

ISSUE	DATE / REMARKS
1	6-10-2016 Initial Submittal
2	9-1-2016 PWSD #2 & DCSD Comments
3	10-24-16 City Comments
4	11-15-16 DCSD Comments
5	12-15-16 City Comments
6	12-28-16 DCSD Comments
7	1-18-17 PWSD #2 Comments
8	1-26-17 Fire District Comments
9	1-27-17 City Comments
10	3-1-17 City Comments
11	4-10-18 Removed Eyebrow

15-YEAR, 20-MIN. HYDRAULIC CALCULATIONS (LOW FLOW BLOCKED USED FOR STARTING HGL):

LineNo.	LineID	LineSize	FlowRate	InvertDn	InvertUp	LineLength	LineSlope	VelAve	Grnd/RimElev Dn	Grnd/RimElev Up	HGLDn	HGLUp	Rim-Hw	CriticalDepth	EGLDn	EGLUp	EnergyLoss	CapacityFull	n-valuePipe
		(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	
1	FES 100-OS 101	30	32.52	537.00	538.24	62.00	2.00	6.63	538.25	547.02	546.00	546.39	-0.05	1.94	546.68	547.07	0.39	58.00	0.013
2	FES 102-MH 103	30	29.50	544.00	544.72	36.00	2.00	6.22	545.25	553.03	546.83	546.93	5.93	1.85	547.39	547.57	0.18	58.00	0.013
3	MH 103-MH 104	24	29.50	544.92	556.92	100.00	12.00	9.55	553.03	563.94	547.10	558.77	5.17	1.85	548.47	560.24	1.59	78.35	0.013
4	MH 104-MH 105	24	29.50	557.12	562.52	108.00	5.00	10.16	563.94	568.50	558.77	564.37	4.13	1.85	560.24	565.84	0.00	50.57	0.013
5	MH 105-MH 106	24	29.50	562.72	565.96	162.00	2.00	10.16	568.50	576.50	564.37	567.81	8.69	1.85	565.84	569.28	0.00	31.99	0.013
6	MH 106-AI 107	24	23.58	570.24	584.89	66.58	22.00	17.67	576.50	595.30	570.88	586.61	8.69	1.72	571.93	587.66	0.00	106.10	0.013
7	AI 107-DCI 108	24	21.49	585.09	588.12	151.50	2.00	8.05	595.30	600.50	586.61	589.78	10.72	1.66	587.54	590.70	0.00	31.99	0.013
8	DCI 108-CI 109	24	14.37	588.32	589.07	75.32	1.00	6.08	600.50	599.34	589.78	590.43	8.91	1.36	590.39	591.05	0.00	22.57	0.013
9	CI 109-DCI 110	24	12.79	589.27	589.62	35.00	1.00	6.37	599.34	599.34	590.43	590.91	8.43	1.29	590.99	591.46	0.00	22.62	0.013
10	DCI 110-AI 111	18	8.05	589.82	591.54	172.00	1.00	5.84	599.34	596.50	590.91	592.64	3.86	1.10	591.43	593.16	0.00	10.50	0.013
11	AI 111-AI 112	12	2.26	591.74	594.54	80.00	3.50	3.64	596.50	599.40	592.64	595.18	4.22	0.64	592.92	595.46	0.00	6.66	0.013
12	MH 106-AI 113	15	5.92	570.73	583.68	70.00	18.50	11.84	576.50	593.50	571.12	584.66	8.84	0.98	571.63	585.17	0.00	27.77	0.013
13	AI 113-AI 114	15	4.75	586.50	600.93	78.00	18.50	11.01	593.50	608.91	586.85	601.81	7.10	0.88	587.26	602.22	0.00	27.77	0.013
14	AI 114-CI 115	15	3.83	601.13	604.61	135.00	2.58	5.13	608.91	611.92	601.81	605.40	6.52	0.79	602.15	605.74	0.00	10.37	0.013
15	CI 115-CI 116	12	2.80	604.81	605.52	35.68	1.99	5.22	611.92	612.37	605.40	606.24	6.13	0.72	605.74	606.57	0.00	5.02	0.013
