CITY OF EMERYVILLE
INCORPORATED 1896

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Via Email and U.S. Mail

September 30, 2014

Mr. Bruce H. Wolfe, Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: City of Emeryville Tentative Order No. R2-2014-XXXX; NPDES No. CA0038792

Dear Mr. Wolfe:

Thank you for the opportunity to comment on the above referenced Tentative Order provided to the City of Emeryville on August 28, 2014. In addition to the comments submitted jointly with the cities of Alameda, Albany, Berkeley, Oakland, Piedmont and Stege Sanitary District, the City of Emeryville has the following additional comment with respect to the "cause and contribute" prohibitions, which must be stricken.

The City of Emeryville physically cannot "cause or contribute" to discharges from the East Bay Municipal Utility District's (EBMUD) Wet Weather Facilities (WWF's). The following discussion, based on information contained in the EBMUD *Revised Final Flow Modeling and Limits Report* (FMLR), September 2012, substantiates this position.

The FMLR provided detailed flow information for the entire service area along with 6 alternative schemes for eliminating the use of the WWFs based on Capacity Flow Limits. Although none of these schemes was ultimately adopted, the schemes illustrate a range of hydraulic conditions in the EBMUD interceptor system. Therefore, the flow analyses contained in the FMLR report has been used for the analysis presented herein.

Drainage Area

The City of Emeryville maintains a sewer system that discharges into the EBMUD Interceptor System at a number of locations. This system serves approximately 670 acres in Emeryville and 370 acres in Oakland[1]. The majority of flow from the service

area flows through Interceptor Tributary Areas (ITA) 20, 21, 22, 23, and 24, via trunk sewers into the EBMUD North Interceptor. For the most part, in ITAs that cross the city limits, the flow originates in Oakland and co-mingles with flow from Emeryville. A portion of the City of Emeryville flows through Oakland's sewers in ITA 50L, which discharges into the South Interceptor, immediately upstream of the EBMUD wastewater treatment plant.

Estimated Peak Wet Weather Flows

Based on Table 3-6 (Attachment p.1) of the FMLR[2], the total peak wet weather flow (PWWF) to the North Interceptor from the Emeryville trunk sewers (including flow from Oakland) is 18.72 mgd, which represents 5.8% of the 320 mgd wet weather capacity of the main wastewater treatment facility (WWTF) or 2.5% of the 722 mgd Peak Wet Weather Flow (PWWF). Based on Table 3-9 (Attachment p.3) of the FMLR, the total PWWF from the City of Emeryville is 9.3 mgd (1.3% of the current system-wide PWWF and 2.9% of the wet weather capacity of the main WWTF). Of this total, 6.75 mgd discharges into the North Interceptor at several locations, and 2.57 mgd discharges into the South Interceptor via ITA 50L-1 (FMLR Table 3-7 (Attachment p.2)).

Impact on Point Isabel WWF

The FMLR report includes Hydraulic Grade Line[3] calculation profiles for the flow alternatives included in the FMLR report. The hydraulic profiles of interest regarding Emeryville's relationship to the Point Isabel WWF is entitled "Profile - North Interceptor (Manhole N20 to Influent Pump Station)" and are attached hereto (Attachments p.4 – p.9). The specific locations where Emeryville trunk sewers discharge along the profile are between N30 and N41A. Regardless of the alternative selected, the North Interceptor is never more than about two-thirds full in the vicinity of the co-mingled Emeryville/Oakland discharges. Given that the North Interceptor is flowing two-thirds full in the vicinity of the Emeryville discharges, all co-mingled wet weather flows from Emeryville discharge directly to the main wastewater treatment plant without any impacts to any capacity limitations of the North Interceptor.

More importantly, there are at least five bottlenecks in the North Interceptor upstream of Emeryville's discharge points. The closest of these bottlenecks to Emeryville is at Ashby Avenue in Berkeley and further upstream, at University Avenue, also in Berkeley. These bottlenecks effectively act as valves, thereby preventing any hydraulic influence of the downstream flows back upstream in the North Interceptor. Therefore, flows to the North Interceptor from Emeryville's trunk sewers have no influence on the flows upstream of the most downstream bottleneck in the North Interceptor or on the operation of the Point Isabel WWF.

Impact on San Antonio Creek and Oakport WWFs

The hydraulic profiles of interest regarding Emeryville's contribution to the flows in the South Interceptor is entitled "Profile - South Interceptor (Manhole S47 to Influent Pump Station)." The six hydraulic profiles presented in the FMLR are attached hereto (Attachments p. 10 – p. 21). The specific location where Emeryville flow discharges to the South Interceptor via Oakland's trunk sewer, S68A, is identified on the profile (Attachments p. 10, 12, 14, 16, 18, and 20); this is the most downstream discharge location on the South Interceptor. Regardless of the alternative selected, the South Interceptor is never more than about 80 percent full at this point and all co-mingled wet weather flows from ITA 50L drain directly to the main wastewater treatment plant without any impacts on the capacity of the South Interceptor. The flow impacts prompting use of and discharges from the WWFs are well upstream of the discharge point S68A.

More importantly, there is a bottleneck in the South Interceptor between Emeryville's discharge point and the San Antonio Creek WWF (Attachment p. 11, 13, 15, 17 19, and 21) and additional bottlenecks further upstream in the South Interceptor toward the Oakport WWF. Again, these bottlenecks effectively act as valves, thereby preventing any hydraulic influence of the downstream flows back upstream in the South Interceptor. Therefore, flows to the South Interceptor from Emeryville's trunk sewers have no influence on the flows upstream of the bottlenecks in the South Interceptor and or the operation of the San Antonio Creek WWF, or further upstream at the Oakport WWF.

Therefore, any time the hydraulic grade line is below the crown of the pipe, the pipe is capable of carrying additional flow without surcharging.

Thank you for considering our proposed modifications to the Tentative Order.

Sincerely yours,

Maurice Kaufman
Public Works Director

cc: Michael Biddle, City Attorney, Emeryville
Justine Faisst, Public Works Department, Emeryville
Laurie Kermish, Environmental Protection Agency [via email only]
Patricia Hurst, United States Department of Justice [via email only]
Lila Tang, Regional Water Board [via email only]
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Chester Nakahara, Public Works Director, Piedmont [via email only]
Rax Delizo, District Manager, Stege [via email only]
Kent Alm, Myers Nave [via email only]
Sarah Quiter, Myers Nave [via email only]

[1] City of Emeryville; *Sewer System Capacity Analysis and Master Plan*; June 9, 2010.
[2] East Bay Municipal Utility District (EBMUD); *Revised Final Flow Modeling and Limits Report* (FMLR); September 2012.
[3] The surface or profile of water flowing in an open channel or a pipe flowing partially full. If a pipe is under pressure, the hydraulic grade line is that level water would rise to in a small, vertical tube connected to the pipe.

Table 3-6: Interceptor Tributary Area Flows

ITA[a]	ABWF (mgd)	Basis of ABWF[b]	Dry GWI (mgd)	ADWF (mgd)	1-hr PBWF (mgd)	3-hr PBWF (mgd)	Max. GWI (mgd)	Rt Avg.[c] (%)	Rt Max (%)	15-min Peak RDII[d] (mgd)	1-hr Peak RDII[d] (mgd)	PWWF[e] (mgd)	EB SSES Method PWWF[f] (mgd)	WW PF[g]	EB SSES Method WW PF[h]
01-1	0.86	2010	0.22	1.08	1.50	1.47	2.18	9.8%	18.5%	21.0	20.7	24.0	24.4	28	23
02-1_2	1.21	2009	0.25	1.46	1.98	1.93	3.75	7.9%	11.0%	29.2	28.9	34.1	34.6	28	24
02-3	0.018	2010	0.003	0.021	0.04	0.04	0.04	1.0%	1.3%	0.17	0.14	0.23	0.22	13	10
10-1	0.59	2010	0.17	0.76	1.06	0.98	1.43	12.7%	17.3%	14.2	11.9	16.2	14.3	27	19
11-1	0.64	2010	0.10	0.74	1.12	1.08	1.01	16.4%	21.0%	12.2	12.1	13.9	14.2	22	19
11-2	0.086	2010	0.004	0.091	0.16	0.13	0.07	3.3%	5.2%	0.23	0.23	0.38	0.43	4	5
11-3	0.025	2010	0.003	0.028	0.10	0.07	0.03	7.5%	8.0%	1.72	1.66	1.78	1.77	72	64
12-1	0.167	2010	0.005	0.17	0.27	0.26	0.15	5.4%	8.2%	1.41	1.40	1.73	1.81	10	11
13-1	0.078	2010	0.012	0.090	0.16	0.13	0.27	15.2%	21.0%	3.22	2.88	3.57	3.29	46	36
14-1	0.52	2010	0.10	0.62	1.01	0.82	0.80	12.3%	22.0%	17.9	16.9	19.2	18.1	37	29
14-2	0.109	2010	0.013	0.12	0.20	0.16	0.32	13.6%	22.0%	2.80	2.44	3.23	2.91	30	24
14-3	0.057	2010	0.023	0.080	0.09	0.09	0.14	6.4%	12.0%	0.62	0.61	0.81	0.83	14	10
15-1	1.06	2010	0.19	1.25	1.70	1.62	1.27	10.2%	15.0%	10.9	9.25	13.2	12.1	12	10
15-2	0.068	2009	0.010	0.078	0.15	0.14	0.18	11.8%	22.0%	2.34	2.22	2.59	2.55	38	33
16-1	0.14	2010	0.000	0.14	0.26	0.23	0.04	1.8%	3.4%	0.25	0.25	0.43	0.51	3	4
17L-1	1.81	2009	0.32	2.13	2.89	2.83	3.58	11.6%	18.0%	20.5	20.4	25.9	26.8	14	13
17U-1	4.09	2010	0.55	4.64	6.27	6.00	3.48	4.8%	6.5%	26.4	23.6	34.0	33.1	8	7
20-1	0.39	2010	0.22	0.61	0.62	0.53	0.65	11.8%	15.5%	6.37	5.86	7.40	7.03	19	12
21L-1	0.28	2010	0.055	0.34	0.46	0.39	0.63	6.0%	15.8%	7.18	5.90	8.08	6.92	29	20
21L-2	0.130	2010	0.040	0.17	0.21	0.21	0.07	1.5%	1.8%	0.34	0.28	0.54	0.56	4	3
21U-1	0.098	2010	0.033	0.13	0.19	0.18	0.21	23.7%	36.0%	6.61	5.48	6.92	5.88	71	45
22-1	0.32	WU	0.066	0.39	0.42	0.41	0.24	4.0%	4.0%	1.01	0.86	1.57	1.50	5	4
23-1	0.104	WU	0.011	0.11	0.15	0.14	0.15	4.5%	6.5%	0.88	0.73	1.13	1.03	11	9
50L-1	1.73	2010	0.54	2.26	2.93	2.88	3.04	12.0%	23.0%	35.8	35.6	40.5	41.5	23	18
50U-1	1.64	2010	0.31	1.95	2.84	2.77	3.20	9.2%	18.0%	42.8	42.3	47.7	48.3	29	25
52-1	3.42	2010	1.35	4.78	4.91	4.85	4.06	10.1%	16.0%	40.4	40.2	47.9	49.1	14	10
54-1_2	3.37	2010	0.61	3.98	5.54	5.32	4.49	10.3%	14.0%	42.9	42.8	50.8	52.6	15	13
56-1	1.22	2010	0.31	1.53	2.20	2.09	2.35	5.9%	8.3%	16.2	15.8	19.8	20.2	16	13
58-1	1.47	2010	0.062	1.54	2.19	2.14	1.21	20.9%	28.0%	19.2	17.1	21.9	20.4	15	13
59-1	0.36	2010	0.13	0.49	0.58	0.56	0.55	8.4%	10.5%	6.00	5.29	6.91	6.41	19	13
60-1	0.39	2010	0.34	0.73	0.70	0.67	1.05	10.5%	15.0%	14.2	12.5	15.7	14.3	40	19
62-1	0.31	2010	0.025	0.33	0.49	0.48	0.21	8.2%	9.5%	3.61	3.20	4.12	3.89	13	12
64-01	0.007	WU, Ratio	0.001	0.008	0.01	0.01	0.01	0.9%	1.1%	0.10	0.09	0.11	0.11	16	14
64-01P	0.11	WU, Ratio	0.015	0.12	0.15	0.13	0.12	0.9%	1.1%	1.54	1.52	1.76	1.77	16	14
64-02	0.076	2010	0.033	0.11	0.13	0.12	0.09	2.4%	3.9%	0.63	0.51	0.80	0.72	11	7
64-03	0.051	WU	0.009	0.061	0.09	0.07	0.12	6.5%	7.5%	0.78	0.62	0.95	0.81	18	13
64-04	0.38	2010	0.044	0.43	0.56	0.54	0.12	7.0%	8.0%	1.99	1.57	2.50	2.24	6	5
64-05	0.30	2010	0.055	0.36	0.52	0.51	0.13	7.3%	8.0%	3.30	1.91	3.74	2.56	12	7
64-06	0.33	2010	0.024	0.35	0.51	0.51	0.11	5.4%	6.5%	3.41	2.68	3.84	3.30	12	9
64-07	0.030	WU	0.001	0.031	0.04	0.04	0.04	0.9%	1.7%	0.42	0.34	0.49	0.42	16	13
64-08	0.079	2010	0.007	0.085	0.13	0.12	0.02	1.4%	1.4%	0.26	0.21	0.36	0.35	5	4
80-1	1.15	2009	0.18	1.33	1.89	1.86	3.33	7.4%	14.0%	16.4	13.9	20.9	19.1	18	14
80-2	0.17	2010	0.033	0.20	0.32	0.31	0.21	10.3%	17.0%	3.74	3.12	4.12	3.65	24	18
81-1_2	1.21	2010	0.20	1.41	2.03	1.95	1.83	17.7%	25.5%	13.2	10.8	16.2	14.6	13	10
81-3	0.16	WU	0.010	0.17	0.20	0.20	0.16	6.8%	11.8%	3.34	2.81	3.66	3.17	23	19

