

Drawing name: V:\2003327 Highway, N Assembly\Drawings\Engineering\Improvements\0327 MP Storm.dwg Plotted on: Feb 04, 2025 - 1:08pm Plotted by: Jankenhauas

Phase 2 Basin K, 100 Year, 20 Minute Pipe Hydraulics																			
LineID	Pipe Dia	Flow Rate	FL Dwnstrm	FL Upstrm	Pipe Length	Pipe Slope	Ave Vel	Top/Sill Elev DwnStrm	Top/Sill Elev Upstrm	HGL Dwnstrm	HGL Upstrm	FreeBoard	Critical Depth	EGLDn	EGLUp	Energy Loss	Capacity Full	n-value	Note: All inlet tops are set at the sill elevation
(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	
FE K1-OS K2	36	47.76	581.00	581.52	52.00	1.00	7.03	582.25	588.00	584.00	584.13	3.04	2.25	584.71	584.96	0.255	66.70	0.013	Starting HGL Inside Top of Pipe
FE K4-MH K5	36	40.80	585.49	585.89	44.00	0.91	5.77	588.91	592.39	589.53	589.53	2.73	2.08	589.89	590.05	0.165	63.59	0.013	
MH K5-MH K6	36	40.80	585.89	586.79	100.00	0.90	5.77	592.39	600.00	589.66	590.04	9.60	2.08	590.18	590.56	0.374	63.27	0.013	
MH K6-DCI K7	36	40.80	586.79	587.32	58.80	0.90	5.77	600.00	598.22	590.40	590.62	7.34	2.08	590.92	591.14	0.220	63.32	0.013	
DCI K7-MH K7.1	36	35.25	587.32	587.89	63.87	0.89	4.99	598.22	599.80	590.88	591.06	8.40	1.93	591.27	591.45	0.178	63.01	0.013	
MH K7.1-MH K8	36	35.25	587.89	588.30	51.40	0.80	4.99	599.80	601.90	591.40	591.54	10.00	1.93	591.78	591.93	0.144	59.56	0.013	
MH K8-MH K9	30	35.25	588.30	589.06	95.00	0.80	7.18	601.90	598.20	591.90	592.60	4.85	2.01	592.70	593.40	0.702	36.68	0.013	
MH K9-AI K10	30	35.25	589.06	589.42	45.41	0.79	7.18	598.20	595.90	593.35	593.69	1.46	2.01	594.15	594.49	0.336	36.52	0.013	
AI K10-AI K11	24	28.87	589.42	602.45	250.51	5.20	9.36	595.90	609.50	594.44	604.29	5.21	1.84	595.75	605.71	3.812	51.58	0.013	
AI K11-AI K12	24	24.18	602.45	607.46	128.40	3.90	8.16	609.50	614.70	604.29	609.20	5.50	1.74	605.37	610.28	0.000	44.68	0.013	
AI K12-AI K13	18	17.51	607.46	612.47	128.40	3.90	9.97	614.70	619.80	609.20	613.92	5.88	1.45	610.73	615.48	3.346	20.74	0.013	
AI K13-MH K14	18	11.87	612.47	617.46	127.97	3.90	7.03	619.80	625.60	613.92	618.77	6.83	1.31	614.73	619.59	0.000	20.74	0.013	
MH K14-CI K15	18	11.87	617.46	618.97	100.94	1.50	7.26	625.60	628.48	618.77	620.28	8.20	1.31	619.59	621.10	0.000	12.84	0.013	
CI K15-CI K16	18	11.64	618.97	619.50	35.00	1.51	7.14	628.48	628.48	620.28	620.80	7.68	1.30	621.08	621.60	0.000	12.92	0.013	
CI K16-AI K17	18	6.85	619.49	620.35	86.21	1.00	4.79	628.48	626.20	620.80	621.36	4.84	1.01	621.25	621.82	0.000	10.48	0.013	
AI K17-AI K18	15	4.58	620.35	624.21	194.81	2.00	4.67	626.20	630.10	621.36	625.08	5.02	0.87	621.76	625.47	0.000	9.14	0.013	
AI K18-AI K19	12	2.88	624.21	626.73	125.90	2.00	4.35	630.10	632.60	625.08	627.46	5.14	0.73	625.42	627.80	0.000	5.04	0.013	
AI K10-CI K20	15	3.56	589.42	590.62	120.00	1.00	2.90	595.90	597.35	594.44	594.81	2.52	0.76	594.57	594.94	0.365	6.46	0.013	