16	CI 116-MH 117	12	1.23	605.72	614.52	130.00	6.77	3.21	612.37	622.70	606.24	614.99	7.71	0.47	606.42	615.17	0.00	9.27	0.013
17	MH 117-AI 118	12	1.23	614.72	615.06	34.00	1.00	3.76	622.70	619.69	615.13	615.53	4.16	0.47	615.13	615.71	0.00	3.56	0.013
18	DCI 108-CI 119	15	5.09	591.07	591.77	35.00	2.00	6.47	600.50	600.50	591.74	592.68	7.82	0.91	592.17	593.12	0.00	9.13	0.013
19	CI 119-CI 120	12	4.14	591.97	606.70	184.13	8.00	6.33	600.50	611.71	592.68	607.56	4.15	0.86	593.20	608.08	0.00	10.07	0.013
20	CI 120-CI 121	12	1.02	606.90	607.25	35.00	1.00	2.54	611.71	611.71	607.56	607.67	4.04	0.42	607.72	607.84	0.00	3.56	0.013
21	DCI 110-MH 122	12	2.91	592.82	594.04	121.94	1.00	4.89	599.34	603.00	593.51	594.77	8.23	0.73	593.86	595.12	0.00	3.56	0.013
22	MH 122-AI 123	12	2.91	594.24	595.42	118.13	1.00	4.89	603.00	600.30	594.93	596.15	4.15	0.73	595.28	596.50	0.00	3.56	0.013
23	FES 124-CI 125	12	1.17	607.00	611.34	72.41	5.99	3.10	608.25	624.19	607.52	611.80	12.39	0.46	607.70	611.97	0.00	8.72	0.013
24	CI 125-CI 126	12	0.64	616.72	618.05	66.89	1.99	3.59	624.19	624.34	616.96	618.38	5.96	0.33	617.08	618.50	0.00	5.02	0.013
25	CI 120-CI 127	12	2.43	606.90	614.71	130.20	6.00	4.40	611.71	620.33	607.56	615.38	4.95	0.67	607.86	615.67	0.00	8.72	0.013
26	CI 127-DCI 128	12	1.50	614.91	615.61	35.00	2.00	3.91	620.33	620.33	615.38	616.13	4.20	0.52	615.58	616.34	0.00	5.04	0.013
27	FES 200-AI 201	24	28.80	546.00	549.35	67.00	5.00	9.17	548.33	566.00	598.41	599.50	-33.69	1.84	599.72	600.80	1.09	50.57	0.013
28	AI 201-MH 202	24	28.42	558.25	564.13	196.00	3.00	9.05	566.00	573.80	599.69	602.79	-29.31	1.84	600.97	604.06	3.10	39.18	0.013
29	MH 202-AI 203	24	28.42	564.33	567.54	146.00	2.20	9.05	573.80	573.50	603.11	605.41	-32.55	1.84	604.38	606.69	2.31	33.54	0.013
30	AI 203-OS 204	24	27.40	567.74	585.38	98.00	18.00	8.72	573.50	595.42	606.05	607.49	-13.25	1.82	607.23	608.67	1.44	95.96	0.013
31	FES 205-AI 206	12	1.40	590.50	593.50	75.00	4.00	1.78	591.75	603.00	595.09	595.21	7.74	0.50	595.14	595.26	0.12	7.12	0.013
32	FES 208-MH 209	24	21.52	592.00	592.44	22.00	2.00	6.85	594.33	599.50	595.09	595.29	3.55	1.66	595.82	596.02	0.20	31.99	0.013
33	MH 209-CI 210	24	18.11	592.64	595.47	80.00	3.54	6.39	599.50	607.40	595.95	597.00	10.40	1.53	596.46	597.77	0.55	42.54	0.013
34	CI 210-DCI 211	24	16.57	595.67	596.37	35.00	2.00	7.09	607.40	607.40	597.00	597.84	9.56	1.47	597.70	598.54	0.00	31.99	0.013
35	CI 211-AI 212	24	13.19	596.57	598.04	147.00	1.00	6.18	607.40	606.20	597.84	599.35	6.85	1.31	598.41	599.92	0.00	22.62	0.013