Table 3-7: Satellite Tributary Area Flows

STA[a]	ABWF (mgd)	Basis of ABWF[b]	Dry GWI (mgd)	ADWF (mgd)	1-hr PBWF (mgd)	3-hr PBWF (mgd)	Max. GWI (mgd)	Rt Avg.[c] (%)	Rt Max (%)	15-min Peak RDI/I[d] (mgd)	1-hr Peak RDI/I[d] (mgd)	PWWF[b] (mgd)	EB SSES Method PWWF[f] (mgd)	WW PF[g]	EB SSES Method WW PF[h]
10-S1B	0.259	2010, Ratio	0.002	0.261	0.500	0.467	0.424	12.0%	15.5%	7.79	7.73	8.47	8.62	33	33
11-S1B	0.070	2009	0.032	0.102	0.165	0.138	0.149	12.0%	15.5%	2.75	2.23	2.97	2.51	42	25
17U-S1O	0.056	2010	0.025	0.082	0.095	0.093	0.080	4.0%	10.0%	0.69	0.58	0.82	0.75	15	9
17U-S2O	0.037	WU, Ratio	0.024	0.061	0.075	0.065	0.055	3.0%	3.5%	0.52	0.44	0.61	0.56	16	9
17U-S3O	0.029	WU	0.002	0.031	0.049	0.043	0.052	3.0%	6.5%	0.60	0.51	0.68	0.60	23	19
20-S1O	0.129	2010	0.040	0.169	0.218	0.207	0.227	16.0%	21.5%	3.50	2.98	3.86	3.41	30	20
20-S2O	0.066	2010	0.025	0.092	0.114	0.110	0.089	17.0%	17.5%	1.88	1.51	2.03	1.71	31	19
21L-S1O	0.110	2010, Ratio	0.012	0.122	0.207	0.193	0.212	7.0%	13.0%	2.19	1.85	2.51	2.25	23	18
21L-S2O	0.067	2010	0.032	0.098	0.135	0.131	0.280	25.0%	34.0%	1.74	1.72	2.08	2.14	31	22
21L-S3E	0.037	WU	0.004	0.041	0.055	0.052	0.060	9.0%	15.0%	0.60	0.67	0.89	0.78	24	19
50L-S1E	0.074	2010	0.042	0.116	0.132	0.121	0.163	12.0%	16.5%	2.33	1.93	2.57	2.21	35	19
54-S01P	0.172	2010, Ratio	0.037	0.211	0.379	0.338	0.309	10.0%	13.0%	6.67	6.44	7.15	7.08	41	34
54-S02P	0.251	2010	0.050	0.302	0.489	0.458	0.470	12.0%	14.0%	8.07	7.79	8.79	8.72	35	29
54-S03P	0.048	2010	0.024	0.072	0.095	0.074	0.111	16.0%	17.0%	1.36	1.21	1.51	1.40	31	19
54-S04P	0.020	WU	0.011	0.031	0.050	0.044	0.092	10.0%	13.0%	0.81	0.81	0.92	0.94	46	30
54-S05P	0.010	2010, Ratio	0.005	0.015	0.018	0.016	0.021	8.0%	11.3%	0.23	0.23	0.26	0.26	27	18
54-S06P	0.010	2010, Ratio	0.005	0.014	0.016	0.014	0.021	8.0%	11.3%	0.23	0.22	0.26	0.26	30	19
54-S07P	0.047	2010, Ratio	0.020	0.067	0.097	0.087	0.064	3.0%	5.0%	0.99	0.95	1.10	1.10	24	16
54-S08O	0.020	2010	0.003	0.023	0.045	0.038	0.066	5.0%	7.0%	0.94	0.90	1.03	1.00	51	43
54-S09O	0.023	2009	0.014	0.037	0.046	0.039	0.115	6.0%	8.0%	0.70	0.70	0.84	0.85	36	23
Unmetered	0.973		0.208	1.183	1.676	1.533	1.267	6.8%	36.0%	13.59	12.27	15.8	15.05	16	13

See footnotes in **Table 3-6**.

Table 3-8: Satellite Flow Percentages in ITAs with Multiple Contributing Satellites

ITA	DS Satellite	US Satellite	Sewered Acreage		Average BWF		Average DWF		Maximum GWI		Avg. RDI/I Volume[a]		15-min Peak RDI/I[b]		1-hr Peak RDI/I[b]		PWWF[c]		EB SSES Method PWWF[d]	
			DS Satellite	US Satellite	DS Satellite	US Satellite	DS Satellite	DS Satellite	DS Satellite	US Satellite	DS Satellite	US Satellite	DS Satellite	US Satellite	DS Satellite	US Satellite	DS Satellite	US Satellite	DS Satellite	US Satellite
10-1	Albany	Berkeley Stege	40.1%	59.6% 0.3%	56.0%	43.8% 0.2%	44.6%	44.6% 0.2%	70.1%	29.7% 0.2%	43.1%	56.5% 0.4%	44.8%	54.8% 0.3%	34.6%	65.0% 0.4%	47.4%	52.2% 0.3%	39.3%	60.3% 0.4%
11-1	Albany	Berkeley	77.4%	22.6%	88.8%	11.2%	82.4%	82.4%	84.8%	15.2%	82.9%	17.1%	76.9%	23.1%	81.2%	18.8%	78.0%	22.0%	81.8%	18.2%
11-3	Berkeley	Albany	39.5%	60.5%	22.7%	77.3%	43.4%	43.4%	39.3%	60.7%	43.4%	56.6%	39.4%	60.6%	39.5%	60.5%	39.2%	60.8%	38.8%	61.2%
14-1	Berkeley	Albany	93.3%	6.7%	93.8%	6.2%	94.2%	94.2%	93.3%	6.7%	94.0%	6.0%	93.7%	6.3%	93.3%	6.7%	93.7%	6.3%	93.3%	6.7%
17L-1	Berkeley	Oakland	98.2%	1.8%	98.5%	1.5%	96.0%	96.0%	99.0%	1.0%	96.2%	3.8%	94.3%	5.7%	95.2%	4.8%	95.3%	4.7%	96.1%	3.9%
17U-1	Berkeley	Oakland	92.3%	7.7%	96.7%	3.3%	94.4%	94.4%	93.7%	6.3%	94.6%	5.4%	91.9%	8.1%	92.2%	7.8%	92.6%	7.4%	93.1%	6.9%
20-1	Emeryville	Oakland	42.2%	57.8%	38.6%	61.4%	16.9%	16.9%	39.4%	60.6%	16.9%	83.1%	0%[g]	100%	1.7%	98.3%	0%[g]	100%	7.0%	93.0%
21L-1	Emeryville	Oakland	57.1%	42.9%	37.7%	62.3%	9.7%	9.7%	21.3%	78.7%	9.7%	90.3%	45.3%	54.7%	39.5%	60.5%	43.2%	56.8%	36.6%	63.4%
21U-1	Oakland	Berkeley	90.8%	9.2%	89.7%	10.3%	90.8%	90.8%	90.8%	9.2%	90.8%	9.2%	90.4%	9.6%	90.4%	9.6%	90.4%	9.6%	90.4%	9.6%
22-1	Emeryville	Oakland	97.1%	2.9%	97.4%	2.6%	94.8%	94.8%	95.9%	4.1%	94.8%	5.2%	90.1%	9.9%	90.2%	9.8%	92.5%	7.5%	92.8%	7.2%
23-1	Oakland	Emeryville	20.8%	79.2%	28.2%	71.8%	29.1%	29.1%	20.8%	79.2%	29.1%	70.9%	20.8%	79.2%	20.8%	79.2%	21.5%	78.5%	21.9%	78.1%
50L-1	Oakland	Emeryville Berkeley	95.3%	3.4% 1.3%	94.4%	4.3% 1.3%	96.4%	96.4% 1.3%	94.2%	5.4% 0.5%	96.4%	3.2% 0.4%	93.1%	6.5% 0.4%	94.3%	5.4% 0.3%	93.2%	6.3% 0.4%	94.3%	5.3% 0.4%
50U-1	Oakland	Berkeley	98.7%	1.3%	99.1%	0.9%	99.6%	99.6%	99.3%	0.7%	99.6%	0.4%	99.5%	0.5%	99.6%	0.4%	99.5%	0.5%	99.5%	0.5%
54-1_2	Oakland	Piedmont	61.3%	38.7%	81.3%	18.7%	61.5%	61.5%	71.7%	28.3%	61.5%	38.5%	53.0%	47.0%	54.5%	45.5%	56.5%	43.5%	58.4%	41.6%

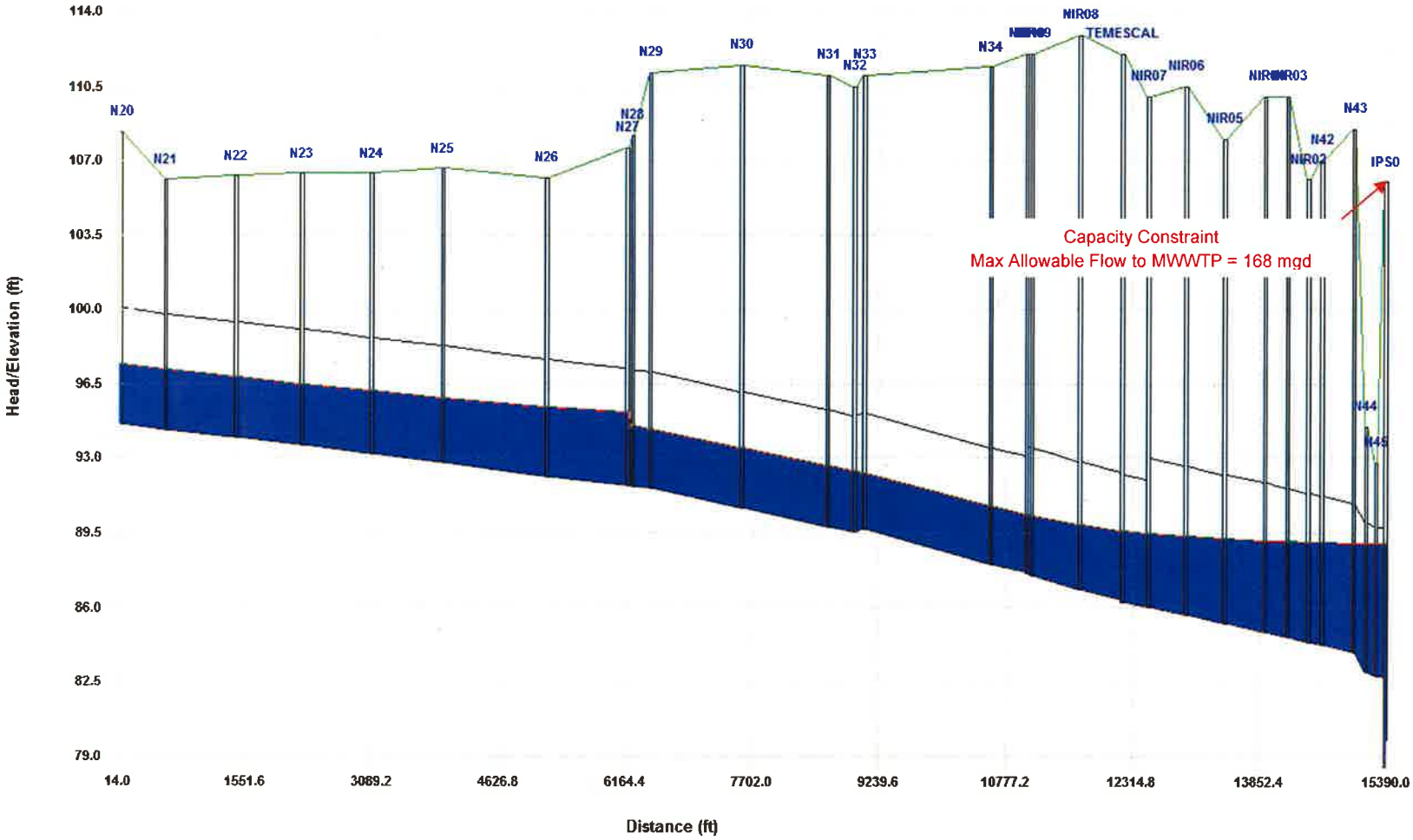
Table 3-9: Estimated Flows by Satellite Agency

