

ARAPAHO ROAD  
STORMWATER PIPE CALCULATIONS - SEPTEMBER 16, 1997

COLLECTION POINT UPSTREAM STATION	COLLECTION POINT DOWNSTREAM STATION	DISTANCE BETWEEN COLLECTION POINTS	AREA NO.	INCREMENTAL RUNOFF COEFF. C	DRAINAGE AREA INCR. CA	ACCUM. CA	TIME @ UPSTREAM STATION (MIN.)	DESIGN STORM FREQUENCY (YEAR)	RAINFALL INTENSITY I (IN./HR)	STORM WATER RUNOFF Q (CFS)	SLOPE OF HYDRAULIC GRADIENT S (FT/FT)	PIPE SIZE (INCHES)	VELOCITY IN STORM SEWER V (FPS)	HEAD LOSS COEFF. KJ	HEAD LOSS AT UPSTREAM WYE (FT)	FLOW TIME IN PIPE (MIN)	TIME @ DOWNSTREAM STATION (MIN)	DESIGN Q (CFS)	VELOCITY HEAD H <sub>v</sub> (FT)	H.G. AT UPSTREAM STATION (FT)	H.G. AT DOWNSTREAM STATION (FT)	REMARKS
LINE "B - 2" EXISTING QUORUM DRIVE FROM BELT LINE ROAD TO RAILROAD NORTH OF PROPOSED ARAPAHO ROAD - 25 YEAR STORM																						
2019.61	1929.61	90.00	B-0	2.42	0.90	2.18	10.00	25	7.29	15.88	0.0152	18	7.32	1.25	1.04	0.20	10.20	12.94	0.83	627.54	626.17	EX 18" RCP
1929.61	1912.29	17.32				2.18	10.20	25	7.29	15.88	0.0006	36	2.25	0.60	-0.42	0.13	10.33	15.88	0.08	626.59	626.58	EX 36" RCP
1912.29	1702.29	210.00	B-1	1.03	0.90	3.11	10.33	25	7.20	22.36	0.0011	36	3.16	0.60	0.11	1.11	11.44	22.36	0.16	626.47	626.24	EX 36" RCP
1702.29	1554.79	147.50	B-2	1.40	0.90	1.26	11.44	25	6.95	30.34	0.0021	36	4.29	0.60	0.19	0.57	12.01	30.34	0.29	626.04	625.74	EX 36" RCP
1554.79	1539.61	15.18	B-3	1.17	0.90	1.05	12.01	25	6.80	36.84	0.0013	42	3.83	0.60	0.06	0.07	12.08	36.84	0.23	625.68	625.66	EX 42" RCP
1539.61	1202.61	337.00	B-4	1.26	0.90	1.13	12.08	25	6.80	44.55	0.0020	42	4.63	0.60	0.20	1.21	13.29	44.55	0.33	625.47	624.81	EX 42" RCP
1202.61	1183.21	19.40	B-5	0.93	0.90	0.84	13.29	25	6.60	48.77	0.0012	48	3.88	0.60	0.03	0.08	13.37	48.77	0.23	624.77	624.75	EX 48" RCP
1183.21	1036.72	146.49	B-6	0.88	0.90	0.79	13.37	25	6.60	53.99	0.0014	48	4.30	0.60	0.15	0.57	13.94	53.99	0.29	624.60	624.40	EX 48" RCP
1036.72	1019.40	17.32	B-7	0.88	0.90	0.79	13.94	25	6.50	58.32	0.0009	54	3.67	0.60	0.04	0.08	14.02	58.32	0.21	624.36	624.34	EX 54" RCP
1019.40	990.00	29.40	B-8	1.97	0.90	1.77	14.02	25	6.45	69.31	0.0012	54	4.36	0.50	0.19	0.11	14.13	69.31	0.29	624.15	624.12	EX 60" RCP
990.00	652.47	337.53	B-9-16	9.53	0.90	8.58	14.37	25	6.40	123.67	0.0023	60	6.30	0.60	0.44	0.89	15.26	123.67	0.62	623.68	622.92	EX 60" RCP
652.47	625.31	27.16	B-9-17	0.30	0.90	0.27	15.26	25	6.25	122.46	0.0022	60	6.24	0.60	0.23	0.07	15.34	122.46	0.60	622.68	622.62	EX 60" RCP - LAT B-17