CI K20-CI K21	12	1.80	590.62	590.97	35.00	1.00	2.29	597.35	597.35	594.83	594.91	2.35	0.57	594.91	595.00	0.089	3.56	0.013	
AI K11-CI K22	12	3.14	602.45	603.80	135.00	1.00	4.00	609.50	611.02	604.29	605.34	5.64	0.76	604.54	605.59	1.050	3.56	0.013	
CI K22 - CI K23	12	2.29	603.80	604.15	35.00	1.00	2.92	611.02	611.02	605.38	605.53	5.48	0.65	605.51	605.66	0.145	3.56	0.013	
CI K23-AI K24	12	1.44	604.15	605.20	105.00	1.00	2.51	611.02	609.70	605.54	605.76	3.78	0.51	605.60	605.92	0.322	3.56	0.013	
AI K12-CI K25	12	1.70	609.96	611.31	135.00	1.00	4.14	614.70	618.73	610.45	611.86	6.87	0.55	610.67	612.09	0.000	3.56	0.013	
CI K25-CI K26	12	0.85	611.31	611.66	35.00	1.00	2.47	618.73	618.73	611.86	612.05	6.68	0.39	612.01	612.19	0.000	3.56	0.013	
AI K12-MH K27	12	3.50	609.96	610.15	18.74	1.01	5.20	614.70	614.80	610.76	610.95	3.60	0.80	611.18	611.37	0.190	3.59	0.013	
MH K27-DCI K28	12	3.50	610.15	611.24	109.27	1.00	4.46	614.80	616.58	611.20	612.24	4.30	0.80	611.51	612.55	1.036	3.56	0.013	
DCI K28-DCI K29	12	1.53	611.24	611.59	35.00	1.00	2.22	616.58	616.58	612.28	612.32	4.16	0.52	612.34	612.42	0.074	3.56	0.013	
CI K29-CI K30	12	3.95	613.97	615.32	135.00	1.00	6.03	619.80	623.99	614.97	616.63	7.30	0.84	615.36	617.02	1.661	3.56	0.013	
CI K30-CI K31	12	2.86	615.32	615.67	35.00	1.00	3.64	623.99	623.99	616.69	616.92	7.04	0.72	616.90	617.12	0.226	3.56	0.013	Starting HGL Inside top of Pipe
CI K31-AI K32	12	1.86	615.67	616.72	105.00	1.00	3.14	623.99	622.70	616.95	617.30	5.16	0.58	617.03	617.54	0.499	3.56	0.013	
CI K32-CI K33	12	0.97	616.72	618.28	156.40	1.00	2.29	622.70	624.67	617.54	618.69	5.98	0.41	617.70	618.85	0.000	3.56	0.013	
CI K34-CI K33	12	0.69	618.28	618.63	35.00	1.00	2.56	624.67	624.67	618.69	618.98	5.69	0.35	618.82	619.10	0.000	3.56	0.013	
CI K16-DCI K35	12	4.53	619.49	628.48	53.74	2.49	5.96	628.48	627.91	620.80	621.72	6.19	0.89	621.32	622.31	0.822	5.62	0.013	
DCI K35-DCI K36	12	1.88	620.83	622.58	35.00	5.00	3.25	627.91	627.91	621.72	623.16	4.75	0.58	621.96	623.41	0.000	7.96	0.013	

Phase 2 Basin M, 100 Year, 20 Minute Pipe Hydraulics																			
LineID	Pipe Dia	Flow Rate	FL Dwnstrm	FL Upstrm	Pipe Length	Pipe Slope	Ave Vel	Top/Sill Elev DwnStrm	Top/Sill Elev Upstrm	HGL Dwnstrm	HGL Upstrm	FreeBoard	Critical Depth	EGLDn	EGLUp	Energy Loss	Capacity Full	n-value	Note: All inlet tops are set at the sill elevation
(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	
FE M1-OS M2	24	20.66	570.42	571.02	60.00	1.00	6.61	573.38	578.00	572.50	572.96	4.36	1.63	573.17	573.64	0.471	22.62	0.013	Starting HGL Inside Top of Pipe
FE M3-MH M4	24	19.27	573.50	573.69	19.17	0.99	6.13	575.83	580.60	578.94	579.08	1.43	1.58	579.53	579.66	0.139	22.52	0.013	
MH M4-DCI M5	24	19.27	573.69	575.80	29.39	7.18	6.13	580.60	583.81	579.17	579.38	4.07	1.58	579.75	579.97	0.213	60.60	0.013	
DCI M5-DCI M6	24	17.61	573.98	576.43	35.00	7.00	5.61	583.81	583.81	579.74	579.95	3.38	1.51	580.23	580.44	0.212	59.84	0.013	