Satellite Agency	Sewered Area		Average BWF		Average DWF		Maximum GWI		Avg.RDI/I Volume[a]	Average Rt[e]	15-min Peak RDI/I[b]		1-hr Peak RDI/I[b]		PWWF[c]		EB SSES Method PWWF[d]		WW PF[f]	EB SSES Method WW PF[f]
	Acres	% of Total	(mgd)	% of Total	(mgd)	% of Total	(mgd)	% of Total	% of Total		(mgd)	% of Total	(mgd)	% of Total	(mgd)	% of Total	(mgd)	% of Total		
Alameda	4,918	11.6%	4.8	10.8%	5.9	10.9%	5.1	8.0%	3.1%	2.3%	23.1	3.7%	21.1	3.6%	33.0	4.5%	33.6	4.7%	7	6
Albany	857	2.0%	1.2	2.7%	1.4	2.7%	2.0	3.2%	3.9%	14.2%	18.5	2.9%	16.6	2.8%	21.7	2.9%	20.6	2.7%	18	14
Berkeley	6,072	14.3%	8.4	19.0%	9.6	17.7%	10.8	16.8%	16.9%	8.4%	96.1	15.3%	88.9	15.1%	115.2	15.6%	112.4	15.3%	14	12
Emeryville	670	1.6%	0.9	2.1%	1.3	2.3%	1.0	1.6%	0.7%	3.8%	7.3	1.2%	6.3	1.1%	9.3	1.3%	8.5	1.2%	10	7
Oakland	26,032	61.3%	26.1	59.2%	32.7	60.2%	37.8	59.0%	64.0%	7.9%	413.8	65.8%	387.6	65.7%	477.7	64.8%	466.0	64.7%	18	14
Piedmont	1,001	2.4%	0.6	1.4%	0.8	1.5%	1.3	2.0%	3.4%	9.8%	20.2	3.2%	19.4	3.3%	22.1	3.0%	21.9	3.1%	35	27
Stege	2,892	6.8%	2.1	4.7%	2.6	4.7%	6.0	9.3%	8.1%	8.5%	50.3	8.0%	49.8	8.4%	58.4	7.9%	59.2	8.3%	28	23
Total	**42,443**	**100%**	**44.1**	**100%**	**54.2**	**100%**	**64.0**	**100.0%**	**100%**	**7.6%**	**629**	**100%**	**590**	**100%**	**737**	**100%**	**722**	**100%**	**17**	**13**

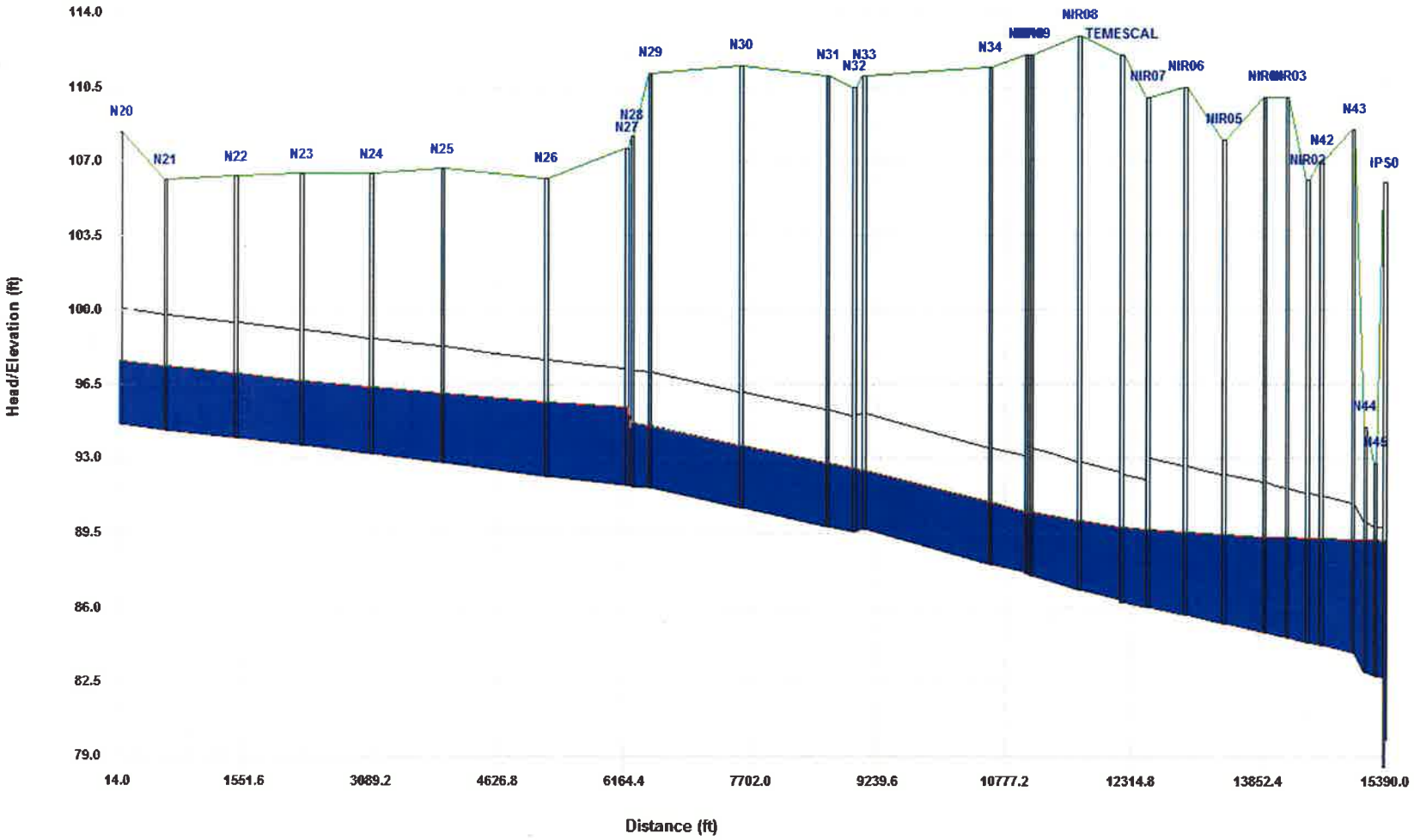
Footnotes for **Table 3-8** and **Table 3-9**:

a. Based on average of all storm events during the two-year flow monitoring period.
b. Peak RDI/I flow for EBMUD I/I Study Storm (assumes maximum soil saturation).
c. Calculated sum of ABWF, maximum GWI, and 15-minute peak RDI/I.
d. Calculated sum of 3-hour PBWF, maximum GWI, and 1-hour peak RDI/I.
e. Ratio of PWWF to ABWF.
f. Ratio of EB SSES Method PWWF to ADWF.
g. Shown as 0% because subtraction of peak flows resulted in negative flow for downstream Satellite.

Alternative 1
Profile – North Interceptor (Manhole N20 to Influent Pump Station)

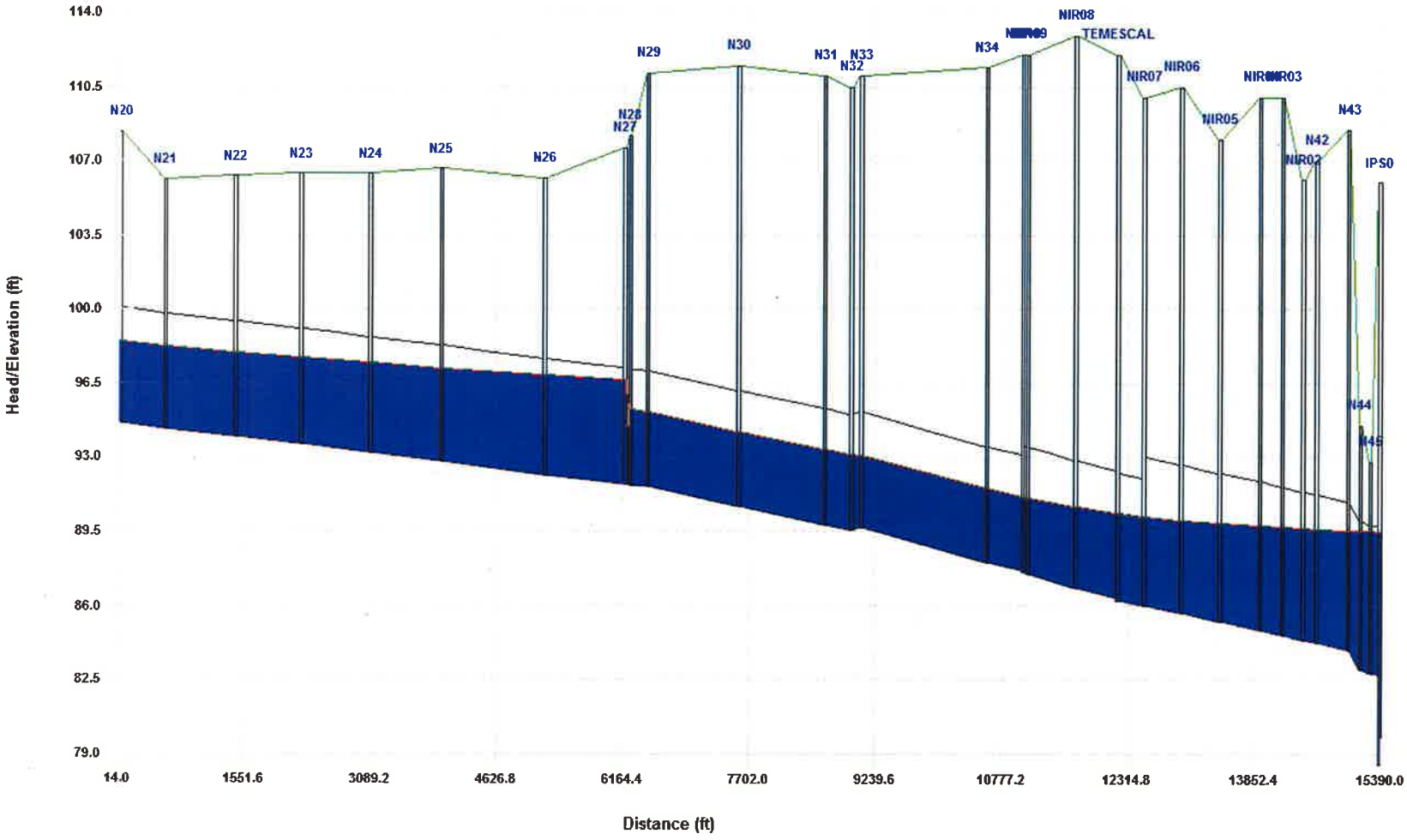


Alternative 2
Profile – North Interceptor (Manhole N20 to Influent Pump Station)