625.31	527.29	98.02	B-18	0.38	0.90	0.34	15.34	25	6.25	124.59	0.0023	60	6.35	0.60	0.26	0.26	15.59	124.59	0.63	622.36	622.13	EX 60" RCP - LAT B-18
527.29	482.59	44.70	B-19-21	3.62	0.90	3.26	15.59	25	6.15	142.64	0.0018	66	6.00	0.60	0.18	0.12	15.72	142.64	0.56	621.95	621.87	EX 66" RCP - LAT B-21
482.59	459.96	22.63	B-22 & 23	1.95	0.90	1.76	15.72	25	6.15	153.43	0.0021	66	6.46	0.60	0.31	0.06	15.78	153.43	0.65	621.56	621.51	EX 66" RCP - LAT B-23
459.96	308.05	151.91	B-24	0.17	0.90	0.15	15.78	25	6.15	154.37	0.0021	66	6.50	0.60	0.27	0.39	16.17	154.37	0.66	621.24	620.92	EX 66" RCP - LAT B-24
308.05	228.05	80.00	B-25	1.14	0.90	1.03	16.17	25	6.10	159.37	0.0023	66	6.71	0.60	0.31	0.20	16.36	159.37	0.70	620.62	620.44	EX 66" RCP - LAT B-25
228.05	188.05	40.00	B-26	27.10	0.90	24.39	17.55	25	5.95	300.58	0.0050	72	10.63	0.60	1.34	0.06	17.61	300.58	1.75	619.10	618.90	EX 72"-JUNCTION BOX N OF RR
LINE "B - 3" EXISTING ADDISON ROAD NORTH OF RAILROAD - 100 YEAR DESIGN																						
3980.00	3750.00	230.00	B-29	2.00	0.90	1.80	10.00	100	8.74	15.73	0.0224	18	8.90	1.25	1.54	0.43	10.43	15.73	1.23	663.72	658.57	EX 18" RCP
3750.00	3627.00	123.00	B-30	1.76	0.90	1.58	10.43	100	8.65	29.27	0.0051	30	5.96	0.75	-0.37	0.34	10.77	29.27	0.55	658.94	658.31	EX 30" RCP
3627.00	3497.00	130.00	B-31	0.98	0.90	0.88	10.77	100	8.55	36.47	0.0079	30	7.43	0.75	0.44	0.29	11.07	36.47	0.86	657.87	656.84	EX 30" RCP
3497.00	3254.00	243.00	B-32	1.04	0.90	0.94	11.07	100	8.45	43.96	0.0115	30	8.96	0.75	0.60	0.45	11.52	43.96	1.25	656.24	653.45	EX 30" RCP
3254.00	3100.00	154.00	B-33	1.94	0.90	1.75	11.52	100	8.35	58.02	0.0200	30	11.82	0.75	1.24	0.22	11.74	58.02	2.17	652.21	649.13	EX 30" RCP
3100.00	2800.00	300.00	B-34	1.23	0.90	1.11	12.00	100	8.30	66.86	0.0100	36	9.46	0.75	-0.24	0.53	12.26	66.86	1.39	649.37	646.35	EX 36" RCP
2800.00	2750.00	50.00	B-35	1.66	0.90	1.49	12.34	100	8.20	78.30	0.0138	36	11.08	0.50	1.21	0.08	12.34	78.30	1.91	645.14	644.45	EX 36" RCP
2750.00	2657.00	93.00	B-36	0.11	0.90	0.10	12.34	100	8.20	79.11	0.0141	36	11.19	0.50	0.99	0.14	12.48	79.11	1.94	643.46	642.15	EX 36" RCP
2657.00	2300.00	357.00	B-37	0.21	0.90	0.19	12.48	100	8.15	80.17	0.0063	42	8.33	0.60	-0.09	0.71	13.19	80.17	1.08	642.24	639.97	EX 42" RCP
2300.00	2218.00	82.00	B-38	2.74	0.90	2.47	13.19	100	8.00	98.42	0.0096	42	10.23	0.50	1.09	0.13	13.33	98.42	1.62	638.89	638.10	EX 42" RCP
2218.00	1860.00	358.00	B-39	0.66	0.90	0.59	13.33	100	7.95	102.53	0.0104	42	10.66	0.50	0.95	0.56	13.89	102.53	1.76	637.15	633.44	EX 42" RCP