DCI M6-DCI M7	24	13.11	576.43	577.12	68.76	1.00	4.17	583.81	584.77	580.43	580.66	3.83	1.30	580.70	580.94	0.231	22.66	0.013	
DCI M7-AI M8	15	5.58	577.12	578.17	105.00	1.00	4.55	584.77	584.00	580.94	581.72	1.97	0.96	581.26	582.04	0.784	6.46	0.013	
AI M8-AI M9	12	2.52	578.17	584.51	253.45	2.50	3.82	584.00	589.40	582.03	585.19	4.21	0.68	582.19	585.50	1.615	5.63	0.013	
DCI M7-DCI M10	12	2.88	577.12	577.82	35.00	2.00	4.86	584.77	584.77	580.94	581.34	3.06	0.83	581.30	581.71	0.403	5.04	0.013	

Phase 2 Basin N, 100 Year, 20 Minute Pipe Hydraulics																			
LineID	Pipe Dia	Flow Rate	FL Dwnstrm	FL Upstrm	Pipe Length	Pipe Slope	Ave Vel	Top/Sill Elev DwnStrm	Top/Sill Elev Upstrm	HGL Dwnstrm	HGL Upstrm	FreeBoard	Critical Depth	EGLDn	EGLUp	Energy Loss	Capacity Full	n-value Pipe	Note: All inlet tops are set at the sill elevation
	(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)		
FE N1-OS N2	24	18.33	567.00	567.71	71.00	1.00	6.44	569.33	576.00	569.00	569.25	5.97	1.54	569.53	570.03	0.496	22.62	0.013	Starting HGL Inside Top of Pipe Starting HGL 100yr 20min-576.94
FE N3-MH N4	24	14.91	570.50	571.11	61.00	1.00	4.75	572.83	582.90	576.94	577.21	5.54	1.39	577.29	577.56	0.265	22.62	0.013	
MH N4-MH N5	24	14.91	575.82	577.61	15.00	11.93	6.07	582.90	583.20	577.36	579.00	4.20	1.39	578.00	579.64	0.000	78.13	0.013	
MH N5-MH N6	24	14.91	576.27	578.67	85.00	2.82	5.57	583.20	592.93	579.00	580.06	12.87	1.39	579.35	580.70	0.453	38.01	0.013	
MH N6-MH N6.1	24	14.91	578.67	579.23	56.11	1.00	6.40	592.93	591.30	580.06	580.62	10.68	1.39	580.70	581.26	0.000	22.60	0.013	
MH N6.1-DCI N7	24	14.91	579.23	579.73	49.90	1.00	6.40	591.30	589.86	580.62	581.12	8.74	1.39	581.26	581.76	0.000	22.64	0.013	
DCI N7-MH N8	18	8.46	579.73	580.25	52.03	1.00	5.45	589.86	591.79	581.12	581.38	10.41	1.13	581.67	581.93	0.000	10.50	0.013	
MH N8-AI N9	18	8.46	580.25	581.20	95.00	1.00	5.95	591.79	586.82	581.38	582.33	4.49	1.13	581.93	582.88	0.000	10.50	0.013	
AI N9-MH N10	15	7.51	581.20	584.14	98.00	3.00	6.54	586.82	590.77	582.33	585.23	5.54	1.09	583.01	585.91	0.000	11.18	0.013	
MH N10-CI N11	12	3.61	584.14	589.37	174.37	3.00	4.95	590.77	595.88	585.23	590.18	5.70	0.81	585.56	590.62	1.812	6.17	0.013	
CI N11-CI N12	12	2.66	589.37	589.72	35.00	1.00	4.22	595.88	595.88	590.18	590.42	5.40	0.70	590.50	590.74	0.000	3.56	0.013	
CI N12-CI N13	12	1.81	589.72	590.26	54.36	0.99	3.49	595.88	597.05	590.42	590.83	6.22	0.57	590.65	591.07	0.000	3.55	0.013	
CI N13-CI N14	12	0.45	590.26	592.54	35.00	6.51	1.75	597.05	597.05	590.83	592.82	4.23	0.28	590.93	592.92	0.000	9.09	0.013	
MH N10-AI N15	15	3.90	584.14	584.72	57.90	1.00	4.08	590.77	589.90	585.23	585.52	4.38	0.80	585.57	585.86	0.000	6.46	0.013	
CI N13-AI N16	12	0.82	590.26	591.00	74.41	0.99	2.39	597.05	596.26	590.83	591.38	4.88	0.38	590.97	591.52	0.000	3.55	0.013	