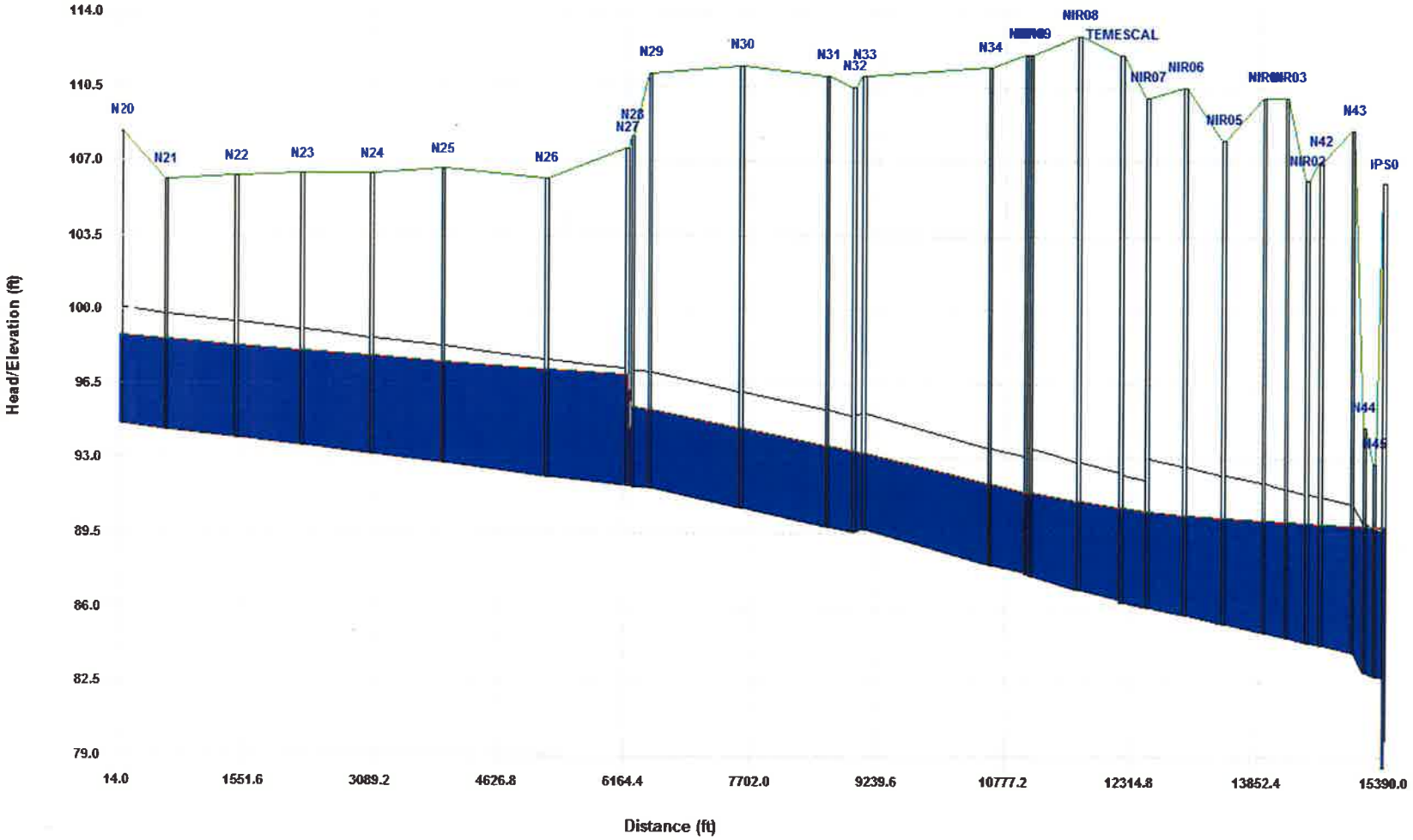
Alternative 3

Profile – North Interceptor (Manhole N20 to Influent Pump Station)

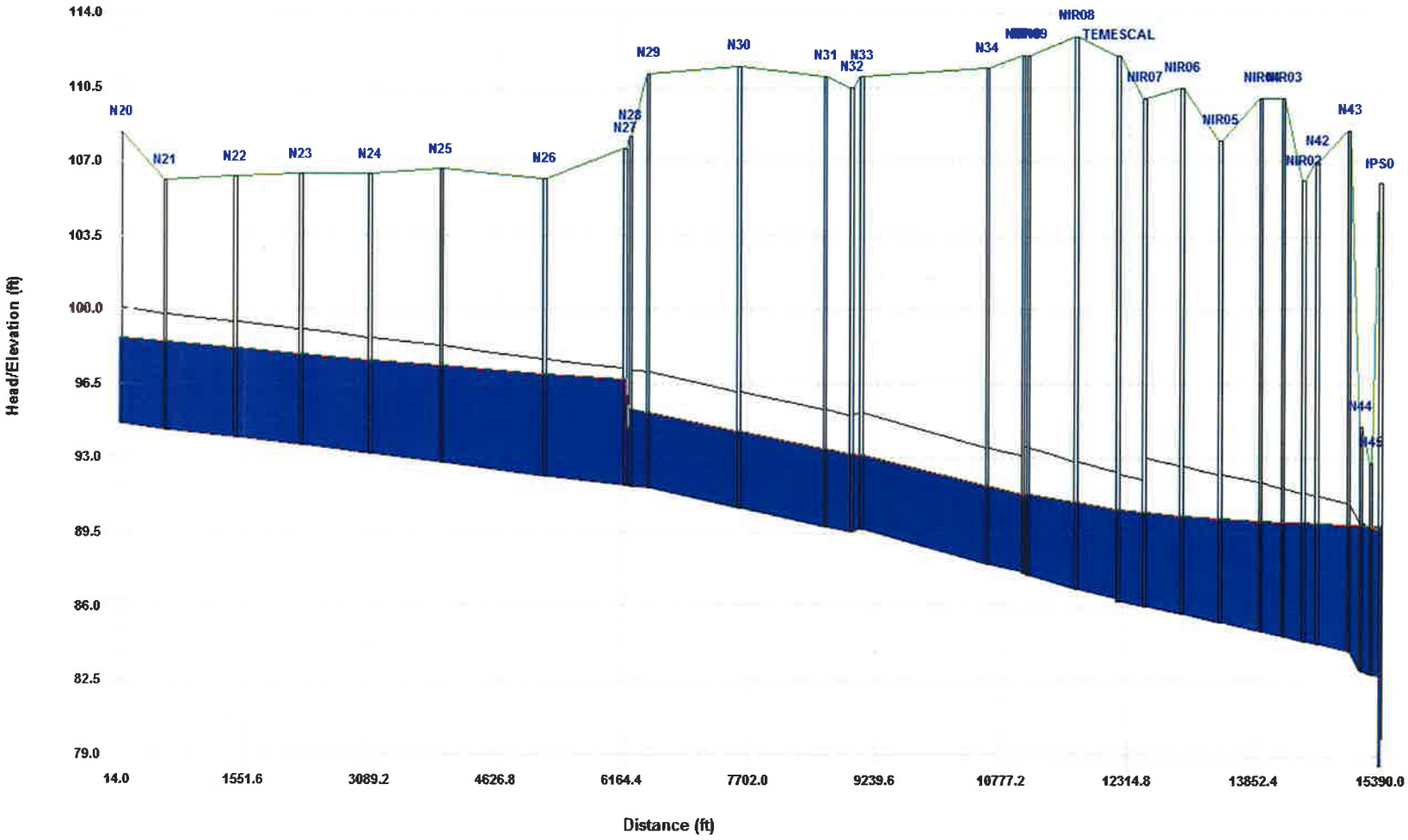


Alternative 4

Profile – North Interceptor (Manhole N20 to Influent Pump Station)

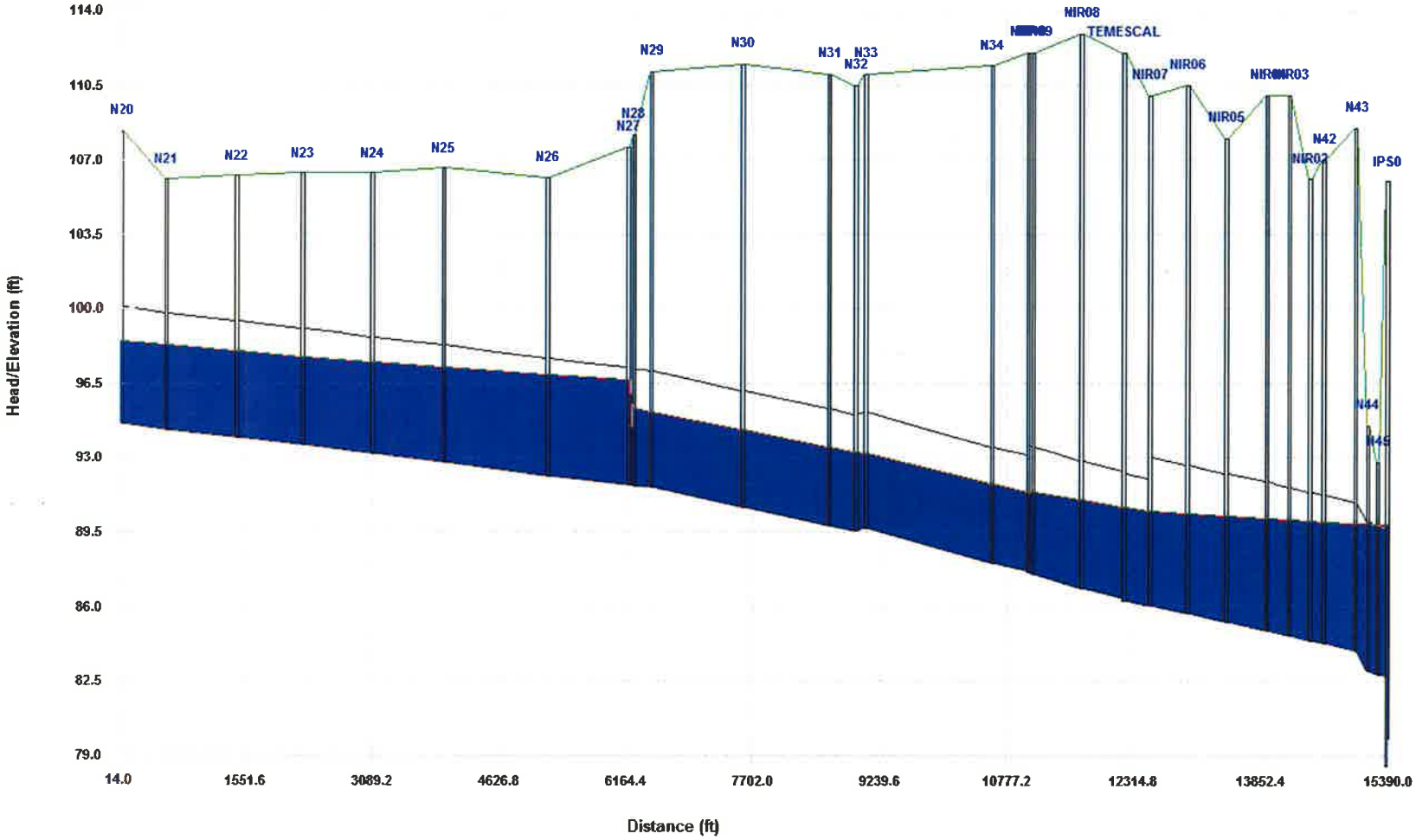


Alternative 5
Profile – North Interceptor (Manhole N20 to Influent Pump Station)

