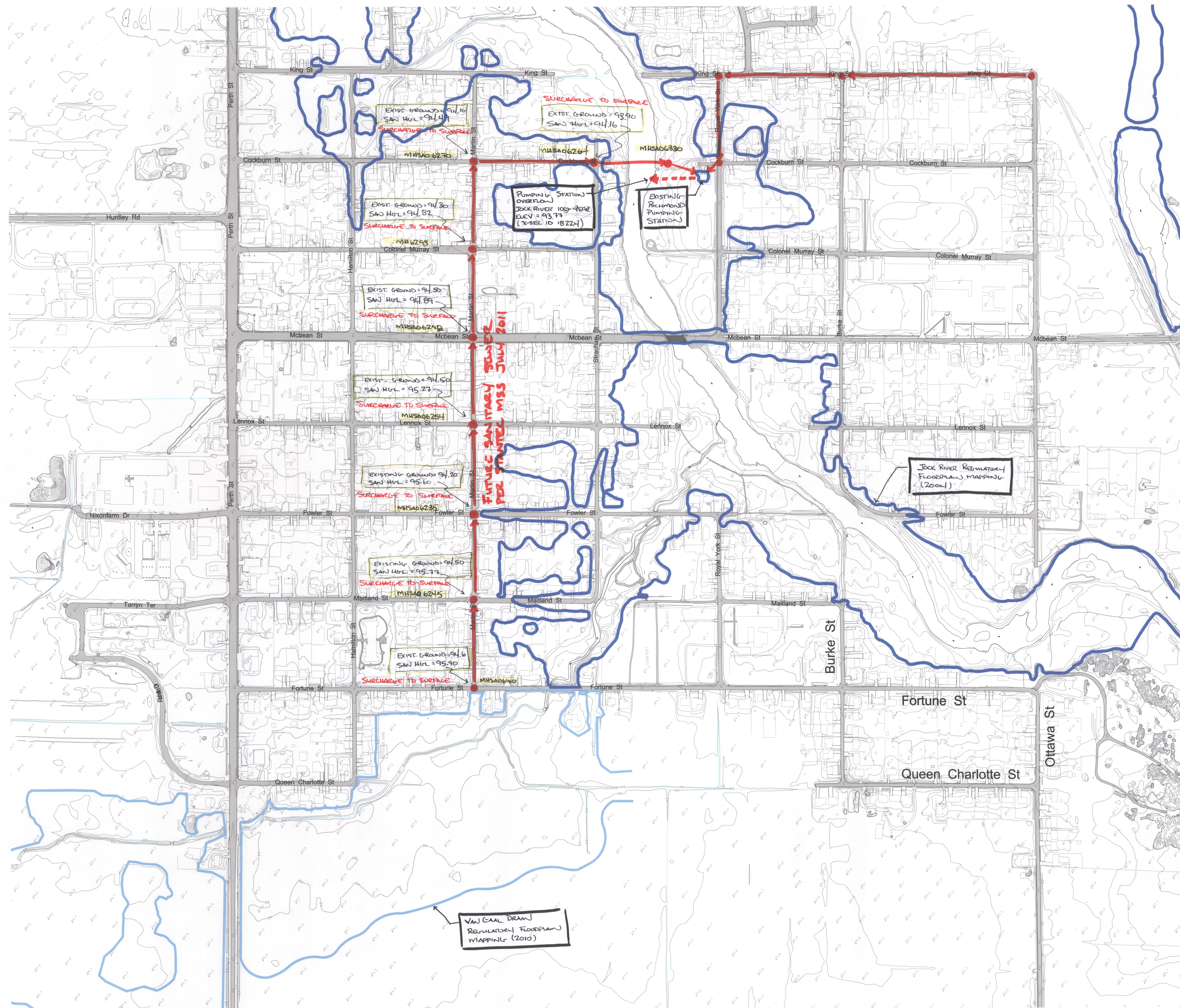




11-468
VILLAGE OF RICHMOND
FUTURE SAN. HGL ANALYSIS
CATASTROPHIC FAILURE
OF RICHMOND P.S.
1:3000

Table 1: Sanitary Sewer Pipe Data and Hydraulic Simulation Results (Restrictive Downstream Conditions)