36	AI 212-DAI 213	18	10.70	598.24	598.53	29.00	1.00	6.77	606.20	604.50	599.50	599.79	4.31	1.25	600.21	600.50	0.29	10.50	0.013
37	MH 209-CI 214	12	3.41	594.37	608.54	154.00	9.20	4.74	599.50	615.33	595.95	609.33	6.00	0.79	596.24	609.74	1.47	10.80	0.013
38	CI 214-CI 215	12	3.17	608.74	609.27	35.00	1.51	5.51	615.33	615.33	609.37	610.03	5.30	0.76	609.75	610.41	0.00	4.38	0.013
39	CI 215-AI 217	12	1.80	609.47	610.95	147.80	1.00	3.92	615.33	616.00	610.03	611.52	4.48	0.57	610.27	611.76	0.00	3.56	0.013
40	DAI 213-MH 218	15	2.74	598.73	603.43	47.00	10.00	3.19	604.50	613.50	600.19	604.09	9.41	0.66	600.26	604.36	0.15	22.12	0.012
41	FES 300-OS 301	36	49.01	543.00	544.18	59.22	1.99	6.93	544.25	553.47	554.92	555.24	-2.52	2.28	555.67	555.99	0.32	94.14	0.013
42	FES 302-AI 303	30	17.30	549.81	549.94	27.00	0.48	3.52	552.68	557.46	569.38	569.43	-12.00	1.41	569.57	569.62	0.05	28.46	0.013
43	AI 303-AI 304	24	16.45	550.14	550.92	97.00	0.80	5.24	557.46	560.30	569.46	569.97	-9.91	1.46	569.88	570.40	0.51	20.28	0.013
44	AI 304-AI 305	24	15.01	551.12	551.84	90.00	0.80	4.78	560.30	560.70	570.21	570.61	-10.26	1.40	570.56	570.96	0.40	20.23	0.013
45	AI 305-CI 306	24	13.73	552.04	553.18	142.50	0.80	4.37	560.70	558.19	570.96	571.49	-13.59	1.33	571.26	571.78	0.53	20.23	0.013
46	CI 306-MH 307	18	9.83	553.38	553.89	34.00	1.00	5.56	558.19	559.50	571.78	572.08	-12.99	1.21	572.26	572.56	0.30	12.86	0.013
47	MH 307-CI 308	18	9.83	554.09	556.57	165.00	1.50	5.56	559.50	563.38	572.49	573.93	-11.03	1.21	572.97	574.41	1.45	12.87	0.013
48	CI 308-DCI 309	15	6.81	556.77	560.16	113.00	3.00	5.55	563.38	565.64	574.41	575.67	-10.51	1.05	574.89	576.15	1.26	11.18	0.013
49	DCI 309-DCI 310	12	3.20	560.36	561.06	35.00	2.00	4.07	565.64	565.64	576.15	576.43	-11.05	0.77	576.41	576.69	0.28	5.04	0.013
50	AI 305-AI 311	12	0.90	552.04	556.04	80.00	5.00	1.15	560.70	562.30	570.96	571.01	-8.73	0.40	570.98	571.03	0.05	7.96	0.013
51	CI 308-AI 312	12	2.37	556.77	559.67	145.32	2.00	3.02	563.38	564.30	574.41	575.06	-10.78	0.66	574.55	575.20	0.64	5.03	0.013
52	AI 312-AI 313	12	0.79	559.87	560.19	16.00	2.00	1.01	564.30	579.50	575.08	575.09	4.40	0.37	575.09	575.10	0.01	5.04	0.013
53	FES 314-AI 315	24	25.49	550.00	550.84	42.00	2.00	8.11	552.33	561.53	553.17	553.70	7.53	1.77	554.19	554.73	0.53	31.99	0.013
54	AI 315-AI 316	24	24.39	551.04	557.33	37.00	17.00	8.08	561.53	565.50	554.00	559.07	6.43	1.74	554.94	560.17	0.41	93.26	0.013
55	AI 316-AI 317	24	23.87	557.53	589.03	105.00	30.00	8.72	565.50	597.60	559.07	590.76	6.84	1.73	560.14	591.82	0.00	123.88	0.013
56	AI 317-MH 318	24	22.28	589.23	591.80	128.12	2.01	8.27	597.60										