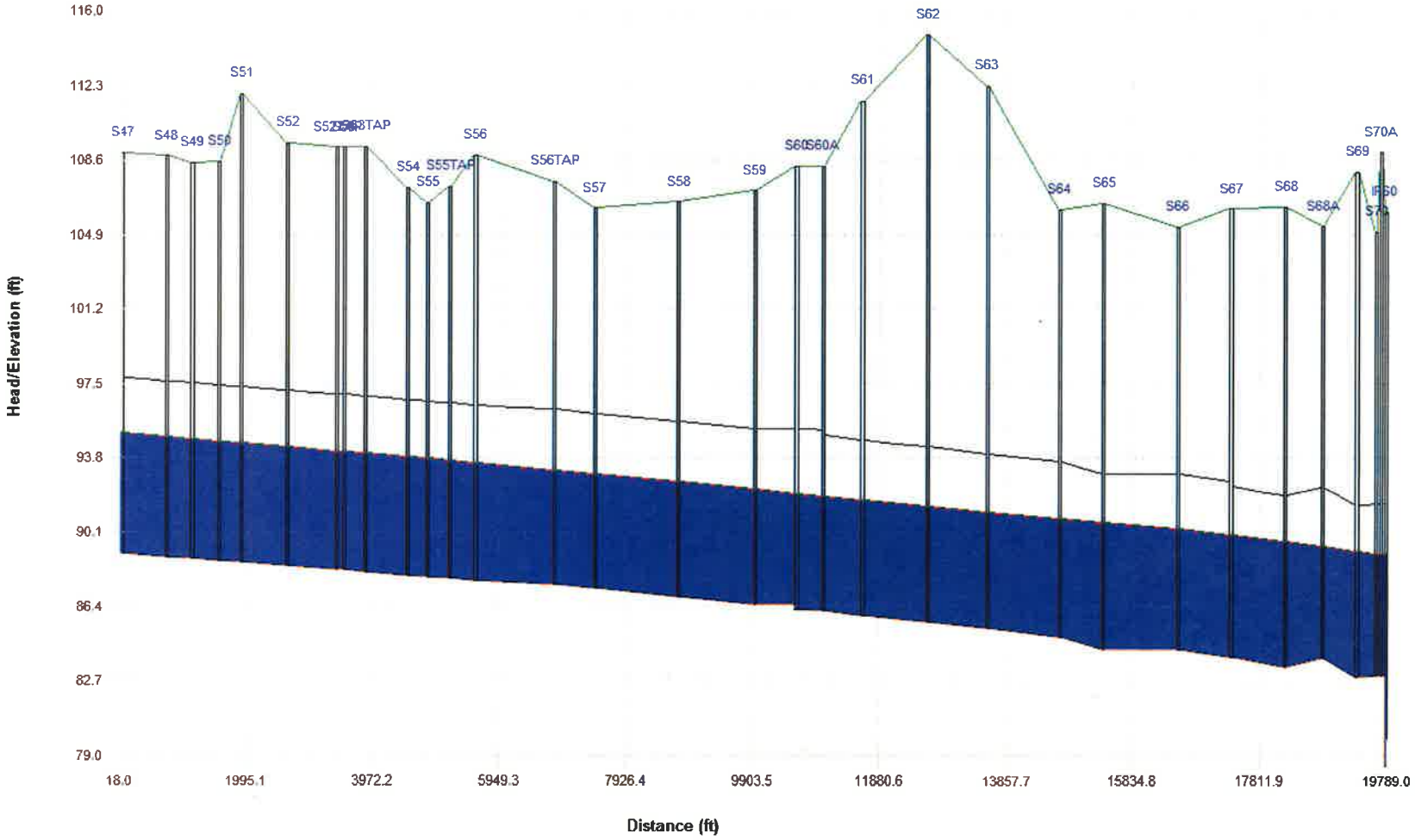


Alternative 6

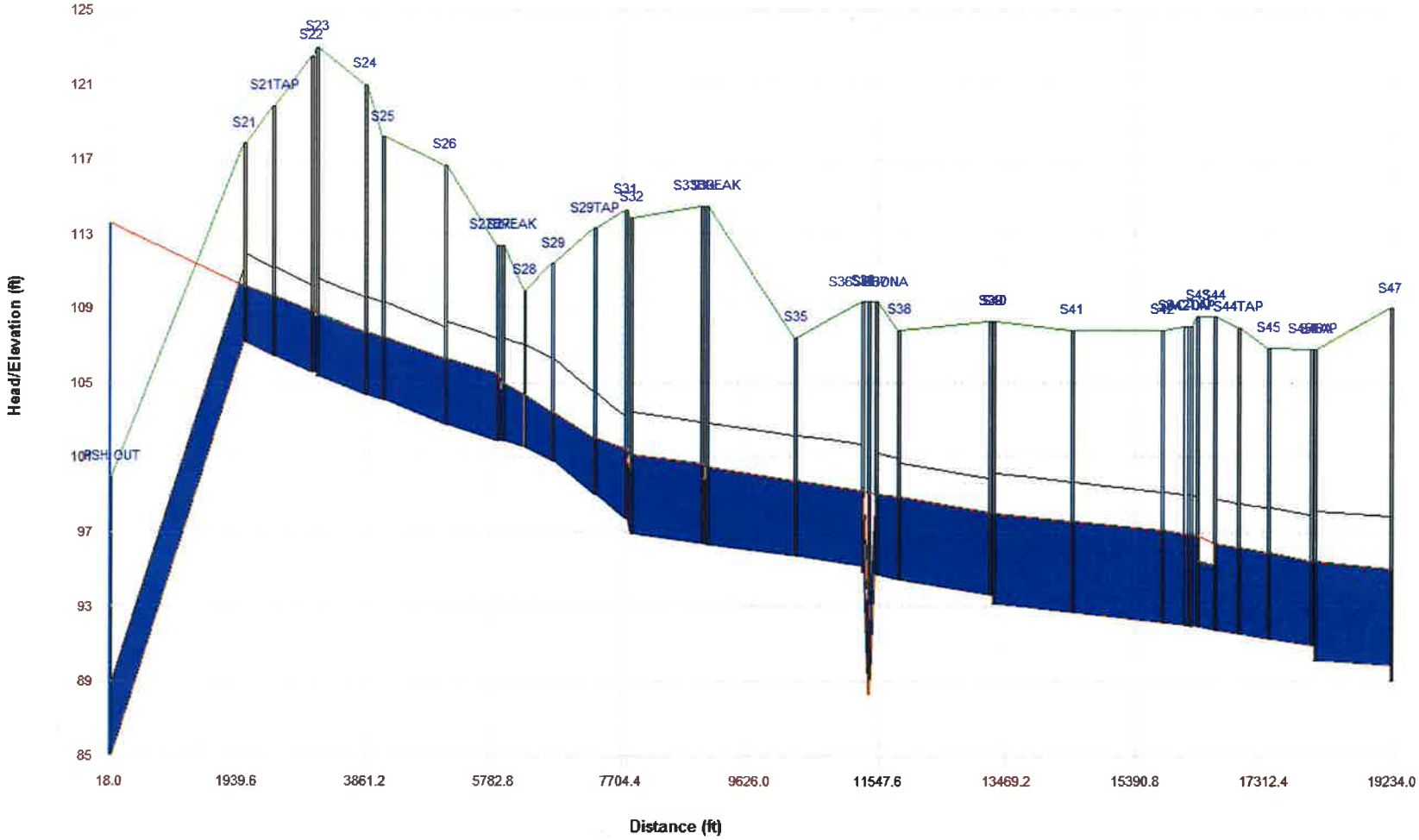
Profile – North Interceptor (Manhole N20 to Influent Pump Station)



Alternative 1
Profile –South Interceptor (Manhole S47 to Influent Pump Station)

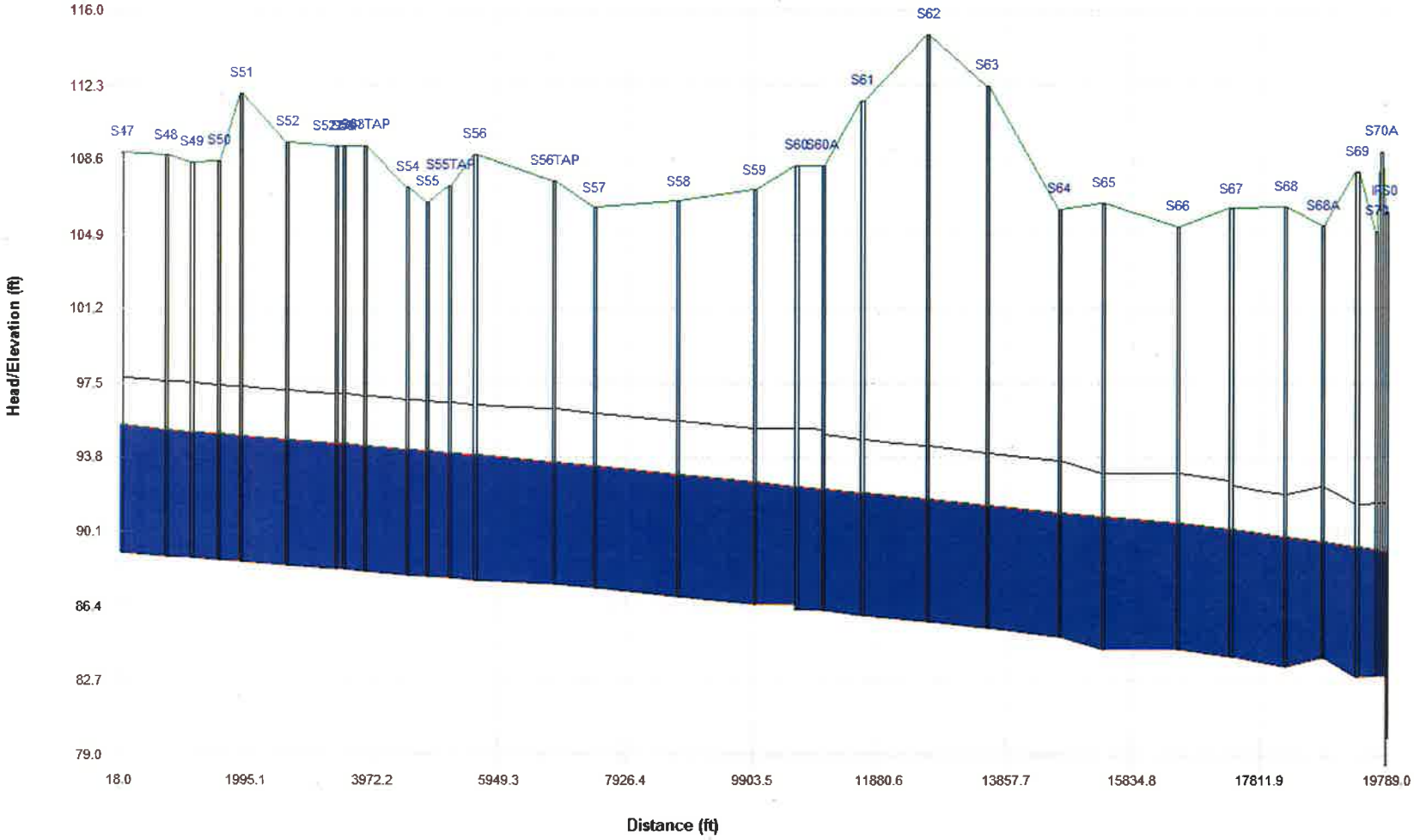


Alternative 1
Profile –South Interceptor (Pump Station H to Manhole S47)