U/S MH	D/S MH	Total Inflow (m³/s)	U/S Invert (m)	D/S Invert (m)	Pipe Dia. / Height (mm)	Pipe Length (m)	Pipe Slope (%)	n	U/S MH Cover Elev. (m)	D/S MH Cover Elev. (m)	Design Vel. (m/s)	Design Flow (m³/s)	Peak Pipe Flow (m³/s)	Peak / Design Flow	Surcharge U/S (1) (m)	Time to Peak (h)	Max. U/S HGL (m)	Max. D/S HGL (m)	Freeboard U/S HGL and MH Cover (m)
MHSA06160	MHSA06287	0.116	88.77	88.66	525	75.4	0.2	0.013	94.860	94.690	0.769	0.167	0.13	0.8	6.601	0.333	95.896	95.849	-1.036
MHSA06287	MHSA06245	0.156	88.66	88.55	525	74.0	0.2	0.013	94.690	94.390	0.769	0.167	0.16	1.0	6.664	3.983	95.849	95.765	-1.159
MHSA06245	MHSA06288	0.163	88.55	88.43	525	77.7	0.2	0.013	94.390	94.520	0.769	0.167	0.16	1.0	6.690	4.000	95.765	95.669	-1.375
MHSA06288	MHSA06235	0.163	88.43	88.34	525	60.0	0.2	0.013	94.520	94.610	0.769	0.167	0.16	1.0	6.714	4.000	95.669	95.595	-1.149
MHSA06235	MHSA06289	0.211	88.34	88.12	525	86.2	0.3	0.013	94.610	94.570	0.993	0.215	0.21	1.0	6.730	4.000	95.595	95.417	-0.985
MHSA06289	MHSA06254	0.211	88.12	87.94	525	71.9	0.3	0.013	94.570	94.900	0.993	0.215	0.21	1.0	6.772	3.983	95.417	95.269	-0.847
MHSA06254	MHSA06291	0.220	87.94	87.74	525	81.5	0.3	0.013	94.900	95.540	0.993	0.215	0.22	1.0	6.804	3.950	95.269	95.087	-0.369
MHSA06291	MHSA06292	0.224	87.74	87.52	525	86.5	0.3	0.013	95.540	94.550	0.993	0.215	0.22	1.0	6.822	4.017	95.087	94.886	0.453
MHSA06292	MHSA06293	0.224	87.45	87.36	600	58.5	0.2	0.013	94.550	93.510	0.841	0.238	0.22	0.9	6.836	3.950	94.886	94.817	-0.336
MHSA06293	MHSA06294	0.226	87.36	87.33	600	21.0	0.2	0.013	93.510	93.500	0.841	0.238	0.23	1.0	6.857	3.833	94.817	94.792	-1.307
MHSA06294	MHSA06262	0.233	87.33	87.24	600	60.0	0.2	0.013	93.500	93.880	0.841	0.238	0.23	1.0	6.862	3.983	94.792	94.717	-1.292
MHSA06262	MHSA06295	0.235	87.24	87.14	600	66.5	0.2	0.013	93.880	94.360	0.841	0.238	0.23	1.0	6.877	3.950	94.717	94.632	-0.837
MHSA06295	MHSA06270	0.238	87.14	87.02	600	77.4	0.2	0.013	94.360	93.860	0.841	0.238	0.24	1.0	6.892	3.933	94.632	94.489	-0.272
MHSA06270	MHSA06267	0.367	86.92	86.75	675	87.0	0.2	0.013	93.860	93.540	1.051	0.376	0.37	1.0	6.894	4.017	94.489	94.341	-0.629
MHSA06267	MHSA06264	0.368	86.75	86.48	675	107.0	0.3	0.013	93.540	92.860	1.175	0.420	0.37	0.9	6.916	3.950	94.341	94.160	-0.801
MHSA06264	MHSA06263	0.375	86.48	86.40	675	31.0	0.3	0.013	92.860	92.000	1.175	0.420	0.38	0.9	7.005	3.950	94.160	94.104	-1.300
MHSA06263	MHSA06330	0.375	86.40	86.20	675	82.0	0.3	0.013	92.000	91.650	1.175	0.420	0.38	0.9	7.029	3.950	94.104	93.957	-2.104
MHSA06372	MHSA06089	0.017	90.04	89.89	250	61.0	0.3	0.013	95.580	95.610	0.606	0.030	-0.02	-0.7	4.624	0.400	94.914	94.873	0.666
MHSA06089	MHSA06090	0.018	89.89	89.78	250	43.0	0.3	0.013	95.610	95.220	0.606	0.030	0.02	0.7	4.733	0.117	94.873	94.843	0.737
MHSA06090	MHSA06374	0.018	89.78	89.63	250	61.0	0.3	0.013	95.220	95.090	0.606	0.030	-0.03	-1.0	4.813	0.400	94.843	94.797	0.377
MHSA06374	MHSA06091	0.019	89.63	89.44	250	76.5	0.3	0.013	95.090	94.970	0.606	0.030	-0.05	-1.7	4.917	0.400	94.797	94.737	0.293
MHSA06091	MHSA06092	0.034	89.36	89.20	300	77.2	0.2	0.013	94.970	96.500	0.612	0.043	-0.04	-0.9	5.077	0.417	94.737	94.658	0.233
MHSA06092	MHSA06093	0.044	89.20	89.03	300	83.8	0.2	0.013	96.500	94.150	0.612	0.043	-0.05	-1.2	5.158	0.450	94.658	94.517	1.842
MHSA06093	MHSA06094	0.045	89.03	88.87	300	82.6	0.2	0.013	94.150	94.150	0.612	0.043	-0.06	-1.4	5.187	0.450	94.517	94.374	-0.367
MHSA06094	MHSA06219	0.045	88.79	88.68	375	78.6	0.2	0.013	94.150	93.720	0.615	0.068	-0.07	-1.0	5.209	0.433	94.374	94.330	-0.224
MHSA06219	MHSA06095	0.059	88.68	88.60	375	53.4	0.2	0.013	93.720	94.320	0.615	0.068	-0.07	-1.0	5.275	0.433	94.330	94.280	-0.610
MHSA06095	MHSA06115	0.060	87.95	87.84	375	73.0	0.2	0.013	94.320	93.580	0.615	0.068	-0.09	-1.3	5.955	0.433	94.280	94.209	0.040
MHSA06115	MHSA06328	0.061	87.84	87.73	375	73.0	0.2	0.013	93.580	94.490	0.615	0.068	-0.10	-1.5	5.994	0.433	94.209	94.120	-0.629
MHSA06328	MHSA39573	0.061	87.70	87.56	375	88.4	0.2	0.013	94.490	91.790	0.615	0.068	-0.12	-1.8	6.045	0.433	94.120	94.016	0.370
MHSA39573	MHSA06330	0.090	87.56	87.54	375	10.0	0.3	0.013	91.790	91.650	0.794	0.088	-0.10	-1.1	6.081	0.433	94.016	93.957	-2.226
MHSA06330	MHSA06331	0.465	86.20	86.00	675	54.0	0.4	0.013	91.650	91.720	1.429	0.511	0.47	0.9	7.082	4.017	93.957	93.810	-2.307

Note: ⁽¹⁾ A negative surcharge implies that the pipe is not flowing full