1860.00	1810.00	50.00	B-40	2.86	0.90	2.57	13.89	100	7.85	121.45	0.0146	42	12.62	0.75	1.15	0.07	13.95	121.45	2.47	632.28	631.56	EX 42" RCP
1810.00	1730.00	80.00	B-41	0.40	0.90	0.36	13.95	100	7.85	124.27	0.0153	42	12.92	0.75	0.73	0.10	14.05	124.27	2.59	630.82	629.60	EX 42" RCP
1730.00	910.00	820.00	B-42	1.16	0.90	1.04	14.05	100	7.80	131.63	0.0084	48	10.47	0.50	0.85	1.30	15.36	131.63	1.70	628.75	621.86	EX 48" RCP
910.00	647.00	263.00	B-43	4.53	0.90	4.08	14.05	100	7.80	131.63	0.0026	60	6.70	1.00	-1.01	0.65	16.01	131.63	0.70	622.87	622.20	EX 60" RCP
647.00	590.00	57.00				20.95	16.01	100	7.45	156.09	0.0036	60	7.95	0.60	0.56	0.12	16.13	156.09	0.98	621.63	621.43	QUORUM JUNCT BOX N OF RR
LINE "B - 3" EXISTING ADDISON ROAD NORTH OF RAILROAD - 25 YEAR DESIGN																						
3980.00	3750.00	230.00	B-29	2.00	0.90	1.80	10.00	25	7.29	13.12	0.0156	18	7.42	1.25	1.07	0.52	10.52	13.12	0.86	647.06	643.47	EX 18" RCP
3750.00	3627.00	123.00	B-30	1.76	0.90	1.58	10.52	25	7.15	24.20	0.0035	30	4.93	0.75	-0.26	0.42	10.93	24.20	0.38	643.74	643.31	EX 30" RCP
3627.00	3497.00	130.00	B-31	0.98	0.90	0.88	10.93	25	7.05	30.08	0.0054	30	6.13	0.75	0.30	0.35	11.29	30.08	0.58	643.01	642.31	EX 30" RCP
3497.00	3254.00	243.00	B-32	1.04	0.90	0.94	11.29	25	6.95	36.15	0.0078	30	7.36	0.75	0.40	0.55	11.84	36.15	0.84	641.90	640.02	EX 30" RCP
3254.00	3100.00	154.00	B-33	1.94	0.90	1.75	11.84	25	6.85	47.59	0.0135	30	9.69	0.75	0.83	0.26	12.10	47.59	1.46	639.19	637.12	EX 30" RCP
3100.00	2800.00	300.00	B-34	1.23	0.90	1.11	12.10	25	6.80	54.77	0.0067	36	7.75	0.75	-0.16	0.65	12.75	54.77	0.93	637.28	635.26	EX 36" RCP
2800.00	2750.00	50.00	B-35	1.66	0.90	1.49	12.75	25	6.70	63.98	0.0092	36	9.05	0.50	0.81	0.09	12.84	63.98	1.27	634.45	633.99	EX 36" RCP
2750.00	2657.00	93.00	B-36	0.11	0.90	0.10	12.84	25	6.65	64.16	0.0093	36	9.08	0.50	0.64	0.17	13.01	64.16	1.28	633.35	632.49	EX 36" RCP
2657.00	2300.00	357.00	B-37	0.21	0.90	0.19	13.01	25	6.65	65.42	0.0042	42	8.80	0.60	-0.05	0.88	13.88	65.42	0.72	632.54	631.03	EX 42" RCP
2300.00	2218.00	82.00	B-38	2.74	0.90	2.47	13.88	25	6.50	79.97	0.0063	42	8.31	0.50	0.71	0.16	14.05	79.97	1.07	630.31	629.79	EX 42" RCP
2218.00	1860.00	358.00	B-39	0.66	0.90	0.59	14.05	25	6.35	81.90	0.0066	42	8.51	0.50	0.59	0.70	14.75	81.90	1.13	629.21	626.83	EX 42" RCP
1860.00	1810.00	50.00	B-40	2.86	0.90	2.57	14.75	25	6.30	97.47	0.0094	42	10.13	0.75	0.75	0.08	14.83	97.47	1.59	626.08	625.61	EX 42" RCP
1810.00	1730.00	80.00	B-41	0.40	0.90	0.36	14.83	25	6.30	99.74	0.0098	42	10									