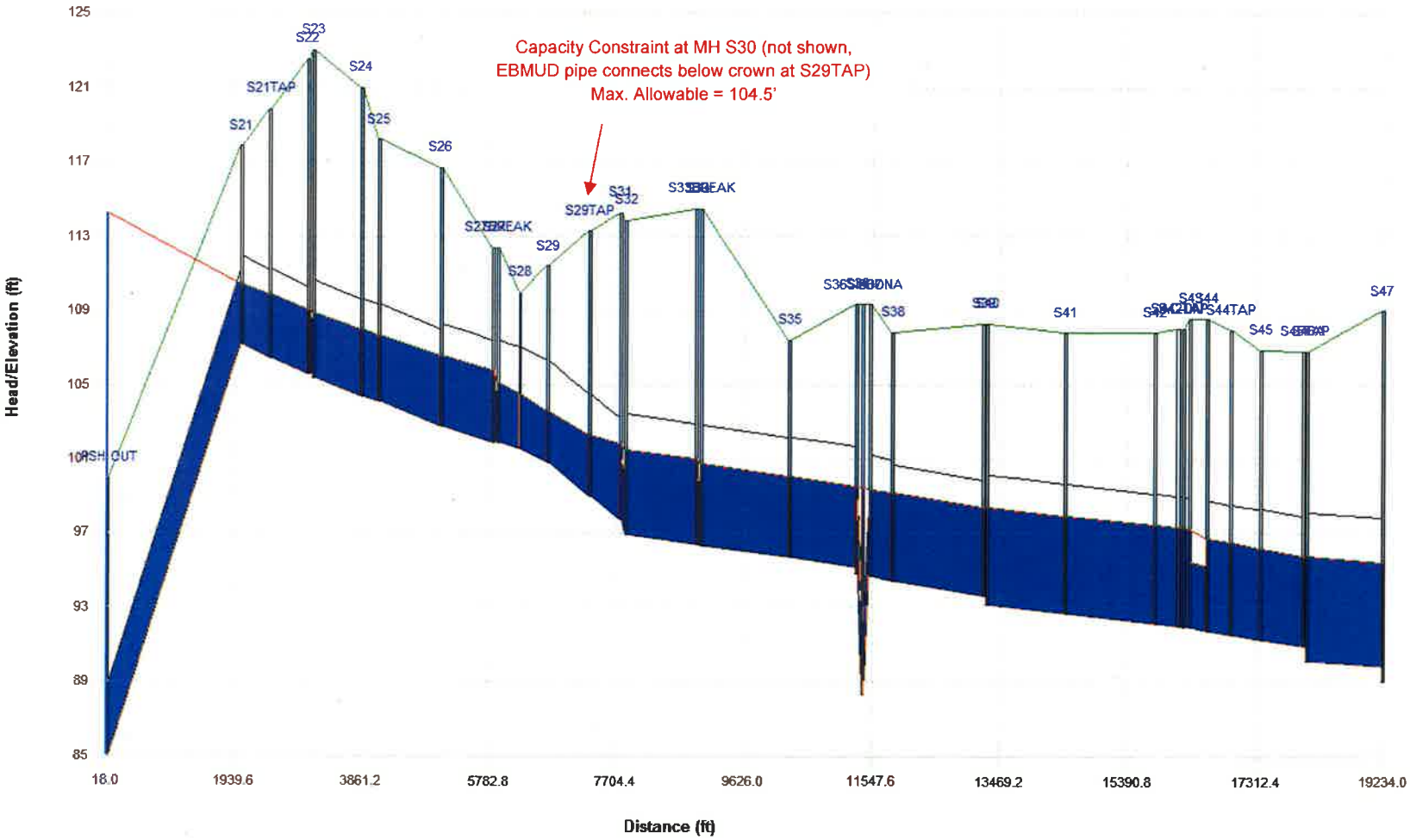
Alternative 2

Profile –South Interceptor (Manhole S47 to Influent Pump Station)

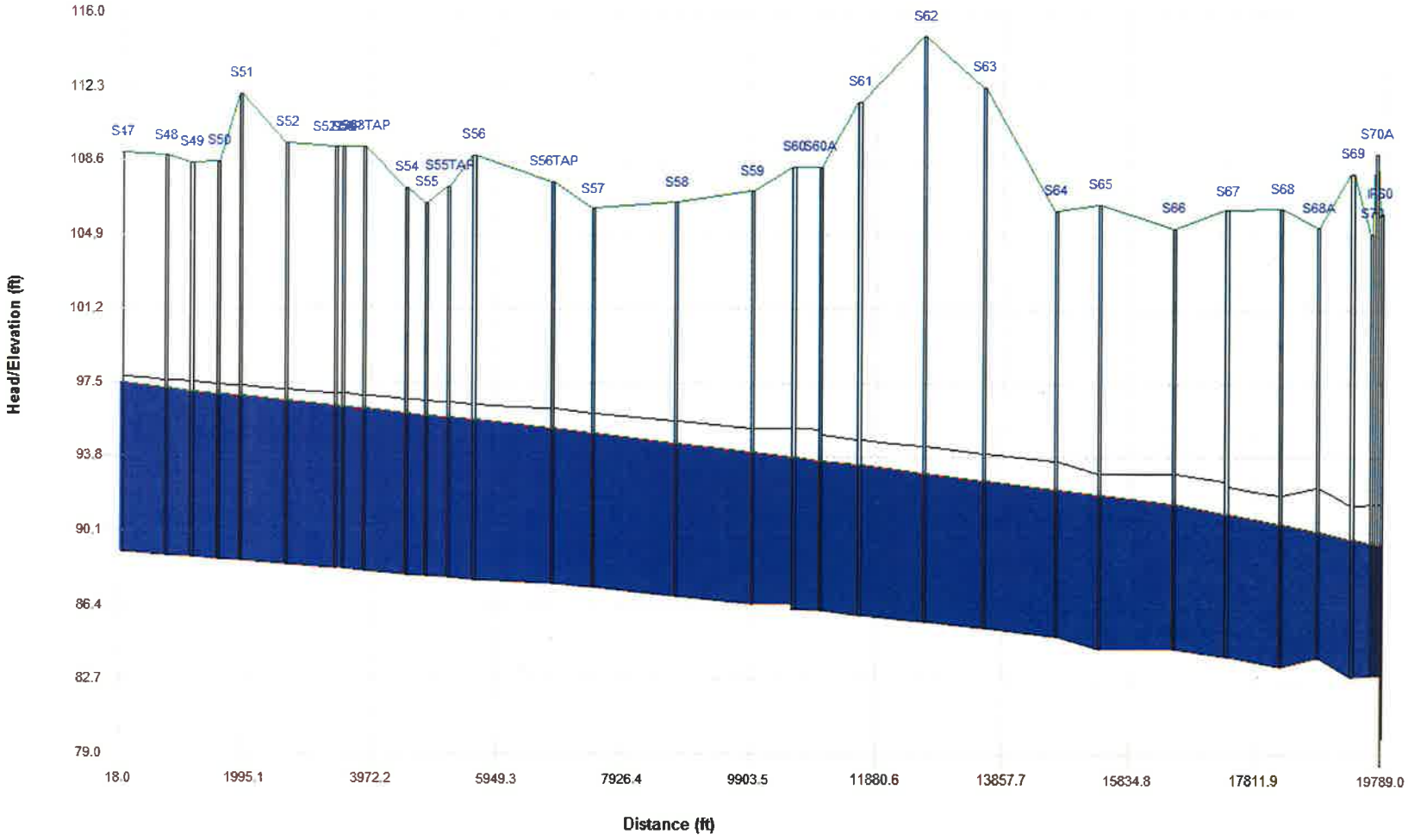


Alternative 2

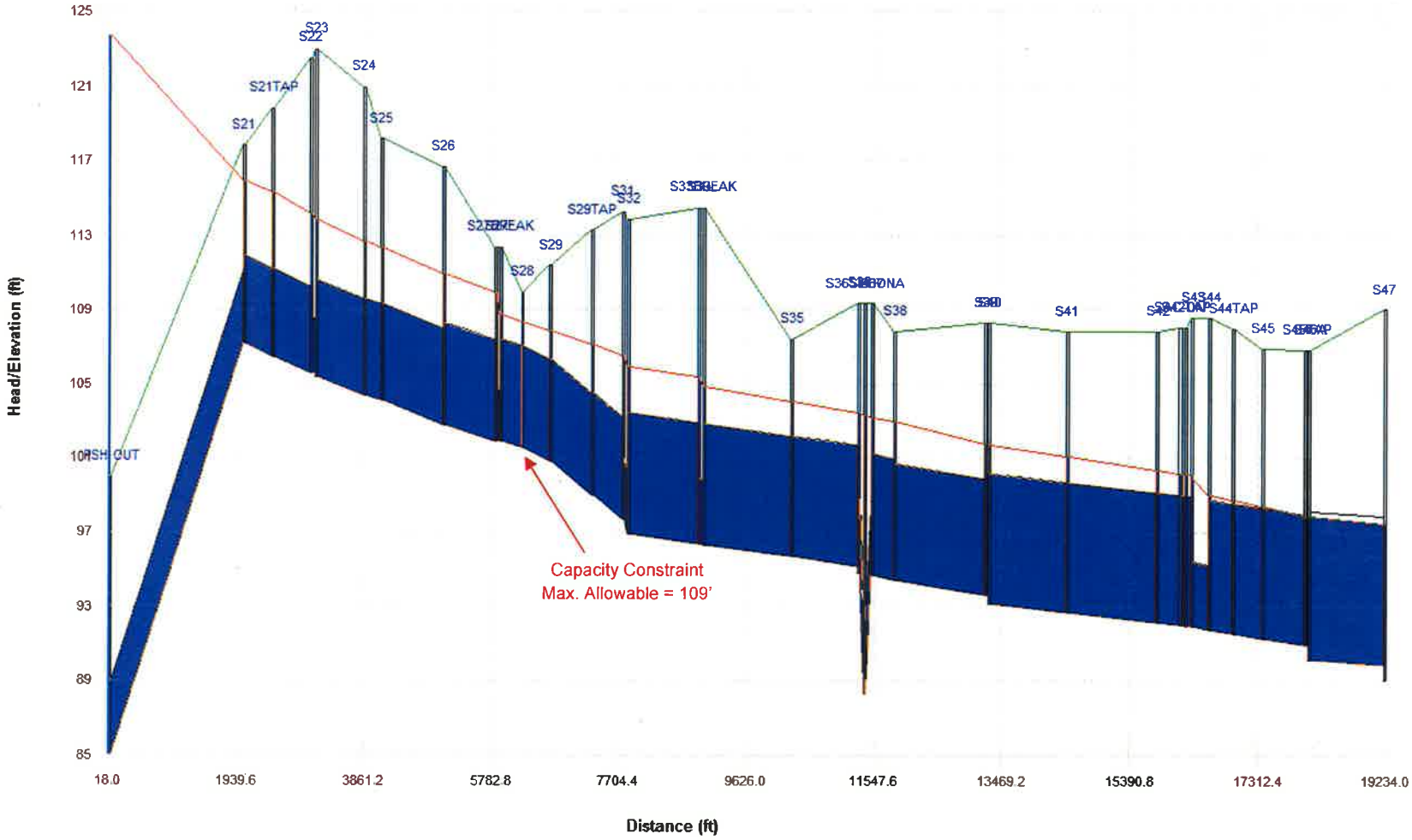
Profile –South Interceptor (Pump Station H to Manhole S47)



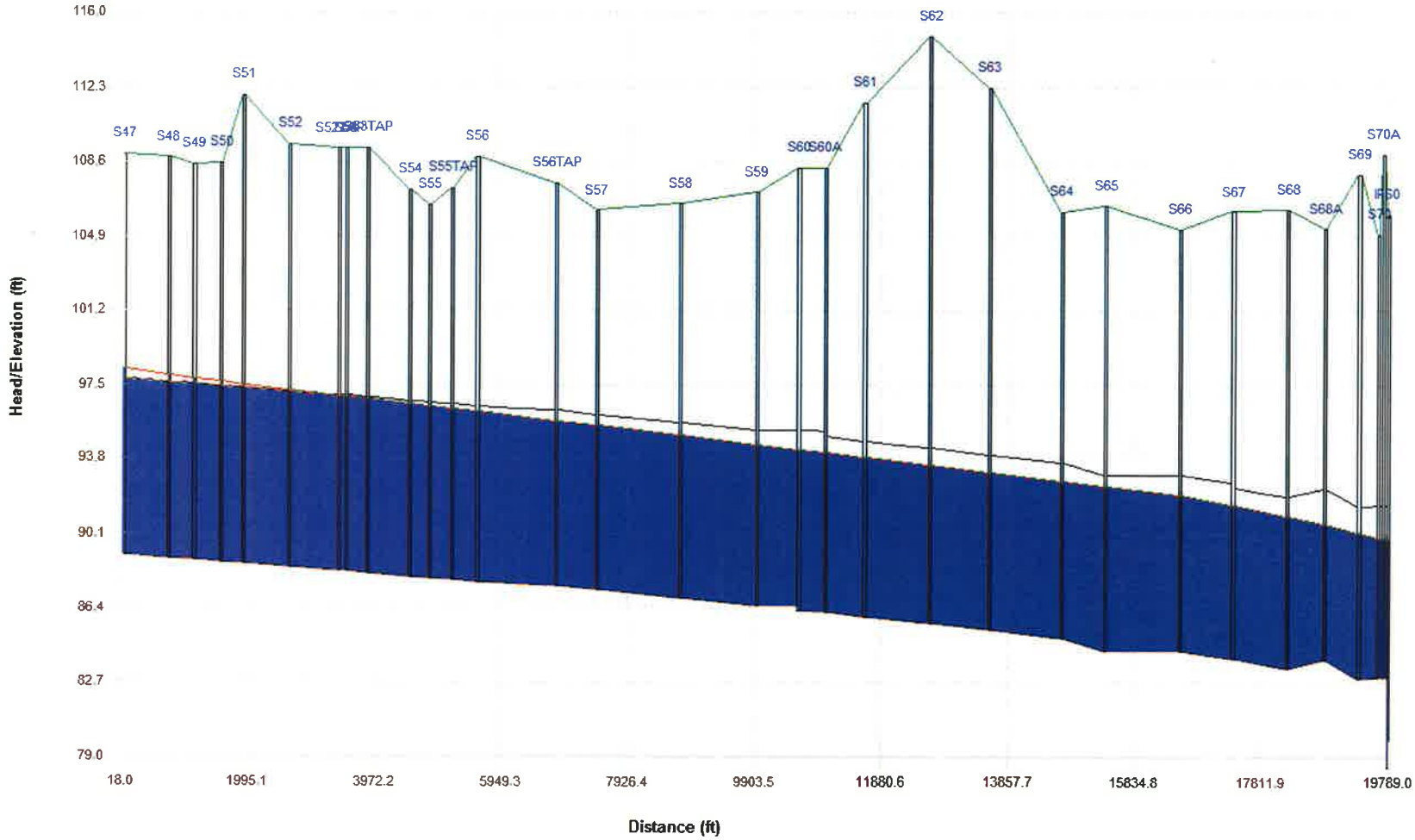
Alternative 3
Profile –South Interceptor (Manhole S47 to Influent Pump Station)



Alternative 3
Profile –South Interceptor (Pump Station H to Manhole S47)

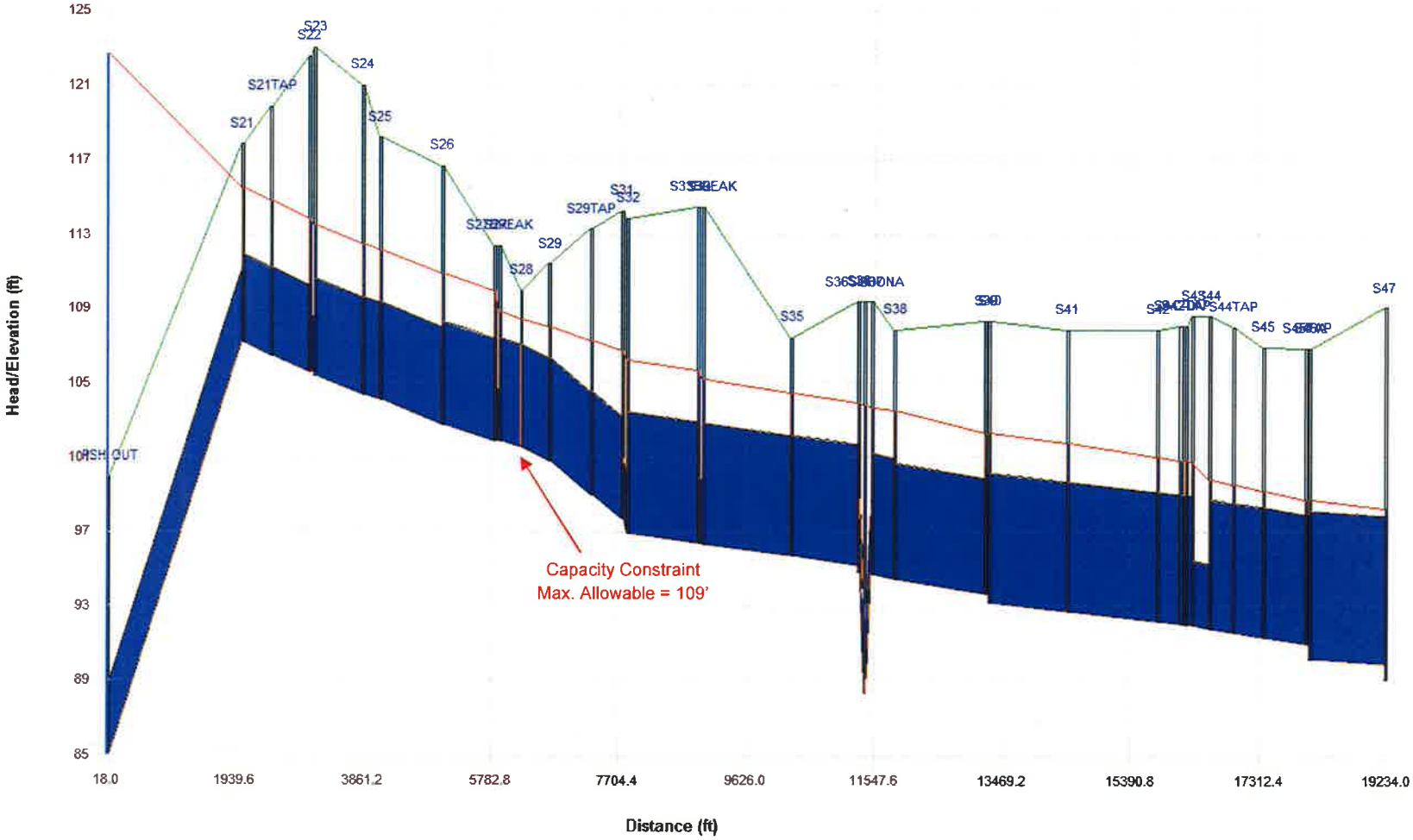


Alternative 4
Profile –South Interceptor (Manhole S47 to Influent Pump Station)

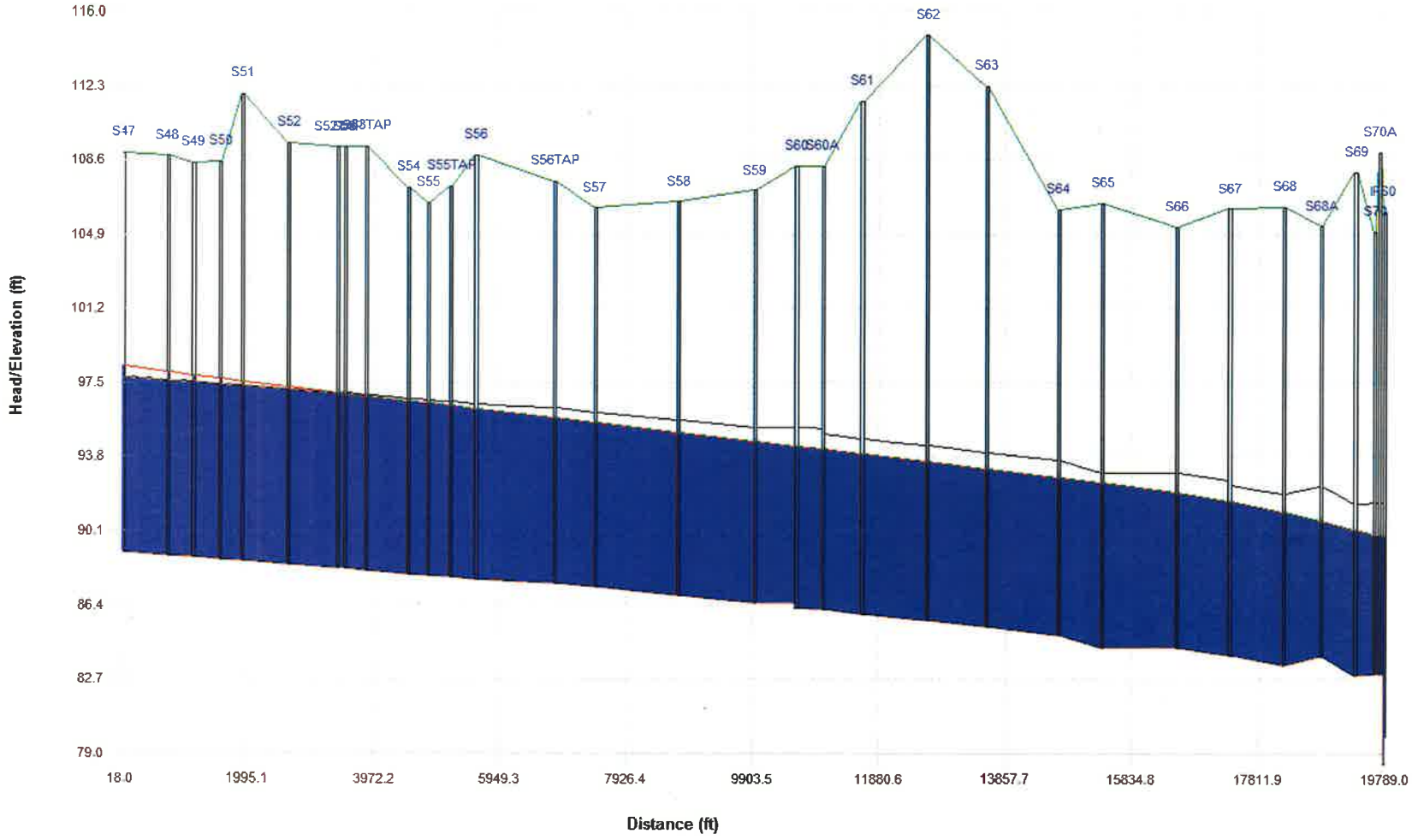


Alternative 4

Profile –South Interceptor (Pump Station H to Manhole S47)

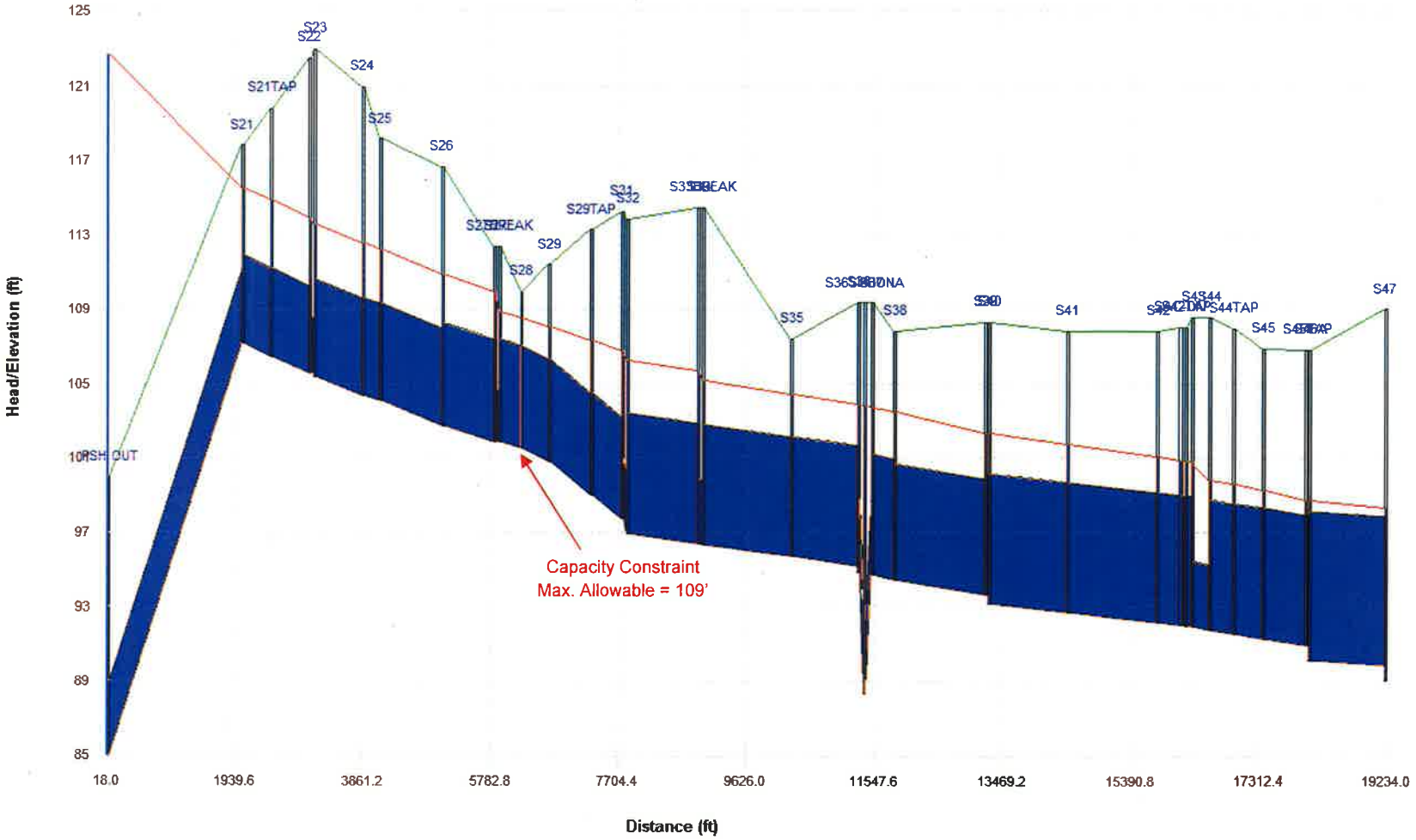


Alternative 5
Profile –South Interceptor (Manhole S47 to Influent Pump Station)

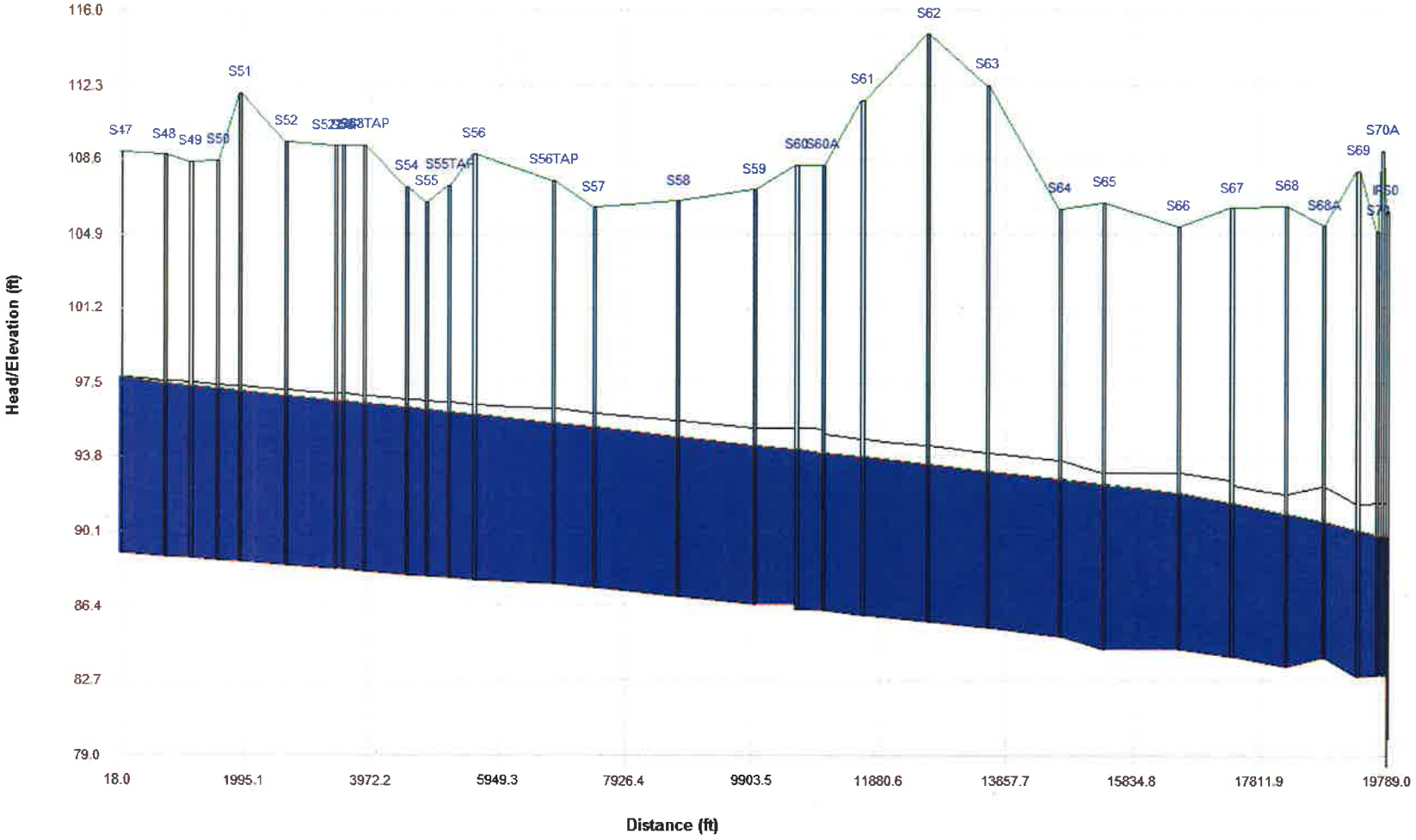


Alternative 5

Profile –South Interceptor (Pump Station H to Manhole S47)

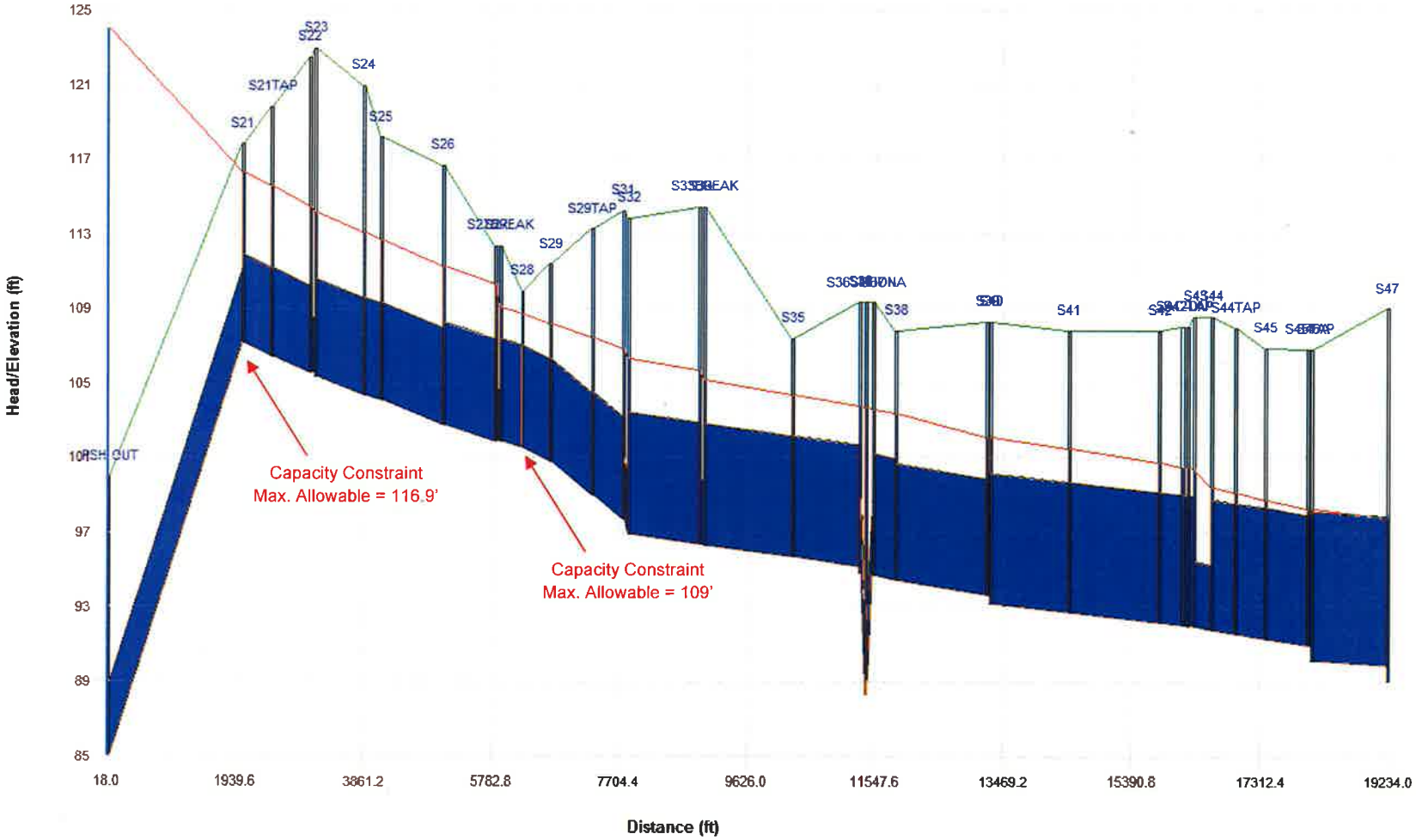


Alternative 6
Profile –South Interceptor (Manhole S47 to Influent Pump Station)



Alternative 6

Profile –South Interceptor (Pump Station H to Manhole S47)



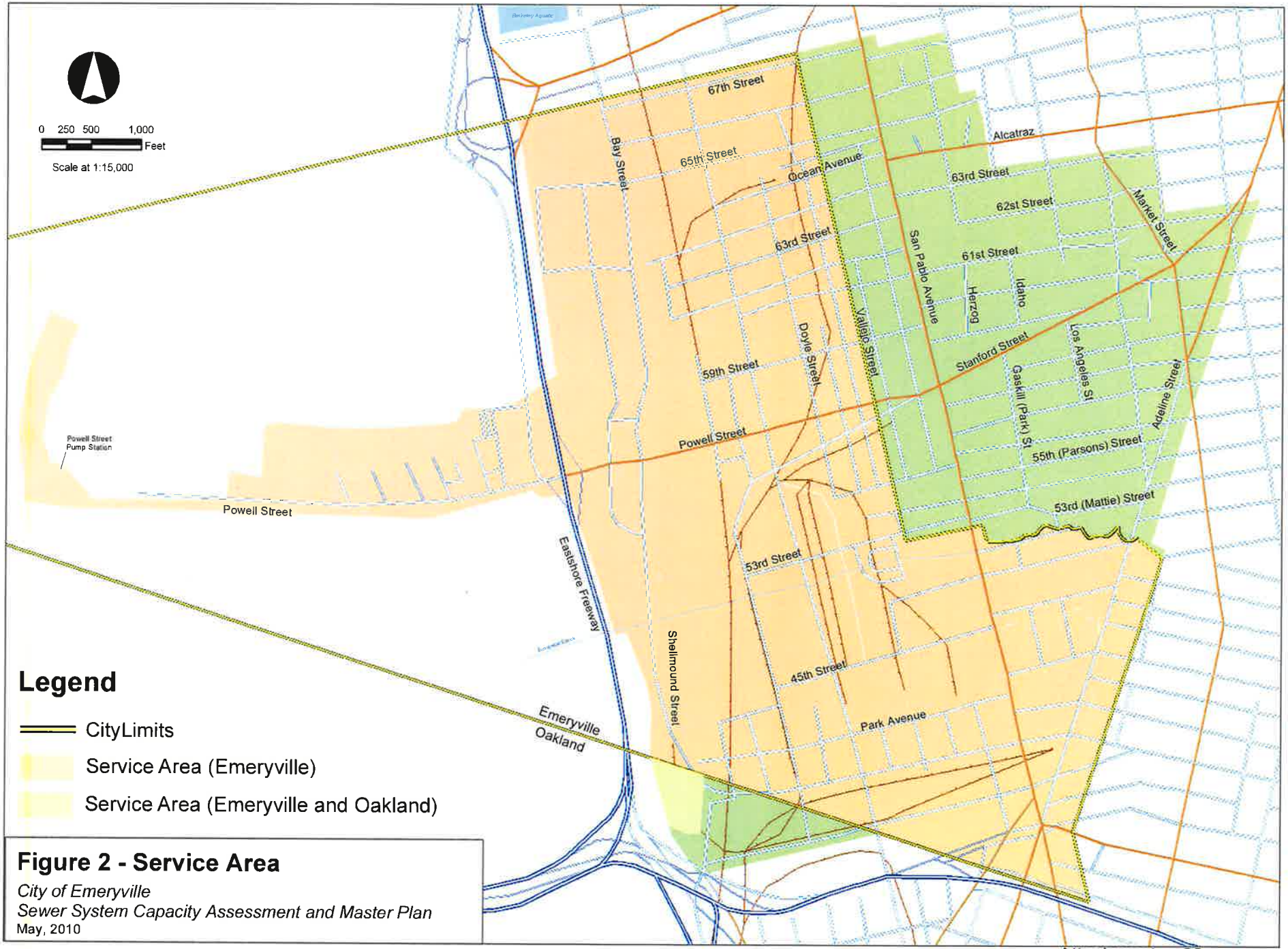


Figure 2 - Service Area

City of Emeryville
Sewer System Capacity Assessment and Master Plan
May, 2010